

APPENDICES

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Table of JICA study team members

Name (Period)	Title	Job description
Motokazu Kanokogi (October 2009 – March 2010)	Team leader	<p>Manage the project overall / coordinate with counterpart, local stake folders and other donors.</p> <p>Plan and coordinate seminars / act as a speaker at the seminars.</p> <p>Support execution of study trips to Japan and the third countries.</p> <p>Prepare study reports and manage thereof</p> <p>Assist to prepare the quality and productivity improvement plan (National Plan)</p> <p>Overall management of the Pilot Project.</p> <p>Establish the criteria for selecting the targeted pilot project companies followed by participation of the selection meeting.</p>
Jun Takeyama (July 2010 –) (October 2009-)	Team leader/ Quality and Productivity Improvement No.1	<p>Manage the project overall / coordinate with counterpart, local stake folders and other donors.</p> <p>Plan and coordinate seminars / act as a speaker at the seminars.</p> <p>Support execution of study trips to Japan and the third countries.</p> <p>Prepare study reports and manage thereof</p> <p>Assist to prepare the quality and productivity improvement plan (National Plan)</p> <p>Overall management of the Pilot Project.</p> <p>Establish the criteria for selecting the targeted pilot project companies followed by participation of the selection meeting.</p> <p>Coordinate PP (diagnosis of pilot companies / technology transfer to C/P) implementation.</p> <p>Prepare PP implementing schedule, implement and coordination.</p> <p>Manage technical transfer to KU members</p> <p>Coordinate for the preparation of the quality and productivity improvement manual draft.</p> <p>Prepare the quality and productivity improvement manual draft.</p> <p>Study on specific management skills (such as diagnosis or development of local consultants)</p> <p>Coordinate the KAIZEN technical seminar as a trainer.</p> <p>Support creation of audio visual material scenario.</p>
Katsuyoshi Hamahashi (July 2010 –)	Sub leader (dissemination and acting for team leader)	<p>Coordination of project planning and implementation</p> <p>Promotion of coordination and cooperation with counterpart</p> <p>Relation management of relation with local stake holders.</p> <p>Relation management of other donors.</p> <p>Support execution of study trips to Japan and the third countries.</p> <p>Prepare and edit of IC/R, PR/R, IT/R and F/R.</p> <p>Coordination and management of counterpart and other stakeholders on construction of dissemination.</p> <p>Support preparation of the national plan system and coordination thereof.</p>
Masanobu Ninomiya	Planning and construction of	Support preparation of the quality and productivity improvement plan (national plan).

(October 2009 -)	dissemination (dissemination strategy)	Preparation of the national plan system (study on what to include) Study on a suitable system to promote KAIZEN activity and effective organization. Relation coordination of local stake holders. Relation coordination of other donors. Support to analyze various issues in industries of Ethiopia Problem analysis of legal system in terms of the quality and productivity improvements. Based on the cross-cultural point of view, coordination or support of PP (overall/individuals) as well as participation of seminars (as a trainer).
Akinobu Mizuno (July 2010 -)	Planning and construction of dissemination (audio visual material)	Coordinate preparation of the audio visual material (sub-contract to local consultants) Survey existing audio visual materials in other countries to advise Ethiopia. Define KAIZEN activities to coordinate related parties. Clarify difference between KAIZEN and BPR/Benchmarking. Prepare KAIZEN stories to coordinate with PP team. Inspect the audio visual material once completed and propose revised plan if necessary. Prepare and manage the audio visual materials.
Yasuhira Takeshi (October 2009 ~ March 2010)	Quality and Productivity Improvement No.2	Prepare implementation plan of PP / implement PP (advices, monitoring, evaluating, and record PDM recording) Technical transfer to KU members Participate to the preparation of the audio visual material scenario. Participate the company visit / seminar (as a trainer) Support to establish the quality and productivity improvement plan (the national plan)
Takeshi Adachi (July 2010 -)	Quality and Productivity Improvement No.2	Prepare draft of the quality and productivity improvement manual. Prepare implementation plan of PP / implement PP (advices, monitoring, evaluating, and record PDM recording) Technical transfer to KU members Participate to the preparation of the audio visual material scenario. Participate the company visit / seminar (as a trainer) Support to establish the quality and productivity improvement plan (the national plan).
Toru Tomoshige (October 2009 ~ Sep.2010)	Quality and Productivity Improvement No.3	Prepare draft of the quality and productivity improvement manual. Prepare implementation plan of PP / implement PP (advices, monitoring, evaluating, and record PDM recording)
Hiroshi Ezawa (Oct. 2010 ~ Dec. 2010)		Technical transfer to KU members Participate to the preparation of the audio visual material scenario. Participate the company visit / seminar (as a trainer) Support to establish the quality and productivity improvement plan (the national plan).
Hiroshi Ezawa (July 2010 ~)	Quality and Productivity	Prepare draft of the quality and productivity improvement manual.

Sep. 2010)	Improvement No.4	Prepare implementation plan of PP / implement PP (advices, monitoring, evaluating, and record PDM recording) Technical transfer to KU members Participate to the preparation of the audio visual material scenario. Participate the company visit / seminar (as a trainer) Support to establish the quality and productivity improvement plan (the national plan).
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KAIZEN Unit of Ministry of Industry (MOI), Ethiopia

No	Name	Transferred from	Effective from	Description
1	Getahun Tadesse	Metal Industry Development Institute	October, 2009	Manager
2	Assefa Yimer	Privatization & public enterprises Supervising Agency	October, 2009	Team leader
3	Sientayehu Gashaw	Metal Industry Development Institute	October, 2009	Absent from April to June 2010 due to business trip.
4	Yigedeb Abay	Metal Industry Development Institute	October, 2009	Absent from April to June 2010 due to business trip.
5	Delo Benka	Textile Industry Development Institute	October, 2009	
6	Selamawit Kiros	Agro-processing Department, MOI	October, 2009	
7	Zemedkun Akleweg	Chemical Industry Development Directorate, MOI	October, 2009	Absent from July to Sep 2010 due to business trip.
8	Kemila Abdela	Privatization & public enterprises	October, 2009	
9	Samson Kebede	Leather Industry Development Institute	December, 2009	
10	Fetene Getachew	Leather Industry Development Institute	February, 2010	

* Effective Oct. 2010, Ministry of Trade and Industry is changed its name

Complementarity of KAIZEN relative to Business Process Reengineering (BPR) and Benchmarking

A study was done in the course of the Study to review differences and complementarity between KAIZEN versus Business Process Reengineering (BPR) and Benchmarking. BPR and Benchmarking are the management improvement methods that have been employed in the government and other sectors in Ethiopia. There were a number of questions asked in the early stage of the KAIZEN Study regarding how different KAIZEN is relative to BPR or Benchmarking. This material is an essential summary of the comparative review done in the Study.

1. Differences between KAIZEN relative to BPR and Benchmarking

KAIZEN's guiding principles	BPR / Benchmarking relative to KAIZEN
<ul style="list-style-type: none"> ● <i>Integrated and Cooperative Undertaking:</i> KAIZEN is an integrated system of cooperative work among the top, middle managers and front-line employees. 	BPR and Benchmarking are driven by top management and executed by manager level personnel.
<ul style="list-style-type: none"> ● <i>Genuine Participatory Undertaking:</i> KAIZEN is based on genuine participation of frontline workers who play critical roles in planning, executing, evaluating and standardizing throughout the improvement efforts. 	BPR and Benchmarking are respectively an intensive top-down effort with senior management taking the leading role throughout the process.
<ul style="list-style-type: none"> ● <i>Workplace-focused Undertaking:</i> KAIZEN focuses on the workplace and encourages improvements of efficiency in existing resources allowing low cost improvements to accumulate for significant contribution to the company goals. 	BPR and Benchmarking focus on project team-based intensive study or best practice study, and do not focus on workplace-originated ideas that are normally piecemeal.
<ul style="list-style-type: none"> ● <i>Endless Undertaking:</i> KAIZEN is an endless undertaking. KAIZEN is continuous and never-ending activities in revolving cycles of the PDCA discipline. This is made possible through the wide employee participation that promotes self-motivated initiatives in the entire company. Once put in place and activated, KAIZEN's impact is extremely significant. 	BPR and Benchmarking can be a one-time improvement undertaking. Continuous undertaking of BPR and Benchmarking is sometimes recommended, but doing so relies each time on the top management's decision for a new project.
<ul style="list-style-type: none"> ● <i>Endogenous Undertaking (towards a new</i> 	

<p><i>corporate culture</i>):</p> <p>Practicing KAIZEN in itself naturally leads to a corporate culture of continually self-innovative organization and self-motivated workforce.</p>	<p>In BPR and Benchmarking, although creating a corporate culture of challenge for innovation is strongly advocated, doing so would mean an additional management undertaking.</p>
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(Source: JICA KAIZEN Study Team)

2. Complementary Aspects of BPR, Benchmarking and KAIZEN

Despite the differences between KAIZEN versus BPR and Benchmarking, they are not incompatible, but rather they are supplementary to each other.

Having recognised the differences, the discussion below confirms the complementary aspects in terms of KAIZEN relative to BPR and Benchmarking.

- Both BPR and Benchmarking are designed to deal with a situation where a company faces a need for a large-scale change which should be realised in a short period of time. This type of situation may be infrequent, but companies do come across such a situation. KAIZEN does not deal with this type of large-scale, one-off change. Companies should employ an intensive project type method such as BPR or Benchmarking.
- KAIZEN may play a role in a large-scale innovation where, for instance, a QC Circle identifies a need for such a change that exceeds the capacity of the QCC and makes a suggestion to the management, which may trigger a management decision to initiate a management-led project using such methods as BPR or Benchmarking.
- Benchmarking's essential concept of learning from advanced practice of other companies may at times be applied in a KAIZEN context such as in QCC activities when developing improvement measures, albeit in a much smaller scale than a typical Benchmarking project.
- KAIZEN's basic methods, such as standardisation for work environment (5S), standardisation of operation and '7 Muda' for elimination of waste, are also effective and useful in BPR and Benchmarking. It can be interpreted that KAIZEN activity may lay a foundation or preparatory stage for effective implementation of BPR and Benchmarking. For instance, accustomed use of QC seven tools will lead the company to enhance data management capability which further contributes towards BPR and Benchmarking.
- KAIZEN can be applied on the results of BPR and Benchmarking to make them improve.
- A Benchmarking method in the form of Collaborative Benchmarking may have many application possibilities in the dissemination of KAIZEN. Companies interested in learning more KAIZEN application knowledge and techniques can work together to do mutual benchmarking or mutual learning based on experience sharing, similar to Japan's QC Conference and various study groups organized by trade associations, chambers of commerce & industry and others.

KAIZEN, with its guiding principles of participation and collaboration of all accompanied with enhanced motivation, can reach to all sectors of industries where diffusion of other management improvement methods remained limited. KAIZEN has the potential to fill this gap with its call to movement for quality culture and for industrial development in Ethiopia towards growth and transformation.

Preliminary Survey with 60 Candidate Companies and Characteristics by Sector

1. Preliminary survey with 60 candidate companies

From the initial 'long list' consisting of 479 companies prepared by KU, companies which participated the First National KAIZEN seminar and expressed their intention to be a part of the pilot project were filtered as the initial candidates. Then, final confirmation by KU via telephone conversation determined the final candidates of the pilot project companies. The following table shows the list of candidate companies made up of 61 companies in total. Preliminary survey was conducted by means of visiting all the companies with the objective of collecting basic information through questionnaires.

Table-1: 60 Candidate Companies

No	Name of Company (alphabetical order)	Sub-Sector	Sector Total
1	Abyssinia Steel	Metal	18
2	Akaki Spare Part and Hand Tools Share Company	Metal	
3	Alem Steel Pvt. Ltd. Co.	Metal	
4	Gatepro P.L.C	Metal	
5	Gelan Metal Industry P.L.C	Metal	
6	GNM Industry P.L.C	Metal	
7	Holland Cars P.L.C	Metal	
8	K.G Engineering P.L.C	Metal	
9	Kasma Engineering P.L.C	Metal	
10	Koteba Metal Tools P.L.C	Metal	
11	Maru Metal Industry P.L.C	Metal	
12	Mesfin Industrial Engineering P.L.C	Metal	
13	Nehemia Engineering	Metal	
14	Ocfa Metal Manufacturing	Metal	
15	Syntec Ethiopia P.L.C	Metal	
16	Techtera Engineering P.L.C	Metal	
17	Walia Steel Industry P.L.C	Metal	
18	Yesu PLC	Metal	
19	Ada Flour & Pasta	Agro	14
20	Addis moja edible oil	Agro	
21	Awash Winery	Agro	
22	Hilina Enriched Food	Agro	
23	Kality Food	Agro	
24	Luna Export Slaughter	Agro	
25	Meta Abo Brewery	Agro	
26	Misrak flour & Bread Factory	Agro	
27	Nas Foods	Agro	
28	Royal Candy	Agro	
29	Sarem Food	Agro	
30	Seka business group	Agro	
31	Sebeta Agro-industry	Agro	
32	Universal food	Agro	
33	Adama Spinning	Textile	10
34	Akaki garment	Textile	
35	Ambassador garment	Textile	
36	Concept international	Textile	
37	Crown Textile	Textile	

38	Ediget Yam & Sewing Thread	Textile	
39	Ethio-Japan Textile	Textile	
40	G seven Trading & Industry	Textile	
41	Knit to Finish	Textile	
42	Nazareth Garment	Textile	
43	Awash Melkassa Aluminium Sulphate and Sulphuric Acid S.C	Chemical	12
44	Bekas chemicals	Chemical	
45	Bekrobe Business Group PLC	Chemical	
46	East Africa group plc	Chemical	
47	East African pharmaceutal	Chemical	
48	Ethio pulp and paper S.C	Chemical	
49	Kadisco Chemical industries P.L.C	Chemical	
50	Matador Addis tyre factory	Chemical	
51	National veterinary Institute	Chemical	
52	Oromia pipe factory plc	Chemical	
53	OXFORD AMALGATED PLC	Chemical	
54	Zenit Gebes Eshet	Chemical	
55	Dire Industries PLC	Leather	7
56	ELICO(Ethio Leather Industries PLC)	Leather	
57	Ethiopia Tannery	Leather	
58	Mesaco Global Tannery	Leather	
59	Ramsay Shoes	Leather	
60	Walia Tannery	Leather	
61	Wallia Shoes	Leather	
Total Number of Candidate Companies and Enterprises			61

2. Results of questionnaire from the 60 candidate companies

The general management indicators by sector were summarised from the results of questionnaire as shown below. Capital per head was used here as a replacement of labor equipment ratio (capital expenditure / number of employees). In case some companies did not disclose their indicator such as gross profit per sales, these companies are excluded from the denominator. The average value is calculated by the simple average method.

Table-2 General management indicators of 60 companies by sector

	Sector	Sub Sector	gross profit per sales	Sales amount per head	gross profit per head	capital turnover ratio	capital per head
		unit	%	Thousand Birr	Thousand Birr	Turnover	Thousand Birr
1	Metal	Metal	16.9	413	29.7	1.7	332
2		Engineering	39.1	379	73.1	2.8	542
3		Average	20.2	346	48.2	2.1	413
4	Agro	Flour Product	10.2	152	26.4	1.5	131
5		Others	15.7	268	82.0	4.1	205
6		Average	12.1	204	27.8	2.6	144
7	Textile	Textile	17.5	76.8	15.3	0.7	253
8		Garment	27.7	64.7	21.2	0.15	276
9		Average	21.6	73.8	17.6	0.6	260
10	Chemical	Consumer	18.7	263	54.7	2.9	143

11		Pharmaceutical	8.75	196	14.3	1.3	178
12		Others	32.3	360	87.5	3.8	209
13		Average	22.2	288	55.3	2.5	173
14	Leather	Tannery	11.2	379	30.4	10.9	45.6
15		Shoe	15.0	117	17.5	2.2	53.4
16		Average	11.8	244	28.2	9.2	47.1
17	Average of all sectors		17.6	231	35.4	3.4	207

3. Characteristics by sector

From the general management indicators, characteristics by sector are analysed as follows.

1) Metal sector

“Gross profit per sales” of metal sector is higher than the average of all sectors. Especially for engineering sub sector, the “gross profit per sales” marks the highest among all sectors. The background is strong demand for building materials boosted this sector, especially the engineering sub sector. Metal sector occupies the top position in the “sales amount per head” among all sectors, and ranked number two in the “gross profit per head” following to Chemical sector. Engineering sub sector is also ranked as the highest in this indicator.

“Capital turnover ratio” in this sector shows lower than the average of all sectors, but it is not negative sign. This is because, the average of all sector in capital turnover ratio is boosted by the remarkably higher value of the leather sector. However, capital per head shows approximately twice higher than the average. This is because that companies in this sector require heavy equipments so that the capital turnover ratio of this sector is depressed.

2) Agro-Processing sector

Gross profit per sales of Agro-Processing sector is lower than the average of all sectors, suggesting severe competition among this sector. Both sales amount per head and gross profit per head are significantly below the average of all sectors, suggesting the tough management situation in this sector. Further, while capital per head is remarkably lower than the average of all sectors, capital turnover ratios is still lower than the average. It concluded that the capacity utilisation in this sector can be remarkably low. The reasons of this conclusion may include the difficulty in appropriate procurement of raw material. Another factor may be due to the simple sales channel, capacity utilisation is directly affected by orders from customers. Therefore, companies in this sector need products development to exploit multiple sales channels. Further, streamlining of procurement is required.

3) Textile sector

In this sector, gross profit per sales is higher than the average of all sectors. However, although capital per head is greatly higher than the average of all sectors, both sales amount per head and gross profit per head is significantly lower than the average. Further, capital turnover ratio is the lowest across all the sectors. In summary, as the nature of this sector is labor-intensive, the capacity utilisation is very poor. As the feature of this sector, the upstream industries such as spinning, weaving and garment, is more likely to be capital –intensive, while downstream is more labor-intensive. Therefore, the overview across the sector shows simultaneously one aspect of labor-intensive and another aspect where the capacity utilisation is low. In summary, businesses in this sector have difficulty in

management. In order to overcome the situation, the improvement of the capacity utilisation is urgently required.

4) Chemical sector

Chemical sector shows higher than the average of gross profit per sales. On the other hand, the capital per head is lower than the average of all sectors. Further, several indicators including sales amount per head, gross profit per head, capital turnover ratio are higher than the average of all sectors. From the above, this sector is now in booming economy. Specifically, companies like Matador-Addis Tyre, Oromia Pipe Factory that are categorised in "others" can be considered as in good financial health.

5) Leather sector

Leather sector is the typical labor-intensive industry that shows the lowest capital per head but the highest capital turnover ratio. Another point is poor gross profit per sales and gross profit per head. Specifically, shoe subsector shows remarkably low capital per head compare to the Textile/Garment subsector that is typical labor-intensive industry, indicating disadvantage of their technology.

Changes in KAIZEN Guidance Programme

(1) Initial KAIZEN Guidance Programme - January - March 2010

			Activity	Nature of activity
1 st week	Inspection/diagnosis	1 st visit	Interviews with management executives and field inspection	The aspirations of management executives will be heard. Gaps between aspirations and reality will be identified. Collection of information and data (sharing relevant duties with C/P) will be performed.
1 st week		2 nd visit	Collection of management and field administration information, and field	Gaps between the reality recognised by management executives and facts observed by experts will be identified.
2 nd week	Report/discussion	3 rd visit (half day)	Report/discussion of diagnosis results	Issues and problems experienced by companies will be discussed, sharing of recognition of actual conditions will be attempted, and specific methods for resolution of the same will be discussed (sharing of understanding concerning managerial quality).
4 th to 10 th weeks	Guidance	4 th visit	Discussion of multiple measures for resolution of issues and problems, presentation of necessary improvement methods, and determination of issues and problems to be overcome	Utilisation of manuals, such as QC story. Presentation of proposals for corresponding program manuals
		5 th visit	Determination of resolution program proposals and confirmation of intent to implement	Reviewing of the corresponding program manuals
		6 th visit	Specific plans for implementation of resolution programs	Confirmation of role allocation and checkpoints upon implementation
		7 th visit	Implementation of resolution programs	Confirmation of role allocation and checkpoints upon implementation
		8 th visit	Implementation of resolution programs	Guidance for improvement methods
11 th week	Confirmation	9 th visit	Result confirmation and standardisation	Discussion concerning results and continuation of sustainable development of good results
12 th week	Overview	10 th visit	Reporting of conclusions and general overview	Completion measures, such as internal communications, preparation for external public announcements, and the like

Changes in KAIZEN Guidance Programme

KAIZEN Guidance Programme - 1st Group (July - September) and 2nd Group (October - December)

Step (I - V)		(2) First Group (July - September) Session Agenda (Theme / Action)		
1	I. Understanding Overview of KAIZEN	Overview of KAIZEN	S	S
2	II. Understanding	5S	S	S
3	Standardisation of	Operation Standard & Time Study	S	S
4	Workplace & Operation	Elimination of Waste (MUDA)	S	S
5		Organising 'Sort' activity	V	V
6	III. Implementing KAIZEN	Understanding '3S' activities in	V	V
	Activities at the company	Elimination of MUDA	V	V
7		Standardising Operations at Selected Workplace	V	V
8		Organising QCC & Setting up Theme	V	V
9	IV. Organising KAIZEN	Carrying out QCC activities for	V	V
	Activities at the company	constructing QC Story	V	V
10		Presenting and Evaluating Result from QCC activity	V	V
11	V. Preparatory work for Company-wide KAIZEN activities	► Follow up better company management ► Review K. activities & complement deficiency knowledge if necessary, etc.	V	V



Step (I - V)		(3) Second Group Plan (October - December) Session Agenda (Theme / Action)		
1	I. Understanding Overview of KAIZEN	Overview of KAIZEN	S	S
2	II. Understanding	5S	S	S
3	Standardisation of	Operation Standard & Time Study	S	S
4	Workplace & Operation	Elimination of Waste (MUDA)	S	S
5		Organising 'Sort' activity	V	V
6	III. Implementing KAIZEN	Understanding '3S' activities in	V	V
	Activities at the company	Elimination of MUDA	V	V
7		Standardising Operations at Selected Workplace	V	V
8	IV. Understanding	How to Organise QC Circles:	S	S
	Overview of QCC	What is QC Story?	S	S
9		What is QCC Presentation Meeting?	S	S
		How are QC 7 Tools utilised?	S	S
10	V. Organising QCC	Conducting QCC Meeting	V	V
	Activities at the Company	Conducting QCC Presentation Meeting	V	V
12	V. Preparatory work for Company-wide KAIZEN activities	► Follow up better company management ► Review K. activities & complement deficiency knowledge if necessary, etc.	V	V

Note: S: Seminar = group training (guidance); V: Visit to individual company, i.e., on-site training (diagnosis & guidance)

Main Contents of KAIZEN Guidance

Purpose of Pilot Project

JICA Study Team in collaboration with KU of MOTI implements Pilot Project with the selected 30 companies for the purpose of creating a manual and drafting a plan to disseminate KAIZEN in the manufacturing industry in Ethiopia and conducting relevant technology transfer to KU members.

Basic policy

The KAIZEN guidance was designed with a particular focus on the areas of: Standardisation of workplace environment; and Standardisation of operation. From the perspective of Ethiopian KAIZEN adaptation, it was recognised that these are the most critical elements that need to be understood and assimilated by the companies' key personnel.

Method of guidance

1. Group training course (4-day seminar) provides training on the foundation of KAIZEN including the above areas.
 2. Company visits provide on-site guidance in conjunction with model workplace practice of standardisation of both workplace environment and operation.
 3. Company visits in conjunction with model workplace QCC activities assist the company in organising a system of implementing KAIZEN by themselves.
- Technical Note: The transition from standardisation activities to QCC activities is determined in terms of the company's achievement level of standardisation of workplace environment and operation. If not sufficient, the company is to revisit the standardisation activities.

- 2 -

Report on KAIZEN Progress in Pilot Project Companies

Agro-Processing Sector

Sep 9, 2010

The Development Study on Quality/Productivity Improvement (KAIZEN) in the Federal Democratic Republic of Ethiopia

Implementation and outcome 0810110001414

Example of dairy product company

The company is the first company that procure raw milk and produce and sell processed milk in Ethiopia where only low quality raw milk or expensive imported long-life milk were available.



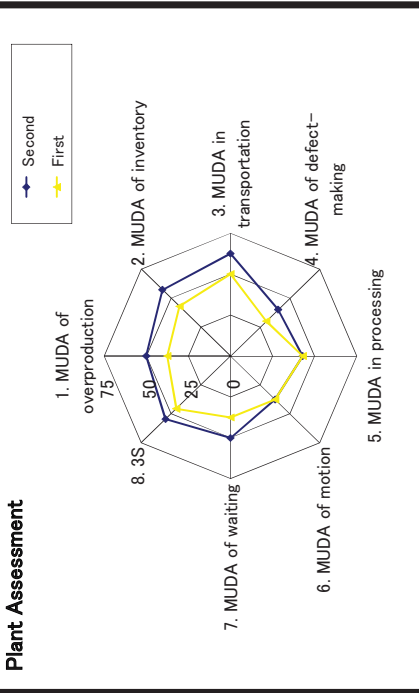
For handling raw milk, the company places greater importance to cleanliness of the factory so that, before starting kaizen activity, cleaning 3 times a day was already implemented realising the workplace free of dirt and dust.

- 3 -

Implementation and outcome

Result of factory diagnosis


Plant Assessment




- 4 -

Implementation and outcome

This company produces processed milk, long-life milk, yoghurt and cheese.



Before



After

In the workplace that was disorderly, lines were painted for clear distinction of walkway and product storage space. Considering the three-times-a-day cleaning that would not allow the lines to stay on the glossy tile floor surface, a blue-paint line was drawn on the groove between tiles. But this turned out to be not very conspicuous so far.

- 5 -

Implementation and outcome

The KAIZEN core team's enthusiastic approach led the kaizen activity to expand gradually. However, it does not reach the level of kaizen activity to be fully effective and to take root in the workplace overnight.



Before



After

In general, uncleanness that is typical at the maintenance workshop can be improved to some degree with a little guidance. However, for the improvement in terms of Sort and Set-in-order to be effective and maintained, rules for Sort and rules for Set-in-order need to be established.

- 6 -

Implementation and outcome of 0810110001614

Example of pasta and macaroni company
 The company purchases wheat and produces pasta and macaroni. The company first started to practice 3S and set up a KAIZEN board right after our third visit.



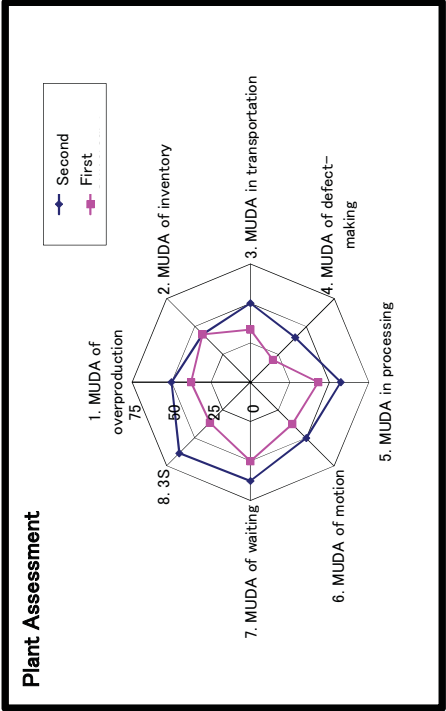
When KAIZEN board was set up, its information was fresh and impressive with the photos of 'before and after' 3S. Now, the board was not updated, the photos became sepia-toned and other postings dog-eared. It shows administration of promoting KAIZEN requires continuously rigorous attention.

- 7 -

Implementation and outcome

Result of factory diagnosis

Plant Assessment




MUDA Category	First Assessment	Second Assessment
1. MUDA of overproduction	25	50
2. MUDA of inventory	25	75
3. MUDA in transportation	25	50
4. MUDA of defect-making	25	50
5. MUDA in processing	25	50
6. MUDA of motion	25	75
7. MUDA of waiting	25	50
8. 3S	25	50

- 8 -

Implementation and outcome

With a motivated KAIZEN core team, the company makes great strides in the KAIZEN activities in the workplaces.



Implementing 2S and 3S by all the members.

Participation of all members at the workplace in carrying out Sort and Set-in-order makes the challenges in these activities easier to overcome. Including the Shine activity, continuous practicing of 3S requires careful action plan that is to be included in the company's schedule. Otherwise, it will end as a one time event. Continued monitoring of the activities is necessary.

- 9 -

Implementation and outcome

With the enthusiasm of kaizen core team, the activity is gathering momentum, 5S will easily crumble, however, if the importance of the basic things such as standardisation is not fully understood.



Before

After

Fundamentals of kaizen are gradually understood as the improvement progresses in the work environment such as getting rid of dirt and dust and ensuring safety.

- 10 -

Implementation and outcome

It is critical for KAIZEN core team to understand the importance of setting standards or rules. Once the rules are in place, monitoring is important to ensure that rules are observed all the time.



Before


After

By removing the spare parts which were disorderly placed around the facility, the facility maintenance became easier and operation outcomes have also improved. Even with the implementation of Sort and Set-in-order, if rules are not defined, the situation can easily go back to where it was. It is important in this case to define the standards for managing spare parts.

- 11 -

Implementation and outcome

The KAIZEN core team became more attentive to details.



After

After

Rubber hoses that used to be coiled up on the floor are put away in a method now uniformly applied in the whole company. Files on the desks are also kept in accordance to an established rule. These are examples of the results of Sort and Set-in-order.

- 12 -

Implementation and outcome of 0810110001414

Example of edible oil company

The company produce edible oil. Factory A extracts oil from the seeds (crude oil) and Factory B refines crude oil. Factory B is selected as model workplace for kaizen.



For both processes of extracting and refining edible oil, the operation is facility based. Thus, facility management is significantly important. On the other hand, product packing is the final process that requires the most human labor.

Implementation and outcome

Result of factory diagnosis



Implementation and outcome

4 QCC teams were organized. The maintenance team set the safe passage in the workplace and planned to improve safety of the operation.



The team went through Sort and Set-in-order with respect of the tools and improved the work environment. The team also converted the unnecessary bench into a service bench to repair broken or junk motors. Using this bench, the workers repaired back-up motors during idle time.

Implementation and outcome



Implementation and outcome

QCC activities resulted the introduction of a conveyor in the weighing operation...



Of the 4 QCC model teams, the margarine QCC team set up a handmade conveyor and improved the work process in which it had been difficult for the workers to load and unload the packed products to weigh on the weigh station.

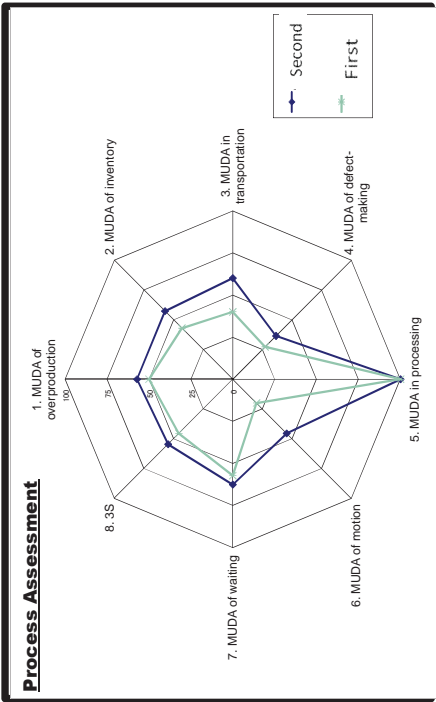
Implementation and outcome



<h2 style="margin: 0;">Report on KAIZEN Progress in Pilot Project Companies</h2> <h3 style="margin: 0;">Metal Sector</h3> <h4 style="margin: 0;">Sep 9, 2010</h4> <p style="margin: 0;">The Development Study on Quality/Productivity Improvement (KAIZEN) in the Federal Democratic Republic of Ethiopia</p>
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<h2 style="margin: 0;">Main Contents of KAIZEN Guidance</h2>
<p>Purpose of Pilot Project</p> <p>JICA Study Team in collaboration with KU of MoTI implements Pilot Project with the selected 30 companies for the purpose of creating a manual and drafting a plan to disseminate KAIZEN in the manufacturing industry in Ethiopia and conducting relevant technology transfer to KU members.</p> <p>Basic policy</p> <p>The KAIZEN guidance was designed with a particular focus on the areas of: Standardisation of workplace environment; and Standardisation of operation. From the perspective of Ethiopian KAIZEN adaptation, it was recognised that these are the most critical elements that need to be understood and assimilated by the companies' key personnel.</p> <p>Method of guidance</p> <ol style="list-style-type: none"> 1. Group training course (4-day seminar) provides the training on the foundation of KAIZEN including the above areas. 2. Company visits provide on-site guidance in conjunction with model workplace practice of standardisation of both workplace environment and operation. 3. Company visits in conjunction with model workplace QCC activities assist the company in organising a system of implementing KAIZEN by themselves. <p>Technical Note: The transition from standardisation activities to QCC activities is determined in terms of the company's achievement level of standardisation of workplace environment and operation. If not sufficient, the company is to revisit the standardisation activities.</p>

<h3 style="margin: 0;">Implementation and outcome of 0810125000914</h3> <p>Example of excellent company</p> <p>This company was eager towards kaizen from the beginning so that after completing the 4-day seminar they understood the importance of standardisation activity and started the activities by themselves</p>  <p>After the 4-day seminar, they implemented the Sort activity at their workplace and started to arrange work environment by themselves. By disposing of unnecessary items, they profited 40,000 Birr. They understood that by arranging work environment the waste decreases and operational efficiency increases. Thus, their motivation increased more towards activities.</p>
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<h3 style="margin: 0;">Implementation and outcome</h3>
<p>Result of factory diagnosis</p> <p>Process Assessment</p> 

Implementation and outcome

KAIZEN core team was able to understand the importance of setting standard and defining rules. As a result, the stagnated activities rapidly came back on track and more variety of KAIZEN proposals started to come out.



Before



After

We confirmed that providing guidance by taking the company's specific characteristics and challenges into consideration would enable the company to establish necessary rules by themselves.

- 6 -

Implementation and outcome

Even with such excellent company, we found that creating standards within the company is difficult. After the initial progress, we sensed the changes in the work environment was stalled.



Problem


Items clearly distinguished as 'unnecessary' can be dealt with quickly. But other items, such as materials and tools that are not so clearly distinguished cannot be acted upon in the Sort and the Set-in-order activities due to the lack of decision to set up clear rules for Sort and Set-in-order. We advised that clear rules be established and suggested that an exercise be done in order to implement the rule establishment.




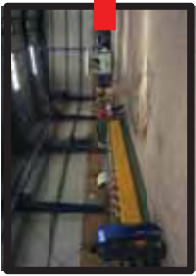
Problem

- 5 -


KAIZEN's progress and improvement



Before

Before



After

After having clearly defined work areas and passage, they were able to conduct operation more safely. Also, the workers were able to understand the meaning of activities and started to actively participate in Kaizen activities.

- 8 -

KAIZEN's progress and improvement



Before




Before



After

After having clear rules, they were able to implement Sort and Set-in-order.

- 7 -

KAIZEN's progress and improvement



KAIZEN activity is about to be scaled up for the entire company and visualisation is being promoted. We expect the higher level of KAIZEN activities through QCC activities from this company.

- 9 -

Implementation and outcome of 0810124000414

Example of general company

This company knew that KAIZEN is necessary, but the awareness was not connected to action. As a result, actual progress was slow.

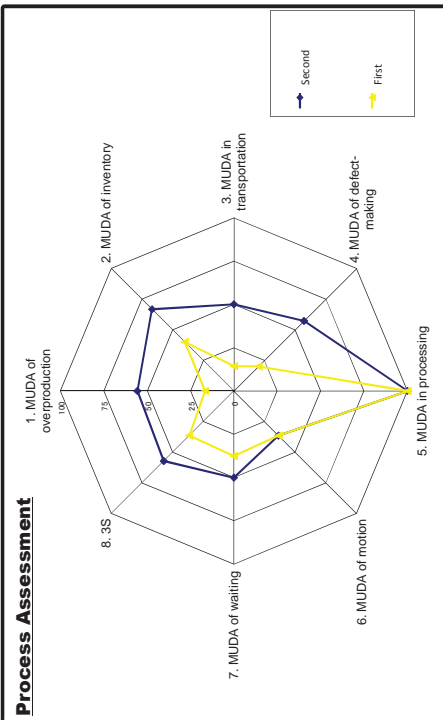


After completing 4-day seminar, we provided guidance on-site, but we did not see much progress in the change their environment. Thus, after surveying the workplace with the KAIZEN core team, we pointed out problems to them.

- 10 -

Implementation and outcome

Result of factory diagnosis



- 11 -

Implementation and outcome

We confirmed that, with assistance for clarifying problems and defining agenda, the company's KAIZEN Team can make progress.



Problem



Problem

We requested the KAIZEN team to thoroughly study the current condition, classify necessary and unnecessary items and specify number/volume and proper location of each of the necessary items.

- 12 -

Implementation and outcome

We confirmed that with the assistance on the methods the kaizen core team is able to implement the Sort and Set-in-order activities.



While we confirmed that conducting activities according to our explanation were done, they did not have connection towards self-initiated activities that are the key to expanding kaizen activities in the company. In the process of the Sort and Set-in-order activities in the model workplace, our guidance focused more on action-oriented advice that would lead to practical understanding and stimulate their own initiative.

- 13 -

KAIZEN's progress and improvement



Layout charts were used to explain the procedure of zone divider lining. To facilitate actionable understanding, we followed up with working together on the actual activities of the procedure.

- 14 -

KAIZEN's progress and improvement

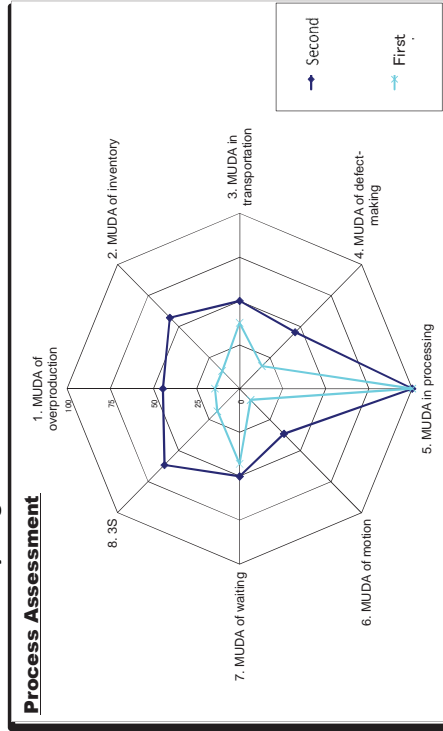


As KAIZEN team fully understand the methods of standardising work environment as well as the importance of the participation of workplace people and listening to their opinions, we decided the KAIZEN team can move on to the QCC activity.

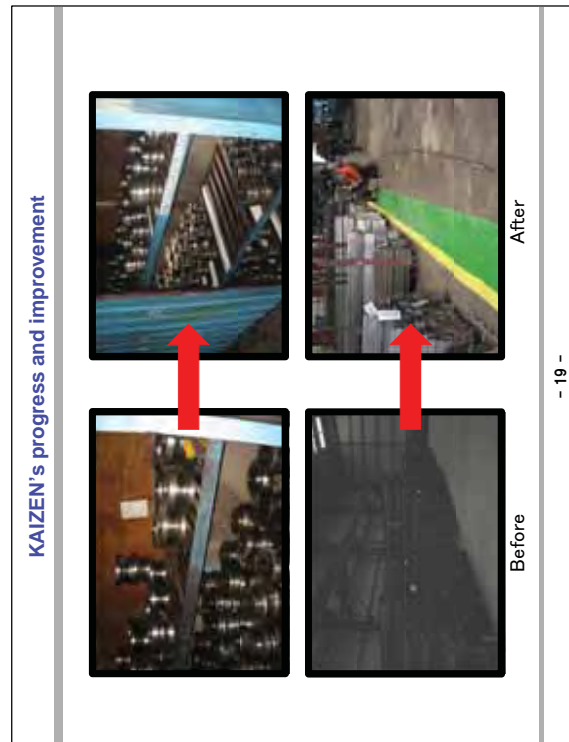
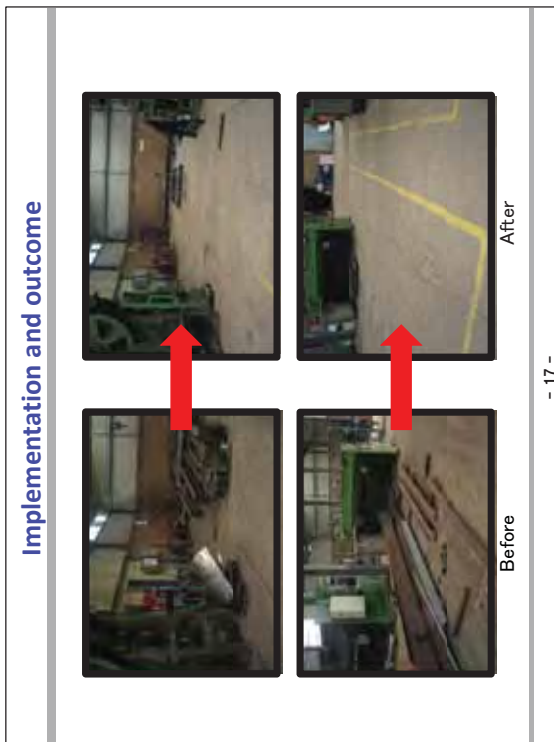
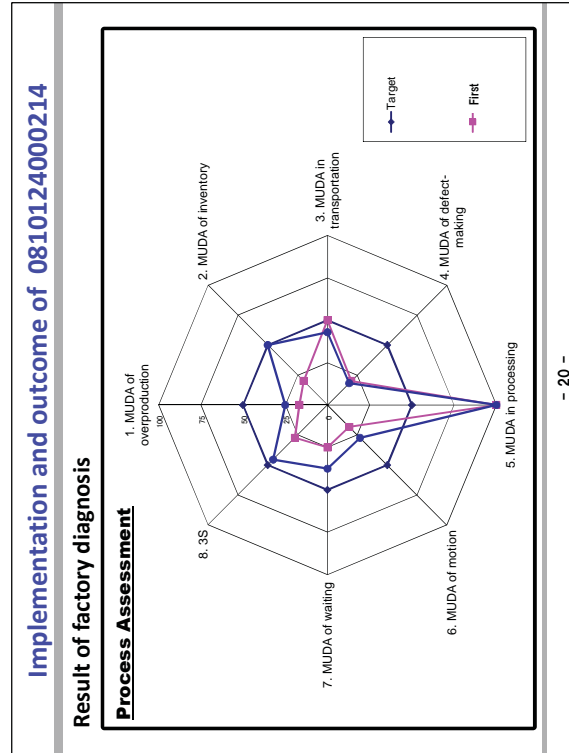
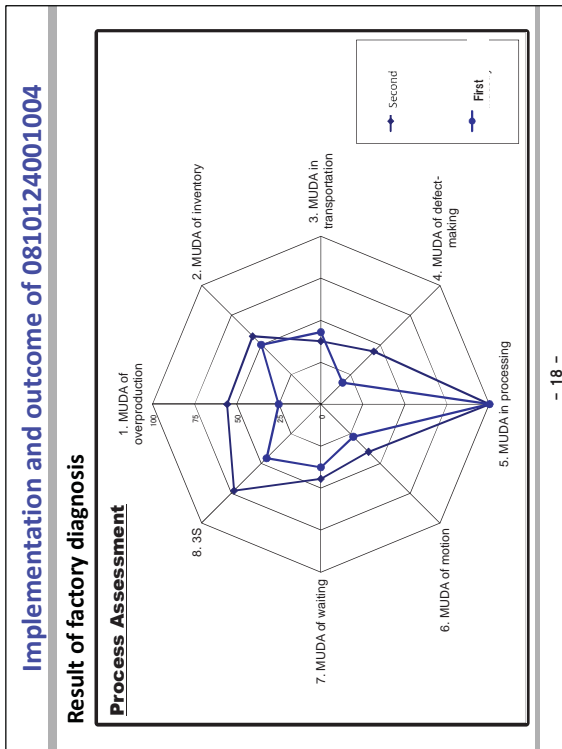
- 15 -

Implementation and outcome of 0810143000814

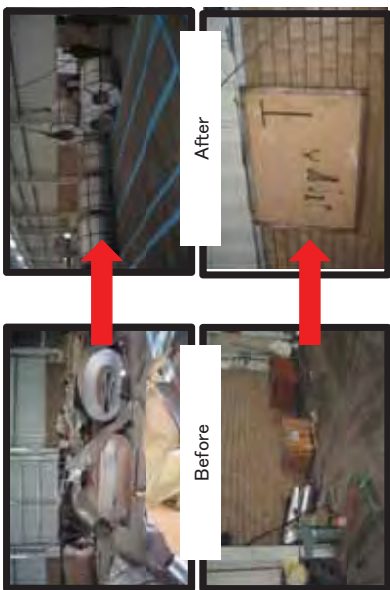
Result of factory diagnosis



- 16 -



KAIZEN's progress and improvement



As we recognise the progress varies in each company, our guidance accommodated the companies' specific conditions, which promoted their good understanding of the activities being exercised. This seems to have helped the progress of the companies', standardisation of workplace and operation. We are currently finding changes in employee mind-set emerging.

Report on KAIZEN Progress in Pilot Project Companies

Textile Sector

Sep 9, 2010

**The Development Study on Quality/Productivity Improvement
(KAIZEN) in the Federal Democratic Republic of Ethiopia**

Main Contents of KAIZEN Guidance

Purpose of Pilot Project

JICA Study Team in collaboration with KU of MoTI implements Pilot Project with selected 30 companies for the purpose of creating a manual and drafting a plan to disseminate KAIZEN in the manufacturing industry in Ethiopia and conducting relevant technology transfer to KU members.

Basic policy

The KAIZEN guidance was designed with a particular focus on the areas of: Standardisation of workplace environment; and Standardisation of operation. From the perspective of Ethiopian KAIZEN adaptation, it was recognised that these are the most critical elements that need to be understood and assimilated by the companies' key personnel.

Method of guidance

1. Group training course (4-day seminar) provides training on the foundation of KAIZEN including the above areas.
2. Company visits provide on-site guidance in conjunction with model workplace practice of standardisation of both workplace environment and operation.
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Technical Note: The transition from standardisation activities to QCC activities is determined in terms of the company's achievement level of standardisation of workplace environment and operation. If not sufficient, the company is to revisit the standardisation activities.

Implementation and outcome of 0810113002904

Example of textile manufacturing company

This company was scheduled for the second group, but it was decided to move up for the first group. GM is eager towards KAIZEN as he attended the KAIZEN training in Japan. Thus, GM is enthusiastic in increasing the employee's motivation and promotes kaizen activities by emphasising employee participation.

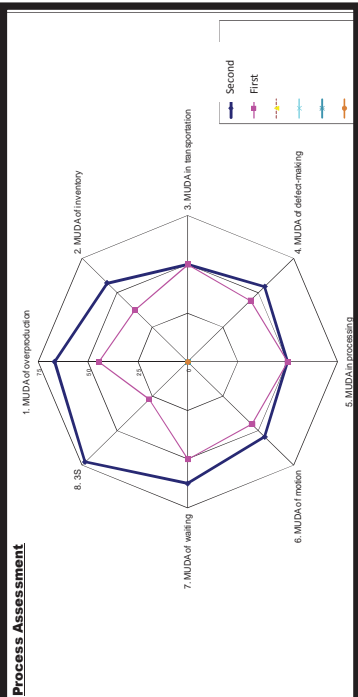



Employees' awareness is lifted by the KAIZEN tree's Amharic poster and kaizen slogan that were acquired during the 4-day basic training course.

Implementation and outcome

Result of factory diagnosis

Process Assessment



Implementation and outcome



Before



After

In the once disorderly model workplace (maintenance section), they were able to secure an additional space after the proper Sort activity. After implementing the Set-in-order activity in this additional space, the wall and ceiling were painted, painted shelves were placed, in which they store the various parts sorted in terms of type. The photo shows the satisfaction on the face of the QCC leader.

- 5 -

Implementation and outcome of 0810113002704

Example of spinning company

This company was also scheduled for the second group but moved up to the first group. Not only GM is eager towards KAIZEN, the KAIZEN core team leader had participated in the KAIZEN training in Japan that promoted KAIZEN activities actively.

The company is in their third year since establishment. The factory is in order and modern.



- 7 -

Implementation and outcome

Collaborative efforts of management (GM) and employees produced good results.



QCC leader explaining the state of 5S activity to GM and other management staff.

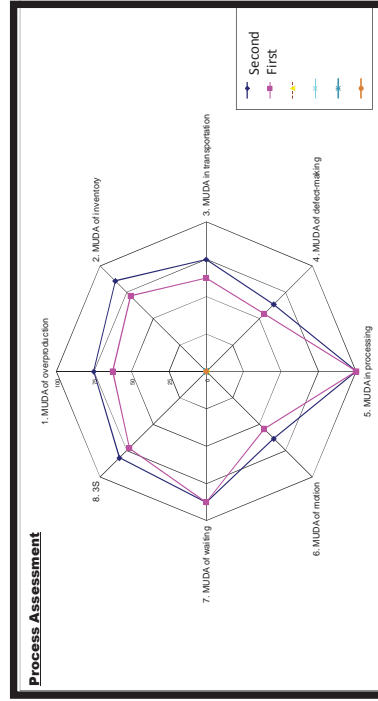


GM and KAIZEN core team members raising questions at the meeting with the JICA study team and KU.

- 6 -

Implementation and outcome

Result of factory diagnosis



- 8 -

Implementation and outcome

Under the guidance of KAIZEN core leader, Sort and Set-in-order activities of model workplace have been implemented.



- 9 -

Implementation and outcome

Under the guidance of KAIZEN core team leader, rules on location of tools were established and a suggestion system was introduced.



As the KAIZEN core team understood the executing method of standardising work environment, they also started to understand the importance of actively collect ideas of workers. Thus, we proceeded onto the guidance for the management and the employees of the team on the QCC activity's outline and the method of its implementation.

- 10 -

Implementation and outcome of 0810113003014

Example of Textile manufacturing company

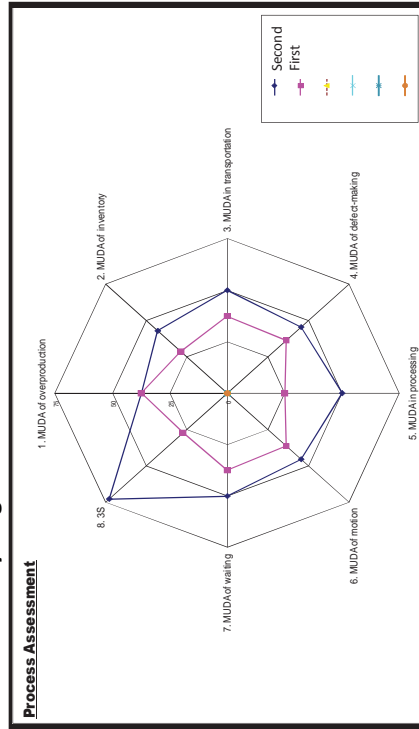
This company being the first group company from the start, during the January – June period a total of 8 visits had been conducted including those done by KU while JICA study team was absent. However, these visits did not result in concrete KAIZEN implementation to take hold. The company's KAIZEN activities re-activated after the 4-day basic training course in July and, through the subsequent 5 visits, KAIZEN results emerged. The company's factory is old and not generally in a clean condition.



- 11 -

Implementation and outcome

Result of factory diagnosis



- 12 -

Implementation and outcome

Specific KAIZEN outcomes started to come out during the course of the current visits.






Before After



As a result of the Sort activity, unnecessary items were removed from the once untidy model workplace (process of manufacturing spare parts for repair). New shelves for finished products were also placed.

- 13 -

KAIZEN's progress and improvement

As a result of the Set-in-order activity, standardised location arrangement was established for the necessary items. This led to reduced searching time. Awareness of safety also increased with the workers' walkways clearly secured in the workplace.

- 14 -

KAIZEN's progress and improvement

With the KAIZEN core team leader's leadership, the Shine activities are implemented.




Schedule sheets for the Shine activities at the model workplace.



KAIZEN core team leader setting up the KAIZEN board.

- 15 -

Implementation and outcome of 0810113003114

Example of Garment manufacturing company

The company was also scheduled for the second group, but moved up to start from July. As the garment manufacturing is a labor-intensive industry, visible KAIZEN improvements are expected from standardisation of work environment and operation.

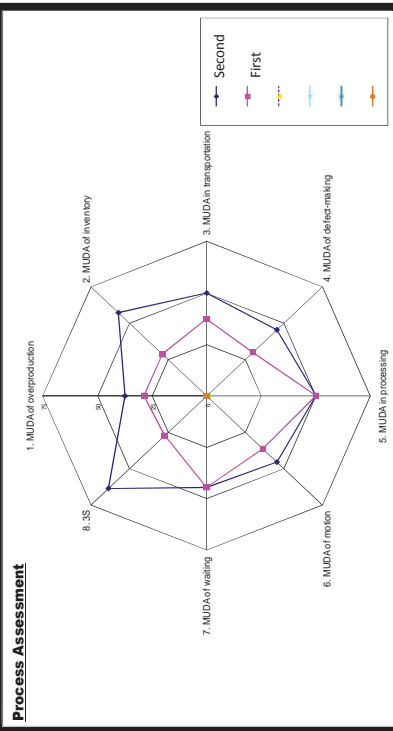



Cutting process Sewing process

- 16 -

Implementation and outcome

Result of factory diagnosis



- 17 -

KAIZEN's progress and improvement

During the Sort activity, unnecessary items were collected in the holding area, and then separated by category and disposed of in accordance with the predetermined disposal methods.

Holding area of unnecessary items



- 18 -

KAIZEN's progress and improvement

With the Set-in-order activity, raw materials were placed into the proper locations by product type under new rules. This has resulted in reduced searching time.



After

Before

As the next step, zone divider lining for the storage area of raw materials is planned using the taping method. The tapes have already been ordered.

- 19 -

Main Contents of KAIZEN Guidance

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- 2 -

Photo Report Pilot Project KAIZEN Guidance Textile & Agro Sector

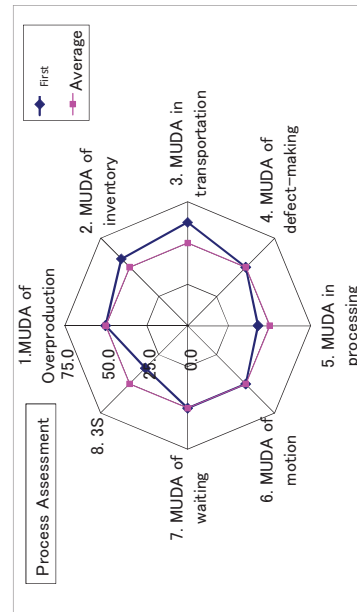
24, Dec, 2010

The Development Study on Quality/Productivity Improvement
(KAIZEN) in the Federal Democratic Republic of Ethiopia

Plant Assessment Results (0810110001304)

<Standardisation of Workplace Environment and Operation>

After completing 4-day initial training course, the study team visited each company to give practical guidance on standardisation of workplace environment and operation.



Based on the initial assessment at the start of guidance and the status before starting QCC activities, we deemed that the company is ready for QCC activities. As this company achieved almost all targets, we decided to start the QCC step.

- 3 -

On-site Guidance Records

<Status observed in the first visit>

We selected the preparation and packing lines as the model workplaces. The biggest problem the company faces is that no criteria, standards or rules have been set up.



- 4 -

On-site Guidance Records

<After Sort (seiri) Activity>

At the first visit, we explained to KAIZEN Core Team the procedure of Sort (seiri) activity and ask them to clearly set the criteria through the activity.



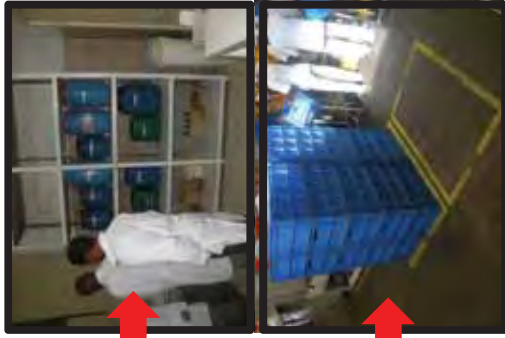
Before



After

We confirmed that KAIZEN Core Team carried out Sort (seiri) activity according to our guidance and clearly set the criteria to judge necessary and unnecessary things.

On-site Guidance Records



On-site Guidance Records

<After Sort (seiri) Activity>

We confirmed that KAIZEN Core Team members understand the procedures and carried out Sort (seiri) and Set-in-Order (seiton) activities appropriately.



Before



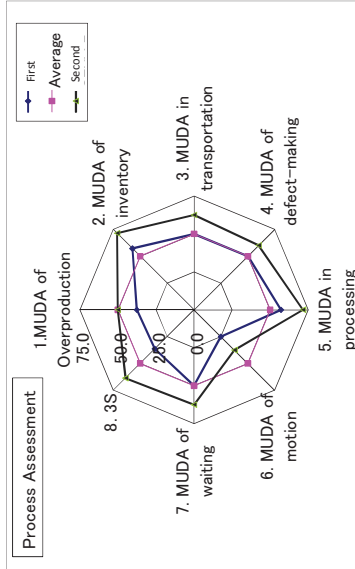
After

Workers actually found benefits from Sort (seiri) and Set-in-Order (seiton) activities that made workplace environment tidy and comfortable with wider working area.

Plant Assessment Results (0810110001514)

<Standardisation of Workplace Environment and Operation>

After completing 4-day initial training course, the study team visited each company to give practical guidance on standardisation of workplace environment and operation.



The company did not achieve 50% of the target in some evaluation items. However, we deemed that the company was fully capable of implementing QCC activities and decided to start guidance.

On-site Guidance Records

<Status observed in the first visit>

This company selected the spare parts stock room and product processing line as the model workplaces. In the product processing line, the packaging line was deemed to require improvements in particular. Although the stock room was terribly untidy before KAIZEN, we saw a great change in the following visit with Sort and Set-in-order in place.



- 9 -

On-site Guidance Records

<After Sort (seiri) Activity>

At the first visit, we explained to KAIZEN Core Team the procedure of Sort (seiri) activity and ask them to clearly set the criteria to judge necessary and unnecessary things through the activity so that unnecessary things can be properly disposed.



Before

After

We confirmed that KAIZEN Core Team carried out Sort (seiri) activity according to our guidance and clearly set the criteria to judge necessary and unnecessary things. However, we found that the company needs to further revisit places to stock parts and tools.

- 10 -

On-site Guidance Records



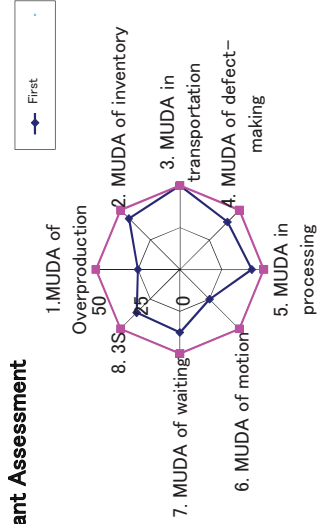
- 11 -

Plant Assessment Results (0810110001214)

<Standardisation of Workplace Environment and Operation>

After completing 4-day initial training course, the study team visited each company to give practical guidance on standardisation of workplace environment and operation.

Plant Assessment



We determined that this company is ready for QCC activities. We decided to start the practical guidance on QCC activities in the next visit.

- 12 -

On-site Guidance Records

<Status observed in the first visit>

This company was privatised only 6-month ago and still in the transitional process. This prevented the chairperson of KAIZEN Core Team from attending the meeting at our first visit. The chairperson was replaced in the next visit, showing that the company was in the organisational turmoil.



- 13 -

On-site Guidance Records

<After Sort (seiri) and Set-in-order (seiton) Activities>

The line renovation project was initiated in the biscuit production line that made it hard to coordinate with KAIZEN group. As the project chairperson was assigned also as the chairperson of KAIZEN Core Team, two activities are finally well-coordinated.



Before



Before

Full-fledge KAIZEN activities have not yet implemented except development of the staff training plan.

- 15 -

On-site Guidance Records

<QCC Activities>

This company selected the spare parts stock room and downstream biscuit production line as the model workplaces. However, we faced organisational turmoil including retirement of the stock room manager immediately after his responsible line was selected as the model workplace.



Stock room hardly improved



Stock room remains untidy

We finally decided to freeze KAIZEN in the spare parts stock room tentatively and to focus on Maintenance and Tool Room. However, full-fledged KAIZEN activities have not yet started.

- 14 -

Main Contents of KAIZEN Guidance

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- 2 -

Photo Report Pilot Project KAIZEN Guidance Chemical Sector

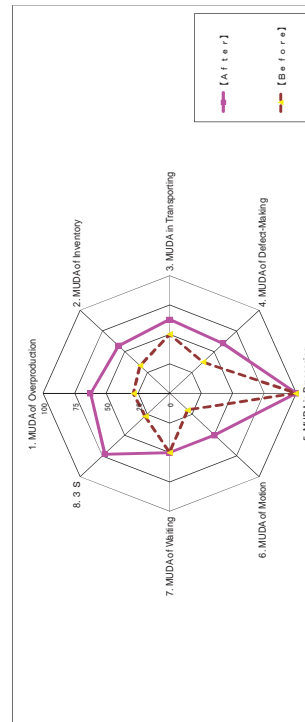
24, Dec, 2010

The Development Study on Quality/Productivity Improvement (KAIZEN) in the Federal Democratic Republic of Ethiopia

Plant Assessment Results (0810120001914)

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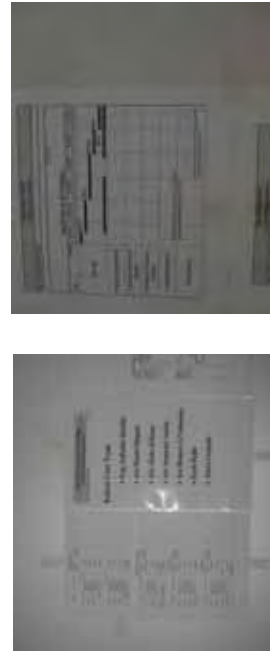
Since this company achieved 50% of the target in all evaluation items, we decided to start guidance on QCC activities.

- 3 -

On-site Guidance Records

<Status observed in the first visit>

This company assigned the owner's son as KAIZEN Core Team Leader. He studied in the UK and is well motivated to promote KAIZEN activities. He set up KAIZEN meeting room in the model workplace and prepared 5S Action Plan before our visit.



KAIZEN Core Team member list and 5S Action Plan displayed in KAIZEN meeting room

On-site Guidance Records

<Status observed in the first visit>

Through our observation of the model workplaces, we deemed that the problem lies with no standards or rules set up in this company.

[Model Workplace 1]



[Model Workplace 2]



Mixing machine for construction paint section

Adhesive section

- 5 -

On-site Guidance Records

<After KAIZEN Activities in Model Workplace 1>

Through 3S activities implemented by QCC members, Mixing Machine section is fully tidied up.



Before



After

On-site Guidance Records

<After KAIZEN Activities in Model Workplace 2>

Through 3S activities implemented by QCC members, Adhesive section is fully tidied up. Activities also contributed to preventing oil leak and reducing manufacturing hours by half (finding from Time Study).



Before

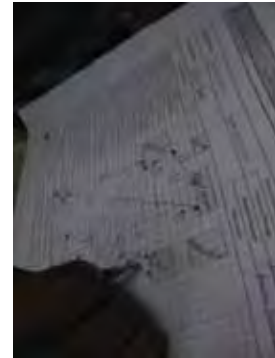


After

On-site Guidance Records

<Change in Workplace Layout using Standard Operation Sheet>

KAIZEN Core Team prepared the standard operation sheet based on the current workflow in Mixing machine for construction paint section, which helped them find *Muda* (waste) in transporting. To change the workplace layout, the core team members requested the renovation section to make necessary equipment.



Standard Operation Sheet before change



KAIZEN Core Team members explaining details and effects of workplace layout change

- 8 -

On-site Guidance Records

<All-company KAIZEN Promotional Activity>

- KAIZEN Core Team took initiative to hold in-house KAIZEN seminars in Amharic for staff.
- The core team members also prepared KAIZEN Handbook in cooperation with QCC leaders.



KAIZEN Core Team Leader presenting KAIZEN activities with PPT material for in-house seminars

On-site Guidance Records

<QCC Activities in the course of All-company KAIZEN Promotional Activities>

In the course of QCC activities, QCC members drafted countermeasures to address workplace problems identified in each workplace.




QCC meeting in Model Workplace 1

KU giving guidance in QCC meeting

Through QCC group discussion, QCC members drafted the action plan including changes in workplace layout of the pigment store room, workflow to take out pigment from drums and pigment transportation to the mixing tank among others. Based on the drafted action plan, the renovation section is to make necessary equipment.

- 10 -

On-site Guidance Records

<After All-company KAIZEN Promotional Activities>

- 1) KAIZEN Core Team members repainted the floor of all factories.
- 2) The safety sign is introduced in risky workplaces using solvent so that the fire extinguisher is easily located.
- 3) QCC members other than Model Workplaces also started 3S activities on a voluntary basis.





1. All-company action for workplace environmental improvement

2. Safety Sign

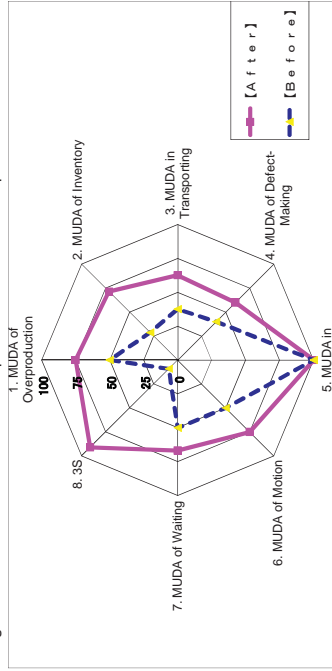
3. Voluntary KAIZEN Activities

- 11 -

Plant Assessment Results (0810115002614)

<Standardisation of Workplace Environment and Operation>

After completing 4-day initial training course, the study team visited each company to give practical guidance on standardisation of workplace environment and operation.



MUDA Category	Before (%)	After (%)
1. MUDA of Overproduction	0	75
2. MUDA of Inventory	0	75
3. MUDA in Transporting	0	75
4. MUDA of Defect-Making	0	75
5. MUDA in Motion	0	75
6. MUDA of Waiting	0	75
7. MUDA of Motion	0	75
8. 3S	0	75

-At the start of guidance, 3S achievement level of this company was assessed around 10% or less. Through enthusiastic efforts made in KAIZEN activities, the achievement level reached over 75% at the end of 3-day visits. With this confirmed, we decided to start QCC stage.

- 12 -

On-site Guidance Records

<Status observed in the first visit>

- This company assigned the owner's son as KAIZEN Core Team Leader. He once participated in the training course held in Japan and is well motivated to promote KAIZEN activities with enthusiasm.
- This company manufactures tanned leather, which is one of major industries in Ethiopia.
- 90% of the products from this company are for export. To meet customers' demands, quality control data are well maintained and traceability is ensured.
- 3S of workplace environment has not been in place in the raw material store section, semi-manufactured product store section and production lines and operation has not been standardised.

- 13 -

On-site Guidance Records

<Status observed in the first visit>

Through our observation in model workplaces, we determined that the problem lies with no standardisation implemented in workplace environment.

[Model Workplace 1]



Raw material store section

[Model Workplace 2]



Re-tanning section

- 14 -

On-site Guidance Records

<After KAIZEN Activities in Model Workplace 1>

Through 3S activities implemented by QCC members, the raw material store section has been compartmentalised so that each raw material is stored in the fixed location in a predetermined quantity. This allowed to streamline the workflow with FIFO thoroughly applied to raw material management.



Before



After

On-site Guidance Records

<After KAIZEN Activities in Model Workplace 2>

Through 3S activities implemented by QCC members, the workplace environment was improved and work efficiency was increased. The effects from 3S activities convinced QCC members of the effects of QCC activities, making them intently listen to KU members.



Before

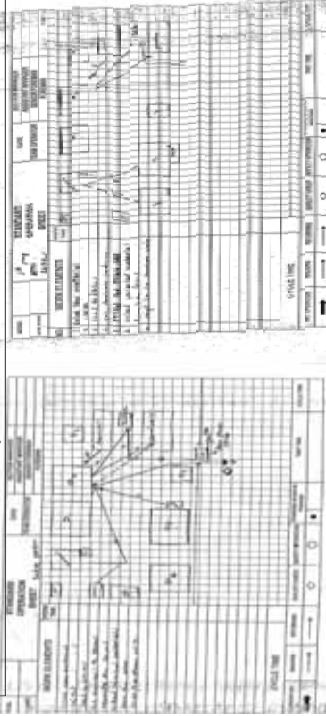


After

On-site Guidance Records

<Change in Workplace Layout using Standard Operation Sheets>

KAIZEN Core Team prepared the standard operation sheet for Model Workplace 2. Based on this sheet, they changed the workplace layout of additive chemical store section that increased work efficiency. QCC members voluntarily implemented the second KAIZEN step to further increase work efficiency.



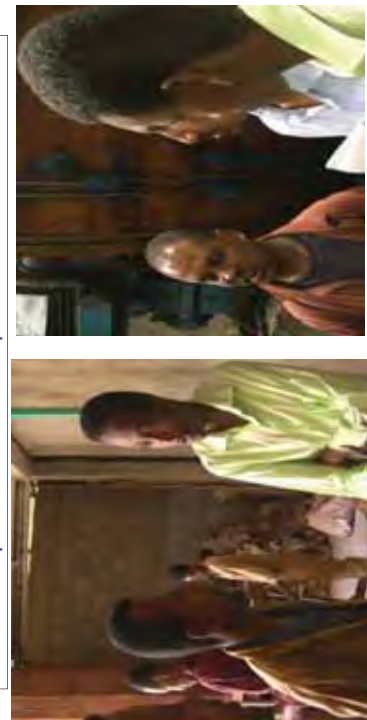
Standard Operation Sheet before KAIZEN

Standard Operation Sheet after KAIZEN

On-site Guidance Records

<QCC Activities in the course of All-company KAIZEN Promotional Activities>

KU answering questions from QCC members in each model workplace on how to implement QCC activities



On-site Guidance Records

<All-company KAIZEN Promotional Activities>

- This company voluntarily deployed 3S activities in 2 workplaces (Chemical raw material store section and Tanning process) in addition to model workplaces.
- QCC teams were organised additionally to deploy QCC activities in 3 other workplaces (final product store and finishing sections and leather thickness cutting process).



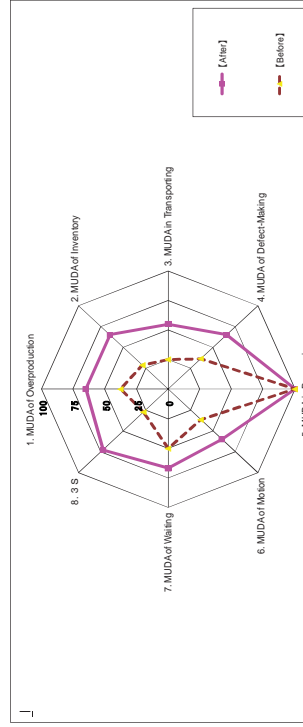
Chemical raw material store section after 3S activities



QCC leader and KAIZEN Core Team member explaining 3S activities

Plant Assessment Results (0810120002214)

<Standardisation of Workplace Environment and Operation>
 After completing 4-day initial training course, the study team visited each company to give practical guidance on standardisation of workplace environment and operation.



At the start of guidance, 3S achievement level of this company was assessed at around 25%. After enthusiastic efforts in KAIZEN activities, the achievement level reached 75% in each evaluation item or over 50% in overall evaluation at the end of 3-day visits. With this confirmed, we decide to start QCC stage.

On-site Guidance Records

<Status observed in the first visit>

- This company assigned the owner's son as KAIZEN Core Team Leader. He once participated in the training course held in Japan and is well motivated to promote KAIZEN activities with enthusiasm.
- This company produces cosmetic products (hair oil, shampoo, etc.) and exports them to other countries.
- Many female workers manually fill products in containers, which characterises the labor-intensive plant.
- Plastic containers are molded by in-house molding machines.
- 3S activities have not been implemented in the manual filling section, semi-manufactured product store section and production lines and operation has not yet been standardised.

On-site Guidance Records

<Status observed in the first visit>

- Many processes are labor-intensive and the problem lies with no standards and rules in place.

[Model Workplace 1] (manual filling section)



Many female workers manually fill liquid cosmetic products into containers.

Male workers crush raw materials into pieces with axes.

On-site Guidance Records

<After KAIZEN activities in Model Workplace 1 (1)>

KAIZEN Core Team took initiative to improve the manual filling process by trial and error.



On-site Guidance Records

<After KAIZEN Activities in Model Workplace 1 (2)>

KAIZEN Core Team took initiative to implement KAIZEN activities in a phased manner based on the prepared KAIZEN Action Plan.



Manual raw material crushing task has been replaced with the crusher made in-house. This drastically increased work efficiency.

On-site Guidance Records

<After KAIZEN Activities in Model Workplace 2 (1)>

KAIZEN Core Team took initiative to implement KAIZEN activities in a phased manner based on the prepared KAIZEN Action Plan.



The molding machine section was compartmentalised, making spaces-to-place-molded-plastics.

On-site Guidance Records

<After KAIZEN Activities in Model Workplace 2 (2)>

KAIZEN Core Team took initiative to implement KAIZEN activities in a phased manner based on the prepared KAIZEN Action Plan.



3S activity was implemented in Spare parts store section.

On-site Guidance Records

<After KAIZEN Activities Implemented in workplaces other than Model Workplaces>

KAIZEN activities were also implemented in molded plastics and temporary goods store sections. The right photo shows the female worker implemented this KAIZEN activity.



B e f o r e

A f t e r

On-site Guidance Records

<All-company KAIZEN Promotional Activities>



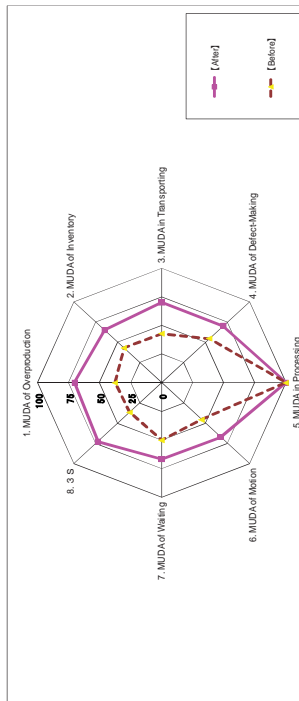
KU member lecturing basics of KAIZEN activities in Amharic at an in-house seminar held for 40 supervisors



KU member answering questions from QCC members at QCC meeting

Plant Assessment Results (0810120001704)

<Standardisation of Workplace Environment and Operation>
 After completing 4-day initial training course, the study team visited each company to give practical guidance on standardisation of workplace environment and operation.



*At the start of guidance, 3S achievement level of this company was assessed at 40% or less. After enthusiastic efforts in KAIZEN activities, the achievement level reached 75% in each evaluation item or 50% in the overall evaluation at the end of 3-day visits. With this confirmed, we decided to start QCC activities.

On-site Guidance Records

<Status observed in the first visit>

- The GM of this company is responsible for KAIZEN Core Team. He participated in the training course held in Japan and is well motivated to promote KAIZEN activities with enthusiasm.
- This company produces laundry soap as the chemical division of East African Group, a conglomerate holding many manufacturing division.
- The chemical process is operated with equipment. On the other hand, sections including palm oil filling, work-in-process goods transport between processes, and final product packaging are highly labor intensive.
- 3S workplace environment has not been in place in manual filling process and work-in-process goods sections and production line. Operation has not yet been standardised.

On-site Guidance Records

<Status observed in the first visit>
 Through our observation of the model workplaces, we deemed that the problem lies with no standards and rules set in this company.

[Model Workplace 1]



Maintenance section

[Model Workplace 2]



Laundry soap section

On-site Guidance Records

- The figure below shows the action plan developed by KAIZEN Core Team.
- The owner and the due are set for each theme.

Action Plan

Item	Problem	Countermeasure	Owner	Due	10/1	10/8	10/15	10/22	10/29	11/5	11/12	11/19	11/26	12/3	12/10	12/17	12/24	12/31
1	1. The Manual Filling Process	1. The owner of the Manual Filling Process will be assigned to the Manual Filling Process. 2. The owner will be assigned to the Manual Filling Process. 3. The owner will be assigned to the Manual Filling Process.	Mr. [Name]	10/15														
2	2. The Manual Filling Process	2. The owner of the Manual Filling Process will be assigned to the Manual Filling Process. 3. The owner will be assigned to the Manual Filling Process. 4. The owner will be assigned to the Manual Filling Process.	Mr. [Name]	10/15														
3	3. The Manual Filling Process	3. The owner of the Manual Filling Process will be assigned to the Manual Filling Process. 4. The owner will be assigned to the Manual Filling Process. 5. The owner will be assigned to the Manual Filling Process.	Mr. [Name]	10/15														
4	4. The Manual Filling Process	4. The owner of the Manual Filling Process will be assigned to the Manual Filling Process. 5. The owner will be assigned to the Manual Filling Process. 6. The owner will be assigned to the Manual Filling Process.	Mr. [Name]	10/15														
5	5. The Manual Filling Process	5. The owner of the Manual Filling Process will be assigned to the Manual Filling Process. 6. The owner will be assigned to the Manual Filling Process. 7. The owner will be assigned to the Manual Filling Process.	Mr. [Name]	10/15														

On-site Guidance Records

<After KAIZEN Activities in Model Workplace 1>

Maintenance section has been set in order after 3S activity implemented by QCC members.



Before



After

On-site Guidance Records

<After KAIZEN Activities in Model Workplace 2>

QCC members are making carts by trial and error to reduce workloads of loading palm oil barrels (weighing 180kg per barrel).



<h2 style="color: #0056b3;">Main Contents of KAIZEN Guidance</h2>
<p>Purpose of Pilot Project</p> <p>JICA Study Team in collaboration with KU of Ministry of Industry implements Pilot Project with the selected 30 companies for the purpose of establishing a method of KAIZEN guidance, creating a manual for such Guidance, and drafting a plan to disseminate KAIZEN in the manufacturing industry in Ethiopia, as well as conducting relevant technology transfer to KU members.</p> <p>Basic policy</p> <p>The KAIZEN guidance was designed with a particular focus on the areas of: Standardisation of workplace environment; and Standardisation of operation. From the perspective of Ethiopian KAIZEN adaptation, it was recognised that these are the most critical elements that need to be understood and assimilated by the companies' key personnel.</p> <p>Method of guidance</p> <ol style="list-style-type: none"> 1. Initial group training course (4-day seminar) provides the training on the foundation of KAIZEN including the above areas. 2. Company visits provide on-site guidance in conjunction with model workplace practice of standardisation of both workplace environment and operation. 3. Mid-term group training (2-day seminar) provides basic knowledge of QC Circle. 4. Company visits in conjunction with model workplace QCC activities assist the company in organising themselves for practicing KAIZEN by themselves in a company-wide scale on a continual basis. <p>Technical Note: The transition from standardisation activities to QCC activities is determined in terms of the company's achievement level of standardisation of workplace environment and operation. If not sufficient, the company is to revisit the standardisation activities.</p>

<h2 style="color: #0056b3;">Photo Report</h2> <h3 style="color: #0056b3;">Pilot Project</h3> <h3 style="color: #0056b3;">KAIZEN Guidance</h3> <p style="color: #0056b3;">Metal Sector</p> <p style="color: #0056b3;">24, Dec, 2010</p> <p style="color: #0056b3;">The Development Study on Quality/Productivity Improvement (KAIZEN) in the Federal Democratic Republic of Ethiopia</p>

<h2 style="color: #0056b3;">Plant Assessment Results (0810125000314)</h2>
<p><Standardisation of Workplace Environment and Operation></p> <p>After completing 4-day initial training course, the study team visited each company to give practical guidance on standardisation of workplace environment and operation.</p> <p>Process Assessment</p> <p>This company failed to achieve 50% of the target in some evaluation items. However, considering the ongoing efforts, we decided to start the guidance on QCC activities.</p>

<h2 style="color: #0056b3;">Changes in PP</h2>
<p>Findings in comparison with the previous PP</p> <p><Points deemed as effective></p> <p>Before starting company visits, 4-day group training course was held to increase knowledge of KAIZEN basics</p> <p>Since this training was proven effective in on-site guidance, 2-day group training course was added to transfer preparation steps before starting guidance on QCC activities.</p> <p><Reflections></p> <p>Some KAIZEN Core Teams organised in companies were slow to make responses that gave negative impacts in KAIZEN implementation.</p> <p>Among various causes, the following is regarded as influential in particular.</p> <ol style="list-style-type: none"> 1) Decision-making right is not granted to KAIZEN Core Team 2) Employees are not aware of the need of all-company supports in KAIZEN activities 3) Employees are not aware of the importance of voluntary efforts to solve issues <p>With the above causes in mind, a briefing session was held for GMs invited from selected companies prior to PP guidance; on this occasion, we explained PP purposes, the support system that should be prepared in companies and roles of KAIZEN Core team.</p>

On-site Guidance Records

<Status observed in the first visit>

Through our observation of the model workplaces, we deemed that the problem lies with no criteria, standards and rules set in this company.

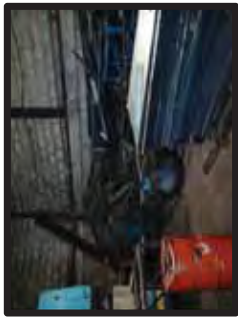


- 5 -

On-site Guidance Records

<After Sort (seiri) activity>

At the first visit, we explained to KAIZEN Core Team the procedure of Sort (seiri) activity and ask them to clearly set the criteria through the activity.



Before



After

We confirmed that KAIZEN Core Team carried out Sort (seiri) activity according to our guidance and clearly set the criteria to judge necessary and unnecessary things

- 6 -

On-site Guidance Records



<After Sort (seiri) activities>

We confirmed that KAIZEN Core Team members understand the procedures. We explained the procedure of Set-in-order (seiton) activity and asked them to carry out Set-in-order (seiton) activities appropriately.



Before



After

We confirmed that the workplace environment has been improved through continued Sort (seiri) activity led by KAIZEN Core Team along with Set-in-order (seiton) activity.

- 8 -

On-site Guidance Records



- 9 -

On-site Guidance Records

<After changes in workplace layout>

We gave guidance to KAIZEN Core Team on how to improve the workplace layout in the model workplace as the next step. We asked them to complete the task.



Workplace Layout

We confirmed that the core team members drafted the workplace layout. Since the workplace has not been compartmentalised, we gave on-site guidance on compartmentalisation by drawing lines on the floor with chalk. In the guidance, we emphasised the importance of confirming operability and operators' opinions.



On-site Guidance

- 10 -

On-site Guidance Records

<Standardisation of Workplace Environment and Operation>

We confirmed that the 3S workplace environment has been in place in many workplaces. We explained operational standardisation and purpose and procedure of QCC activities to KAIZEN Core Team.



Before



After

The core team members promised that they would continue KAIZEN activities with thorough sort (*seiri*) and set-in-order (*seiton*) in mind.

- 11 -

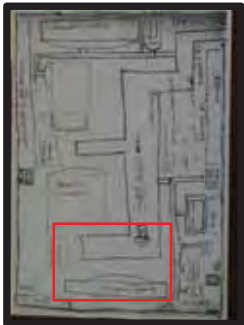

On-site Guidance Records



- 12 -

On-site Guidance Records

<Standard Operation Sheet>
 Based on the standard operation sheet drafted by KAIZEN Core Team, we gave guidance on the details in comparison with actual operation.

Workplace Layout


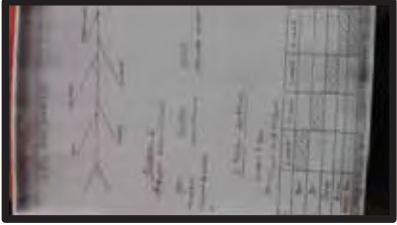
Tasks performed in the area shown in the red box

We pointed out some discrepancies between the actual workplace layout and the workflow described in the standard operation sheet. We also pointed out that KAIZEN points are not clear due to too broad divisions of operation. The core team members promised to review the standard operation sheet based on our advices.

- 13 -

On-site Guidance Records

<QCC Activities>
 The core team members developed the action plan for QCC activity based on the standard operation sheet with the purpose of eliminating *Muda* (wastes) and improving work efficiency.

Workplace to implement QCC activity

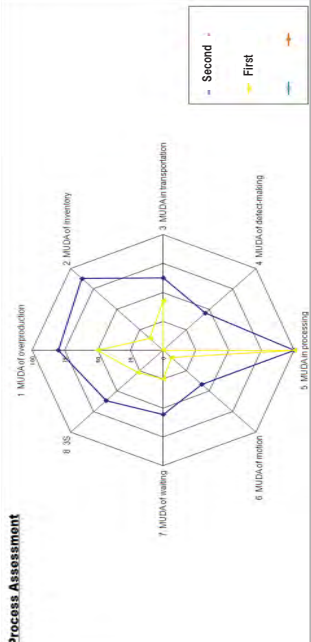
In reviewing the action plan, we gave supplemental explanation to fill knowledge gaps found in the plan.

- 14 -

Plant Assessment Results (0810129000514)

<Standardisation of Workplace Environment and Operation>
 After completing 4-day initial training course, the study team visited each company to give practical guidance on standardisation of workplace environment and operation.

Process Assessment



We deemed that this company is ready for starting QCC activities. We will give practical guidance on QCC activities from the next visit.

- 15 -

On-site Guidance Records

<Status observed in the first visit>
 We confirmed that this company carries out various activities voluntarily; however, we deemed that the problem lies with no effects actually born in the workplace. We decided to give a basic guidance on workplace improvement to KAIZEN Core Team.



- 16 -

On-site Guidance Records

<After Sort (seiri) activities>

At the first visit, we explained to KAIZEN Core Team the procedure of Sort (seiri) activity and ask them to clearly set the criteria through the activity to determine necessary and unnecessary things so that unnecessary things can be properly disposed.



Before



After

We confirmed that KAIZEN Core Team carried out Sort (seiri) activity according to our guidance and clearly set the criteria to judge necessary and unnecessary things. However, places stocking parts and tools need further review.

- 17 -

On-site Guidance Records



- 18 -

On-site Guidance Records

<After Sort (seiri) activities>

We confirmed that KAIZEN Core Team members understand the purposes of Sort (seiri) and Sei-in-order (seiton) activities. They are also aware of the need of workplace layout in order to eliminate Muda (wastes) in operation.



Before



After

We deemed that KAIZEN Core Team members understand the importance of eliminating Muda in operation by developing the workplace layout.

- 19 -

On-site Guidance Records



- 20 -

On-site Guidance Records

<Standardisation of Workplace Environment and Operation>
 KAIZEN Core Team is well aware of the importance of workplace environment improvement through 5S activities. They are considering a new workplace layout using the standard operation sheet.



Standard Operation Sheet (1)



Standard Operation Sheet (2)

We gave guidance on missing components by comparing the standard operation sheet prepared by them with the actual operation. We checked some tasks found as *Muda* (wastes) in the sheet. The core team members are aware of them and explained KAIZEN plan to us. We confirmed that they are making full use of the standard operation sheet.

- 21 -

On-site Guidance Records

<QCC Activities>

KAIZEN Core Team explained us that they would carry out QCC activities with the purpose of reducing customer complaints.



Target Setting 1



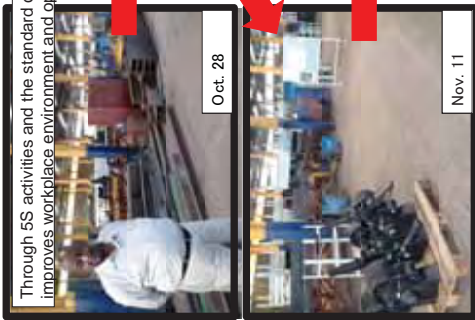
Target Setting 2

We deemed that they understand procedures of QCC activities and how to use data. However, they are still short of knowledge on structuring presentation materials and target setting. We gave supplemental guidance to fill such insufficiency.

- 23 -

Highlights seen in KAIZEN of this Company

Through 5S activities and the standard operation sheet, the company steadily improves workplace environment and operation.



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On-site Guidance Records

<Voluntary Activities>

KAIZEN Core Team are well aware of the importance of staff training. Based on their awareness, they held training sessions to explain purposes of the activity and basic knowledge prior to start of activity.



In-house training 1



In-house training 2

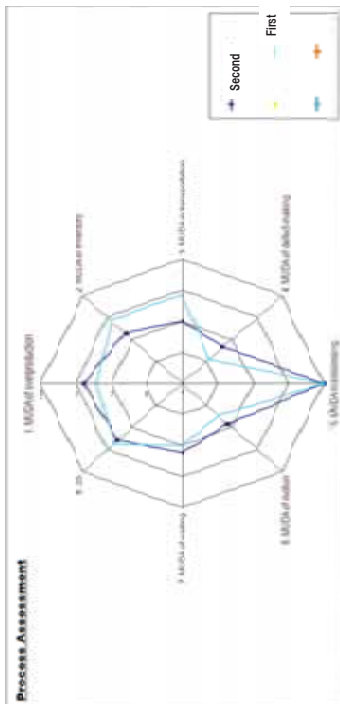
We asked them what they think drastic changes seen in the model workplaces through the PP activities. They pointed out that the focus of conventional in-house activities had been on how to motivate employees. However, they found through the PP activities that the environment improvement is effective in increasing both work efficiency and employees' motivation.

- 24 -

Plant Assessment Results (0810129000614)

<Standardisation of Workplace Environment and Operation>

After completing 4-day initial training course, the study team visited each company to give practical guidance on standardisation of workplace environment and operation.



We deemed that this company is ready for starting QCC activities. We will start the practical guidance on QCC activities from the next visit.

- 25 -

On-site Guidance Records

<Status observed in the first visit>

We confirmed that this company voluntarily implemented Sort (seiri) and Set-in-order (seiton) activities after 4-day training course. Based on the assessment results, we told them that they were fully ready for QCC activities. We decided to give thorough guidance to KAIZEN Core Team on operation standardisation.



- 26 -

On-site Guidance Records

<After Sort (seiri) and Set-in-order (seiton) Activities>

We explained to KAIZEN Core Team the need of clear Sort (seiri) standards. In addition, we explained missing components of Set-in-order (seiton) activities.



Before



After

With good understanding of our guidance, KAIZEN Core Team upgraded their activities to a higher level. They prohibited employees from placing products and inventory directly on the floor.

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On-site Guidance Records

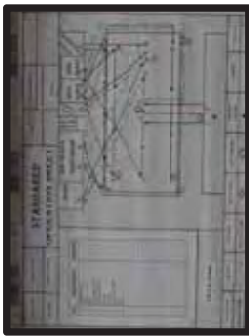


- 28 -

On-site Guidance Records

<Need of Standardised Operation>

We explained to KAIZEN Core Team that the standard operation sheet help them find *Muda* (wastes) in operation.



Model Workplace 1



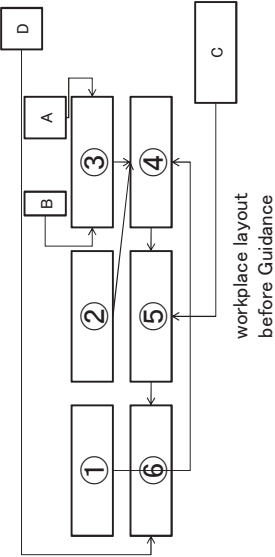
Model Workplace 2

KAIZEN Core Team members understand that figures are particularly important in the standard operation sheet. Based on this, they started activities to eliminate *Muda* (wastes) in operation.

On-site Guidance Records

<Review of workplace layout>

We asked KAIZEN Core Team to draft the workplace layout by streamlining workflows. They reviewed operation and renovated the workplace layout.

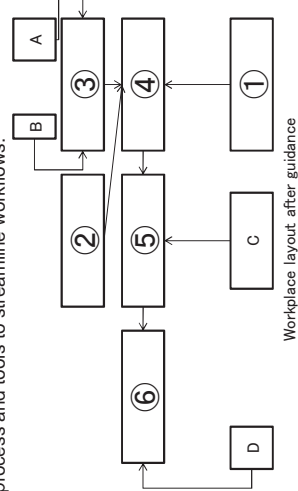


They found *Muda* in transporting in the current workplace layout. They discussed the new workplace layout to eliminate *Muda*.

On-site Guidance Records

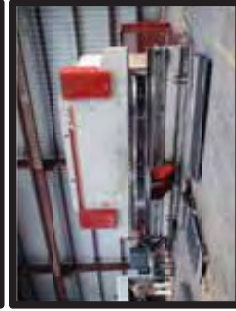
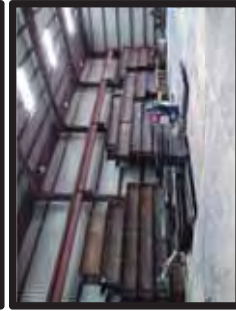
<Review of workplace layout>

KAIZEN Core Team drafted the workplace layout by changing the locations of sub-assembly process and tools to streamline workflows.



They didn't measure working time before changing the workplace layout. Thus, no data was available to measure effects in improving work efficiency from changes in the workplace layout. They came to understand the need of data before changes for comparison.

On-site Guidance Records



On-site Guidance Records

<Extraordinary Operation>

KAIZEN Core Team fully understands the importance of standardisation of workplace environment and operation and steadily upgrades their activity level. However, the production line was in chaos due to extraordinary governmental purchase orders.



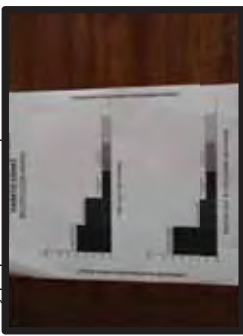
We advised them that they have to explain employees on the background of extraordinary operations. We emphasised the importance of information provision particularly to prevent employees from violating rules.

- 33 -

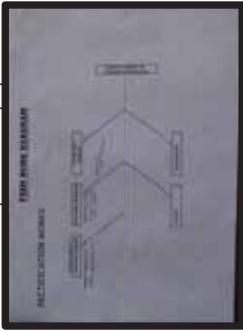
On-site Guidance Records

<QCC Activities>

They explained us that they would carry out QCC activities in order to shorten car rectification work time. They prepared the action plan on how to address the issue for the presentation purpose to us.



Pareto Chart for the issue



Fishbone diagram to solve the issue

Through their presentation, we found that they didn't fully understand how to use Fishbone Diagram. Thus, we explained them the steps and points to note in developing Fishbone Diagram using the issue familiar to them. They understand our explanation and promised to review the action plan.

- 34 -

Future Challenges

<Results from PP activities>

<Preparation for guidance>

From the results of PP activities in Metal companies, the following points should be considered in the future project to sustain KAIZEN activities after on-site guidance:

- 1) The company's key personnel should understand how to organise KAIZEN Core Team
- 2) Need to make employees understand the importance of voluntary efforts to solve issues
- 3) Need to confirm moral of companies in implementing KAIZEN activities

<Consideration of product types>

In the metal industry, market demands to products often determine success of KAIZEN activities. For companies manufacturing products with higher demands such as construction materials, which can be sold with no particular efforts, KAIZEN activities are not really critical and sustainability of such activities is greatly dependent on production statuses. KAIZEN activities in such segments require strong will of owners or GMs to promote KAIZEN.

Before starting guidance, we need to determine if the company's key personnel has solid motivation to implement KAIZEN activities.

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Supplementary KAIZEN Guidance Programme March-April 2011 by KU Team

Progress of KAIZEN at the Company after Guidance by KU

Feedback from company employees:

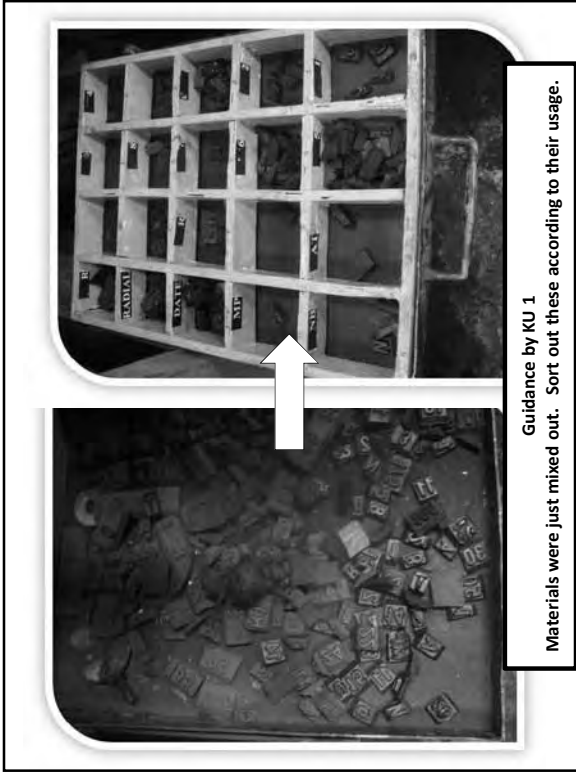
- Supervisor
Before the supplementary guidance, QCC had been conducted in the workplace, but not 5S. Problems at workplace weren't really solved by doing just QCC. With the guidance by KU, 5S has successfully been reintroduced in the workplace, and that's leading us to eliminate MUDA and make operation more efficient. It is clearly understood that sustaining 5S activities in the workplace is important.
- Worker
5S has made the work easier. It has changed the workplace to a safer place than before. Our 5S activities are still only 50% of what we want to do. We want to try many more ideas.

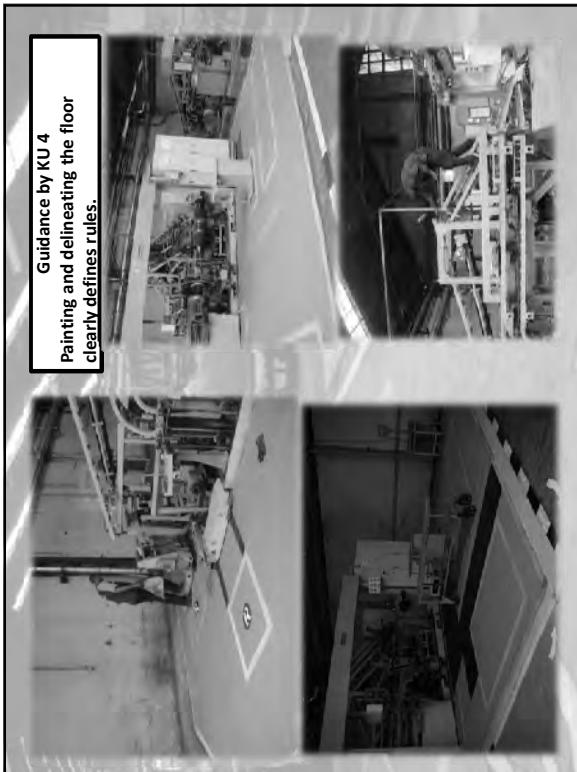
Progress in KU members' consulting capability

The supplementary guidance allowed KU members to gain further experiences required of KAIZEN consultants. In summary, 2/3 of KU members (5 to 6 members) can now be placed at the level of 'KAIZEN Consultant' (level III), while other members are comfortably at the level of 'Assistant Consultant' (level II).

- *Through the pilot project activities till December 2010, 1/3 of KU members were viewed to be at level III.
- *Through conducting supplementary guidance programme in March- April, 2011, 2/3 of KU members are now viewed at level III.

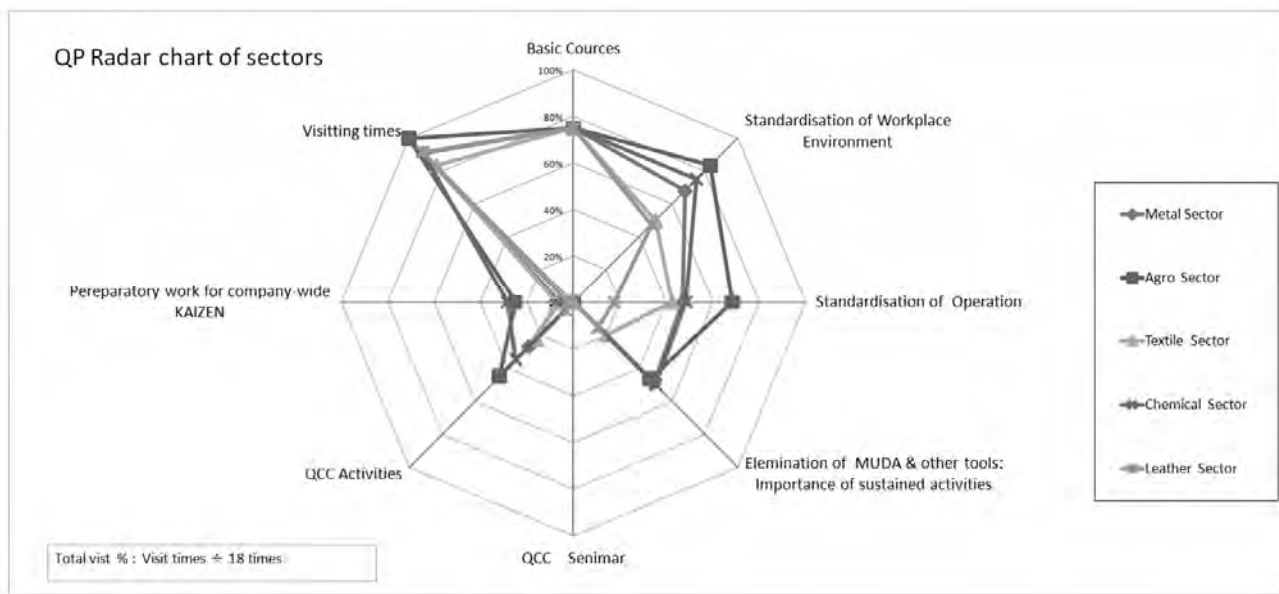
Six KU members participated in the supplementary guidance. 2/3 of them may be viewed to have reached level III. Considering others who did not participated the plan, some of whom are at level III, 2/3 of the whole KU members can be placed at 'KAIZEN Consultant' (level III).



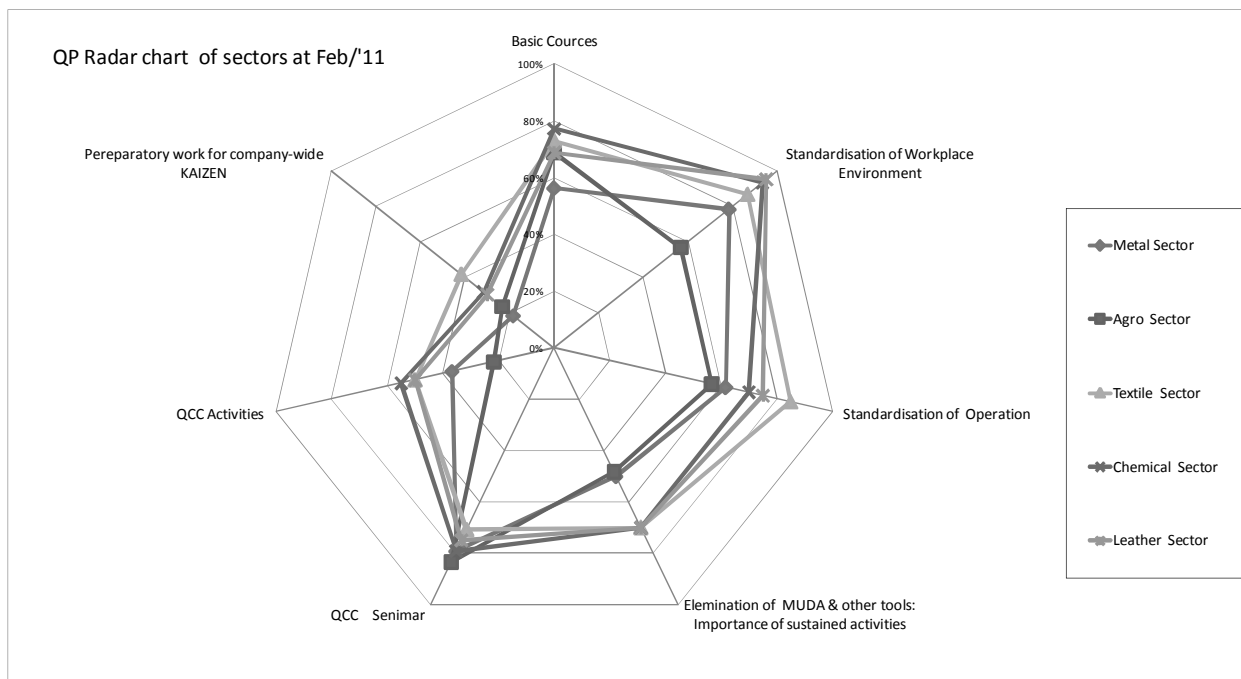


2. QPM Rader Chart by Sector

2.1. First Pilot Project Group



2.2. Second Pilot Project Group



Comments

- ① Understanding of both “Basic Courses Seminar” and ”QCC Seminar, as well as practical implementation of “Standardisation of Workplace Environment”, “Standardisation of Operation” and “Elimination of MUDA & other tools” shows very positive results with higher than 50% in all sectors.
- ② On the other hand, the average value of “QCC activities” implementation is lower than 50%.
- ③ Further, the average value of “Preparatory work for company-wide KAIZEN” is lower than 30%. However, as shown in the previous page, this “Preparatory work for company-wide KAIZEN” contains several sub-elements that companies may only achieve in future. Therefore, the low score at the moment does not mean negative signs. Continued KAIZEN guidance with the follow up by KU will lead to improve in this element.

KAIZEN Guidance Participant Questionnaire **(For Understanding KAIZEN)**

1. Results of an entry point survey (Before KAIZEN)

Responses to the questionnaire were collected from 57 participants in 13 pilot project companies during the first seminar before initiating KAIZEN guidance.

2nd PP KAIZEN Guidance Questionnaire (Before KAIZEN Started)

Company Name	Person	Technical Questionnaire													
		(1Q-1)	(1Q-2)	(1Q-3)	(1Q-4)	(1Q-5)	(1Q-6)	(1Q-7)	(1Q-8)	(1Q-9)	(1Q-10)	(1Q-11)	(1Q-12)	(1Q-13)	
081012900514	1	4	5	NA	4	3	3	5	NA	2	3	3	2	3	
	2	4	4	4	5	4	2	NA	1	2	4	2	NA	2	
081012900614	3	4	4	5	3	3	3	4	3	5	3	4	3	5	
	4	4	4	2	3	4	4	NA	1	2	3	3	2	4	
	5	2	2	3	2	2	2	5	3	2	2	3	2	5	
081012500314	6	3	3	2	4	2	2	5	NA	NA	NA	2	2	1	
0810110001214	7	Attend	4	4	1	2	1	2	1	1	2	5	1	1	2
	8	Attend	4	3	1	4	1	NA	5	1	2	1	1	1	3
	9	Attend	3	3	1	2	1	4	5	NA	2	4	4	NA	2
	10	Attend	3	3	1	2	2	5	4	1	4	2	1	1	3
0810110001304	11	Not attend	3	3	1	3	2	2	5	1	2	1	2	1	2
	12	Not attend	4	3	2	5	2	3	5	3	2	3	4	4	4
	13	Not attend	2	2	4	3	3	2	5	2	2	5	2	2	2
	14	Attend	5	5	2	4	2	1	5	2	2	2	1	1	4
	15	Attend	3	4	1	4	1	1	5	1	3	2	1	1	3
	16	Attend	4	3	1	3	1	NA	3	1	2	1	2	1	3
	17	Attend	4	3	2	2	1	1	5	1	3	1	1	1	3
	18	Not attend	3	3	2	1	4	5	5	3	2	3	3	2	5
0810110001514	19	Not attend	4	2	2	3	5	5	3	4	2	2	2	5	
	20	Not attend	4	2	5	3	3	5	3	4	5	3	2	3	
	21	Not attend	3	3	2	3	3	3	5	1	4	5	4	2	3
	22	Not attend	3	4	2	3	NA	5	5	1	2	5	NA	2	1
	23	Not attend	5	5	2	5	4	1	5	3	2	3	NA	4	5
	24	Attend	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	25	Attend	NA	NA	NA	NA	NA	NA	NA	NA	NA	1	1	4	3
	26	Attend	3	2	1	2	NA	5	5	1	4	1	2	2	2
	27	Attend	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA
	28	Attend	2	1	1	2	2	2	2	NA	2	1	1	1	1
0810113002704	29	Attend	2	2	NA	2	2	1	1	2	1	1	1	1	NA
	30	Attend	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	1
	31	Attend	3	2	NA	1	NA	NA	4	NA	2	1	NA	1	1
0810113002904	32	Attend	4	4	NA	4	NA	4	4	NA	4	3	1	2	NA
	33	Attend	2	2	NA	1	NA	3	ALL	NA	NA	NA	NA	NA	NA
	34	Attend	3	2	NA	1	1	4	2	NA	NA	3	NA	2	NA
081011303114	35	Attend	3	2	NA	3	1	2	4	NA	1	3	NA	NA	2
	36	Attend	3	3	NA	2	1	NA	4	4	2	1	1	2	2
	37	No att	4	3	3	3	2	2	5	1	3	2	3	3	2
0810120001914	38	No att	4	3	3	3	2	2	5	1	3	2	3	3	2
	39	Attend	5	4	1	3	1	3	5	1	1	1	2	1	5
	40	Attend	3	2	2	2	2	3	3	2	4	2	2	3	3
	41	Attend	4	3	4	5	2	3	5	5	4	5	3	3	3
0810120002214	42	No att	5	5	4	NA	3	5	5	1	4	3	2	3	4
	43	No att	4	2	4	3	2	4	5	5	4	2	4	2	3
	44	Attend	4	3	2	4	1	1	3	1	2	2	4	2	5
	45	Attend	2	2	4	4	2	3	2	2	2	2	1	2	3
	46	Attend	5	5	1	5	3	5	5	1	5	5	4	2	5
	47	Attend	4	3	3	3	1	1	3	1	2	2	2	2	2
0810120001704	48	No att	4	4	4	3	2	3	5	2	4	2	2	NA	4
	49	No att	5	4	1	5	2	5	5	2	2	2	2	2	4
	50	Attend	5	3	5	3	2	3	5	4	NA	1	1	1	3
	51	Attend	3	2	3	3	2	3	2	3	2	NA	NA	NA	NA
	52	Attend	5	3	3	4	4	1	3	3	3	1	1	1	3
	53	Attend	4	3	1	3	2	1	5	1	3	3	1	1	3
	54	Attend	5	4	1	5	2	NA	1	1	2	3	1	1	5
	55	Attend	5	3	1	5	1	5	5	1	2	5	1	1	1
0810115002614	56	Attend	4	3	1	2	2	2	5	3	5	4	2	3	3
	57	Attend	3	5	5	5	2	2	4	1	2	3	2	2	2
Total Score		194	166	106	164	103	139	209	85	132	132	99	92	150	
No. of answers		53	53	45	52	48	48	50	44	49	51	47	48	50	
Average Score		3.7	3.1	2.4	3.2	2.1	2.9	4.2	1.9	2.7	2.6	2.1	1.9	3.0	

2. Results of an end point survey (After KAIZEN)

Responses to the questionnaire were collected from 65 participants in 13 pilot project companies after completion of KAIZEN guidance. For the end point survey, the questionnaires were also distributed to QCC leaders, who did not attend the first seminar, so that the number of participants was larger than the one at the entry point survey.

2nd PP KAIZEN Guidance Questionnaire (After KAIZEN Started)

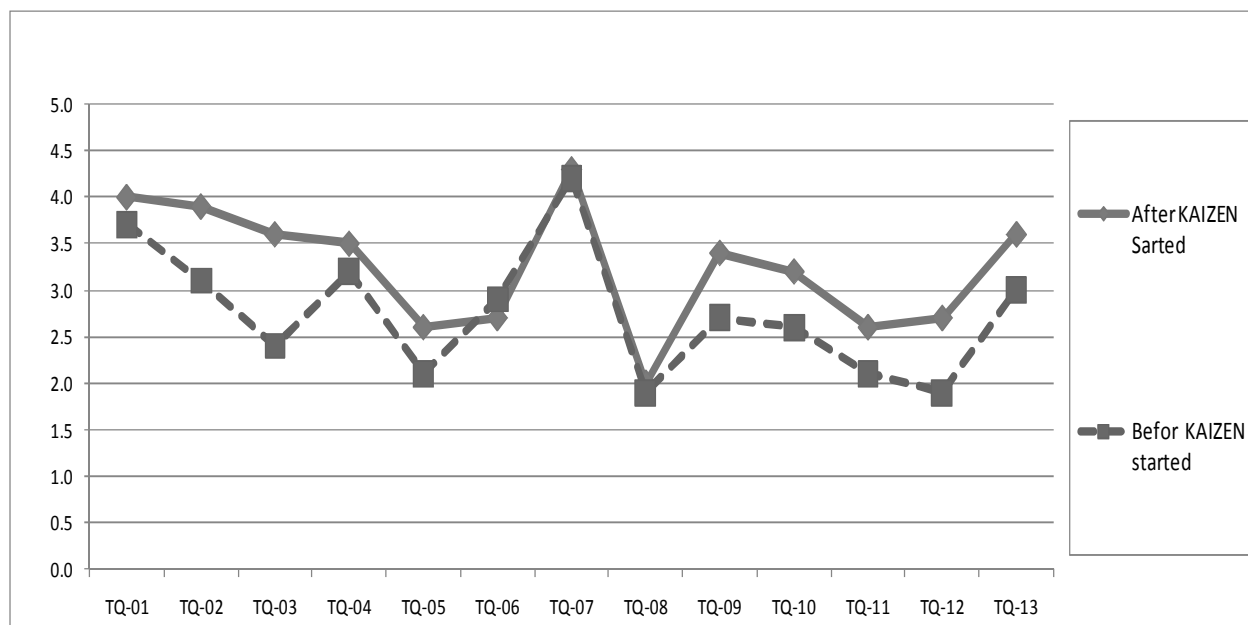
Company Name	Person	Area	Technical Questionnaire													
			(TQ-1)	(TQ-2)	(TQ-3)	(TQ-4)	(TQ-5)	(TQ-6)	(TQ-7)	(TQ-8)	(TQ-9)	(TQ-10)	(TQ-11)	(TQ-12)	(TQ-13)	
0810129000514	1		4	5	2	4	3	3	5	3	4	4	2	3	4	
	2		5	4	2	5	3	5	5	3	5	2	2	2	4	
0810129000614	3		2	3	3	2	2	NA	3	1	2	2	3	2	2	
	4		4	4	4	2	3	4	4	1	4	3	2	2	4	
	5		2	3	2	3	1	3	5	2	5	2	3	2	5	
	6		4	2	4	3	5	5	NA	1	5	2	4	2	5	
	7		3	3	3	2	3	4	4	1	NA	NA	4	3	3	
	8		3	2	4	3	3	2	5	1	3	4	3	5	5	
	9		4	2	4	3	2	NA	5	3	3	3	3	5	4	
	10		2	1	1	2	2	1	5	1	3	2	2	1	1	
	11		2	4	4	2	2	5	4	1	5	3	4	4	2	
	12		3	3	NA	2	NA	NA	4	NA	5	3		4	2	
	13		4	4	4	2	3	4	4	1	4	5	2	2	4	
	14		4	3	4	3	3	3	5	1	2	3	4	3	4	
	0810125000314	15		5	4	3	1	2	2	4	1	1	NA	NA	NA	NA
		16		4	4	3	3	2	1	5	2	2	2	2	2	1
0810110001214	17	Attendance	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	18	Attendance	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	19	Attendance	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	20	Attendance	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
0810110001304	21	Non-attendance	4	4	NA	4	2	1	3	3	2	3	2	2	3	
	22	Non-attendance	3	5	4	4	2	3	5	2	2	5	2	2	2	
	23	Non-attendance	3	4	4	3	3	2	5	2	5	3	2	2	2	
	24	Attendance	4	4	4	5	2	4	3	2	2	2	2	2	5	
	25	Attendance	3	5	1	2	2	1	5	1	2	2	2	1	3	
	26	Attendance	4	4	4	4	2	4	3	1	3	3	2	3	3	
	27	Attendance	4	3	4	4	2	3	5	2	2	5	2	2	2	
	28	Non-attendance	3	3	3	3	2	1	2	3	3	2	2	2	4	
0810110001514	29	Non-attendance	4	5	3	3	2	1	3	3	3	3	2	2	4	
	30	Non-attendance	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	31	Non-attendance	4	3	3	3	2	1	4	3	3	3	2	2	4	
	32	Non-attendance	5	4	3	4	2	1	5	3	3	3	2	2	5	
	33	Non-attendance	5	5	4	4	2	1	NA	NA	3	3	2	2	5	
	34	Attendance	4	4	3	4	2	1	5	3	3	3	2	2	4	
	35	Attendance	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	36	Attendance	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	37	Attendance	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	38	Attendance	4	4	5	4	4	3	4	1	5	3	2	3	4	
0810113002701	39	Attendance	4	3	2	2	3	NA	5	3	2	4	4	4	5	
	40	Attendance	5	4	5	3	4	2	5	3	3	4	4	3	2	
	41	Non-attendance	4	4	2	4	2	1	5	2	3	3	2	2	3	
	42	Non-attendance	5	5	4	5	4	4	5	3	4	4	4	3	4	
	43	Non-attendance	5	5	5	5	5	3	3	5	4	3	4	4	5	
	44	Non-attendance	5	4	5	5	3	5	5	2	4	5	4	4	4	
	45	Attendance	5	4	5	5	3	5	5	2	4	5	4	4	4	
0810113002904	46	Attendance	Positived													
	47	Attendance	Positived													
	48	Attendance	Positived													
081011303114	49	Attendance	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	50	Attendance	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
	51	Attendance	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	NA	
0810120001914	52		4	4	4	3	2	4	5	1	3	3	2	2	3	
	53		2	4	4	5	2	1	5	1	4	3	2	3	4	
	54		5	4	4	4	2	1	5	1	4	4	2	3	4	
	55		4	4	4	3	2	1	5	1	4	3	2	3	4	
	56		3	4	4	5	2	1	5	1	4	3	2	3	4	
	57		5	5	4	5	2	2	5	1	3	3	2	2	5	
0810120002214	58		5	5	5	5	NA	3	5	5	2	5	3	2	5	
	59		5	5	4	3	4	5	5	3	5	3	4	2	4	
	60		4	3	3	3	2	5	5	3	NA	1	3	3	4	
	61		4	3	4	4	2	4	5	1	5	3	2	3	3	
	62		4	4	4	4	3	3	4	3	3	3	3	4	3	
0810120001704	63		4	4	5	4	3	4	5	3	4	4	2	3	3	
	64		5	5	4	3	2	1	3	2	3	2	2	2	3	
	65		5	5	4	4	2	1	5	2	5	5	3	3	4	
	66		3	4	4	4	2	4	1	2	5	3	2	4	4	
0810115002614	67		5	4	4	5	2	NA	1	1	4	3	2	2	3	
	68		5	5	4	5	5	4	5	1	4	5	3	3	3	
	69		5	5	4	5	3	3	5	1	2	4	3	3	5	
Total Score			214	210	188	191	133	131	226	103	178	166	133	141	191	
St. off answers			54	54	52	54	52	49	52	52	52	52	52	58	53	
Average Score			4.0	3.9	3.6	3.5	2.6	2.7	4.3	2.0	3.4	3.2	2.6	2.7	3.6	

3. KAIZEN Guidance Participant Questionnaire Analysis

Based on the survey result from 3-1 and 3-2, the end results are analysed to gauge differences between Before KAIZEN and After KAIZEN.

2nd PP company Result of KAIZEN Guidance Participant Questionnaire for all sector

Question No	After KAIZEN Sartet	Befor KAIZEN started	Difference (After - Before)	Content of Questionnaire
TQ-01	4.0	3.7	0.3	Do you understand neccessity of KAIZEN?
TQ-02	3.9	3.1	0.8	Are you self-motivated to conduct on KAIZEN activities in your company?
TQ-03	3.6	2.4	1.2	Is 5S movement active in your company?
TQ-04	3.5	3.2	0.3	Do you understand importance of 5S?
TQ-05	2.6	2.1	0.5	Is the operation standard established inyour company?
TQ-06	2.7	2.9	-0.2	Are you comitted to using operation standard?
TQ-07	4.3	4.2	0.1	Why is quality improvement important?
TQ-08	2.0	1.9	0.1	How does your company assure quality?
TQ-09	3.4	2.7	0.7	At which level of "elimination of MUDA" are you working?
TQ-10	3.2	2.6	0.6	Does your company encourage employees for MUDA elimination?
TQ-11	2.6	2.1	0.5	Are QC Circles organize in your company?
TQ-12	2.7	1.9	0.8	What kind of QCC program does your company have?
TQ-13	3.6	3.0	0.6	Are you motivated to organize your colleagues or managerial stuff into QCC activities?
Average	3.2	2.8	0.5	



Early Wins Report of Pilot Project First Group

No.	Name of Company	Issues for Improvement		'Early Wins' during project implementation period
		Before KAIZEN	After KAIZEN	
1	0810125000914	Piles of non-core assets were stocked in anywhere in the company	The necessary and unnecessary assets are sorted out or sold, and those fit for re-use recycles as input for processing work	The company recovered additional revenue with an amount of Birr 118, 995.
2	0810143000814	Usable raw materials were disposed of with scraps Wastage of time for searching of manufacturing tools which were jumbled together There were big down time in the production line	Utilisable inputs are identified and re-used again and those unwanted are sold out The disorderly stocked tools were set in order suitably	The company recovered additional revenue with an amount of Birr 25, 500. The company reduced the time loss for searching reduced by 50%
3	0810113003014	The mechanical work shop was in a messy condition. Tools were placed in a disorganised manner resulting wasting of time.	The production process is made to be uninterrupted Waste of searching time for tools is reduced as a result of the tools arranged orderly	The company would be able to recover additional revenue with estimated amount of Birr 1.1 million per annum Time for bringing and searching is reduced by 76%, in monetary term of 6.74 cents per labour hour is saved.
4	0810122002014	Wastes of overproduction, inventory (3 hrs loss/day), motion and movement (4 days loss/day), waiting (5 hrs loss/day) and defect making were prevalent	All these wastes are identified, minimised and managed	Reduced Wastes of overproduction by 50%, motion and movement by 100%, waste of inventory by 75%, defect making by 50% and waiting time by 100%.
5	0810110001614	There was frequent stacking problem, taking 5 hrs/day for maintenance of the chain conveyor for wheat conveyance to the roller mill, resulting in overflow of wheat to the ground which in turn needs labour cost to reload this wheat to the conveyor. There was loss of wheat flour from poor packages.	Daily check-up and programmed cleaning of the conveyor and its room are exercised. Re-using of imported wheat packages, after washing, for flour packaging.	The company recovered 190 qtl of wheat flour (or Birr 12, 730) lost during maintenance time besides it would regain Birr 2448 per year incurred for reloading by labour. The company reduced cost for purchasing new packages by 56% as well as the flour loss resulting in estimated overall additional income of Birr 78, 000 per annum

6	0810110001114	Wastage of time, 6 hrs/day, in the neutralisation process due to the attitudes that the available oil tankers are adequate for this process, was resulting 2000lt of oil per hr remained without production. The by-product of cheese (For majjo) processing, i.e., whey was disposed of as unusable. Milk was disposed of after laboratory examination and due to torn packages. Tape meter useful for product quality check up was placed only at supervisor hand. Wastage of time in searching tools for maintenance purposes	To reduce the time wastage, installation of additional oil tank and aligning it via pipe to other tanks is made. The whey is stored in a refrigerator for a month and churned to obtain table butter. The milk that was disposed of by the company are recycled. Tape meters are made to be available on each carts used in production line.	The company able to produce additional 2000lt/hr for 6hrs/day, which accounted for Birr 204,000. The company obtained 95 kg of butter and 5500lt of whey and sold at a rate of Birr 8,250/month. The company recovered Birr 846 per day as cost saving of additional income. The company reduced a time wastage of 624 minutes per month by half
7	0810110001414			
8	0810113002904			
9	0810124000414	The inventory was too disorganised resulting wastage of time (15-20 minutes/day) in searching needed items There were processing wastages in the Chrome/Galvanised section	The tools are arranged properly in a shelf The inventory items are arranged orderly resulting in reduced movement time of store to work area The wastages causes and effects are identified and reduced	The company reduced a time wastage of 780 minutes per month by half The company able to reduce wastage of time by 76% and recovered Birr 900 per month The company increased its production of chairs by 45% ,i.e, from 25-30 chairs per day to 40 per day, in monetary terms additional income of Birr 500 per day
10	0810124000214	There was 151 tons of rolled sheets for disposal	The rolled sheets are rectified for their defects and used as raw material for manufacturing	The company regained 2.4 million Birr

Early Wins of Pilot Project Second Group

(Metal Sector)

No.	Name of Company	Issues for Improvement		'Early Wins' during project implementation period
		Before KAIZEN	After KAIZEN	
1.	08101250000314	<ul style="list-style-type: none"> ✓ Lead time 12hrs ✓ Search time 10min ✓ Floor space 8 m² ✓ Travel 15m ✓ Total steps 4 steps ✓ Labour saving 5workers ✓ Productivity 20pieces/month ✓ Material saving 20% ✓ Machine down time 24hours ✓ Quality improvement 120pieces defect/month ✓ Safety improvement 2 accident/month 	<ul style="list-style-type: none"> ✓ Lead time 5hrs ✓ Search time 5min ✓ Floor space 2m² ✓ Travel 5m ✓ Total steps 2 steps ✓ Labour saving 2workers ✓ Productivity 30pieces/month ✓ Material saving 80% ✓ Machine down time 8hours ✓ Quality improvement 80pieces defect/month ✓ Safety improvement 1accident/month 	<p>The necessary and unnecessary asset are sorted out and sold those capable ones re-used as input for processing work</p> <p>The company recovered additional revenue of birr amounted to 800, 000ETB</p>
2.	08101290000514	<ul style="list-style-type: none"> ✓ Lead time 2weeks ✓ Search time 1hour ✓ Floor space 5000 m² ✓ Travel 50 meter ✓ Total steps 55% ✓ Labour saving 4 ✓ Transaction 1hr ✓ Productivity 65% ✓ Quality 2-3defect/product ✓ Safety 3-4accident/month ✓ Parts savings 1000Birr/month ✓ Material saving 30000Birr/month ✓ Machine down time 5hour/weeks 	<ul style="list-style-type: none"> ✓ Lead time 1 weeks ✓ Search time 15minute ✓ Floor space 3000 m² ✓ Travel upto 2meter ✓ Total steps 85% ✓ Labour saving 2 workers ✓ Transaction 20minute ✓ Productivity 90% ✓ Quality 0-1 defect/product ✓ Safety 1 accident/month ✓ Parts savings 10,000Birr/month ✓ Material saving 50000Birr/month ✓ Machine down time 2hour/weeks ✓ From scrap management 1000-5000ETB per month saved 	<p>Some of intangible or Qualitative benefits</p> <ul style="list-style-type: none"> ✓ Increased knowledge of KAIZEN ✓ Improved team work ✓ Decreased fatigue or stress ✓ Improve communication ✓ Improved moral ✓ Improved relationship with stake holders ✓ Increased awareness of safety environment ✓ Orderly and pleasant work environment
3.	08101290000614	<ul style="list-style-type: none"> ✓ Lead time 21days ✓ Travel 79 meter ✓ Search time 10 minute ✓ Productivity 1 unit/day 	<ul style="list-style-type: none"> ✓ Lead time 18days ✓ Travel 40 meter ✓ Search time 3 minute ✓ Productivity 1.5 unit/day 	

(Agro-Processing Sector)

No.	Name of Company	Issues for Improvement		'Early Wins' during project implementation period
		Before KAIZEN	After KAIZEN	
1	0810110001514	The spareparts room was in a messy condition. Usable machines, equipments and tools were placed disorderly resulting to wastage of time and working floor space.	Necessary and unnecessary assets are sorted out and those usable items are set in order and re-used as inputs for other processes.	The company reduced searching time for a tool by 50% from 20min to 10 min and reduced occupied floor space by 60% from 375m ² to 150m ² . About eight types of usable machines and equipments worth of 3,246,000 Birr are identified, repaired and reused.
2	0810110001304	Shelfs, tables and other items were not clean or shiny and were placed in a disorganised manner resulting to wastage of searching time, movement, wastage of materials and space. There were down time in the production line due to defected products (biscuits) in the packing machines.	Usable materials and equipments are identified, placed in order and painted with white color and those unwanted are sold out. Material wastes are identified and properly managed. The production process is made to be continuous.	The company gained revenue amounted Birr 4000Br. from selling unnecessary items, and about 4800Br per month by reducing material and labour losses (by decreasing reworks). And about 1200 Br. per month is recovered by reducing downtime. The company reduced movement or steps by 50% from 20 to 10 steps.
3	0810110001214			Early wins report is not submitted by the company. As the company KAIZEN core team members said the company is in its transition period from governmental to privately owned and so inconvenient situation to continue with KAIZEN activities.

(Textile Sector)

N ^o	Company Name	Issues of Improvement		“Early wins” during implementation period
		Before KAIZEN	After KAIZEN	
1	0810113003114	<ul style="list-style-type: none"> ✓ The lead time to deliver raw material from the store to the production area was 45 minutes. ✓ Items were placed in a disorganised manner in the RM store and it was taking 18 minutes to find out a single item. ✓ There was 5155 defects/6 months in cutting section. ✓ 80% of the production area was occupied by unnecessary items. 	<ul style="list-style-type: none"> ✓ By applying 5S activities in the RM store, the lead time has shortened to 15 minutes. ✓ The searching time of tools is reduced by 61% which is 7 minutes. ✓ Defect making is reducing by 74% which is 1354 defects/6 months. ✓ By applying 5S activities, they saved 65% of the floor which was previously occupied by unnecessary items. 	
2	0810113002704	<ul style="list-style-type: none"> ✓ It was taking 25 sec in order to find out a single tool from the tool store. ✓ The machines were being stopped for 20 hrs per week for maintenance purpose. ✓ The factory had been producing 28280.5/kg per a week. ✓ 34.32 m² of the store was needed in order to keep cones and bobbins. 	<ul style="list-style-type: none"> ✓ By applying 5S activities in the tool storage section, they are able to reduce the searching time to 10 sec/tool. ✓ They can save 4 production hrs by minimising the machine downtime to 16 hrs per week. ✓ The productivity has shown an increment of 173.5kg/week which means they can produce 28454kg/week. ✓ By applying 5S, they are able to keep the cones and bobbins only in 6m² in order and easy way. 	<p>☞ The company can save USD 726.5 (Birr 10897.5) by reducing the machine downtime from 20hrs/week to 16hrs/week.</p>
3	0810113002904	<ul style="list-style-type: none"> ✓ 3 liter dye was being wasted per every shift in finishing section because the work was being done manually. ✓ Tools were placed in a disordered manner in the workshop and it took 3 minutes to search and find out a single tool. ✓ In finishing section, the machines used to be stopped for 30 minutes in every 2 hrs. There were around 4 steps to be done manually (Muda in Process). ✓ 6 m² of the store was occupied by items which are placed in a disorganised and scattered manner so that the room was too small to work in. 	<ul style="list-style-type: none"> ✓ The dye wastage is totally avoided by changing the works that had been done manually to automatic. ✓ The searching time is reduced to 0.5 minute by applying 5S in the workshop. ✓ They are able to reduce the machine downtime to 4 minutes/every 2 hrs by avoiding Muda in process. The steps are reduced to 1. ✓ By applying 5S, they can keep the tools in 2 m² floor space so that they can work in a pleasant and wider work area. 	

(Chemical Sector)

No.	Name of Company	Issues for Improvement		'Early Wins' during project implementation period
		Before KAIZEN	After KAIZEN	
1	0810120001914	<ul style="list-style-type: none"> ✓ Lead time 1.75 hr ✓ Search time 10 min ✓ Floor space 200 m² ✓ Labour saving 5 ✓ Productivity 4 Batch/day ✓ Material saving 200 ETB/material 	<ul style="list-style-type: none"> ✓ Lead time 1.4 hr ✓ Search time 1 min ✓ Floor space 400 m² ✓ Labour saving 4 ✓ Productivity 5 Batch/day ✓ Material saving 120 ETB/material 	<p>The team work spirit and work moral improved highly as the introduction of KAIZEN with high level of continual improvement thoughts. Improved plant lay out, new equipments to improve production and paste handling system for water based and synthetic dyes.</p>
2	0810120001704	<ul style="list-style-type: none"> ✓ Lead time at the oil/fat melting area 28 min ✓ Lead time Dissolution of Caustic 20 min ✓ Mixer line 1 and 2 about 40 kg of RM was wasted due to improper arrangement and handling. ✓ 1.05 packaging material used per product ✓ They used to travel 140 meter from Laundry soap production floor to workshop to look for tools and dies and spend about 10 minutes ✓ Packing material storage room cartoons were placed everywhere making the storage place jam-packed and messy with only 9 m² free work space. ✓ In laundry soap production mixer line₁ has 13 m² free work space mixer line₂ has 10 m² free work spaces due to unnecessary in process inventory. ✓ Laundry floor was disorganised with some scraps on the floors (34 m²) ✓ At the mixing pit (96m²) workshop (80m²) ✓ Labour 6 person at melting pit 2 person at Miller machine 	<ul style="list-style-type: none"> ✓ Lead time at the oil/fat melting area 20 min ✓ Lead time Dissolution of Caustic 5 min ✓ No RM wastage ✓ 1.02 packing material used per product ✓ 20 flanges saved ✓ 2 Vacuum pumps saved ✓ 1 conveyer saved ✓ 29 oil drums saved ✓ 250 meter Electric Cable saved ✓ Keeping the tools and Dies at the needed place in laundry soap production making toolbox ✓ Cartoons well arranged in standard way with a fixed place for specific type of packing material let to gain 25 m² free spaces. ✓ Determining the daily consumption of the RM (dolomite) that should be kept at point of use. Free work space gained mixer line₁ 45 m² and mixer line₂ has 22.5 m². ✓ Scraps eliminated from work floor (60 m²) ✓ Mixing pit (120m²) and Workshop (110m²) ✓ Making wheel barrow melting pit labour 	<p>The company QCC team designed a wheel barrow to carry heavy oil drum to reduce fatigue/Muri and increase productivity reducing man power required to handle the operation creating an appealing work environment, and they also design a tool box at the point of use so that it reduces transportation and motion mudas. They also introduced oil refuelling pumps to prevent spills and waste of fuels during manual refuelling, and made a central control switch board for different machine's and Pumps which was in a scattered condition before KAIZEN creating bad operating condition and mudas through this activity they saved about 200 meter (4x4 mm2) electric cable which worth's 15,000ETB. Companies worker problem identification and seeking change continually, to make themselves and their company better through their work.</p>

No.	Name of Company	Issues for Improvement		'Early Wins' during project implementation period
		Before KAIZEN	After KAIZEN	
3	0810120002214	<ul style="list-style-type: none"> ✓ The safety level was lower with problems related to poor work environment 40% ✓ Lead time ✓ Material savings defect rates 5% in plastic unit ✓ It took 20 minute to give an item for the one who needs it from store ✓ It takes 10 minute the right tools in the maintenance workshop. ✓ There is almost no free space in the cosmetics production floor ✓ There were 53 labours working in plastic manufacturing unit ✓ It used to take 4 days to repair machines ✓ Cosmetics production floor no.2 used to manufacture/produce 7,500 Kg per day ✓ In plastic unit defect rate was 6% ✓ There has been two minor injuries per month 	<ul style="list-style-type: none"> reduced to 5 and with other KAIZEN activities miller machine 1 person. ✓ Through well organised work environment safety increased by 5% & reached 45% ✓ Lead time ✓ Material saving defect rate was reduced 2% ✓ Reduced to 15 minute by setting in order by setting material in order. ✓ The search time reduced to 5 minute after implementation of 5S activities. ✓ Through the implementation of 5S activities 60 m² work space acquired ✓ Now the number of labour reduced to 44 ✓ Now the maintenance/repair time for same machine reduced to 1.1/2 days ✓ Now the cosmetics production floor no.2 increased its production to 10,000 Kg ✓ Plastic unit Defect rate reduced to 4% ✓ No injuries recorded since KAIZEN introduced 	<p>Notice boards are filled with information that keep employee well informed about their work and basic KAIZEN knowledge that increases/build their capacity, visual management system established well, work environment standardised well and organised and conducive to increase quality and productivity. Remarkable achievements were gained drawing the potential of employees to sustain and ensure continual improvement through full participation.</p>

(Leather Sector)

No.	Name of Company	Issues for Improvement		'Early Wins' during project implementation period
		Before KAIZEN	After KAIZEN	
1	0810115002614	<ul style="list-style-type: none"> ✓ Search time was 10 min ✓ 100 pcs defect per process 	<ul style="list-style-type: none"> ✓ Search time reduced to 5 min ✓ 75 pcs defect per process 	Improved their work environment well and created appealing work area through implementation of 5S and keep on seeking continual change through KAIZEN.

(Source: 2nd Phase PP companies report Analysed by KAIZEN Unit Members)

KAIZEN Guidance Company Assessment Report

Evaluation of Capability as Future Model (Metal)

	Company Name	KAIZEN progress level	What is afraid to obstruct improvement	Evaluation
Metal	0810129000514	<p>They understood the purpose and execution process of 5S.</p> <p>They trained all employees before starting KAIZEN activities.</p> <p>They established the standards for “Sort” and “Set in Order”</p> <p>They understood the purpose and making process of Standard Operation Sheets and studied effective layout utilising Standard Operation Sheets. They understood QCC activities and started concrete activities.</p>	None.	5
	081012900 614	<p>They understood the purpose and execution process of 5S.</p> <p>They need more effort, because some of the necessary standards for “Sort” and “Set in Order” were not established yet.</p> <p>They understood the purpose and making process of Standard Operation Sheets and utilising it to make effective layout.</p> <p>They understood QCC activities and started concrete activities.</p>	<p>The plant manager, who understood KAIZEN activities deeply retired. KAIZEN activity is operated continuously because some of KAIZEN core team members were 4-day seminar participants. Future development after new plant manager’s arrival should be monitored.</p>	4
	0810125000314	<p>They understood the purpose and execution process of 5S.</p> <p>They were able to keep 5S activities results, but need to establish the standard for “Sort” and “Set in Order”.</p> <p>They haven’t utilised Standard Operation Sheets. We guided them on purpose & preparation process to revise their Standard Operation Sheets.</p> <p>They started concrete QCC activities, and we guided them to make Standard Operation Sheets to show the points of KAIZEN accurately.</p>	<p>The managers did not understand fully the importance of hearing from employees who were working to improve work environment through 5S activities. They should urge to employees to participate to the activities voluntary.</p>	3
	0810125000914	<p>They understood the purpose and execution process of 5S and maintained good work environment.</p> <p>They established the standards for “Sort” and “Set in Order”, but they need some more effort.</p> <p>They have not utilised Standard Operations Sheets. We must guide to proceed work control utilising Standard Operation Sheets. They have not developed concrete QCC activity.</p>	<p>Because one employee of KAIZEN core team member retired, its influence on KAIZEN activity development needs to be monitored.</p>	4
	0810143000814	<p>They understood the purpose and execution process of 5S. They understood 5S results (good work environment) make work easy. They also understood importance of hearing employee opinions.</p> <p>There is a part which is not maintained 5S</p>	<p>KAIZEN core team understood the importance to keep work environment that makes work easy, but they prioritised requirements of increase in production than</p>	3

	<p>activity results.</p> <p>They understood the purpose of Standard Operation Sheets, but it is not clear how to make them. Guidance of how to make them was needed, but promoting and maintaining 5S activities required more urgent guidance attention.</p> <p>They performed QCC activity at the model process, but the activities have not been continuing, because the management put priority on production volume.</p>	<p>keeping work environment in order.</p> <p>They need more definite determination by management to keep work environment in good order.</p>	
0810124001004	<p>They understood the purpose and execution process of 5S, and had intention to expand into office areas. But in response to the market's product shortage, management put priority on production volume without regard to quality improvement.</p> <p>KAIZEN activity results turned worse than the condition before starting it. They have not reviewed Standard Operation Sheets.</p>	<p>There is no need of KAIZEN unless management mind-set changes to quality –conscious mind-set. Under management's non-quality-conscious policy, KAIZEN core team leader is not expected to make meaningful effort in KAIZEN.</p>	2
0810124000414	<p>They understood the purpose and execution process of 5S. Employees enjoy change in work environment.</p> <p>Further guidance was planned considering their efficient equipment layout, after training making Standard Operation Sheets, and then following the activities with the assistance.</p> <p>After management's transfer of many workers out of the model workplaces, the KAIZEN activities were stalling.</p>	<p>Management transferred workers out of their model workplaces to other areas to increase production, leaving the model workplaces short staffed. Management doesn't feel the importance of continuing KAIZEN activities. KAIZEN core team makes effort to keep the activity but no support from management. If this condition continues, employee's discontent is to pile up and activities may stop, in which case resumption of KAIZEN in future is extremely difficult.</p>	1
0810124000214	<p>KAIZEN activities stopped after certain progress was made in understanding 5S's purpose and process, but Standard Operation Sheets have not been made. This was caused by company's operation ordered to be suspended in relation to imported products quality issue. No further KAIZEN activities expected currently.</p>	<p>Their operation is stopped by governmental demand. They don't have time for KAIZEN activities to make countermeasure restarting operation.</p>	2

5: High Probability to be Model Company 4: Possibility Model Company 3: Required Big Effort

2: Required Great Effort 1: Difficult

KAIZEN Guidance Company Assessment Report

Evaluation of Capability as Future Model (Textile & Agro Processing)

	Company Name	KAIZEN progress level	What is afraid to obstruct improvement	Evaluation
Textile	0810113002704	<p>The company has very sophisticated factory established 4 years ago. They have good relations with the employees. They understood the purpose of 5S. They trained all employees before starting KAIZEN activities.</p> <p>They established the standards for “Sort” and “Set in Order”. They made process flowchart, layout drawing and Standard Operation Sheets. They established QCC groups, and demonstrated QCC meeting in front of the guidance team. They became ready to disseminate activities in company-wide scale.</p>	They may need wider KAIZEN experience through dissemination process.	5
	0810113003014	<p>The company is very old and the factory is dusty. They understood the purpose of 5S. They established standards for “Sort” and “Set in Order”. They made process flowchart, layout drawing and Standard Operation Sheets. They established QCC groups and trained them. They became ready to disseminate activities in company-wide scale, but their KAIZEN experience is limited in maintenance area only.</p>	They have some technical problems in their operation processes because all the machines are very old, and spare parts are not readily available. They should improve techniques in key processes such as oiling process, carding process and drawing process in order to defend and develop their business.	4
	0810113002904	<p>The company is very old They understood the purpose of 5S. They trained all QCC members before starting QCC activities. They established standards for “Sort” and “Set in Order”. They made process flowchart, layout drawing and Standard Operation Sheets. They established QCC groups and demonstrated QCC meeting in front of the guidance team. They became ready to disseminate activities in company-wide scale.</p>	All the 4 attendants of the 4-day seminar left from the factory. GM was also changed. But new GM and newly organised KAIZEN core team members recovered very fast almost from scratch by studying by themselves. Their situation deserves follow-up monitoring.	3
	0810113003114	<p>The company is garment industry with typical labour-intensive processes. They understood the purpose of 5S. They established the standards for “Sort” and “Set in Order”. They made process flowchart, layout drawing and Standard Operation Sheets. They established QCC groups and demonstrated QCC meeting in front of the guidance team. They became ready to disseminate activities in company-wide scale.</p>	The company started to introduce ISO QMS recently. Consequently, major players of KAIZEN activities were re-assigned to ISO activities. Top management appears to have lost enthusiasm in KAIZEN.	2

	0810113002814	<p>The company has long history. Because of their financial problem, no progress was made in the KAIZEN guidance. Even the plant tour was refused. They did not undertake any concrete KAIZEN activities even when homework assignments were suggested. The guidance team could not even determine if the company was operating the factory.</p>	<p>The company had a serious financial problem. Due to the problem, GM never appeared at the meeting with the guidance team.</p>	1
Agro-Processing	0810110001614	<p>Established 5 years ago, the company is new in this industry. Top management is very active to introduce KAIZEN. They understood the purpose of 5S and trained all QCC members. They established standards for “Sort” and “Set in Order”. They made process flowchart, layout drawing and Standard Operation Sheets. They established QCC groups and demonstrated QCC meeting and QCC presentation for the shooting for project’s audio visual material. They became ready to disseminate activities in company-wide scale.</p>	<p>The company strongly supported the project’s audio visual material production with QCC activities.</p>	5
	0810110001114	<p>The company is old but the management is active. They understood the purpose of 5S and trained QCC members. They established standards for “Sort” and “Set in Order”. They made process flowchart, layout drawing and Standard Operation Sheets. They established QCC groups and demonstrated QCC presentation in front of the guidance team. They became ready to disseminate activities in company-wide scale.</p>	<p>They cooperated for the project’s audio-visual production activities. They sometimes go back to old management style.</p>	4
	0810110001414	<p>Their product requires keeping freshness and cleanliness. Therefore they mind workplace hygiene very much. They understood the purpose of 5S. They established standards for “Sort” and “Set in Order”. They made process flowchart, layout drawing and Standard Operation Sheets. They established QCC groups and demonstrated QCC presentation in front of the guidance team. But there was some miscommunication between management and QCC leaders that made activities less active. At the last meeting of guidance, however, 5 members of KAIZEN core team attended and showed strong support to KAIZEN activities. They became ready to disseminate activities to the company-wide.</p>	<p>A special meeting with the GM to report the weakening situation of KAIZEN activities prompted the GM to take action to activate KAIZEN activities. It was before our last visit. We believe their activities are restarted and going to better condition.</p>	3
	0810110001514	<p>The company is part of big business group. They understood the purpose of 5S and trained QCC members on KAIZEN activities. They established standards for “Sort” and “Set in Order”. They made</p>	<p>After strong progress of KAIZEN activities at the beginning, their business faced a problem. Factory operation stopped about 1</p>	2

	process flowchart, layout drawing and Standard Operation Sheets. They established QCC groups and demonstrated QCC meeting in front of the guidance team.	month due to lack of order from customer. Raw material storage is empty, and products storage is full. We wonder, with the production / sales planning failure, if they can move to next step.	
0810110001304	<p>The company is rather old but the management was very strong to support KAIZEN activities. They performed the factory washing and shining up activity with all the management and employees including factory workers and office workers.</p> <p>They understood the purpose of 5S. They trained all employees before starting KAIZEN activities.</p> <p>They established standards for “Sort” and “Set in Order”. They made process flowchart, layout drawing and Standard Operation Sheets. They established QCC groups and showing good progress.</p>	Despite their very good initial performance on KAIZEN activities, the company stopped factory operation abruptly for almost 1 month. They suffered operating cash flow shortage in the recent 6 months, stopped direct import of shortening, and finally stopped operation. The company subsequently found a partner and resumption of operation was being planned.	2
0810110001214	<p>The company is old and recently privatised around June 2010.</p> <p>They understood the purpose of 5S. They executed preparation of standards for “Sort” and “Set in Order” and process flowchart, layout drawing and Standard Operation Sheets. They established QCC groups and just started training of QCC members.</p>	The process of privatization was still on-going with their organisation in confusion. They reassigned KAIZEN core team chairman because of management priority in dealing with the privatisation process.	1

5: High Probability to be Model Company 4: Possibility Model Company 3: Required Big Effort
 2: Required Great Effort 1: Difficult

KAIZEN Guidance Company Assessment Report

Evaluation of Capability as Future Model (Chemical)

Appendix 13

	Company Name	KAIZEN progress level	What is afraid to obstruct improvement	Evaluation
Chemical	0810120001914	They understood KAIZEN concept, and made Standard Operation Sheets and started activities for improvement (elimination of Muda). They undertook employee training with textbook in Amharic version. They started QCC activities. GM thinks KAIZEN's productivity improvement is significant enough to stop new investment. They are ready to disseminate KAIZEN activities to entire the company, and the front-line workers of many workplaces other than the model workplaces started 5S activities voluntary.	Nothing special.	5
	0810120002214	They understood KAIZEN concept, and company management (Core Team) made KAIZEN action plans, designated responsible personnel, implemented them including facility remodeling. They established QCC organisation, and undertaking QCC activities with selecting themes. They conducted employee training to front-line employees. Employee attitude is positive towards improving productivity and workload appreciate to KAIZEN activities. KAIZEN core team made KAIZEN dissemination plan in company-wide and they were implementing KAIZEN activities in turn. And already three workplaces outside of the model workplaces started 5S and further expansion is planned.	Nothing special	5
	0810120001704	They understand KAIZEN concept, and get proactively involved in KAIZEN activities. They undertaking employee training in Amharic. They made Standard Operation Sheets, and took up workload reduction theme for front-line workers. They established QCC activities and regular meeting was set. They established 4 KAIZEN action plans, and assigned designated responsible personnel. They are ready got implementation under way.	Nothing special	5
	0810117001804	QCC leader of model workplace has confidence to proceed KAIZEN activities. KAIZEN Core team members don't have interest much about KAIZEN, KAIZEN core team members' attendance became extremely poor at the guidance meetings. Company-wide dissemination is expected to be challenged.	The KAIZEN core team have very less attentions to KAIZEN activities.	3
	0810122002114	KAIZEN core team members did not understand KAIZEN's basic concepts such	Lack of experience.	3

	as 5S and standardisation. 5S implementation at model workplaces was not good. KAIZEN secretary has an eagerness to implement KAIZEN activities, they might be improved their performance if KAIZEN training will be continued.		
0810122002014	They implemented 5S activities at model workplace. But 5S activities is suspended. They understood little the basic standardisation concept. They trained KAIZEN to all employees but didn't assign the activities. They explained company-wide expansion of 5S but didn't execute at all.	KAIZEN core team understood the KAIZEN knowledge, but they recognised the lack of power to disseminate KAIZEN activities and lack of practicing ability for KAIZEN activities.	2

5: High Probability to be Model Company 4: Possibility Model Company 3: Required Big Effort

2: Required Great Effort 1: Difficult

KAIZEN Guidance Company Assessment Report

Evaluation of Capability as Future Model (Leather)

	Company Name	KAIZEN progress level	What is afraid to obstruct improvement	Evaluation
Leather	0810115002614	The owner is positive towards KAIZEN. 5S activities got started but some workplaces 5S activities returned to previous situation. They made Standard Operation Sheets and then exercised elimination of MUDA. right after guidance period ended. They established QCC organisation, and they continue KAIZEN activities through QCC members. They set up dissemination plan.	Lack of understanding concept of standardisation.	3
	0810115002314	They understand KAIZEN concept, and workers in model workplace have changed to positive for the activities. They worked to make Standard Operation Sheets and Standard Operation Distribution Sheet, but have not been utilised enough.	Lack of experience.	3
	0810115002514	They have 2 Quality and Productivity Improvement activities, KAIZEN and Benchmarking. They have accepted Benchmarking help from the organisation and stopped KAIZEN activity.	Managerial difficulties to simultaneously coordinate KAIZEN and benchmarking activities by same of those managerial staff	1

5: High Probability to be Model Company 4: Possibility Model Company 3: Required Big Effort 2: Required Great Effort 1: Difficult

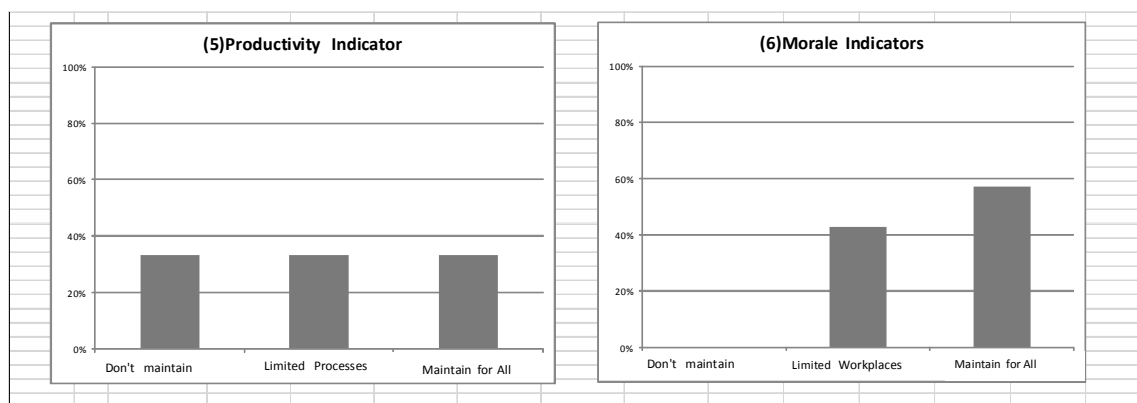
Basic Indicators for Management of Production

Survey on the management status of basic management indicators was conducted on 20 out of total 28 companies of pilot project participants. Responses were received from 7 companies (response rate 35%).

1) Responses to questionnaires

No.	Company's Name	(1)Quality		(2)Cost		(3)Delivery	(4)Safty	(5)Productivity				(6)Morale	Total Average
		Q1. Defect Rate or Yield	C1. Product Cost (per unit product)	C2. Gross Profit by product	Average	D1. Delivery schedule non-adherence count	S1. Labour injury count	P1. Machine Utilisation Rate	P2. Production Capacity	P3. In-process Inventory	Average	M1. Absentee Ratio	Total Average
1-01	1	1	1	1	1	2	1	2	1	2	2	2	1.4
1-02	2	3	1	3	2	3	2	3	3	3	3	2	2.5
	Average	2.0	1.0	2.0	1.5	2.5	1.5	2.5	2.0	2.5	2.3	2.0	2.0
2-01	3	2	1	1	1	3	2	3	1	3	2	1	1.9
	Average	2.0	1.0	1.0	1.0	3.0	2.0	3.0	1.0	3.0	2.3	1.0	1.9
3-01	4	1	1	1	1	2	1	1	1	2	1	1	1.2
3-02	5	1	1	1	1	2	1	1	1	2	1	1	1.2
3-03	6	2	3	3	3	2	3	2	2	3	2	1	2.2
	Average	1.3	1.7	1.7	1.7	2.0	1.7	1.3	1.3	2.3	1.7	1.0	1.6
4-01	7	3	1	2	2	2	1	3	2	1	2	2	1.9
	Average	3.0	1.0	2.0	1.5	2.0	1.0	3.0	2.0	1.0	2.0	2.0	1.9

2) Histogram of responses by indicators



3) Analysis and evaluation

Responses from seven companies were analysed as follows.

	Results	Analysis & Consideration
(1) Quality	Maintain for all (43%) Limited Products (29%) Don't maintain (29%).	Although almost half of respondents maintain quality data for all, overall level of data management in relation to quality is not high.
(2) Cost	Maintain for All (71%) Limited Products (7%).	Almost 80% maintain cost data in some extent. The level of data management in terms of cost management is relatively good.
(3) Delivery	Don't maintain (29%) Without associated info (71%) Maintain for All (0%)	The level of data management in terms of delivery data is significantly low.
(4) Safety	Don't maintain (14%) Without associated info (29%) Maintain for all (57%)	The level of safety data management is relatively high. Safety management for employees is one of core requirements to maintain good workplace condition. However, 14% replies "Don't maintain" in addition to other 29% of "without associated info". This suggests that managements' safety awareness is still low in some companies.
(5) Productivity	Don't maintain (33%) Limited Processes (33%) Maintain for All (33%)	The degree of data management for productivity data is not high. The background is unavailability of consecutive measurement of productivity, as well as lack of appropriate indicator to measure the productivity.
(6) Morale	Don't maintain (0%) Limited Workplaces (43%) Maintain for All (57%)	The level of data management for morale (attendance) data is relatively good. This is because employee's wages are paid according to the number of working days.
Comprehensive evaluation	The number of companies responded to the survey on basic management indicators is only 7 companies (25%). These include companies where KAIZEN activities are well implemented. However, the level of data management for basic management indicators is still poor even at these companies having good KAIZEN practice. From the fact that many companies does not participate this survey, if the average level of data management for basic management indicators is calculated across all the pilot project companies, it would be significantly low. Among indicators, the morale (attendance) data which is the basis for wage calculation as well as the cost data which directly related to the revenue are well managed. For other indicators to be utilised for improving management capability of companies, such as the delivery data or the productivity data, the level of data management is yet need to be improved.	

Morale Survey with Pilot Companies

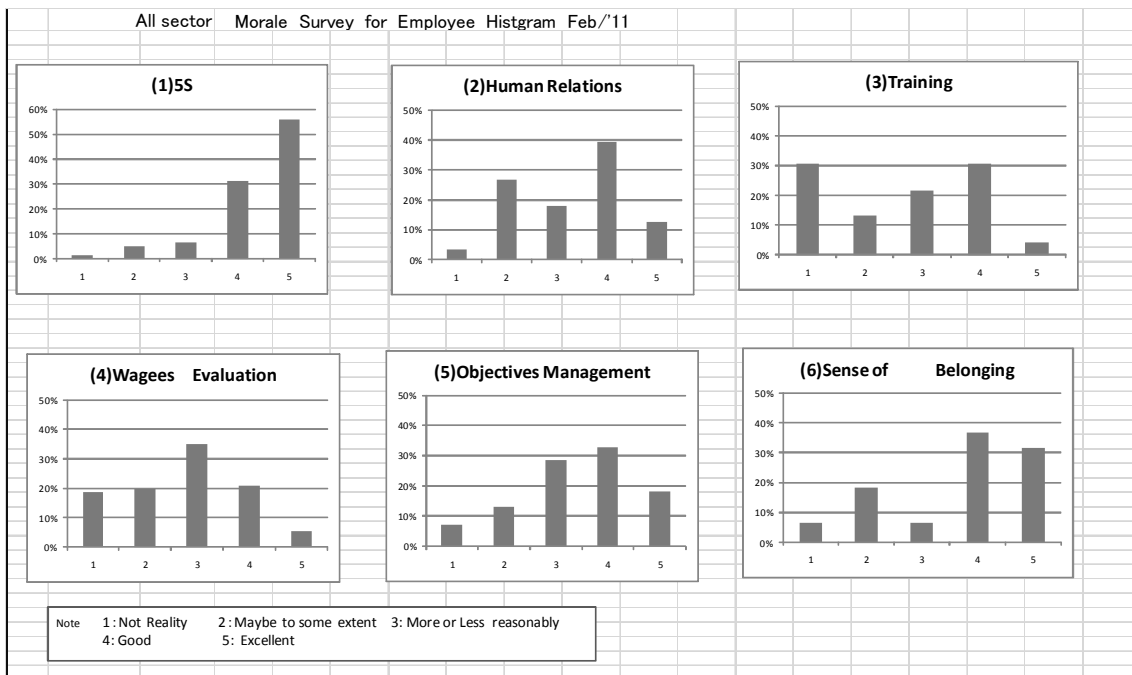
Morale survey was conducted with both employees and managers of the pilot project companies. Based on the outcome, each group's morale was analysed for evaluation.

1 Morale survey to employees

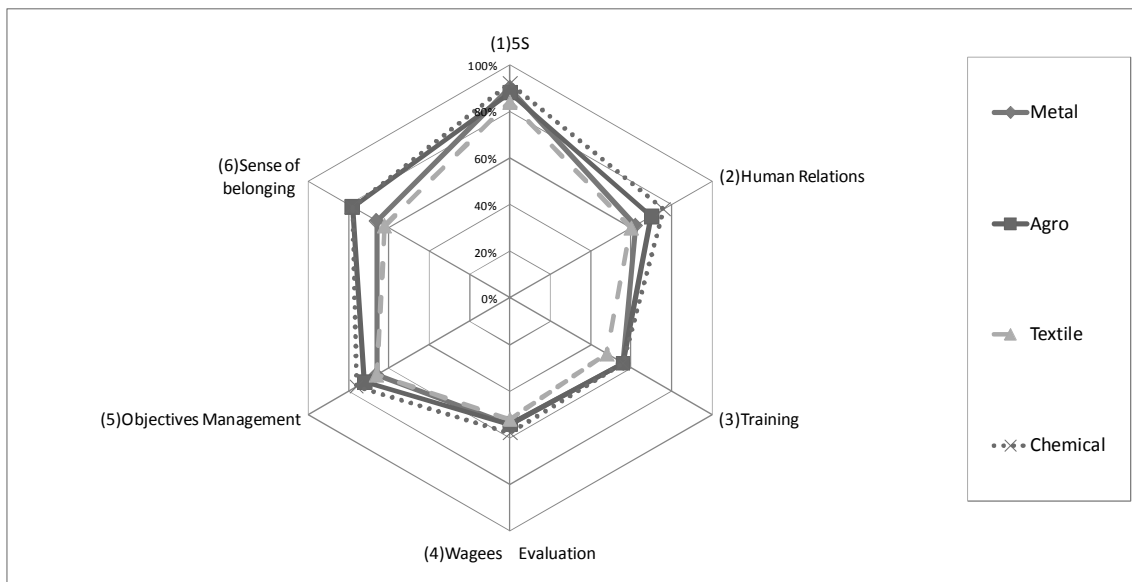
1) Responses to questionnaires

	Company Name	(1)SS	(2)Human Relations				(3)Training		(4)Wagees Evaluation			(5)Objectives Management				(6)Sense of belonging	
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16
1-01	1	4	2	4	4	3	4	2	2	4	1	2	3	2	3	4	4
1-02		3	3	4	4	4	4	3	3	4	4	3	3	3	4	5	3
1-03		5	4	4	4	3	4	3	4	3	3	3	4	4	4	4	4
2-01	2	5	2	4	2	2	4	2	1	2	3	3	1	2	3	2	2
2-02		4	2	3	3	2	4	2	5	3	3	3	1	2	3	2	2
2-03		5	2	5	3	5	5	1	1	1	2	2	1	5	2	3	5
2-04		5	4	4	4	3	2	4	4	4	4	5	4	4	4	5	5
2-05		2	NA	4	4	5	5	4	5	3	3	3	4	4	3	4	5
2-06		4	5	4	4	3	2	2	4	1	4	1	4	4	3	2	5
2-07		5	2	2	2	2	2	3	3	1	1	3	3	1	5	4	4
2-08		4	4	5	3	4	4	4	4	4	4	4	4	4	4	4	4
2-09		3	3	4	4	4	4	1	1	3	3	3	3	4	3	4	4
2-10		5	2	5	4	2	2	4	4	1	2	2	3	1	3	2	5
2-11		5	4	2	2	3	2	5	3	1	3	3	1	2	3	2	4
2-12		5	3	4	4	5	4	4	4	2	3	3	4	4	3	5	4
2-13		5	5	5	1	5	2	4	4	2	5	4	5	4	NA	NA	NA
3-01	3	5	2	2	2	2	3	1	4	2	2	3	3	2	3	5	2
4-01	4	5	4	4	4	4	4	4	4	4	2	3	5	4	5	5	5
4-02		5	2	4	4	2	2	1	1	1	3	3	1	1	3	4	5
4-03		4	NA	4	4	3	4	2	2	2	2	2	3	4	4	4	5
4-04		5	4	4	4	2	3	2	1	3	3	3	4	4	5	5	5
5-01	5	5	3	2	3	3	5	1	1	2	4	1	4	2	5	4	5
5-02		5	2	4	4	5	4	1	3	2	2	4	3	4	3	3	1
5-03		5	3	4	4	4	5	2	4	5	2	3	4	4	5	5	4
5-04		2	4	4	4	4	4	3	4	4	4	3	3	3	3	4	4
6-01	6	4	2	2	3	3	3	NA	4	4	4	1	3	2	3	2	
6-02		5	2	3	2	5	3	4	4	3	1	3	4	3	4	3	4
6-03		5	2	3	2	4	3	4	4	3	1	3	4	3	4	3	4
7-01	7	5	4	4	4	3	4	2	2	3	4	2	3	3	3	4	3
7-02		3	4	5	3	4	5	4	4	1	1	5	5	1	5	5	5
7-03		5	2	4	4	3	4	3	3	2	3	2	3	3	4	4	4
8-01	8	3	1	1	2	2	4	1	1	2	3	3	2	4	4	4	4
8-02		4	4	3	2	3	3	2	3	2	1	2	3	2	3	3	2
8-03		4	2	4	2	3	2	1	1	2	2	1	3	2	5	3	3
8-04		4	4	5	5	5	4	4	4	4	5	5	4	4	5	5	5
9-01	9	5	2	1	2	3	2	3	3	1	3	3	2	5	5	2	
9-02		5	4	4	5	4	4	4	5	4	5	4	4	4	4	5	4
9-03		5	4	4	5	4	4	4	5	4	5	4	4	4	4	5	4
9-04		4	3	4	4	3	2	3	4	3	3	4	4	3	4	4	4
10-01	10	5	2	2	2	2	3	1	1	1	1	1	2	3	5	1	1
10-02		4	2	3	1	2	5	1	1	1	3	1	3	2	4	2	3
10-03		4	2	4	2	2	4	1	1	1	1	2	3	2	4	2	2
10-04		1	2	1	1	1	2	1	1	2	1	1	2	2	1	2	2
11-01	11	5	5	4	4	4	4	4	4	4	4	5	5	5	5	5	5
11-02		4	3	3	4	3	3	3	4	2	3	3	4	3	3	2	2
11-03		5	NA	4	4	3	5	1	1	3	2	3	4	3	4	4	5
12-01	12	4	2	3	2	2	2	2	3	4	2	1	3	4	2	3	4
12-02		2	4	4	4	1	4	1	1	NA	5	4	5	1	3	NA	4
12-03		4	2	2	2	3	1	1	2	1	1	3	3	1	3	2	1
12-04		5	2	2	2	2	2	2	2	3	1	2	3	3	5	2	2
13-01	13	5	4	5	4	5	5	3	3	3	4	5	4	5	5	5	4
13-02		4	5	5	4	5	5	3	3	3	4	3	4	5	4	5	4
14-01	14	4	5	4	3	2	5	3	3	4	4	3	3	3	3	4	4
14-02		5	2	4	3	3	3	3	3	2	1	3	3	4	3	4	5
14-03		4	4	4	4	4	3	4	4	3	3	3	4	3	4	4	4
15-01	15	5	2	2	2	3	2	3	4	1	1	3	3	2	5	4	1
15-02		4	5	4	4	5	5	4	4	4	1	4	3	4	5	5	5
16-01	16	5	4	4	4	4	3	1	1	2	2	3	5	2	5	5	5
16-02		5	4	4	4	4	4	1	1	4	2	3	4	1	3	4	2
16-03		5	4	3	4	2	2	1	1	3	3	3	4	3	1	4	5
16-04		5	4	3	4	2	2	1	1	3	3	3	5	1	2	4	5

2) Histogram of responses by elements



3) Radar charts by sector



Remarks: No much difference is seen among different sectors at employee level.

4) Analysis and evaluation

Morale survey was conducted with 61 employees from 16 pilot project companies. Based on the outcome, employee's morale in terms of 5S, Human Resources and Organisation was analysed for evaluation.

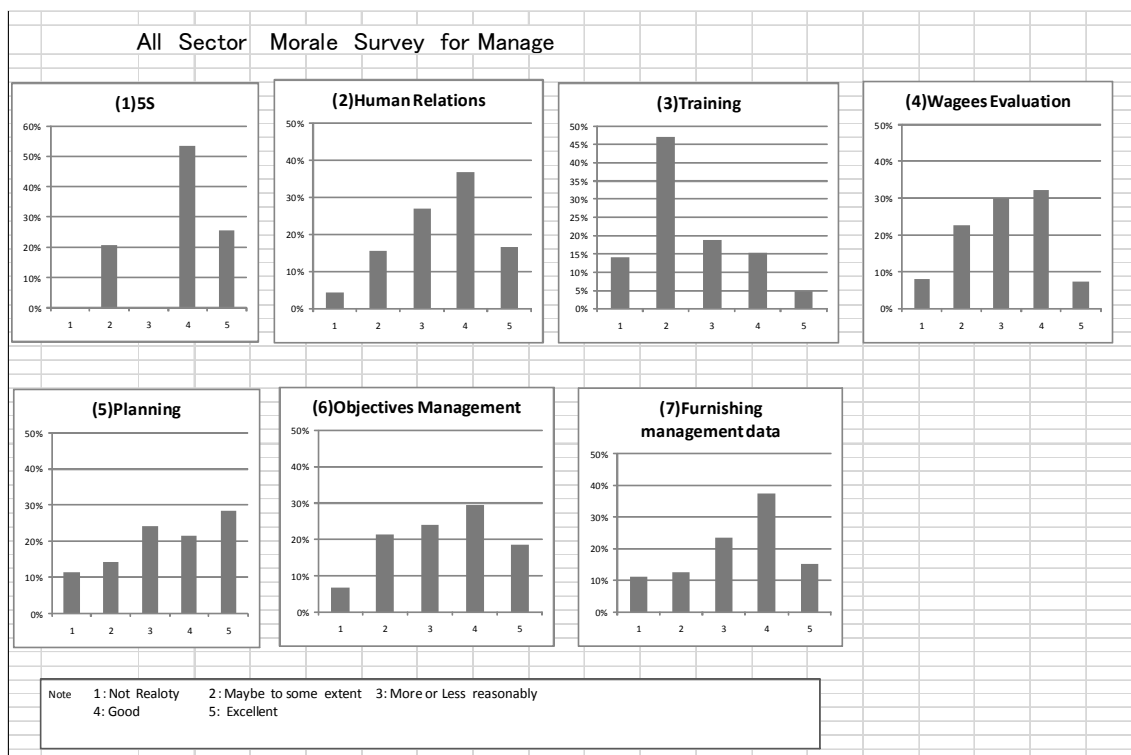
Questions	Results	Analysis & Consideration
(1) 5S	Very good (56%) Good in model workplace (31%)	Among all employees, 87% of them positively evaluate their degree of 5S practical implementation.
(2) Human Relations	Good (39%) not good (27%)	Employees' opinion varies among companies. It indicates some companies prepared good working environment based on mutual trust with employees but others does not.
(3) Training	Not really (31%) Good (31%) Somewhat OK (12%) Reasonable (22%)	Training is not sufficiently conducted for employees at most of companies. Companies should focus on employee training in future.
(4) Wages Evaluation	More or less reasonable (35%) Not really (19%) Maybe to some extent (20%) Very fairly done (5%) Mostly properly done (21%)	Among all employees, 20% complain about imbalances between workload and wages while 26% expressed their contentment. Overall, employees who are not satisfied occupied major part.
(5) Objectives Management	Well managed (33%) Very well managed (18%) Not at all and to some extent (20%)	Among all employees, 50% are satisfied with the current objectives management, while only half of them express their concern. Therefore, the objectives are well managed.
(6) Sense of Belonging	Work at least for some time (37%) Work for a long time (32%) May leave for another chance (18%)	Most of employees want to work for the company where they're currently working for. However, some are flexible to change the workplace for better chance.
Comprehensive Evaluation	Most of employees expressed their satisfaction for the KAIZEN activity, especially for 5S introduced by the pilot project. The survey reveals employee's high degree of sense of belonging to their companies. However, considering the current labor market in Ethiopia, their sense of belonging may come from lack of alternative selection.	

2. Morale survey to mangers

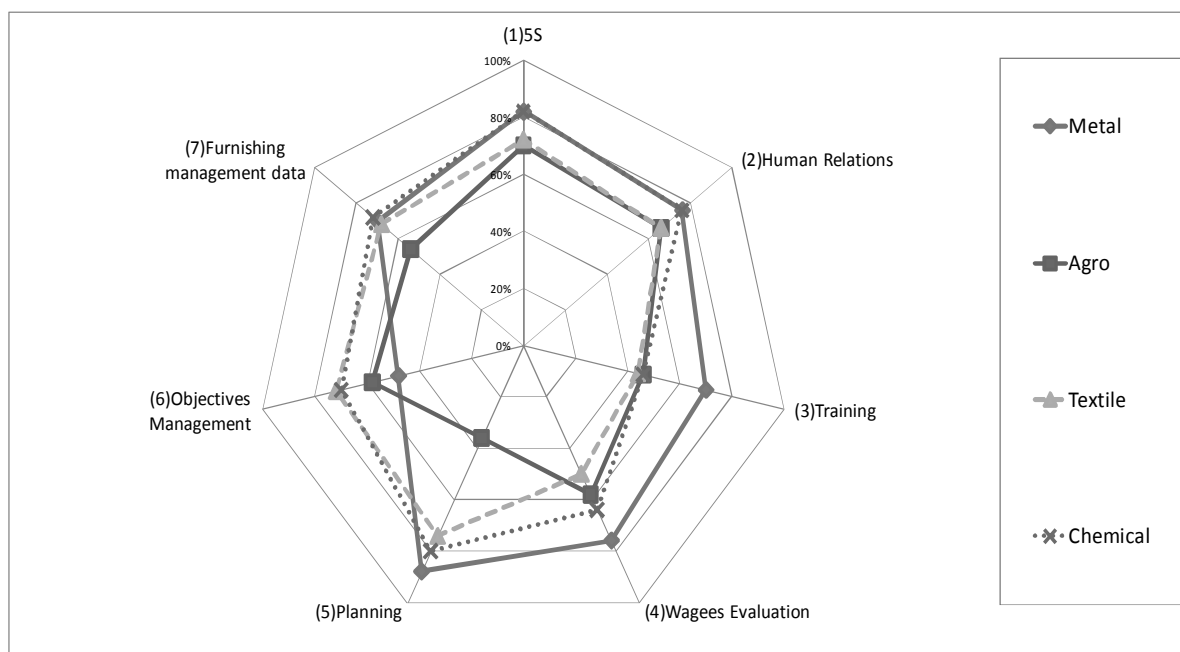
1) Responses to questionnaires

		All sector	Morale Survey answer for Managers																
	Company's Name	(1)5S	(2)Human Relations					(3)Training		(4)Wagees Evaluation				(5)Planning		(6)Objectives Manage		(7)Furnishing management data	
		Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17	
1-01	1	2	3	1	2	1	1	1	2	4	2	1	4	3	2	2	4	2	
1-02		4	5	5	4	5	5	5	5	5	4	5	4	4	5	2	4	4	
2-01	2	5	4	3	5	5	5	3	5	5	5	4	NA	NA	NA	NA	NA	NA	
2-02		4	4	4	4	4	4	4	4	4	4	4	NA	NA	NA	NA	NA	NA	
2-03		4	4	3	4	3	4	4	3	3	4	3	NA	NA	NA	NA	NA	NA	
3-01	3	5	5	5	3	4	4	3	4	4	4	4	5	5	4	NA	NA	NA	
4-01	4	4	3	2	4	2	4	2	5	4	3	3	4	2	2	2	4	3	
5-01	5	2	3	4	4	4	3	1	3	2	2	3	2	NA	2	3	4	3	
5-02		2	4	4	5	2	4	2	2	NA	3	2	NA	NA	NA	5	2	3	
5-03		4	4	4	4	5	4	3	4	4	4	4	3	4	3	4	2	4	
6-01	6	2	4	3	3	3	2	2	3	1	2	1	2	2	2	2	1	2	
6-02		4	2	2	3	3	3	2	1	1	3	2	NA	NA	2	4	NA	NA	
6-03		4	3	4	3	3	3	2	2	2	3	3	1	2	1	3	2	4	
6-04		4	2	4	4	2	2	1	2	3	4	5	1	1	1	5	5	4	
7-01	7	2	3	5	3	3	2	2	2	4	NA	4	3	4	4	2	3	3	
7-02		4	4	4	4	4	3	2	4	3	3	4	2	4	4	5	4	3	
7-03		4	3	4	3	3	1	3	3	4	4	5	2	4	3	5	4	5	
7-04		4	3	3	2	4	2	2	2	3	3	4	2	3	2	4	3	3	
7-05		4	2	2	2	3	3	2	2	NA	NA	NA	NA	NA	NA	NA	NA	NA	
8-01	8	4	4	4	4	NA	4	2	NA	3	4	3	NA	3	2	3	4	3	
8-02		5	5	3	4	3	3	2	4	3	4	1	NA	NA	NA	5	NA	NA	
8-03		4	NA	2	2	NA	4	2	2	2	3	2	1	1	1	3	1	3	
9-01	9	5	4	3	3	4	4	3	4	3	4	4	4	5	3	4	3	4	
9-02		5	5	4	4	4	3	2	4	2	3	4	4	5	3	5	4	5	
9-03		5	3	4	4	4	4	3	3	3	4	4	4	5	4	3	4	4	
9-04		2	3	3	4	3	4	2	4	4	4	4	4	5	4	4	4	3	
10-01	10	5	5	3	2	2	1	1	2	2	1	2	1	3	3	5	1	3	
10-02		5	2	4	3	5	1	2	1	1	2	3	1	3	3	5	1	3	
10-03		4	2	4	2	5	1	2	1	2	1	2	1	3	2	2	1	1	
11-01	11	2	3	4	4	4	4	2	2	2	2	2	3	5	4	4	4	4	
12-01	12	4	5	3	4	5	3	3	3	3	4	4	3	5	3	4	5	4	
12-02		4	2	2	3	4	2	1	3	2	1	3	5	5	4	3	4	4	
12-03		2	2	1	2	4	2	1	2	1	2	2	3	5	4	3	4	4	
13-01	13	4	5	5	5	5	5	3	4	3	5	5	5	4	4	5	3		
13-02		4	4	4	4	4	4	2	2	3	5	2	5	5	4	5	5	5	
14-01	14	5	4	4	5	5	4	1	1	2	2	4	3	5	4	5	5	4	
14-02		4	3	5	3	4	2	2	2	4	3	3	5	3	3	4	1	4	
14-03		4	3	5	3	4	2	2	2	4	3	3	5	3	3	5	1	4	
15-01	15	5	5	3	3	5	5	2	2	2	4	3	3	5	2	5	2	3	
15-02		2	5	3	5	5	5	2	4	3	4	4	3	4	1	5	2	2	
15-03		4	3	4	4	4	3	3	4	4	3	3	4	4	3	4	4	5	
16-01	16	4	3	2	2	3	1	1	2	3	2	3	2	2	1	2	2	3	
16-02		5	3	4	4	4	4	2	2	3	2	2	3	5	3	4	5	5	

2) Histogram of responses by elements



3) Radar chart by sector



Remarks: Substantial variances were revealed among sectors at manager level.

4) Analysis and evaluation

Morale survey was conducted with 43 managers from 16 pilot project companies. Based on the outcome, manager's morale in terms of 5S, Human Resources and Organisation was analysed for evaluation.

Questions	Results	Analysis & Consideration
(1) 5S	Good in model workplace (56%) Very good (26%)	Among manager, 79% of them positively evaluate their degree of 5S practical implementation.
(2) Human Relations	Good (37%) Reasonably good (27%) Excellent (17%)	Most of managers (81%) believe the mutual relationship and good working environment in their companies.
(3) Training	Not quite enough (47%) Not really (14%) Good (15%) Excellent (5%)	Among managers, 61% of them negatively replied while 20% is positive. The KAIZEN activities in companies having training system results achievement. Therefore, the establishment of training system would be very effective to activate KAIZEN activities.
(4) Wages Evaluation	Mostly properly done (35%) Maybe to some extent (30%) Very fairly done (7%)	Among manager, 69% of them replied that they evaluated and determined properly employee's wages.
(5) Planning	Very well managed (29%) Well managed (21%) To some extent (24%)	Among managers, total 74% conducts the planning while 11% replies "not at all" which result the wide gap among companies.
(6) Objectives Management	Good (29%) Excellent (19%) More or less reasonably (24%) Not at all or to some extent (28%)	Total 72% of managers replied positively while only 28% of them responded negatively. The objective management is so far well managed.
(7) Furnishing management data	Good (38%) More or less reasonably (24%) Excellent (5%) Not at all or to some extent (13%) Not really (11%)	Most of managers (77%) replied that they furnish management data well while 23% of them don't. There is a wide gap among companies. Especially, Agro sector is poor in furnishing management data compare to other sectors. Further, Japanese consultants recognised the poor administration of management data in companies through other means of inspection. Therefore, the evaluation of this indicator by companies may not be adequate.
Comprehensive Evaluation	Most of managers express their satisfaction for the KAIZEN activity, especially for 5S introduced by the pilot project.	