

JORDAN ENTERPRISE DEVELOPMENT CORPORATION (JEDCO),
THE HASHEMITE KINGDOM OF JORDAN

THE PROJECT
ON
THE DISSEMINATION OF
QUALITY / PRODUCTIVITY IMPROVEMENT (KAIZEN) PRACTICES
FOR SMALL AND MEDIUM ENTERPRISES
IN
THE HASHEMITE KINGDOM OF JORDAN
MAIN REPORT

MAY 2013

JAPAN INTERNATIONAL COOPERATION AGENCY

UNICO INTERNATIONAL CORPORATION

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13-069

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Abbreviations

| | |
|---------------|---|
| ACI | Amman Chamber of Industry |
| ASEZ | Aqaba Special Economic Zone |
| BDC | Business Development Center |
| C/P | Counter Part |
| CBJ | Central Bank of Jordan |
| EDP | Executive Development Program |
| EJABI | Euro Jordanian Advanced Business Institute |
| EU | European Union |
| F/U | Follow-up |
| FFF | Faculty for Factory |
| FZC | Free Zone Corporation |
| GDP | Gross National Product |
| GM | General Manager |
| GMP | Good Manufacturing Practice |
| GSC | Garment Design and Training Services Center |
| HACCP | Hazard Analysis (and) Critical Control Point |
| HAPPI Program | Human Affiliated Program for Productivity Improvement |
| ICI | Irbid Chamber of Industry |
| IDD | Industrial Development Directorate |
| IMC Jordan | Institute of Management Consultants and Trainers of Jordan |
| ISO | International Standard Organization |
| IT | Information Technology |
| JAED | Jordan Agency for Enterprises Development |
| JCI | Jordan Chamber of Industry |
| JEDCO | Jordan Enterprise Development Corporation |
| JFEMA | Jordan Furniture Exporters and Manufacturers Association |
| JGATE | Jordan Garments, Accessories and Textile Exporters' Association |
| JIB | Jordan Investment Board |
| JICA | Japan International Cooperation Agency |
| JICA SV | JICA Senior Volunteer |
| JIEC | Jordan Industrial Estates Corporation |
| JOPEA | Jordan Olive Products Exporters Association |
| JSMP | Jordan Service Modernization Program |

| | |
|---------|---|
| JUMP | Jordan Upgrading and Modernization Program |
| JUMP II | Support to Enterprise and Export Development Program |
| M/M | Minutes of Meetings |
| MOIT | Ministry of Industry and Trade |
| NAFES | National Fund for Enterprise Support |
| NLP | National Linkage Program |
| OJT | On-the-Job-Training |
| PEU | Productivity Enhancement Unit |
| PR | Public Relation |
| PU | Productivity Unit |
| QC | Quality Control |
| QCD | Quality, Cost, Delivery |
| QIZ | Qualifying Industrial Zones |
| R & D | Research and Development |
| RSS | Royal Scientific Society |
| S/W | Scope of Work |
| SME | Small and Medium Enterprise |
| TPM | Total Productive Maintenance |
| TQM | Total Quality Management |
| UAE | United Arab Emirate |
| USAID | United States Agency for International Development |
| ZCI | Zarqa Chamber of Industry |
| 5S | Disposal, Putting in order, Cleaning, Standardization, Discipline |

Jordan Dinar, JD = 140.65 Yen (As of April 22, 2013)

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**Part I Background and Framework of the Project, and
Current Situation of KAIZEN Dissemination
Initiatives in Jordan**

1 The Framework of the Project

1.1 Background and Development of the Project

Enhancement of competitiveness of the industry through improvement of its quality/productivity is one of the major challenges of the industrial development policy in the Hashemite Kingdom of Jordan (Jordan). It is stated also in the National Agenda, the initiative of His Majesty King, which was prepared to shape the milestones of development for a ten-year period 2006-2015, and meant to inform the government when drawing up short and medium term development plans (for further detail on the National Agenda, see 2.4).

The Agenda says that the purpose of the Agenda is to achieve sustainable development through a transformation program that puts Jordan on a trajectory path toward fast economic growth and greater social inclusion. It also states that one of 8 themes of the development initiatives, the theme related to the economic sector development should aim at enhancing their competitiveness of Key Economic Sectors and their attractiveness for investors, and treat improvement of quality, upgrading of quality of workforce and enhancement of competitiveness as the most focused challenges.

Under such circumstances, the Jordanian Government in 2007 requested the Japanese Government to implement a technical cooperation project related to SME development. Along with issues of finance, policies/laws and R&D, the Jordanian government decided to make the request of technical cooperation on improvement of quality/productivity so called “KAIZEN” (concept and method to improve quality and productivity in Japanese way) due to recognition of low level of productivity and lack of human resources and systems capable of guiding productivity improvement.

In response to this request, the Japan International Cooperation Agency (JICA) carried out the preparatory study in January to February, 2010, to collect information of industries and related organizations in Jordan and to discuss about the content of the project with the Jordan Enterprise Development Corporation (JEDCO) which is under the Ministry of Industry and Trade (MOIT) as an implementing agency. JEDCO and JICA signed the Scope of Work (S/W) agreement on July 19, 2010.

1.2 Purpose of the Project

(1) Goal of the project

Materials for disseminating quality/productivity improvement (KAIZEN) practices for small and medium enterprises (SMEs) in Jordan, and the recommendation for disseminating KAIZEN practices are formulated through pilot exercises.

(2) Outcome of the project

The following outcome was adopted as targets to accomplish the above goal.

1. Awareness of KAIZEN practices are to be raised within Jordanian industrial circles.
2. Following outcomes will be produced through supporting pilot SMEs by utilizing KAIZEN practices.
 - a. A number of private consultants and employees of relevant organizations are to be equipped with KAIZEN expertise necessary for them to perform their duty of disseminating KAIZEN practices.
 - b. Pilot SMEs are to produce tangible benefits from pilot KAIZEN exercises.
 - c. Materials for training KAIZEN related human resources are to be developed.
3. Recommendations for institutionalizing KAIZEN dissemination measures are to be provided based on the above outcome.

1.3 Scope of Work

The Project was carried out based on the article IV, the scope of work (S/W) of the Minutes of Meeting signed between JEDCO and JICA Jordan office on July 19, 2010, as shown below.

1. Establishment of the implementation framework for the Project
 - 1) Elaborate the detailed plan (schedule, methodology etc.) of the Project activities
 - 2) Identify stakeholders for implementing Project activities and clarify their responsibilities
 - 3) Assign human resources for implementing the Project activities
2. Awareness campaign on KAIZEN practices
 - 1) Prepare a plan for organizing awareness campaign activities such as seminars, short training courses for introducing general KAIZEN concept and tools
 - 2) Take measures for publicizing the awareness campaign activities to ensure sufficient understanding on the events and adequate number of participants
 - 3) Implement the awareness campaign activities

- 4) Evaluate the results of the awareness campaign activities for further improvement
 - 5) Plan, implement and evaluate other activities aiming at advocating KAIZEN to a wide range of audiences (publication, press release, websites etc.)
3. Intensive training and pilot implementation of KAIZEN practices at model enterprises
- 1) Elaborate criteria for selecting private consultants who will receive intensive training on KAIZEN practices
 - 2) Select the private consultants based on the agreed criteria
 - 3) Assign selected staff of relevant organizations (in charge of KAIZEN dissemination) to be involved in the intensive training
 - 4) Elaborate criteria for selecting pilot SMEs that will undertake pilot KAIZEN implementation
 - 5) Select the model enterprises based on the agreed criteria
 - 6) Prepare training materials for the intensive training
 - 7) Provide intensive lectures on KAIZEN for the private consultants with partial participation of the selected staff of relevant organizations as well as the pilot SMEs
 - 8) Conduct pilot KAIZEN exercises for the pilot SMEs providing the private consultants with on-the job training opportunities and providing the selected staff of relevant organizations with hands-on experiences of observing KAIZEN consultancy
 - 9) Follow-up the progress of the pilot KAIZEN exercises to general tangible benefits
4. Development of the output documents
- 1) Draw lessons from the above activities
 - 2) Prepare materials for developing human resources with KAIZEN expertise paying attention to the uniqueness of Jordanian context and maximizing the possibility of wide dissemination of KAIZEN in the country
 - 3) Recommend measures to be taken for institutionalizing KAIZEN dissemination activities

1.4 Implementation Agency in Jordan

The implementation agency for the project is JEDCO. Executive Development Plan (EDP) of the Government assumes JEDCO as the core agency to promote enhancement of industrial competitiveness, and the EDP assumes JEDCO to be responsible for all the support initiatives for enhancement of competitiveness of SMEs as well as industry sectors.

2 Necessity of Enhancement of SMEs' Competitiveness in the National Economy, and Economic Development Plans in Jordan

2.1 Economy in Jordan

2.1.1 Socioeconomic indicators

Key socioeconomic indicators in 2000 and 2011 are presented below.

Table 1-1 Key Socioeconomic Indicators in Jordan (Year 2000, and 2011)

| | 2011 | 2000 |
|--------------------------------------|-----------------------|-----------------------|
| Land area | 89,342Km ² | 89,342Km ² |
| Population ('000) | 6,250 | 4,860 |
| Urban population rate | 83% | 70% |
| Average life expectancy | 73 | 70 |
| Population growth rate (annual rate) | 2.2% | 3.0% |
| GDP (in current prices) | 20,476.6 mil JD | 5,998.6 mil JD |
| Per capita GDP (in current prices) | 3,280JD | 1,230JD |
| GDP real growth rate | 2.6% | 1.6% |
| Price increase rate | 6.4% | 0.6% |
| Unemployment rate | 12.9% | 14.4% |
| Total exports | 5,685 mil JD | 1,347 mil JD |
| Total imports | 11,946 mil JD | 2,888 mil JD |

Source: Department of Statistics

First of all, the country's population grew at a rapid rate between 2000 and 2011, with an increasingly high percentage of urban population. As discussed later, Jordan has been enjoying steady economic expansion over the decade, according to the key economic indicators including GDP and the values of exports and imports. At the same time, however, it faces various problems such as high inflation and unemployment rates. Its economy is affected by various factors, including heavy dependence on foreign aids and transfer by overseas workers, together with political and economic conditions in surrounding countries, which influence investment in Jordan as well as its exports and imports.

2.1.2 Economic growth and industrial structure

The Jordanian economy has achieved substantial growth in the past decade. Its GDP in constant prices shows annual growth rates of 8.1% - 8.6% between 2004 and 2007, far exceeding the rates of 4.2% - 5.8% in the period of 2000 through 2003. The GDP in 2010 was 1.8 times that in 2000.

Table 1-2 Change in GDP in Jordan at 1994 Constant Prices

(Base year: 1994)

| Year | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 |
|-----------------------|------|------|------|------|------|------|------|------|------|------|------|
| Real GDP (JD million) | 5.42 | 5.70 | 6.03 | 6.29 | 6.82 | 7.38 | 7.98 | 8.63 | 9.25 | 9.76 | 9.99 |
| Growth rate | 4.3% | 5.3% | 5.8% | 4.2% | 8.6% | 8.1% | 8.1% | 8.2% | 7.2% | 5.5% | 2.3% |

Source: International Monetary Fund "World Economic Outlook Database, October 2012"

In recent years, however, economic growth has stagnated due to the worldwide economic downturns and political and economic turmoil in the region¹, i.e., from 7.2% growth in 2008 to 5.5% in 2009, 2.3% in 2010, and 2.6% in 2011.

As for industrial structure, the country's sectorial GDP composition is presented below.

¹ Central Bank of Jordan, "Annual Report 2011".

Table 1-3 GDP Composition by Industrial Sector 2011 (Constant Price)

(Unit: % of GDP)

| | Average (1996-99) | 2011* |
|--|----------------------|-------|
| Agriculture, Hunting Forestry and Fishing | 5.5 | 4.5 |
| Mining and Quarrying | 2.9 | 2.1 |
| Manufacturing | 13.7 | 20.4 |
| Electricity and Water | 3.9 | 2.5 |
| Construction | 6.6 | 5.4 |
| Wholesale & Retail Trade, Restaurants & Hotels | 5.0 | 11.4 |
| Transport, Storage & Communication | 16.3 | 17.0 |
| Finance, Insurance, Real Estate and Business Service | 22.0 | 23.0 |
| Producers of government services | 21.3 | 13.6 |
| Other services | 2.8 | 0.2 |
| GDP at constant basic prices | 100.0 | 100.0 |

*Preliminary data

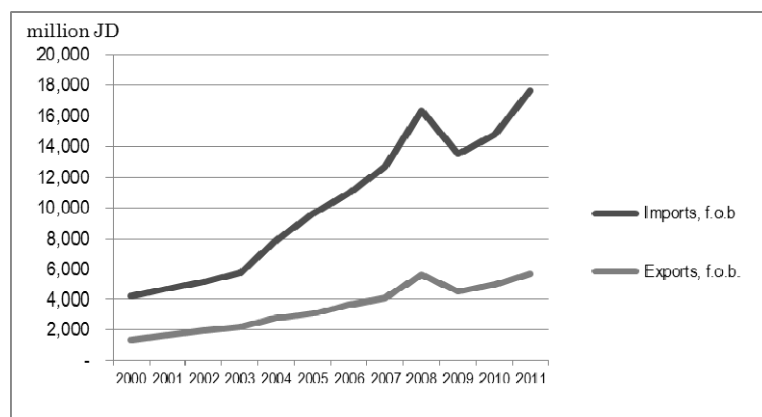
Source: Central Bank of Jordan "Annual Report 2011" and "Department of Statistics"

The manufacturing sector's GDP share increased from an average 13.7% in the late 1990s (between 1996 and 1999) to 20.4% in 2011. According to the manufacturing production index (Attached Table 2), food and beverage, medical goods, rubber and plastic products, machinery except metal processing show significant increases than main industrial products (weight is more than 2.5% and index is more than 150) in the production index in 1999. However, the growth rates of the manufacturing industry in recent years are not high compared to the growth rate of the economy as a whole; remained at 2% per annum in 2009 and 2010 respectively. In fact, as seen in the table, most sub-sectors in the production indexes have not grown since 2007.

In contrast, the government sector shrank from around 21% to 13.6% during the same period. On the other hand, other sectors do not show a significant change, e.g., the agriculture sector decreased from 5.5% to 4.5% and the mining sector from 2.9% to 2.1%.

2.1.3 External trade

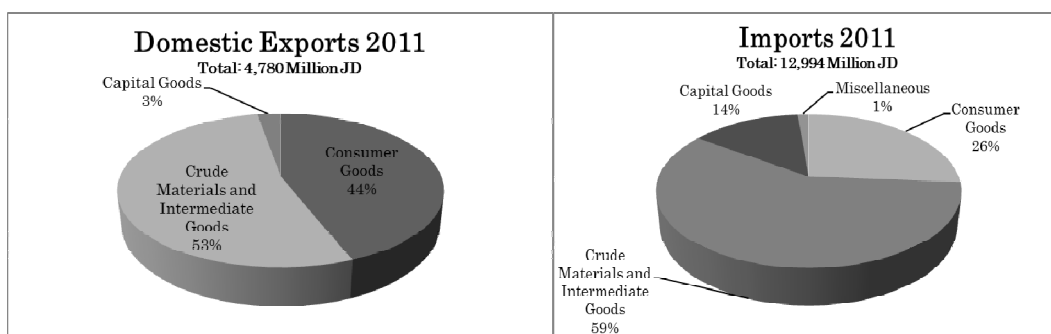
After some declines in 2009, the country's exports and imports show recovery and are currently in an upward trend. The value of exports in 2011 expanded 4.2 times in comparison to that in 2000 and the value of imports 4.1 times. On the other hand, the country's trade balance is persistently in deficit, and an excess of imports over exports seems to be on the rise (Figure 1-1).



Source: Central Bank of Jordan

Figure 1-1 Trend of External Trade

The country's export/import breakdowns by item are shown below.



Source: Central Bank of Jordan "Annual Report 2011"

Figure 1-2 External Trade by Economic Functions

In 2011, exports were mainly accounted for by consumer goods (44%) and crude materials and intermediate goods (53%), while capital goods represented only 3%. It should be noted that consumer goods have been losing share recently, which is replaced by crude materials and intermediate goods. Meanwhile, share of capital goods remains more or less unchanged.

The increasing share of crude materials and intermediate goods in the country's exports reflects the fact that mineral resources (mainly phosphate and potassium) continue to be the country's major export items, i.e., phosphate accounts for approximately 9% of total exports in 2011 and potassium 12%, in comparison to a combined nearly 45% in the early 1990s and 20-25% share in the late 1990s (see Attached Table 4). At the same time, the export data indicate weakness of the country's manufacturing industry in terms of export competitiveness, especially the machinery sector. As for major industrial subsectors, the pharmaceutical industry that is positioned as a key sector follows an uptrend in the long run, albeit ups and downs in recent years.

On the other hand, another key industry, chemical fertilizer, is in the declining trend. As for the garment and textile industry that grew significantly in the 1990s thanks to the U.S. priority import policy, it turned upward in the recent two years after declines until 2009 and now constitutes the largest export item by representing around 15% of the total. Similarly, machinery and transportation equipment exports are on the rise after a drop in 2009. Finally, plastic products grow steadily although small in the value of exports.

Nearly a half of Jordanian exports are destined to the Arab states, such as Iraq and Saudi Arabia. In terms of individual country, major importers of Jordanian products are the United States (mainly garment and textile products), Iraq (vegetables, pharmaceuticals, and fertilizer), and India (potassium, phosphate and fertilizer), which account for a combined share of over 40% (Attached Table 5).

The country's imports are broken down to 59% crude materials and intermediate goods, 26% consumer goods, and 14% capital goods, which remain more or less constant in recent years, except for capital goods which reduced share significantly from 19.5% in 2007.

Crude materials and intermediate goods imported by the country are largely accounted for by crude oil and petroleum products (29% of total), followed by industrial materials such as iron and steel and cloth and yarn (16%). As for consumer goods, machinery and transportation equipment (mainly automobiles) represent the largest share of around 19% (Attached Tables 6 and 7).

2.1.4 Government finance

Table 1-4 shows Jordan's recent government finance trends. Public expenditures had showed some decline in 2010 due to reduction efforts but increased again in 2011 as a result of a price subsidy program covering gasoline and foodstuffs in response to inflation².

Government finance is consistently in deficit, which has steadily been increasing and has partially been financed by foreign aid. In fact, the financial help was doubled in 2011 over 2010, making it increasingly indispensable for government financing. The elimination or curtailment of the subsidy is necessary to reduce the budget deficit, however, it would cause hardships of the people's life. Eventually it is an urgent matter for the Jordanian government to boost domestic revenue sources.

² Central Bank of Jordan "Annual Report 2011", P49

Table 1-4 Fiscal Balance in Jordan

| | | 2007 | 2008 | 2009 | 2010 | 2011 |
|------------------------|----------------------------|---------|---------|---------|---------|---------|
| Domestic Revenue (a) | | 3,628.0 | 4,375.4 | 4,187.8 | 4,261.1 | 5,792.7 |
| Foreign Grants (b) | | 343.4 | 718.3 | 333.4 | 401.7 | 1,024.0 |
| Total (a+b) | | 3,971.4 | 5,093.7 | 4,521.2 | 4,662.8 | 6,816.7 |
| Total Expenditures (c) | | 4,586.5 | 5,431.9 | 6,030.5 | 5,708.0 | 6,953.0 |
| Overall Deficit: | Including Grants (c-(a+b)) | 615.0 | 338.2 | 1,509.3 | 1,045.2 | 1,160.3 |
| | Excluding Grants (c-a) | 958.4 | 1,056.5 | 1,842.7 | 1,446.9 | 2,184.3 |

Source: Central Bank of Jordan "Annual Report 2011"

2.1.5 Foreign direct investment

Foreign direct investment in Jordan expanded rapidly after 2004 and slowed down in 2006. Afterward, it has been declining until 2011 due to the financial crisis that reduced the inflow of investment from the Gulf States, including Saudi Arabia, the United Arab Emirates (UAE), and Bahrain.

FDI mainly comes from Gulf States (especially Saudi Arabia, the UAE, Bahrain, Kuwait, and Iraq) and concentrates on the industrial sector, including mining.

Table 1-5 Change in FDI in Jordan

| Year | Total FDI (JD) |
|------|----------------|
| 2004 | 651,300,000 |
| 2005 | 1,291,300,000 |
| 2006 | 2,610,600,000 |
| 2007 | 1,825,000,000 |
| 2008 | 1,996,600,000 |
| 2009 | 1,671,500,000 |
| 2010 | 1,187,800,000 |
| 2011 | 802,400,000 |

Source: Department of Statistics "Trade and Investment Information System"

Table 1-6 Investments in Jordan from Arab Countries

| | (Unit: JD million) | | |
|----------------------|--------------------|------------|------------|
| | 2009 | 2010 | 2011 |
| Bahrain | 214 | 0 | 5 |
| United Arab Emirates | 60 | 25 | 88 |
| Kuwait | 50 | 2 | 0 |
| Saudi Arabia | 162 | 163 | 5 |
| Iraq | 25 | 10 | 18 |
| Total | 511 | 200 | 116 |

Source: Jordan Investment Board

Investment projects covering the manufacturing and mining sectors qualified for special treatment under the Investment Promotion Law also peaked out in 2007 and is in the downward trend. The total amount of investment projects in 2011 is one third that in 2007 and the average amount has reduced by less than half.

Table 1-7 Projects Benefited from Exemptions Provided by Investment Promotion Law

| Year | 2005 | 2006 | 2007 | 2008 | 2009 | 2010 | 2011 |
|------------------------|-------|---------|---------|---------|---------|-------|-------|
| Investment (mil JD) | 413.1 | 1,489.9 | 1,761.6 | 1,073.0 | 1,442.0 | 591.9 | 646.5 |
| Number of project | 480 | 520 | 380 | 413 | 446 | 284 | 294 |
| Investment per project | 0.9 | 2.9 | 4.6 | 2.6 | 3.2 | 2.1 | 2.2 |

Source: Central Bank of Jordan "Annual Report 2009, 2010"

Nevertheless, Jordan is considered to offer a relatively favorable investment climate in terms of stable political and economic conditions as compared to surrounding countries and a steady currency that is pegged to the U.S. dollar. Furthermore, the Jordanian government pursues policies to attract FDI, such as the establishment of Qualifying Industrial Zone (QIZ) and expansion of bilateral and multilateral trade agreements.

In particular, QIZ has been created to expand the U.S.-bound exports by eliminating tariffs and import restrictions for manufacturers that export their products to the U.S. and satisfy various conditions. The first QIZ was constructed in Irbid (Al-Hassan Industrial Estate) in 1998, followed by other locations in various parts of the country. So far, QIZ has proven to be effective in promotion of investment and export.

Trade agreements have been signed with Arab countries, the EU, the U.S., Canada, Singapore, and Turkey.

At the same time, however, there are various restrictions on investment promotion. As there is a shortage of workers in the manufacturing sector of Jordan, companies need to hire workers from Egypt and other neighboring countries. Natural resources are limited to potassium and phosphate to restrict industrial development options.

The country has various problems in the area of business environment. According to “Doing Business 2012” published by the World Bank, Jordan ranks 96th out of 183 countries while ranks poorly in the following areas (the number in the parenthesis denotes the international rank)³:

- “Getting credit (150th);”
- “Enforcing contract (130th);”
- “Protecting investors (122nd).”

While the current low level of investment is largely ascribed to the deterioration of political and economic conditions in neighboring countries, efforts should be made to deal with the above problems in the long run if the country continues depending on foreign investment and needs to attract investment under the present circumstances.

2.2 Fundamental Characteristics of the Manufacturing Industry in Jordan

2.2.1 Numbers of companies and employees

According to data provided by the Jordan Chamber of Industry, number of enterprises and employees in the manufacturing industry together with mining and construction in the country are about 17,400 and 211,000 respectively (2011) (Attached Table 8). It is dominated by micro enterprises (having 9 or less employees, called “Kraft industries”) in terms of the number of companies, accounting for around 77% of the total. On the other hand, the number of employees of micro enterprises accounts 21% of total employees.

³ The country receives relatively good reputation in the following areas: “paying tax (21st);” “getting electricity (36th);” “trading across border (58th).”

(Note) MOIT/JEDCO defines and classifies SMEs according to their paid-up capital and the number of employees.

Table 1-8 Definition of Micro, Small, Medium, and Large Sized Enterprises

| Classification | No. of Employees | Capital Investment (JD) |
|----------------|------------------|-------------------------|
| Micro | 1-9 | Less than 30,000 |
| Small | 10-49 | More than 30,000 |
| Medium | 50-249 | More than 30,000 |
| Large | 250 and above | More than 30,000 |

Source: Jordan Chamber of Industry

Note that some SME support programs are not carried out according to the above definitions. For instance, Scheme 1 of JUMP II (Support to Enterprise and Export Development Program), which is implemented by JEDCO under the EU's assistance, limit eligibility to companies having 10 - 250 employees with capital of 10,000 JD or higher.

On a sub-sectorial basis, the largest number of companies (6,316) is found in the engineering, electricity and IT sector. Notably, the sector is predominantly composed of craft industries (93% of total). The second largest subsector is the furniture and woodworking industry, which also consists of small enterprises.

In terms of employment, the leather and garment industry hires the largest number of workers (around 47,000), followed by the engineering, electricity and IT sector (43,000) and the food industry (36,000) and they account 22.1%, 20.5% and 16.9% respectively.

The total numbers of enterprise and employees increased between 2009 and 2011, and significant growth is seen in the chemical and cosmetics and mining industries. All the subsectors saw an increase in the number of companies during the period, whereas the furniture and woodworking, construction, and leather and garment industries experienced declines in the number of employees.

2.2.2 Exports by the mining and manufacturing industries

The mining industry boasts the largest value of exports (911 million JD) followed by leather and garment (767 million JD) and chemical and cosmetics (699 million JD) (see Attached Table 8).

While manufacturing industries showed high incline of export activity⁴, in 2011 compare to 2009 in general, the food, agriculture, and livestock industries are reducing exports⁵. Within the manufacturing sub-sector, exports by the garment industry have declined until 2009, although on a slight recovery at present, with a significant decrease in the number of employees. This seems to reflect the fact that the export garment industry is required to change its business strategy of the mass production, so that many companies are shifting their focus from mass to niche market.

2.3 Expectation for SME Development

As pointed out earlier, the Jordanian economy is sensitive to the political and economic changes in the neighboring countries and the world. The National Agenda expects the SME sector development as an important element to realize the stable economic growth without depending on external factors. Therefore, the National Agenda sets the goal for GDP contribution by the SME sector at 35% in 2012 and 40% in 2017 (33% - actual – in 2005). To achieve it, key sectors listed by the National Agenda are garment, pharmaceuticals, food and drink, minerals, iron and steel, furniture, dimension stones, agriculture, tourism, public health, software and IT.

Jordan has a small domestic market and produces only a few types of raw materials for industrial use. The labor force available to the manufacturing industry is limited in terms of both quality and quantity. In addition, labor cost is relatively high in international comparison⁶. It is therefore difficult for the country and its industry to establish a comparative advantage in mass produced goods if they intend to take advantage on the basis of the labor costs. Instead, Jordan should promote the development of specialty industries that are capable of developing and making original products or offering services that meet market needs, which are not satisfied by low-cost, mass market products. Critical to the development of such industries and manufacturers are the management capability to accurately understand the market needs and to

⁴ Attached Table 4 also shows the rapid increase of export in value, however, the value itself in Attached Table 8 is much smaller than the attachment; therefore the rate of increase is not that drastic.

⁵ Attached Table 4 shows the constant increase trend of this category.

⁶ According to “Global Apparel Manufacturing Labor Cost Analysis 2008”, when the labor cost in Bangladesh is indexed at 100, the cost in Jordan is 459 and that in Egypt is 377.

plan products and services that can satisfy them effectively, and the ability to develop and maintain the workforce required for product marketing, planning, and manufacturing, including quality control and service delivery.

It is pointed out in the National Agenda that SMEs have failed to improve labor productivity due to low educational level and skills of labor force and that most of SME support programs have failed to produce satisfactory results due to the lack of fund, government support, coordination among related organizations, and understanding of the business community.

In actuality, most of SME managements in Jordan are hampered by obstructions to the improvement and increase of quality and productivity. This is discussed in Chapter 3. Improvement of the quality of labor, among other factors, is one of the most important challenges for these SME managements. Development of labor forces which are concerned about their working methods, and which devise improvements of those methods, is essential for a production system for manufacturing a variety of products in small lots, in line with the needs of their target markets and customers. The KAIZEN approach is useful and effective in creating such labor forces, and efforts to improve quality and productivity with by promotion of KAIZEN practices is not just a necessary strategy for an individual company to survive but it should be positioned as an important matter in terms of achieving the goal of the National Agenda. Especially, considering the difficulties of SMEs to tackle the improvement of quality and productivity by themselves, promotion and support of such improvement should be included in the national industrial policy.

2.4 Quality/Productivity Improvement in Industrial Development Policy

Enhancement of competitiveness of the industry through improvement of its quality/productivity is one of the major challenges of the industrial development policy in Jordan. It is stated also in the National Agenda, which was prepared to shape the milestones of development for a ten-year period 2006-2015.

The Agenda said that the purpose of the Agenda is to achieve sustainable development through a transformation program that puts Jordan on a trajectory path toward fast economic growth and greater social inclusion, aiming at 1) improved quality of life of Jordanian people, 2) construction of strong economy, 3) guarantee of basic freedom and human rights, 4) pluralist coexistence in democracy, cultures and politics. It also mentions that solving the following problems are the Jordanian Challenges:

1. Structural unemployment, as the economy fails to absorb the annual inflow of new job seekers
2. Slacking labor productivity partly driven by the low level of education and skills of the workforce
3. Constrained growth of SMEs due to limited access to financing, bureaucracy, and quality of workforce
4. Delay in creation of start-ups, and discouragement of potential investors due to administrative hurdles and systems
5. Hindered development of private companies, while the government has continued to maintain the position of the controller of 30% of GDP, as the largest employer
6. Lagging behind other countries in terms of competitiveness of key economic sectors

Further, the National Agenda has structured the development initiatives around 8 themes⁷, in support of achieving National Agenda goals and targets. In the Investment Development Theme, which represents the theme related to economic sector development, all policies and initiatives were presented along two main tracks, namely:

⁷ Eight themes are; 1) Political Development and Inclusion, 2) Justice and Legislation, 3) Investment Development, 4) Financial Services and Fiscal Reform, 5) Employment Support and Vocational Training, 6) Social Welfare, 7) Education, Higher Education, Scientific Research and Innovation, 8) Infrastructure Upgrade.

| Track | Objective/Area | Contents |
|--|--|---|
| <p><u>Track 1:</u> Establish a New Institutional Framework for the Jordan Agency for Enterprise Development (JAED)</p> | <p>JAED (Jordan Agency for Enterprise Development)</p> | <p>1) The proposed JAED structure should group under one umbrella the existing development entities, JIB, JEDCO, JIEC, FZC 2) Grant JAED the necessary powers</p> |
| | <p>JIB (Jordan Investment Board)</p> | <p>1) Restructure Jordan Investment Board 2) Increase allocations for the entity's investment promotion programs</p> |
| | <p>JIEC (Jordan Industrial Estate Corporation) and FZC (Free Zone Corporation)</p> | <p>- Restructure JIEC and FZC with a view to merging both entities under the JIEC umbrella</p> |
| | <p>JEDCO (Jordan Enterprise Development Corporation)</p> | <p>- Expand the role of JEDCO to cover all support activities related to Small and Medium Enterprises (SMEs) and start-up businesses</p> |
| | <p>Competition Directorate</p> | <p>- Enhance capacity and efficiency of the Competition Directorate</p> |
| | <p>ASEZ (Aqaba Special Economic Zone)</p> | <p>- Execute near term development projects in ASEZ</p> |

| Track | Objective/Area | Contents |
|--|--|--|
| <p><u>Track 2:</u> Prioritizing key economic sectors, as engines for economic growth, aims at enhancing their competitiveness and their attractiveness for investors</p> | 1. Cross-Sectoral Initiatives: | |
| | Human Capital | <ol style="list-style-type: none"> 1) Restructure the Vocational Training Center and implement a workforce development plan based on JAED’s Enterprise Development Strategy 2) Review labor laws in line with the requirements of priority economic sectors |
| | Capital & Financial Markets | <ol style="list-style-type: none"> 1) Ease loan procedures by providing loan guarantees and higher liquidity of collateral for priority sectors 2) Eliminate bank guarantees for temporary entry of raw materials for industry 3) Set up a financial rating agency to facilitate access to funds 4) Ensure long term funding for SME |
| | Technology and Processes | <ol style="list-style-type: none"> 1) Provide funding to strengthen the links between economic sectors and university, research and Development (R&D) programs 2) Provide incentives for private companies to participate in R&D, enhance patent registration and intellectual property protection |
| | Infrastructure | <ol style="list-style-type: none"> 1) Complete full deregulation of the communications sector, 2) Restructure pricing of public utilities, develop 3) Implement a strategy for air transport liberalization, 4) Deregulate the ground transport sector 5) Ease the customs procedures 6) Investigate the development of a comprehensive strategy for land usage at municipality levels |

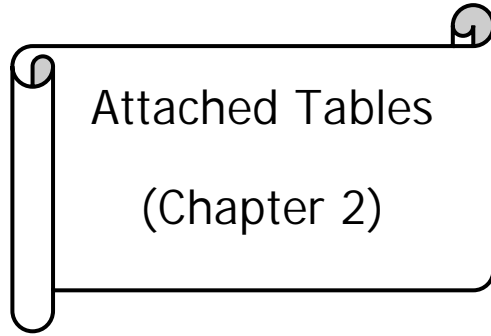
| Track | Objective/Area | Contents |
|--|---|---|
| <p><u>Track 2:</u> Prioritizing key economic sectors, as engines for economic growth, aims at enhancing their competitiveness and their attractiveness for investors</p> | <p>Judicial, Regulatory and Administrative Procedures</p> | <ol style="list-style-type: none"> 1) Harmonize and integrate laws and regulations with the aim of facilitating, rather than controlling business activities 2) Review the regulatory framework for doing business in Jordan, in line with the Enterprise Development Strategy 3) Accelerate judicial procedures by creating commercial law courts or arbitration tribunals specialized in investment matters and sector-specific disputes 4) Build expertise and qualifications of arbitrators in sector specific investment matters |
| | <p>Fiscal Environment</p> | <ol style="list-style-type: none"> 1) Simplify and clarify tax codes and rates 2) Extend customs exemptions to export-oriented non-manufacturing companies 3) Eliminate customs duties on raw material and equipment for products destined for re-export 4) Review customs processes and procedures to instill transparency and consistency in their application |
| | <p>Trade Agreements</p> | <ol style="list-style-type: none"> 1) Enhance market positioning through international agreements 2) Negotiating trade agreements through JAED institutional framework for investments 3) Secure involvement of the private sector in drafting |

| Track | Objective/Area | Contents |
|--|-------------------------------------|--|
| <p><u>Track 2:</u> Prioritizing key economic sectors, as engines for economic growth, aims at enhancing their competitiveness and their attractiveness for investors</p> | <p>Business Support Environment</p> | <ol style="list-style-type: none"> 1) Periodically develop and publish, through JAED, an Enterprise Development Strategy and sector specific competitiveness assessment reports 2) Create a data repository, within the JAED framework, for all drivers of competitiveness to support investors in decision-making 3) Conduct marketing campaigns targeted at attracting Multi-National Corporations to invest in labor intensive manufacturing sectors 4) Support the development of SMEs by creating a dedicated agency to provide counseling, and ensure international presence 5) Support R&D through direct financing 6) Ensure links between investors and researchers 7) Improve the overall quality of human resources capabilities |

| Track | Objective/Area | Content |
|--|--|--|
| <p><u>Track 2:</u> Prioritizing key economic sectors, as engines for economic growth, aims at enhancing their competitiveness and their attractiveness for investors</p> | 2. Key Sector-Specific Initiatives | |
| | Apparel | 1) Improve the logistics infrastructure 2) Enhance quality of the workforce |
| | Pharmaceuticals | 1) Build a reputation for quality 2) Move to higher value added products |
| | Food and Beverage | - Develop a comprehensive strategy to attract multinational companies |
| | Minerals | - Fund vocational training programs for workers being laid off as a result of the restructuring of mineral companies |
| | Iron and Steel | - Support existing companies to enhance their competitiveness and encourage consolidations |
| | Furniture | - Develop and implement a comprehensive strategy for the furniture sector to substantially increase exports and reinforce trade agreements |
| | Dimension Stone | - Enhance local capabilities by modernizing related vocational programs |
| | Agriculture | - Improve quality of agricultural produce and direct production toward high-yield revenue crops, which optimize water-use efficiency |
| | Tourism | - Execute the National Tourism Strategy |
| | Health Care | - Initiate quality management programs to achieve quality standards and eventually be accredited according to world-class standards |
| | Software and Information Technology (IT) | - A favorable investment and infrastructure environment should be established, and quality of education improved |

Of these 11 key sectors, improvement of quality is regarded as the most focused challenge in 3 sectors, whereas upgrading of quality of workforce is the most focused in another sector, and enhancement of competitiveness in the other sector.

The dissemination of KAIZEN is considered as an effective measure for these challenges, because the KAIZEN activities build the positive attitude among workers toward workplace improvement, draw improvement suggestions from workers and promote quality and productivity improvement, contributing to enhancement of competitiveness of the company.



Attached Tables

(Chapter 2)

Attached Table 1 Gross Domestic Product by Economic Activity at Constant 1994 Prices

(Unit: JD million)

| Economic Activity | 2006 | 2007 | 2008 | 2009 | 2010* |
|--|----------------|----------------|----------------|----------------|----------------|
| A Industries | | | | | |
| 1 Agriculture, Hunting Forestry and Fishing | 279.9 | 283.4 | 307.8 | 347.3 | 371.3 |
| 2 Mining and Quarrying | 155.0 | 175.3 | 238.1 | 128.5 | 153.5 |
| 3 Manufacturing | 1,414.9 | 1,544.6 | 1,623.8 | 1,656.1 | 1,689.5 |
| 4 Electricity and Water | 169.3 | 190.7 | 180.4 | 208.0 | 202.9 |
| 5 Construction | 380.6 | 401.3 | 455.1 | 515.1 | 491.4 |
| 6 Wholesale & Retail Trade, Restaurants & Hotels | 789.8 | 845.3 | 930.4 | 965.6 | 948.8 |
| 6.1 Wholesale and Retail Trade | 715.4 | 754.0 | 830.0 | 864.0 | 843.3 |
| 6.2 Restaurant and Hotels | 74.4 | 91.4 | 100.3 | 101.6 | 105.5 |
| 7 Transport, Storage & Communication | 1,181.9 | 1,292.3 | 1,322.3 | 1,347.1 | 1,417.2 |
| 8 Finance, Insurance, Real Estate and Business Service | 1,428.1 | 1,548.8 | 1,753.8 | 1,795.0 | 1,920.4 |
| 8.1 Finance and Insurances services | 542.6 | 622.0 | 802.8 | 798.1 | 876.2 |
| 8.2 Real Estate | 885.5 | 926.8 | 951.0 | 996.9 | 1,044.2 |
| 9 Community, Social and Personal Services | 284.4 | 327.1 | 358.1 | 394.6 | 411.5 |
| Total (1-9) | 6,084.0 | 6,608.7 | 7,169.8 | 7,357.3 | 7,606.4 |
| B Producers of government services | 1,034.9 | 1,050.4 | 1,073.6 | 1,093.1 | 1,136.4 |
| C Producers of Private Non-Profit Services to Household | 50.2 | 52.4 | 46.5 | 49.3 | 49.9 |
| D Domestic Services of Households | 38.1 | 41.3 | 43.9 | 47.3 | 49.7 |
| Total (A+B+C+D) | 7,207.1 | 7,752.8 | 8,333.8 | 8,547.0 | 8,842.5 |
| - Imputed Bank Service Charge | -287.5 | -333.0 | -419.4 | -463.6 | -484.3 |
| = Gross Domestic Product at Basic Prices | 6,919.6 | 7,419.9 | 7,914.4 | 8,083.4 | 8,358.2 |
| + Net Taxes on Product | 1,057.3 | 1,209.2 | 1,338.8 | 1,676.5 | 1,627.3 |
| = Gross Domestic Product at Market Prices | 7,976.9 | 8,629.0 | 9,253.1 | 9,759.9 | 9,985.4 |

*Preliminary

Source: Department of Statistics, Jordan

Attached Table 2 Industrial Production Quantity Index

(1999=100)

| | Weight | 2007 | 2008 | 2009 | 2010 | 2011* |
|--|--------|-------|-------|-------|-------|-------|
| Mining, Quarrying, and Manufacturing: | 93.6 | 153.9 | 156.1 | 154.3 | 149.7 | 148.7 |
| Mining and Quarrying: | 11.0 | 93.9 | 104.1 | 74.3 | 103.7 | 120.8 |
| Extraction of Petroleum & Natural Gas | 0.4 | 85.5 | 80.0 | 86.2 | 77.7 | 70.7 |
| Quarrying of Stone | 0.4 | 65.2 | 70.0 | 52.5 | 38.0 | 47.9 |
| Phosphate | 5.4 | 92.2 | 102.2 | 85.7 | 107.2 | 125.2 |
| Potash | 4.9 | 98.8 | 110.7 | 62.4 | 107.1 | 125.5 |
| Manufacturing: | 82.5 | 161.9 | 163.0 | 165.0 | 155.9 | 152.4 |
| Food Products and Beverages | 15.4 | 152.0 | 161.1 | 196.3 | 198.7 | 190.3 |
| Tobacco Products | 2.4 | 303.6 | 304.4 | 292.4 | 314.3 | 343.1 |
| Wearing Apparel and Textiles | 2.8 | 116.0 | 115.5 | 117.7 | 118.0 | 142.8 |
| Footwear and Leather | 0.6 | 8.8 | 55.0 | 92.1 | 17.9 | 18.1 |
| Furniture | 2.0 | 164.0 | 157.6 | 156.3 | 207.8 | 204.0 |
| Wood and Cork Except Furniture | 0.4 | 31.4 | 31.7 | 32.2 | 33.2 | 34.8 |
| Paper and its Products | 2.9 | 157.1 | 146.3 | 119.9 | 111.8 | 94.8 |
| Fertilizers | 10.7 | 104.4 | 104.7 | 98.3 | 107.2 | 100.7 |
| Basic Chemicals Except Fertilizers | 0.5 | 118.8 | 91.2 | 87.1 | 86.9 | 77.5 |
| Paints | 1.1 | 260.1 | 283.1 | 267.3 | 289.5 | 292.6 |
| Pharmaceuticals | 4.4 | 201.7 | 227.1 | 246.4 | 215.3 | 206.3 |
| Detergents and Soap | 2.6 | 69.1 | 54.5 | 73.3 | 100.4 | 123.2 |
| Refined Petroleum Products | 14.7 | 119.7 | 120.6 | 108.6 | 103.1 | 98.0 |
| Rubber and Plastic Products | 2.7 | 186.2 | 145.3 | 172.9 | 157.2 | 151.3 |
| Cement and Lime | 3.3 | 145.3 | 154.3 | 137.3 | 79.1 | 58.1 |
| Iron and Steel | 2.9 | 142.1 | 133.1 | 118.6 | 110.8 | 121.7 |
| Publishing and Printing | 1.8 | 112.2 | 92.1 | 119.8 | 105.7 | 102.9 |
| Manufacture of Articles of Concrete & Cement | 2.3 | 383.1 | 355.2 | 334.5 | 313.5 | 320.5 |
| Cutting, Shaping and Finishing of Stone | 0.9 | 114.1 | 126.4 | 112.9 | 122.1 | 116.3 |
| Machinery and Equipment | 1.3 | 455.4 | 612.5 | 570.1 | 369.1 | 248.8 |
| Medical Equipment | 0.2 | 26.9 | 20.7 | 68.9 | 39.5 | 59.0 |
| Electrical Machinery and Apparatus | 1.3 | 279.2 | 301.7 | 307.0 | 188.7 | 156.4 |
| Basic Precious and Non-Ferrous Metals | 0.6 | 107.0 | 112.5 | 102.8 | 114.3 | 120.0 |
| Fabricated Metal Products Except Machinery and Equipment | 2.7 | 263.7 | 275.4 | 281.0 | 283.4 | 320.2 |
| Radio and T.V. and Communication Equipment | 0.7 | 645.8 | 320.6 | 174.3 | 35.9 | 20.7 |
| Motors Vehicles Trailers | 0.6 | 211.5 | 180.3 | 185.4 | 108.4 | 102.5 |
| Other | 0.8 | 75.1 | 108.8 | 85.9 | 91.4 | 135.5 |
| Electricity, Gas, Steam and Hot Water Supply | 6.4 | 189.0 | 191.1 | 175.7 | 166.9 | 174.4 |
| General Index | 100.0 | 156.2 | 158.3 | 155.7 | 150.8 | 150.3 |

*Preliminary

Source: Central Bank of Jordan "Annual Report 2011"

Attached Table 3 Balance of Payments

(Unit: JD million)

| | 2000 | 2001 | 2002 | 2003 | 2004 | 2005 ⁽¹⁾ | 2006 ⁽¹⁾ | 2007 ⁽¹⁾ | 2008 ⁽¹⁾ | 2009 ⁽¹⁾ | 2010 ⁽¹⁾ | 2011 ⁽¹⁾ |
|-----------------------------------|--------|--------|--------|--------|--------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|---------------------|
| Current Account | 20 | 18- | 356 | 850 | 28 | 1,611- | 1,224- | 2,038- | 1,457- | 883- | 1,336- | 2,464- |
| Trade Balance (Net) | 1,542- | 1,423- | 1,227- | 1,415- | 2,395- | 3,556- | 3,585- | 4,574- | 5,084- | 4,449- | 4,824- | 6,262- |
| Exports, f.o.b., o/w: | 1,347 | 1,627 | 1,964 | 2,185 | 2,753 | 3,050 | 3,690 | 4,064 | 5,633 | 4,526 | 4,990 | 5,685 |
| Non-Monetary Gold | 2 | 7 | 124 | 149 | 36 | 3 | 196 | 33 | 58 | 168 | 142 | 187 |
| Imports, f.o.b., o/w: | 2,888 | 3,050 | 3,191 | 3,600 | 5,148 | 6,606 | 7,275 | 8,638 | 10,717 | 8,975 | 9,814 | 11,946 |
| Non-Monetary Gold | 20 | 28 | 23 | 51 | 72 | 49 | 26 | 67 | 109 | 16 | 10 | 22 |
| Services Account | 58- | 169- | 77- | 100- | 52- | 148- | 45- | 22 | 250 | 523 | 839 | 471 |
| Travel (Net)** | 265 | 228 | 422 | 432 | 571 | 607 | 867 | 1,013 | 1,376 | 1,311 | 1,430 | 1,306 |
| Receipts | 512 | 496 | 743 | 753 | 943 | 1,021 | 1,461 | 1,638 | 2,089 | 2,067 | 2,545 | 2,130 |
| Payments | 248 | 268 | 321 | 320 | 371 | 415 | 593 | 626 | 712 | 755 | 1,116 | 824 |
| Transportation (Net) | 279- | 340- | 340- | 371- | 483- | 618- | 715- | 818- | 997- | 818- | 715- | 932- |
| Receipts | 212 | 185 | 207 | 215 | 302 | 333 | 374 | 468 | 593 | 565 | 794 | 844 |
| Payments, o/w**: | 492 | 524 | 547 | 586 | 785 | 951 | 1,089 | 1,286 | 1,590 | 1,379 | 1,509 | 1,775 |
| Freight | 292 | 308 | 323 | 364 | 521 | 668 | 736 | 874 | 1,084 | 908 | 993 | 1,208 |
| Government Services (Net) | 157- | 81- | 159- | 119- | 108- | 12 | 42- | 35- | 54- | 151 | 194 | 202 |
| Receipts | 27 | 65 | 22 | 22 | 15 | 67 | 41 | 80 | 89 | 254 | 269 | 286 |
| Payments | 184 | 146 | 181 | 142 | 123 | 55 | 83 | 114 | 142 | 103 | 76 | 84 |
| Other Services (Net) | 113 | 23 | 0- | 43- | 33- | 149- | 155- | 138- | 76- | 122- | 70- | 105- |
| Receipts | 411 | 309 | 285 | 250 | 210 | 233 | 186 | 330 | 408 | 348 | 367 | 389 |
| Payments | 297 | 286 | 286 | 292 | 242 | 382 | 341 | 468 | 484 | 470 | 437 | 494 |
| Income Account | 71 | 115 | 55 | 92 | 194 | 239 | 321 | 485 | 494 | 360 | 65- | 128- |
| Compensation of Employees (Net) | 115 | 127 | 141 | 137 | 170 | 198 | 228 | 272 | 411 | 298 | 296 | 263 |
| Receipts | 131 | 143 | 157 | 156 | 193 | 228 | 262 | 312 | 451 | 340 | 338 | 299 |
| Payments | 16 | 16 | 16 | 19 | 23 | 29 | 34 | 40 | 40 | 42 | 42 | 37 |
| Investment Income (Net)* | 43- | 12- | 86- | 45- | 25 | 40 | 93 | 213 | 83 | 63 | 361- | 390- |
| Receipts | 343 | 320 | 192 | 234 | 268 | 334 | 470 | 683 | 497 | 436 | 380 | 265 |
| Payments | 386 | 332 | 278 | 279 | 243 | 293 | 377 | 471 | 415 | 374 | 741 | 656 |
| Current Transfers (Net) | 1,548 | 1,460 | 1,605 | 2,273 | 2,280 | 1,855 | 2,085 | 2,030 | 2,884 | 2,683 | 2,714 | 3,455 |
| Public (Net) | 287 | 327 | 362 | 996 | 940 | 529 | 575 | 324 | 938 | 671 | 779 | 1,432 |
| Inflows | 291 | 330 | 363 | 997 | 946 | 533 | 599 | 328 | 940 | 684 | 782 | 1,433 |
| Outflows | 4 | 3 | 1 | 1 | 6 | 5 | 24 | 4 | 2 | 13 | 3 | 1 |
| Other Sectors (Net) | 1,262 | 1,133 | 1,244 | 1,277 | 1,341 | 1,327 | 1,510 | 1,705 | 1,946 | 2,011 | 1,934 | 2,023 |
| Inflows, o/w: | 1,560 | 1,347 | 1,427 | 1,485 | 1,580 | 1,615 | 1,797 | 2,221 | 2,394 | 2,464 | 2,323 | 2,376 |
| Workers' Remittances | 1,177 | 1,283 | 1,362 | 1,405 | 1,460 | 1,545 | 1,783 | 2,123 | 2,242 | 2,214 | 2,247 | 2,152 |
| UN Compensations | 375 | 48 | 54 | 70 | 107 | 56 | - | - | - | - | - | - |
| Outflows, o/w: | 299 | 215 | 183 | 208 | 239 | 289 | 287 | 516 | 448 | 453 | 388 | 354 |
| Workers' Remittances | 124 | 121 | 121 | 142 | 170 | 218 | 251 | 300 | 295 | 315 | 310 | 275 |

Notes: (1) Preliminary

* Revised data since 2000

** The receipts and the payments of travel item in addition to payments of transport item were re-estimated since the 3rd quarter of 2006, according to the survey results of arrivals and departures (July 2006 - June 2007) carried out by DOS.

Source: Central Bank of Jordan

Attached Table 4 Domestic Exports by Commodity According to S.I.T.C

(Unit: JD million)

| | 2007 | % of Total | 2008 | % of Total | 2009 | % of Total | 2010* | % of Total | 2011* | % of Total |
|---|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|
| 0 Food and Live Animals, of which: | 404.1 | 12.7 | 507.3 | 11.4 | 513.2 | 14.3 | 621.5 | 14.7 | 729.7 | 15.3 |
| Vegetables | 273.0 | 8.6 | 291.5 | 6.6 | 279.8 | 7.8 | 323.8 | 7.7 | 356.1 | 7.4 |
| Fruits and Nuts | 34.2 | 1.1 | 47.5 | 1.1 | 54.2 | 1.5 | 68.5 | 1.6 | 96.2 | 2.0 |
| Dairy Products and Eggs | 13.4 | 0.4 | 33.3 | 0.8 | 29.4 | 0.8 | 38.6 | 0.9 | 30.8 | 0.6 |
| Live Animals | 1.0 | 0.0 | 5.8 | 0.1 | 21.9 | 0.6 | 33.4 | 0.8 | 84.1 | 1.8 |
| 1 Beverages and Tobacco | 68.4 | 2.1 | 76.0 | 1.7 | 61.1 | 1.7 | 62.5 | 1.5 | 52.0 | 1.1 |
| 2 Crude Materials, Inedible, Except Fuels, of which: | 435.2 | 13.7 | 987.9 | 22.3 | 635.4 | 17.8 | 790.7 | 18.8 | 1,139.7 | 23.8 |
| Potash | 227.4 | 7.1 | 545.3 | 12.3 | 317.2 | 8.9 | 451.3 | 10.7 | 593.7 | 12.4 |
| Phosphates | 138.3 | 4.3 | 371.9 | 8.4 | 271.2 | 7.6 | 265.0 | 6.3 | 447.3 | 9.4 |
| 3 Mineral Fuels, Lubricants and Related Materials | 26.3 | 0.8 | 34.3 | 0.8 | 20.1 | 0.6 | 46.0 | 1.1 | 8.8 | 0.2 |
| 4 Animal and Vegetable Oils and Fats | 16.1 | 0.5 | 18.1 | 0.4 | 6.1 | 0.2 | 7.8 | 0.2 | 12.0 | 0.3 |
| Vegetable Fats or Oils and their Fractions Hydrogenated | 8.3 | 0.3 | 7.7 | 0.2 | 0.3 | 0.0 | 3.2 | 0.1 | 9.4 | 0.2 |
| 5 Chemicals, of which: | 766.7 | 24.1 | 1,245.7 | 28.1 | 879.0 | 24.6 | 1,096.7 | 26.0 | 1,070.3 | 22.4 |
| Medical and pharmaceutical Products | 300.1 | 9.4 | 353.1 | 8.0 | 334.2 | 9.3 | 423.2 | 10.0 | 354.7 | 7.4 |
| Fertilizers | 217.8 | 6.8 | 421.5 | 9.5 | 238.8 | 6.7 | 311.4 | 7.4 | 266.6 | 5.6 |
| Phosphoric Acid | 51.4 | 1.6 | 180.7 | 4.1 | 62.7 | 1.8 | 77.2 | 1.8 | 75.7 | 1.6 |
| 6 Manufactured Goods Classified by Material, of which: | 267.6 | 8.4 | 409.7 | 9.2 | 404.9 | 11.3 | 450.8 | 10.7 | 449.6 | 9.4 |
| Paper and Cardboard | 70.1 | 2.2 | 109.3 | 2.5 | 118.4 | 3.3 | 144.3 | 3.4 | 131.2 | 2.7 |
| 7 Machinery and Transport Equipment | 171.4 | 5.4 | 236.0 | 5.3 | 203.5 | 5.7 | 230.1 | 5.5 | 262.2 | 5.5 |
| 8 Misc. Manufactured Articles, of which: | 1,024.6 | 32.2 | 907.2 | 20.5 | 772.8 | 21.6 | 823.6 | 19.5 | 913.7 | 19.1 |
| Clothes | 843.9 | 26.5 | 716.8 | 16.2 | 589.5 | 16.5 | 622.8 | 14.8 | 708.3 | 14.8 |
| Plastic Products | 37.8 | 1.2 | 46.7 | 1.1 | 45.5 | 1.3 | 55.6 | 1.3 | 67.6 | 1.4 |
| Printed Matter | 8.2 | 0.3 | 14.4 | 0.3 | 14.6 | 0.4 | 16.3 | 0.4 | 16.4 | 0.3 |
| 9 Commodities and Transactions not Classified Elsewhere | 3.3 | 0.1 | 8.9 | 0.2 | 83.1 | 2.3 | 87.2 | 2.1 | 142.0 | 3.0 |
| Total | 3,183.7 | 100.0 | 4,431.1 | 100.0 | 3,579.2 | 100.0 | 4,216.9 | 100.0 | 4,780.0 | 100.0 |

*Preliminary

Source: Central Bank of Jordan, Monthly Statistical Bulletin

Attached Table 5 Geographic Distribution of Domestic Exports

(Unit: JD million)

| | 2007 | | 2008 | | 2009 | | 2010* | | 2011* | |
|--|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|----------------|--------------|
| | Value | % | Value | % | Value | % | Value | % | Value | % |
| Arab Countries of which: | 1,393.5 | 43.8 | 1,849.3 | 41.7 | 1,846.6 | 51.6 | 2,127.7 | 50.5 | 2,264.7 | 47.4 |
| Iraq | 378.3 | 11.9 | 574.4 | 13.0 | 607.5 | 17.0 | 648.2 | 15.4 | 715.0 | 15.0 |
| Saudi Arabia | 260.7 | 8.2 | 337.7 | 7.6 | 377.4 | 10.5 | 451.0 | 10.7 | 447.7 | 9.4 |
| Lebanon | 69.7 | 2.2 | 89.7 | 2.0 | 126.7 | 3.5 | 138.0 | 3.3 | 209.0 | 4.4 |
| Syria | 149.7 | 4.7 | 166.3 | 3.8 | 149.4 | 4.2 | 169.4 | 4.0 | 181.4 | 3.8 |
| UAE | 124.3 | 3.9 | 154.8 | 3.5 | 146.3 | 4.1 | 179.7 | 4.3 | 163.3 | 3.4 |
| Kuwait | 53.2 | 1.7 | 66.2 | 1.5 | 50.1 | 1.4 | 61.9 | 1.5 | 99.5 | 2.1 |
| EU Countries | 110.5 | 3.5 | 182.2 | 4.1 | 107.0 | 3.0 | 155.6 | 3.7 | 223.5 | 4.7 |
| Other European Countries | 13.5 | 0.4 | 23.4 | 0.5 | 18.9 | 0.5 | 68.6 | 1.6 | 43.7 | 0.9 |
| NAFTA and South American Countries of which: | 894.7 | 28.1 | 757.9 | 17.1 | 628.9 | 17.6 | 679.7 | 16.1 | 767.8 | 16.1 |
| USA | 875.0 | 27.5 | 736.2 | 16.6 | 612.0 | 17.1 | 655.9 | 15.6 | 733.8 | 15.4 |
| Non Arab Asian Countries, of which: | 678.4 | 21.3 | 1,476.3 | 33.3 | 891.8 | 24.9 | 1,019.0 | 24.2 | 1,280.9 | 26.8 |
| India | 332.5 | 10.4 | 916.1 | 20.7 | 484.1 | 13.5 | 551.0 | 13.1 | 615.5 | 12.9 |
| Indonesia | 26.5 | 0.8 | 94.9 | 2.1 | 99.0 | 2.8 | 105.5 | 2.5 | 152.0 | 3.2 |
| China | 51.1 | 1.6 | 78.2 | 1.8 | 27.4 | 0.8 | 78.6 | 1.9 | 141.3 | 3.0 |
| Malaysia | 35.7 | 1.1 | 62.8 | 1.4 | 19.6 | 0.5 | 50.0 | 1.2 | 79.8 | 1.7 |
| Other countries | 93.1 | 2.9 | 142.0 | 3.3 | 86.0 | 2.4 | 166.3 | 3.9 | 199.4 | 4.1 |
| Total | 3,183.7 | 100.0 | 4,431.1 | 100.0 | 3,579.2 | 100.0 | 4,216.9 | 100.0 | 4,780.0 | 100.0 |

*Preliminary

Source: Central Bank of Jordan, Monthly Statistical Bulletin

Attached Table 6 Imports by Commodity According to S.I.T.C.

(Unit: JD million)

| | 2007 | % of total | 2008 | % of total | 2009 | % of total | 2010* | % of total | 2011* | % of total |
|--|----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|
| 0 Food and Live Animals, of which: | 1,321.9 | 13.6 | 1,734.5 | 14.4 | 1,488.8 | 14.7 | 1,681.5 | 15.2 | 1,818.3 | 14.0 |
| Meat, fish and preparations thereof | 140.1 | 1.4 | 206.0 | 1.7 | 225.4 | 2.2 | 264.4 | 2.4 | 303.2 | 2.3 |
| Fruits, Vegetables and Nuts | 159.4 | 1.6 | 191.1 | 1.6 | 208.2 | 2.1 | 226.8 | 2.1 | 257.9 | 2.0 |
| Dairy Products and Eggs | 97.1 | 1.0 | 167.2 | 1.4 | 150.8 | 1.5 | 146.5 | 1.3 | 161.5 | 1.2 |
| Sugar | 75.9 | 0.8 | 95.5 | 0.8 | 81.7 | 0.8 | 142.1 | 1.3 | 150.3 | 1.2 |
| Maize | 77.8 | 0.8 | 110.2 | 0.9 | 110.3 | 1.1 | 114.7 | 1.0 | 139.6 | 1.1 |
| Fodder | 69.8 | 0.7 | 118.1 | 1.0 | 111.1 | 1.1 | 117.1 | 1.1 | 135.6 | 1.0 |
| 1 Beverages and Tobacco | 92.3 | 0.9 | 95.0 | 0.8 | 102.7 | 1.0 | 100.8 | 0.9 | 101.7 | 0.8 |
| 2 Crude Materials, Inedible, Except Fuels | 157.7 | 1.6 | 215.6 | 1.8 | 171.1 | 1.7 | 196.8 | 1.8 | 245.3 | 1.9 |
| 3 Mineral Fuels, Lubricants and Related Materials, of which: | 2,056.0 | 21.1 | 2,612.9 | 21.7 | 1,805.3 | 17.9 | 2,441.3 | 22.1 | 3,751.6 | 28.9 |
| Crude Oil | 1,464.9 | 15.1 | 1,857.9 | 15.4 | 1,098.3 | 10.9 | 1,357.1 | 12.3 | 1,764.5 | 13.6 |
| Petroleum products | 303.0 | 3.1 | 370.7 | 3.1 | 297.9 | 2.9 | 680.1 | 6.2 | 1,508.0 | 11.6 |
| 4 Animal and Vegetable Oils and Fats | 81.6 | 0.8 | 177.0 | 1.5 | 117.8 | 1.2 | 90.5 | 0.8 | 144.1 | 1.1 |
| Crude Palm Oil | 1.7 | 0.0 | 44.1 | 0.4 | 19.2 | 0.2 | 6.6 | 0.1 | 1.5 | 0.0 |
| 5 Chemicals, of which: | 896.6 | 9.2 | 1,167.9 | 9.7 | 1,070.7 | 10.6 | 1,223.9 | 11.1 | 1,427.5 | 11.0 |
| Medical and Pharmaceutical Products | 261.0 | 2.7 | 318.3 | 2.6 | 270.7 | 2.7 | 316.6 | 2.9 | 382.3 | 2.9 |
| Plastic and Articles thereof | 248.0 | 2.6 | 321.2 | 2.7 | 306.8 | 3.0 | 343.9 | 3.1 | 376.2 | 2.9 |
| 6 Manufactured Goods Classified by Material, of which: | 1,746.5 | 18.0 | 2,167.1 | 18.0 | 1,751.4 | 17.3 | 1,864.8 | 16.9 | 2,037.9 | 15.7 |
| Iron and Steel | 412.6 | 4.2 | 609.1 | 5.1 | 454.1 | 4.5 | 464.9 | 4.2 | 498.8 | 3.8 |
| Textile Yarn and Fabrics | 476.8 | 4.9 | 463.2 | 3.8 | 373.8 | 3.7 | 396.1 | 3.6 | 451.0 | 3.5 |
| 7 Machinery and Transport Equipment, of which: | 2,513.0 | 25.8 | 2,840.2 | 23.5 | 2,644.7 | 26.2 | 2,494.4 | 22.6 | 2,403.7 | 18.5 |
| Transport Equipment and Spare parts | 848.3 | 8.7 | 917.5 | 7.6 | 1,145.3 | 11.3 | 925.4 | 8.4 | 791.5 | 6.1 |
| Electrical Machinery, Apparatus and Appliances | 593.0 | 6.1 | 570.9 | 4.7 | 301.0 | 3.0 | 310.9 | 2.8 | 364.8 | 2.8 |
| 8 Misc. Manufactured Articles | 660.2 | 6.8 | 794.9 | 6.6 | 755.5 | 7.5 | 774.7 | 7.0 | 851.6 | 6.6 |
| Clothing and Footwear | 233.5 | 2.4 | 263.6 | 2.2 | 248.5 | 2.5 | 242.9 | 2.2 | 265.7 | 2.0 |
| Professional, Scientific and Controlling Instruments | 73.2 | 0.8 | 101.1 | 0.8 | 91.3 | 0.9 | 84.2 | 0.8 | 103.4 | 0.8 |
| 9 Commodities and Transactions not Classified Elsewhere | 196.4 | 2.0 | 255.8 | 2.1 | 199.7 | 2.0 | 181.4 | 1.6 | 212.3 | 1.6 |
| Total | 9,722.2 | 100.0 | 12,060.9 | 100.0 | 10,107.7 | 100.0 | 11,050.1 | 100.0 | 12,994.0 | 100.0 |

*Preliminary

Source: Central Bank of Jordan, Monthly Statistical Bulletin

Attached Table 7 Geographic Distribution of Imports

(Unit: JD million)

| | 2007 | | 2008 | | 2009 | | 2010* | | 2011* | |
|--|----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|-----------------|--------------|
| | Value | % | Value | % | Value | % | Value | % | Value | % |
| Arab Countries, of which: | 3,210.6 | 33.0 | 4,000.0 | 33.2 | 3,238.3 | 32.0 | 3,850.0 | 34.9 | 4,851.0 | 37.3 |
| Saudi Arabia | 2,014.0 | 20.7 | 2,549.9 | 21.1 | 1,770.0 | 17.5 | 2,164.4 | 19.6 | 2,965.5 | 22.8 |
| Egypt | 418.9 | 4.3 | 541.7 | 4.5 | 610.3 | 6.0 | 492.9 | 4.5 | 537.7 | 4.1 |
| UAE | 194.1 | 2.0 | 219.8 | 1.8 | 237.7 | 2.4 | 286.0 | 2.6 | 504.4 | 3.9 |
| Syria | 257.8 | 2.7 | 244.5 | 2.0 | 218.0 | 2.2 | 267.2 | 2.4 | 267.0 | 2.1 |
| Iraq | 8.6 | 0.1 | 51.2 | 0.4 | 117.1 | 1.2 | 165.6 | 1.5 | 126.6 | 1.0 |
| EU Countries, of which: | 2,366.2 | 24.3 | 2,541.5 | 21.1 | 2,125.4 | 21.0 | 2,277.9 | 20.6 | 2,675.9 | 20.6 |
| Italy | 318.2 | 3.3 | 384.4 | 3.2 | 361.9 | 3.6 | 379.3 | 3.4 | 684.6 | 5.3 |
| Germany | 724.6 | 7.5 | 720.3 | 6.0 | 632.1 | 6.3 | 729.0 | 6.6 | 554.2 | 4.3 |
| France | 235.3 | 2.4 | 295.6 | 2.5 | 252.5 | 2.5 | 246.6 | 2.2 | 263.8 | 2.0 |
| United Kingdom | 201.3 | 2.1 | 239.1 | 2.0 | 232.5 | 2.3 | 189.4 | 1.7 | 212.6 | 1.6 |
| Other European Countries | 597.6 | 6.1 | 996.3 | 8.2 | 597.6 | 5.9 | 475.7 | 4.3 | 687.4 | 5.3 |
| NAFTA and South American Countries of which: | 734.3 | 7.6 | 880.8 | 7.3 | 1,001.9 | 9.9 | 974.9 | 8.8 | 1,187.5 | 9.2 |
| USA | 449.0 | 4.6 | 551.1 | 4.6 | 707.3 | 7.0 | 615.7 | 5.6 | 765.1 | 5.9 |
| Non Arab Asian Countries, of which: | 2,695.9 | 27.7 | 3,504.6 | 29.1 | 2,994.4 | 29.6 | 3,293.0 | 29.8 | 3,383.2 | 26.0 |
| China | 928.2 | 9.5 | 1,252.2 | 10.4 | 1,113.0 | 11.0 | 1,188.6 | 10.8 | 1,294.4 | 10.0 |
| South Korea | 300.1 | 3.1 | 411.5 | 3.4 | 393.3 | 3.9 | 461.9 | 4.2 | 434.9 | 3.3 |
| Turkey | 273.7 | 2.8 | 319.8 | 2.7 | 309.1 | 3.1 | 397.2 | 3.6 | 389.8 | 3.0 |
| India | 215.1 | 2.2 | 357.3 | 3.0 | 212.2 | 2.1 | 275.3 | 2.5 | 349.3 | 2.7 |
| Japan | 292.0 | 3.0 | 349.0 | 2.9 | 374.4 | 3.7 | 343.5 | 3.1 | 257.9 | 2.0 |
| Other countries | 117.6 | 1.3 | 137.7 | 1.1 | 150.1 | 1.6 | 178.6 | 1.6 | 209.0 | 1.6 |
| Total | 9,722.2 | 100.0 | 12,060.9 | 100.0 | 10,107.7 | 100.0 | 11,050.1 | 100.0 | 12,994.0 | 100.0 |

*Preliminary

Source: Central Bank of Jordan, Monthly Statistical Bulletin

Attached Table 8 Industrial Subsector

| | Industrial Enterprises | | | | Kraft Industries | | | | Export | |
|--|------------------------|--------------|------------------|----------------|--------------------|---------------|------------------|---------------|--------------------|--------------|
| | No. of enterprises | | No. of employees | | No. of enterprises | | No. of employees | | (Unit: JD million) | |
| | 2009 | 2011 | 2009 | 2011 | 2009 | 2011 | 2009 | 2011 | 2009 | 2011 |
| Therapeutics and Medical Sector | 57 | 68 | 6,780 | 8,071 | 40 | 36 | 169 | 157 | 369 | 449 |
| Plastic and Rubber Sector | 165 | 171 | 4,815 | 5,151 | 210 | 228 | 839 | 980 | 49 | 81 |
| Chemical and Cosmetics Sector | 91 | 225 | 11,528 | 18,481 | 294 | 326 | 1,113 | 1,454 | 324 | 699 |
| Engineering, Electrical Industries and Information Technology Sector | 400 | 444 | 29,034 | 29,764 | 5,000 | 5,872 | 10,692 | 13,578 | 507 | 658 |
| Furniture and Wooden Sector | 101 | 120 | 4,078 | 1,698 | 2,783 | 2,892 | 5,353 | 6,554 | 34 | 47 |
| Construction Sector | 225 | 258 | 10,028 | 8,673 | 2,481 | 2,628 | 7,832 | 8,124 | 44 | 61 |
| Packing, Packaging, Paper, Cartoon and Stationeries Sector | 199 | 231 | 9,704 | 13,801 | 506 | 557 | 2,028 | 1,989 | 324 | 364 |
| Food, Supplies, Agricultural and Livestock Sector | 412 | 527 | 26,354 | 29,080 | 1,057 | 1,338 | 3,442 | 6,702 | 604 | 423 |
| Leather and Garments Sector | 235 | 253 | 50,507 | 42,603 | 966 | 1,113 | 4,312 | 4,031 | 553 | 767 |
| Mining Sector | 37 | 32 | 9,885 | 10,339 | 17 | 57 | 74 | 169 | 182 | 911 |
| Total | 1,922 | 2,329 | 162,713 | 167,661 | 13,354 | 15,047 | 35,854 | 43,738 | 2,991 | 4,459 |

Source: Jordan Chamber of Industry

3 Needs and Expectation for KAIZEN Dissemination in View of SME Management Conditions in Jordan

3.1 Needs for KAIZEN Dissemination in View of Management Characteristics of Jordanian Enterprises⁸

As noted before in the foregoing chapters, enhancement of SMEs' competitiveness is one of the most important challenges for industrial development in this country. There are many factors influencing efforts and results for most Jordanian SMEs that try to strengthen their competitiveness, and thus, needs of the SMEs for dissemination of the KAIZEN approach is quite significant as discussed in the following⁹.

- (1) Need for dissemination of the KAIZEN approach in view of work habits of workers, technical staffs and supervisors of Jordanian SMEs

Managements of many Jordanian companies complain about high turnover of employees, which is both a result and cause of a lack on the part of the employees of a sense of belonging to the company. This problem is associated with poor motivation to improve personal work performance and to accumulate and share work experience. Among the results of this are many idle hours and poor work efficiency. In fact, managers seem to expect no reports from the workers when a problem related to operations occurs. As a result, the management has a limited set of solutions and most problems are left as it is, prohibiting improvement of competitiveness.

On the other hand, many companies retain technicians (e.g., machine operators) and supervisors for a relatively long period of time; some of them are on the job for more than 10 years. They tend to attach importance to their own experience in relation to work methods and procedures but are reluctant to teach necessary skills to junior employees. Also, they do not like to change their work methods or style at the direction of the supervisor. Further, they are unwilling to report or solve a problem encountered in daily operation.

⁸ There is no statistical data available with regard to productivity of Jordanian companies. The information on the productivity given in this section is based on the information obtained from the companies applying for or participating in the current guidance program.

⁹ The following paragraphs discuss the management issues of the SMEs in Jordan, with focusing only on the issues which are expected to be improved through introduction of the KAIZEN approach.

At the same time, middle management (such as production managers, factory managers, and technical managers, etc.) tends to stay with the same company for a relatively short period of time. While they will report a problem relating to operation and management and propose a solution, they generally lack experience (especially experience on the shop floor) and face difficulty in obtaining cooperation from veteran workers.

Further, Jordanian companies (SMEs in particular) are characterized by lack of a clearly defined internal organization and the absence of delegation of authority. Even companies that obtained ISO's quality system certification are often operated by an organization that is different from an organizational chart which is filed for the certification.

The KAIZEN practice is characterized as a companywide, continuous practice for quality and productivity improvement, as the primary objective, with self-motivated participation of employees. This practice, if implemented properly, will help Jordanian companies greatly to overcome various difficulties and obstacles encountering in the course of their management and operation. For instance, the quality problems pointed out earlier can be significantly reduced or prevented once individual workers become capable of having a critical eye on their work and spotting a problem promptly. In other words, many problems can be eliminated by a positive change in attitude and awareness of workers about work.

Further, KAIZEN practice will allow the management to make the transition of power to the in-house organization appropriately, by mobilizing the proactive attitude of workers.

- (2) Need for dissemination of KAIZEN approach in view of machinery and equipment, and technologies available to the Jordanian SMEs

Machinery and equipment forms the backbone of production technology of most of the Jordanian companies. The heavy dependence on machinery, however, often leads to low utilization rate of the machineries, and therefore, overinvestment. Many companies invest more in specialized machinery than general-purpose one and use different machines for different products, although demand for each product is often too small to justify investment. As a result, some machines stand idling while others are operated to make a product. The capacity utilization rate is low, resulting in low capital productivity.

Installation or upgrading of machinery may be effective for improvement of productivity so long as the investment is feasible, particularly when the volume production is expected with demand growth. However, Jordanian industries generally serve a small market with wide range of products in a small lot, while many companies have already invested heavily in production equipment.

If the market demand is small as in the case of Jordan, in order to improve productivity, enhancement of production management should be considered first, rather than trying to improve productivity by investing on machineries and equipment. In this context, the need for dissemination of KAIZEN approach, which is useful for enhancement of production management, is also high for the Jordanian SMEs.

The dependence of production technology on machinery tends to result in production of products commonly-seen in the market, rather than the products developed from home-grown technology. It is also true for the Jordanian SMEs in the manufacturing sector. For enhancement of their competitiveness, **they have to meet the needs of the markets by manufacturing wide variety of products in a small production lot. The dissemination of KAIZEN practice, which enables to mobilize the proactive attitude of workers, is expected to make the accumulation of know-how possible to the SMEs, contributing to lay down the basis of innovative management for them.**

- (3) Need for dissemination of the KAIZEN approach in view of the way of thinking of middle management and technical staff on production and business management

In most companies, middle management and the technical staff are highly aware of importance of quality. In fact, they understand that quality is a source of their competitiveness. However, they try to maintain quality by rejecting defect products from shipping, or reworking defective products, rather than preventing production of defects. As a result, in many companies defectives, including those waiting for reworking, are found piled up on the shop floor.

Furthermore, most companies are not concerned about rate of defect products by claiming that defects are properly taken into account. They seem to believe that defects are not avoidable in light of skills of their workers, quality of purchased materials and parts, and machine's finishing accuracy.

They often have a wrong idea about productivity. In particular, many companies believe that it is a normal practice to keep a relatively large stock of materials and products. As for raw materials, they prefer to keep a sizable stock because they heavily rely on imports that take considerable time from ordering to delivery. On the other hand, finished products often form excess inventory because of the inability to control the production according to actual demand (instead, the production is carried out according to machine's capacity). Furthermore, a large stock of products in process is generated due to an imbalance in production capacity between different process steps. Many of them are then left intact within the shop and become useless due to a model change or discontinuation of production. It is difficult to keep process capacities in balance because multi-skilled workers are still to be common in Jordan.

Defects often occur due to equipment failure or malfunctioning in a production line. However, workers do not deal with it promptly in many cases, leading to a large quantity of defectives. The malfunctioning rate also seems to be fairly high. Most companies leave machinery maintenance to a specialized department, and machine operators are responsible for production only.

At many factories, defective products in process and parts are sent to the next step and reworked, which causes disturbance with normal production. Further, some defectives are not detected and continue to flow on the line, creating a further defect.

In addition, there is the lack of communication between process steps, which helps reduce a defect that occurs repeatedly in a preceding step. For instance, many garment manufacturers often fail to eliminate a recurrent defect in a process step, which leads to significant production waste and deterioration of work efficiency.

In most of these cases, **the middle managements tend to give up from the beginning to make the workers ensure the assumed level of works, or expect the more accurate job performance. The KAIZEN practice will allow them to trust the workers for implementation of appropriate production management in tandem with the workers.**

3.2 Expectation for KAIZEN Approach by Jordanian Companies

In fact, most of the managements in Jordanian companies concern seriously about these issues, and their expectation of the KAIZEN approach is high in this regard.

According to the interviews by the JICA Project Team with the management of the companies which applied to participate in the KAIZEN practice support program, at the project preparation stage, their major expectation to KAIZEN practice was found to be change in employees' attitude and awareness in terms of commitment to work and a sense of belonging to the company. This type of expectation seems to be even stronger than the expectation for improvement of operation and management including productivity. This seems to be the reflection of the serious problems facing Jordanian companies in relation to labor management.

The above expectation of the management for the KAIZEN practice is linked to the need which was pointed out in the project formation stage; namely, the need for development of personnel capable of leading day-to-day quality and productivity improvement practices. Many companies - especially those that have experience in introducing advanced production and business management techniques - realize the lack of effective means to put such techniques into daily operation and management. Employee lacks the attitude to follow the work standards which are newly introduced. As a result, the introduced techniques cannot drive quality and productivity improvement. Furthermore, once an engineer or manager in charge leaves the company, in many cases, it simply loses momentum to continue the improved practices.

4 KAIZEN Dissemination Initiatives in Jordan

The KAIZEN dissemination initiatives are to be carried out in two ways; one is the initiatives to apply KAIZEN practice in the individual companies, while another is the initiatives to promote, disseminate, support and encourage the initiatives in the individual companies through organized/institutional initiatives. Following 4.1 discusses the latter initiatives, whereas 4.2 handles the former initiatives.

4.1 Organized Initiatives by the Government and Public Sector for KAIZEN Dissemination and Guidance in Jordan

As discussed below, enhancement of competitiveness through quality/productivity improvement is an important issue for the industries as well as enterprises in Jordan. Initiatives aiming to improve quality/productivity were taken up to meet purposes of the activities in industrial and economic organizations/agencies. Actually some programs including stand along programs were carried out in the past. However, efforts to meet the needs and expectations of KAIZEN practices as described in 3.1 and 3.2 has never been done in terms of systematic promotion, support and encourage activities except the activities carried out under this project.

(1) Overview

1) The initiatives by the Government

To complement the previous development programs, Executive Development Program (EDP) was launched. The EDP assumes to accomplish the theme of “Investment Development” in the National Agenda which was through a set of following 10 policies (as from the National Agenda, see 2.4).

1. Building an institutional framework for the business environment which ensures coordination among stakeholders and various investment and economic policies.
2. Developing industrial cities and free zones and establishing new development zones in service of the investment environment in Jordan.
3. Enhancing partnership between the public and private sectors.
4. Attracting and empowering investments
5. Strengthening the Jordanian products position in international markets and entering new markets

6. Promoting the competitiveness of industries and various economic sectors (industry, trade and services).
7. Supporting small and medium companies and stimulating new companies.
8. Supporting the industrial policy.
9. Promoting local industries
10. Developing targeted industrial sectors (pharmaceuticals, garments, food industries, stone and marble).

The EDP also assumes the institutional framework for implementing these policies, and JEDCO is regarded as the major player to promote the competitiveness of industries. The EDP also assumes the JEDCO to cover all support activities to small and medium enterprises (SMEs) and the industrial sectors, aiming at promoting their competitiveness as discussed in (2).

2) The initiatives by the public organizations

Among the public bodies related to industry besides JEDCO, chambers of industry mostly have programs intending to support their members for enhancement of their competitiveness. The industrial associations are also quasi-public organizations. These associations also include the assistance programs to strengthen the competitiveness of their members as a part of their intended activities. These programs, however, are mostly one-shot seminars or workshops, and not the organized programs focusing on quality/productivity improvement, or enhancement of the competitiveness, if the programs are implemented (see (3) for detail).

(2) Jordan Enterprise Development Corporation (JEDCO)

Basic data of JEDCO is described as follow.

| | |
|-------------------------|---|
| Name | Jordan Enterprise Development Corporation (JEDCO) |
| Establishment | JEDCO was established through decree of the council of ministers on 12 June, 2003 to legally replace the Jordan Export Development and Commercial Centers Corporation. |
| Mission | To support the establishment and development of enterprises to become globally competitive. |
| Organization | JEDCO is overseen by a Steering Committee headed by H.E. Minister of Industry and Trade and is equally comprised of representatives from both the public and private sectors. See Figure 1-3 for the organizational chart. |
| No. of staff | 117 (As of December 2012) |
| Budget and usage (2010) | <p>Total budget: JD 11,300,000</p> <p><u>Breakdown:</u></p> <ul style="list-style-type: none"> - Current Expenditure 16% - Capital Expenditure 84% <ul style="list-style-type: none"> · Export Promotion 9% · Company Support 75% <p>(Breakdown of 75%、JUMP 1: 1.7%, JUMP 2: 2.7%, JSMP 1: 37.2%, Contribution to Venture Capital Fund: 31.0%)</p> <p><u>Revenues:</u></p> <ul style="list-style-type: none"> - Government subsidy 58% - Foreign grants 35% - Others 7% |

| | |
|----------|--|
| Programs | <p><u>Export Promotion Programs</u></p> <ul style="list-style-type: none"> - Marketing promotion program administration - Establishing foreign marketing centers - Jordanian exhibitions - Supporting sector and export society - Agriculture marketing and promotion - Establishing exporting houses and exporter window <p><u>Company Support Programs</u></p> <ul style="list-style-type: none"> - JUMP 1 (Jordan Upgrading and Modernization Program) - JUMP 2 (Support to Enterprise and Export Development Program) - Innovation center - Clothing design and training services - JSMP (Jordan Services Modernization Program) 1&2 <p><u>Contribution</u></p> <ul style="list-style-type: none"> - Contribution to Venture Capital funds |
|----------|--|

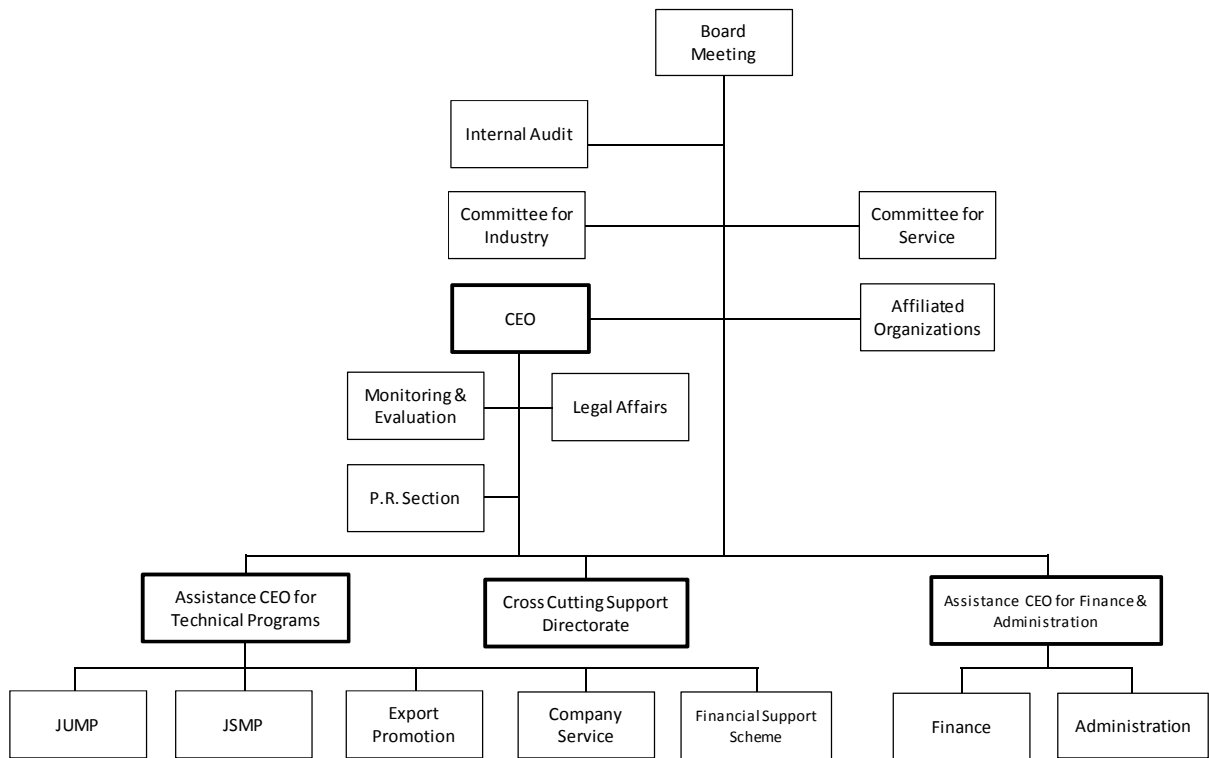


Figure 1-3 JEDCO Organization Chart

JEDCO has five pillars of corporate support schemes, namely, 1) export promotion, 2) entrepreneurship promotion, 3) financial intermediation 4) enterprise modernization (Jordan Upgrading and Modernization Program, JUMP), and 5) service sector modernization (Jordan Service Sector Modernization Program, JSMP). JUMP and JSMP are the comprehensive programs, which include export and entrepreneurship promotions, while others are not the programs implemented as a comprehensive program, like JUMP and JSMP.

Among these schemes, JUMP, the major scheme of JEDCO, includes quality/productivity improvement as well as competitiveness enhancement as its support target, as shown in the following¹⁰. However, the selection of the support target is left for decision by the beneficiary companies.

Jordan Upgrading and Modernization Program (JUMP) is a program established in 2004, with the support of European Union, providing technical and financial support to SMEs. The program was able to provide more than 1600 services in all fields to around 640 companies.

The program is designed to enhance MSMEs' competitiveness in industrial and agro-industry sectors, create new domestic business opportunities and help Jordanian companies expand into international markets through following:

- Enhance productivity, improve product's quality, and reduce unit cost
- Enable enterprises to face the increased competition in the domestic, regional and global markets
- Increase market share and develop non-traditional export markets
- Benchmark and adopt best international business practices
- Develop strategic direction driven by market needs
- Enhance capabilities of human resources
- Substitute imported production inputs by local products

In the case of JUMP II, which was started in 2011, it awards grants totaling 8.75 million Euro. Grants application is evaluated by the JEDCO on the predetermined criteria set up for each scheme of the following:

- Grant Scheme 1: Participation to trade missions and trade events
- Grant Scheme 2: Support to export development including getting various certifications
- Grant Scheme 3: Associations/ federations / joint initiatives

¹⁰ The budget (2010) for JUMP shown in the previous table does not represent the average annual budget since year 2010 was the transition period from the first phase to the second phase.

- Grant Scheme 4: Support to micro enterprises and start-up companies
- Grant Scheme 5: SMEs reinforcement

Among the above schemes, Grant Scheme 5 has a possibility to involve KAIZEN activities as a support target, although the selection of the support target is left for decision of the company and the guiding consultants. Under the JUMP II, about half of the budget (47%) is planned to be distributed to the Scheme 5.

Grant Scheme 3 can be utilized in case the business association initiates the KAIZEN project. However, it requires private consultants' active supports.

(3) Chambers of Industry

In Jordan, there are three chambers of industry organized at regional basis, and Jordan Chamber of Industry (JCI), which represents the national level. The chambers of commerce are also organized at regional level and national level, separately from the chambers of industry.

Table 1-9 Members of Industrial Chambers (2009)

| | Industrial Chambers | | | Total of all chambers |
|---------------------------------|---------------------|--------|--------|-----------------------|
| | Amman | Zarka | Irbid | |
| No. of enterprises | 8,725 | 5,499 | 1,159 | 15,383 |
| No. of employees | 134,224 | 39,294 | 25,044 | 198,562 |
| Registered capital (million JD) | 2,740 | 407 | 61 | 3,208 |
| Total exports (million JD) | 2,469 | 296 | 269 | 3,034 |

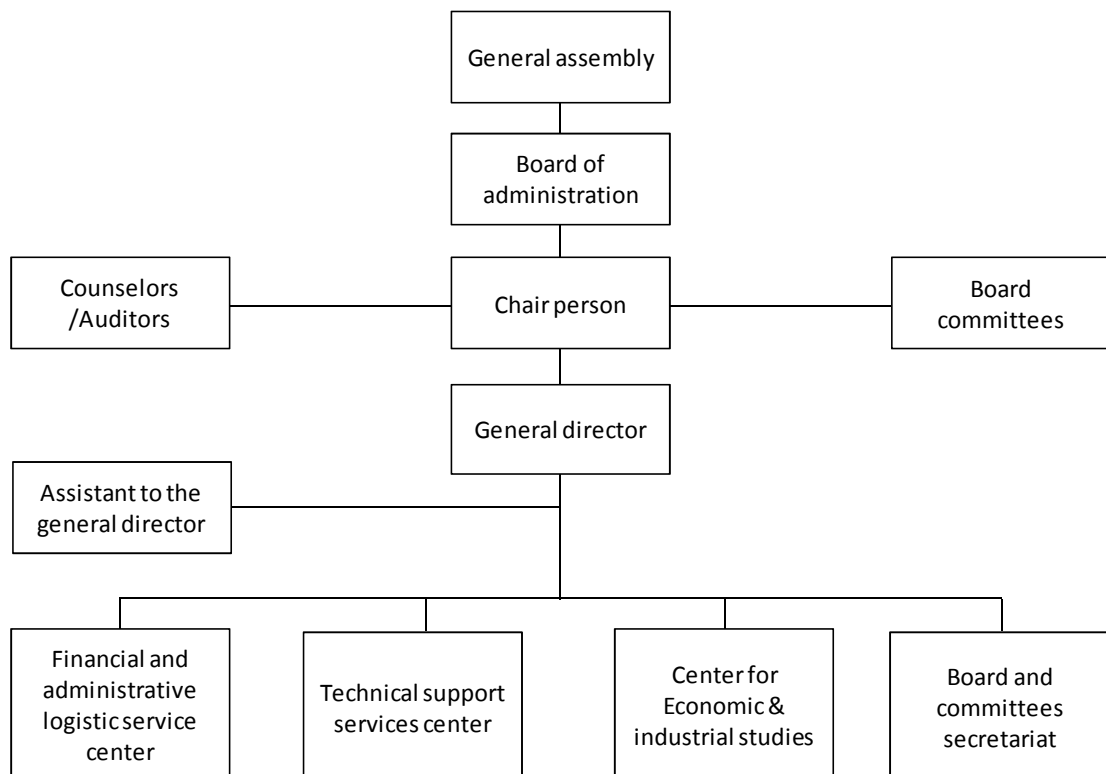
Source: Jordan Chamber of Industry

Each chamber aims at increasing the competitiveness of their members as their mission, and has conducted the related activities, but activities related to quality/productivity improvement are quite limited as seen in the followings.

1) Jordan Chamber of Industry

| | |
|--|---|
| Name of chamber | Jordan Chamber of Industry, JCI |
| Covering of the members | National |
| Number of membership | 15,383 enterprises |
| Main activities | <ol style="list-style-type: none"> 1. Attestation of certificates of origin and source, bills, guarantees, financial capabilities, and authentication of signatures. 2. Resolving disputes 3. Taking parts in setting trade standards 4. Appointing experts to study commercial and industrial issues 5. Participating in conference and exhibitions |
| Activities related to quality/productivity improvement | No specific activity is available |

As for the organization chart of JCI, see Figure 1-4.



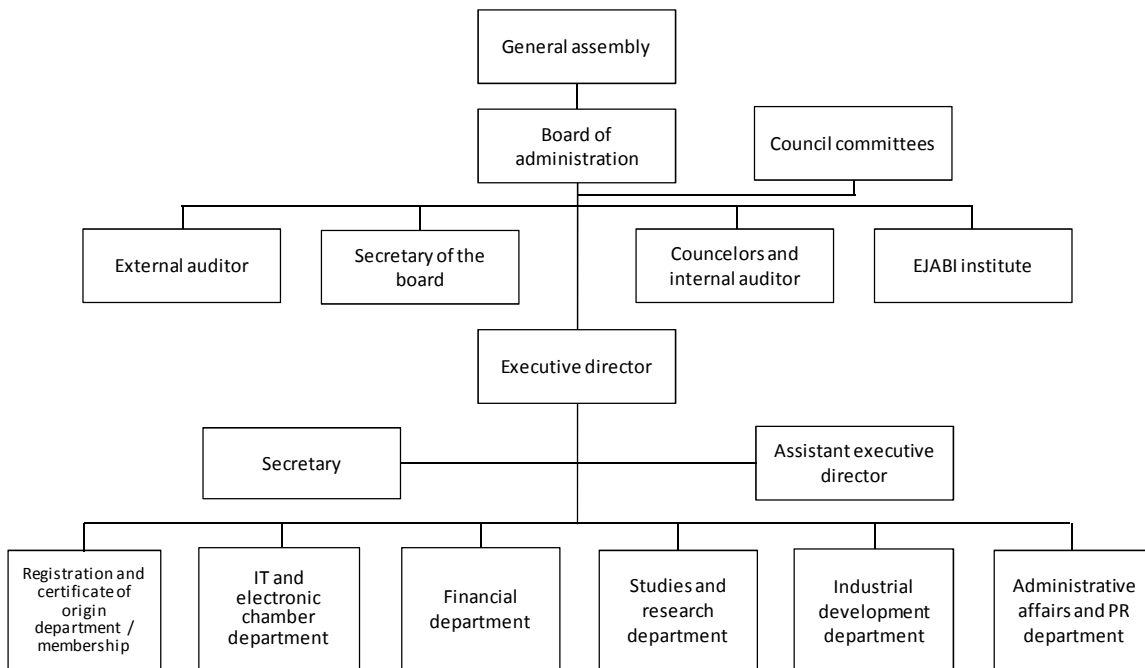
Source: <http://www.jci.org.jp> (Jan 4, 2013)

Figure 1-4 Organization Chart of JCI

2) Amman Chamber of Industry

| | |
|--|---|
| Name of chamber | Amman Chamber of Industry, ACI |
| Covering of the members | Amman, Balqa, Madaba, Karak, Maan, Al Tafileh, Aqaba |
| Number of membership | 8,725 enterprises |
| Main activities | <ol style="list-style-type: none"> 1. Attestation of certificates of origin and source, bills, guarantees, financial capabilities, and authentication of signatures. 2. Resolving disputes 3. Taking parts in setting trade standards 4. Appointing experts to study commercial and industrial issues 5. Participating in conference and exhibitions |
| Activities related to quality/productivity improvement | <ol style="list-style-type: none"> 1) Industry advisory program 2) JICA volunteer program 3) The National Program “Faculty for Factory” (FFF) <p>For further detail, seen main text.</p> |

Among the three regional chambers, ACI, the largest chamber of industry in Jordan, offers the following three guidance programs for companies (see Figure 1-5 for the organizational chart).



Note: EJABI: Euro Jordanian Advanced Business Institute
 Source: <http://www.aci.org.jo> (December 27, 2012)

Figure 1-5 ACI Organization Chart

Industrial Advisory Program

Industry advisory service is a field advisory service conducted by a group of engineers from the Industrial Development Department at Amman Chamber of Industry, covering various service fields such as: production planning and management, inventory management, productivity improvement, energy, environment, health and industrial safety, Jordanian standards, international marketing and export, preferential trade agreements signed between Jordan and different countries around the world, rules of origin, and local and foreign funding and technical assistance programs, etc. The selection of the service fields is left for the beneficiary company.

JICA Volunteers Program

JICA's volunteer program is the company guidance activities offered by Japanese senior volunteers who have solid experiences, of specialized knowledge and technologies. Some of the volunteers specialize in the area of the production management or quality control. They have provided the guidance services to companies. In this case, the selection of the service fields is left for the beneficiary company. They also have provided the guidance service (limited to volunteers' areas of expertise) in the form of seminars under the Chamber of Industry or FFF.

The National Program “Faculty for Factory” (FFF)

This is a program created and launched by the University of Jordan and financially supported by ACI together with other organizations and companies with a concept aimed at strengthening the role of applied scientific research carried out by academic institutions to serve the national economy, strengthening the technological component in their pursuit of industrial development and enhance competitiveness. The area of service to enterprises covers engineering, business administration, agriculture, pharmacy, science, information technology and any areas approved by the Committee.

90% of FFF service is related to the fields of engineering and corporate management, including quality control, productivity improvement, pollution control, and energy management. In practice, however, production management is not a strong point of the service.

FFF has received more than 100 applications. However, the budgeting constraint limits further expansion, for 80% of the program cost relies on funding by donor organizations (the remaining 20% - JD 700 has to be borne by a participating company).

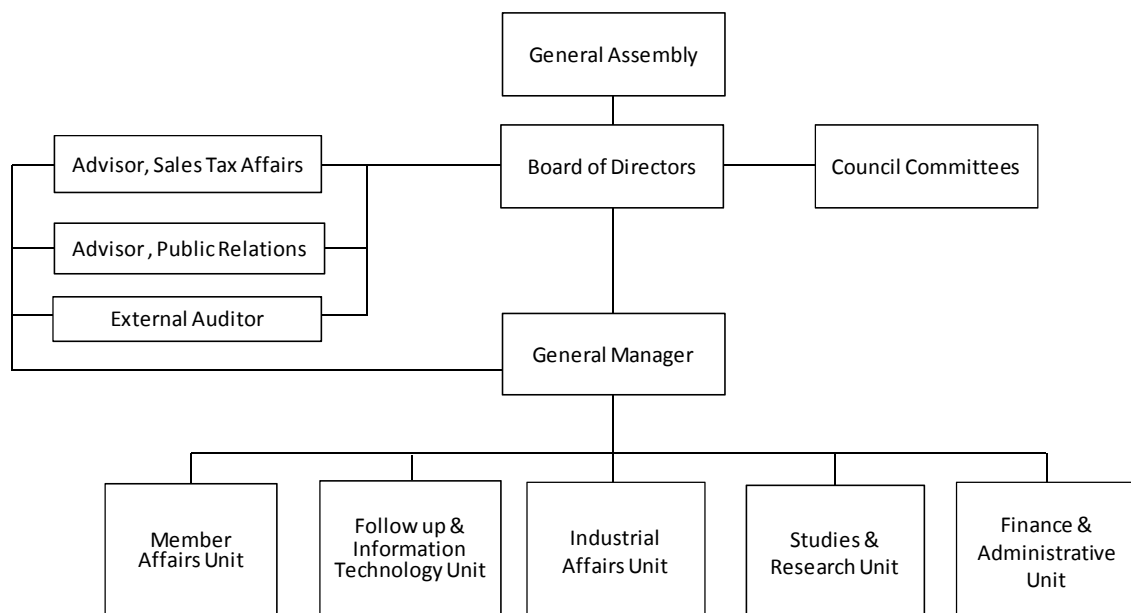
In addition to the above programs, ACI offers many programs not only for their members, but also for non-members. These are one-shot programs provided time to time according to the needs at the time. The programs include those related to quality/productivity improvement. In 2010, the program included that of Zero Defect, whereas in 2011, they offered the programs on TQM (Total Quality Management), Six Sigma, ISO quality management system, GMP (Good Manufacturing Practice), and HACCP (Hazard Analysis and Critical Control Point).

3) Zarqa Chamber of Industry

Zarqa Chamber of Industry was established in 1998.

| | |
|--|---|
| Name of chamber | Zarqa Chamber of Industry, ZCI |
| Covering of the members | Zarqa, Mafreq |
| Number of membership | 5,499 enterprises |
| Main activities | <ol style="list-style-type: none"> 1. Provision of information on local and international industrial trend 2. Publicity/advocacy activities representing the benefit of the members for the central and local governments 3. Provision of information for investment promotion 4. Attestation of certificates of origin and source 5. Certificate of bills, guarantees, financial capabilities, and authentication of signatures. 6. Special library service 7. Support of college/university graduates and jobless people in finding jobs |
| Activities related to quality/productivity improvement | No program is available for the individual enterprises. Introduce appropriate consultants in case of necessary. |

Figure 1-6 shows the organization chart of ZCI.



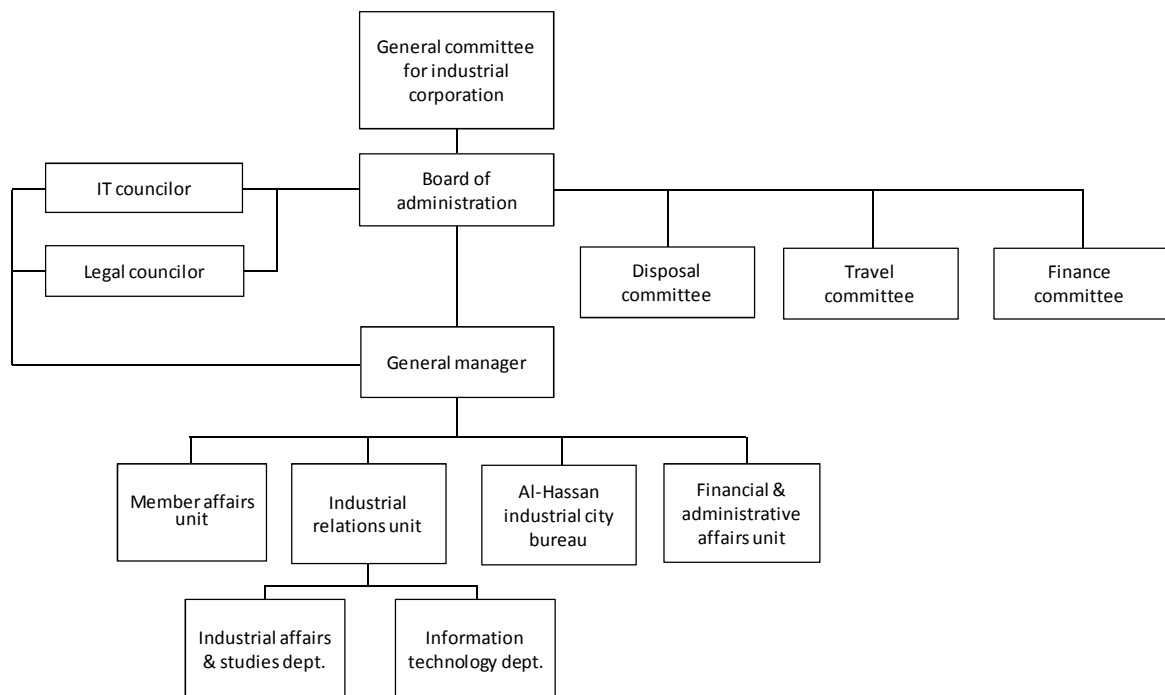
Source: <http://v2.zci.org.jp/org> (Jan 28, 2013)

Figure 1-6 Organization Chart of ZCI

4) Irbid Chamber of Industry

| | |
|--|---|
| Name of chamber | Irbid Chamber of Industry, ICI |
| Covering of the members | Irbid, Jerash, Ajuloun |
| Number of membership | 1,159 enterprises |
| Main activities | <ol style="list-style-type: none"> 1. Attestation of certificates of origin and source 2. Certificate of financial capabilities 3. Authentication of signatures 4. Provision of information and support activities for the members 5. Advocacy for central and local governments representing the benefit of the members |
| Activities related to quality/productivity improvement | No specific support program is available for the individual enterprises. |

The ICI was established in 1999. The organization chart of the ICI is shown in Figure 1-7.



Source: <http://www.ici.org.jo/ar> (Feb 1, 2013)

Figure 1-7 Organization Chart of ICI

(4) Industrial/business associations

Among nine industrial sectors which are defined under the Jordanian industrial classification, 6 sectors have business associations, including those with exporters as the members. The following tables show a purpose, number of member, main activities, activities related to quality and productivity improvement of each association including four associations from above 6 sectors except 2 agro products related associations, SMEs associations with various manufacturing sectors and East Amman Investors Industrial Association.

| | |
|--|---|
| Name of organization | Jordan Garment Accessories and Textile Exporters' Association (JGATE) |
| Objective | To increase sector competitiveness and expand export capacity |
| Number of member | Around 50 |
| Main activities | 1) Advocacy 2) Professional development (HRD) 3) Product & manufacturing development 4) Marketing 5) Networking |
| Activity related to quality and productivities improvement | KAIZEN introduction seminar for garment industry (KAIZEN dissemination seminar for the garment industry held by the Project Team) |
| Remarks | Total number of enterprises in leather & garment sector (in 2009): - Industrial enterprises: 234 - Craft industries: 4,312 |

Source: JGATE

| | |
|--|---|
| Name of organization | Jordanian Association of Pharmaceutical Manufactures and Medical Appliances |
| Objective | To support, develop and upgrade the Jordanian pharmaceutical industry to world-class standards. |
| Number of member | 13 (as of Feb, 2010) |
| Main activities | 1) Advocacy 2) Advice and consultancy 3) Provide technical assistance programs 4) Other technical assistances 5) Networking |
| Activity related to quality and productivities improvement | N.A. |
| Remarks | Year of establishment : 1996, 16 pharmaceutical manufacturers in Jordan |

Source: <http://www.japm.com> (Dec 20, 2012)

| | |
|--|---|
| Name of organization | Jordan Stone and Tile Exporter and Producers Association (Jostone) |
| Objective | To enhance the competitiveness of the business environment of the Stone, Tile and Marble (MST) sector. |
| Number of member | 100 (as of Feb, 2010) |
| Main activities | <ol style="list-style-type: none"> 1) Training and seminar 2) Organize missions and exhibition 3) Linkage 4) Consultancy 5) Advocacy |
| Activity related to quality and productivities improvement | No activities related to quality / productivity improvement |
| Remarks | Established in 1993. The total employee of members is 1,500. Training: cost accounting, visibility studies, letter of credit |

Source: Response of the questionnaire from the Project Team

| | |
|--|--|
| Name of organization | Jordan Furniture Exporters and Manufacturers Association (JFEMA) |
| Objective | To continuously support, enhance, and develop the Jordanian furniture industry |
| Number of member | 59 |
| Main activities | <ol style="list-style-type: none"> 1) Enhancing the exporting capabilities 2) Networking & linkage 3) Develop the Jordanian work force 4) Providing information of markets and technology 5) Organizing trade missions 6) Technical assistance (consultancy) |
| Activity related to quality and productivities improvement | No activities related to quality / productivity improvement |
| Remarks | Established in 2004. The total employee of members is 2,000 to 2,500. |

Source: Response of the questionnaire from the Project Team

| | |
|--|--|
| Name of organization | Jordan Industrial SMEs Association |
| Objective | To support and develop industrial SMEs in Jordan to achieve a better position in the market. |
| Number of member | 150 |
| Main activities | <ol style="list-style-type: none"> 1) Organized Industrial exhibitions and forums 2) Conducting Diagnostic studies for some of the SMEs problems 3) Organizing lectures, workshops, awareness session 4) Promote business cooperation between our members 5) Others |
| Activity related to quality and productivities improvement | Management courses (e.g. GMP, Productivity improvement, lean manufacturing) provided by EJABI. |
| Remarks | Some of training courses are designed to improve productivity and quality to members: GMP, supply chain management, marketing management, ISO, Sales skills and packaging Established in 2008. |

Source: Jordan Industrial SMEs Association

| | |
|--|---|
| Name of organization | Eastern Amman Investors Industrial Association |
| Objective | To raise the level of industrial services in order to provide an adequate environment for the creation of more productive and competitive market by the development of all aspects of the industry. |
| Number of member | 110 |
| Main activities | <ol style="list-style-type: none"> 1) Training and consultation 2) Advocacy 3) Information sharing 4) Show room 5) Market study |
| Activity related to quality and productivities improvement | KAIZEN Introduction seminar (conducted by one of KAIZEN consultants participated in the KAIZEN program) |
| Remarks | The association was established in 2010. |

Source: Eastern Amman Investors Industrial Association and <http://www.eaiia.org> (Dec 20, 2012)

All of them aim at conducting activities to increase members' competitiveness. Since they are regarded as the body to receive technical and financial assistances from the government and foreign donors, representing the sector, they can conduct the activities for this purpose, once they could get necessary assistance of human resources and/or funds. Nevertheless, their activities are mostly confined to one-shot seminars or training programs.

(5) SMEs assistance by donors

There are some cases of assisting SMEs in production management as a part of donors' SMEs assistance programs. However, the assistance, which puts its main focus on improvement of production management technology in the company, is very limited.

1) National Fund for Enterprise Support (NAFES)

NAFES is a program established jointly between government of Jordan and Japan, aimed at providing support to SMEs by assisting the implementation of development project. Areas of support include management consulting, IT systems implementation and human resource development.

2) The Business Development Center (BDC)

BDC is a non-government and non-profit organization committed to fostering economic development and public reform in the Middle East. As a national and regional resource, BDC works with a broad range of business service providers, government entities, universities and international partners to deliver development programs throughout the region. BDC manages various grants and funds provided by donors.

As for the program related to increase in competitiveness of private businesses in Jordan, BDC has a program called Tatweer. The program is funded by United States Agency for International Development (USAID) for economic development and provides financial assistance to SMEs.

4.2 KAIZEN Practices Performed in Individual Enterprises in Jordan

4.2.1 KAIZEN practices performed in individual enterprises in Jordan

It is a very hard task to see the picture of KAIZEN practice in Jordan currently, and in the past. As discussed in 4.1, there are several public and private organizations that teach business and production management techniques, but when it comes to dissemination of KAIZEN practice of the concept as intended under the current project, such organization is very limited.

A relatively large number of companies have experience in introducing management techniques, such as Six Sigma and lean production, under a consultant's guidance. On the other hand, only a limited number of companies have implemented KAIZEN practice of "companywide and workplace basis continuous management/operation improvement with participation of self-motivated employees." Further, even from these limited companies, it is difficult to obtain information on their KAIZEN experience in detail because the promotion programs have already terminated or employees engaged in them have left the company, while a primary source of information is confined to memory of employees (or former employees) of these companies without record of their activities.

The following section attempts to reconstruct and describe KAIZEN-oriented programs (as confirmed by the JICA Project Team that they were implemented in Jordan).

4.2.2 Initiatives in KAIZEN practice programs previously undertaken in Jordan

Two programs have been implemented in Jordan with the primary purpose of disseminating the KAIZEN practice; namely KAIZEN Guidance by KAIZEN Institute and the Human Affiliated Program for Productivity Improvement (HAPPI). Both programs aimed to support individual company to introduce KAIZEN practices, however, the former did not start initiatives in an individual company.

(1) KAIZEN Guidance by KAIZEN Institute

KAIZEN Institute Consulting Group Limited is a private consulting firm that is based in Switzerland, with offices in various countries worldwide, and is specialized in KAIZEN-related guidance service. In Jordan, it held two-day seminars in 2000, which were led by its founder, Mr. Imai, for the purpose of training Jordanian consultants for KAIZEN and establishing a branch office in the country. Then, from 2001 to 2005, the institute held similar seminars and

workshops. In 2004, it signed a consulting agreement with Jordan Garments, Accessories and Textiles Exporters' Association (JGATE). However, it was not materialized as expected, since the consulting fee was too high for the Jordanian companies.

(2) Human Affiliated Program for Productivity Improvement (HAPPI)

HAPPI was implemented as part of the Jordan – Japan Industrial Cooperation Program in 1999, with Royal scientific Society (RSS) being the implementation body. It provided KAIZEN guidance service for 10 model companies and envisaged dissemination of the KAIZEN practice to other companies under assistance of Jordanian experts who participated in the program¹¹. With the following five concepts as their targets, the HAPPI defined best practices in 20 key areas relating to QCD (Quality, Costs, and Delivery), and provided guidance and advice on the steps towards the best practices:

1. Corporate needs
2. Two fields of constitution
3. Revolution in the factory
4. Concepts of revolution

Among the model companies, several companies have produced significant results, including qualitative effects such as the improvement of the working environment, the enhancement of teamwork, improvement of employee loyalty, and employee participation in management. Also 4 companies reported quantitative effects like the restart of a long-idling production line, improvement of machine productivity, and the reduction of defectives. After termination of the project, some companies have maintained operation according to the program concepts. Furthermore, many technical advisers and consultants active with the KAIZEN concept seem to have participated in the program and have gained experience in the KAIZEN practice.

Based on the results of the 18-month program that was positioned as the first stage, the HAPPI proposed to establish a system and institution to continue the program further in the future by promoting dissemination of the concepts and methodology. Unfortunately, however, the proposal was not put into practice and no system to promote the KAIZEN concept was established, thus failing to evolve the KAIZEN practice to a nationwide or industry-wide movement. As a result, there was no further dissemination to other companies and many of

¹¹ Masayoshi Takagi, "To be an International Competitive Person", International Study of Ritsumeikan University, March 2003)

the model companies have reportedly discontinued the practice after employees engaged in the HAPPI project had left the companies¹².

4.2.3 Initiatives under ongoing programs

There are two ongoing technical guidance programs that partially aim to introduce the KAIZEN practice. These are carried out by ACI and FFF as mentioned earlier. Neither program is primarily designed to provide guidance on the KAIZEN practice and its implementation. But they incorporate technical guidance support by JICA's Senior Volunteer (SV) advisers, which often includes the guidance of methods and techniques used in the KAIZEN practice. Nevertheless, the contents of the guidance to be included in the program are left for the SV adviser's decision, not structured under a uniform guideline, and tend to result in un-systematized/partial one-shot guidance.

(1) ACI's technical guidance program

ACI's program is neither systematic nor continuous, and consists of on-demand guidance service for individual companies (only when a qualified adviser is available) and seminars in related fields. It primarily aims to improve industrial competitiveness and does not necessarily include guidance relating to the KAIZEN practice. Some programs incorporate technical support by JICA's Senior Volunteer advisers, which may lead to implementation of the KAIZEN process.

Guidance service by the Senior Volunteer adviser has been fairly limited in number, at a rate of a few companies per year.

(2) FFF's corporate guidance program

FFF is a program initiated for the purpose of developing a practical model for cooperation between industrial companies from different sectors and faculty members from various universities, under a concept aiming to strengthening the role of applied scientific research carried out by academic institutions to serve the national economy and strengthening a technology component essential for industrial development and enhanced competitiveness.

Again, the program does not entail implementation of the KAIZEN practice but often encourages it because it is supported by JICA's Senior Volunteer advisers in some cases.

¹² According to the interview with participated companies.

(3) Others

In addition to the above programs, Japanese companies (including Japanese-affiliated companies) operating in Jordan are engaged in the KAIZEN practice on their own, presumably under technical guidance of internal leaders (including those from their parent companies). At least, two companies are confirmed practicing KAIZEN. Further, some of these leaders provide guidance service for other companies after quitting the company by using the above experience.

Part II Implementation and Outcomes of the Project, and Lessons from the Project

1 Project Implementation

1.1 Overall Plan for the Project Implementation

The project was implemented with the following five components. The implementation statuses of the respective components are given in the sections shown in the parentheses below:

1. KAIZEN dissemination and awareness campaign activities (For detail of the activities, see (3)~(5) in 1.5)
2. KAIZEN consultants training program (For detail, see 1.4)
3. Development of course materials (For detail, see 1.7)
4. Pilot SME support program for KAIZEN practices (For detail, see 1.3)
5. Drafting of recommendations for establishment of a system and organization for KAIZEN dissemination (For detail, see (2) in 1.5)

The project consisted of the following three phases.

- 1) Phase 1: Establishment of the Implementation Framework
- 2) Phase 2: Implementation of pilot SME support program for KAIZEN practices
- 3) Phase 3: Follow up and the submission of final recommendations on KAIZEN practices dissemination with the summary of lessons learned through the project.

The implementation process of the project is summarized in Figure 2-1.

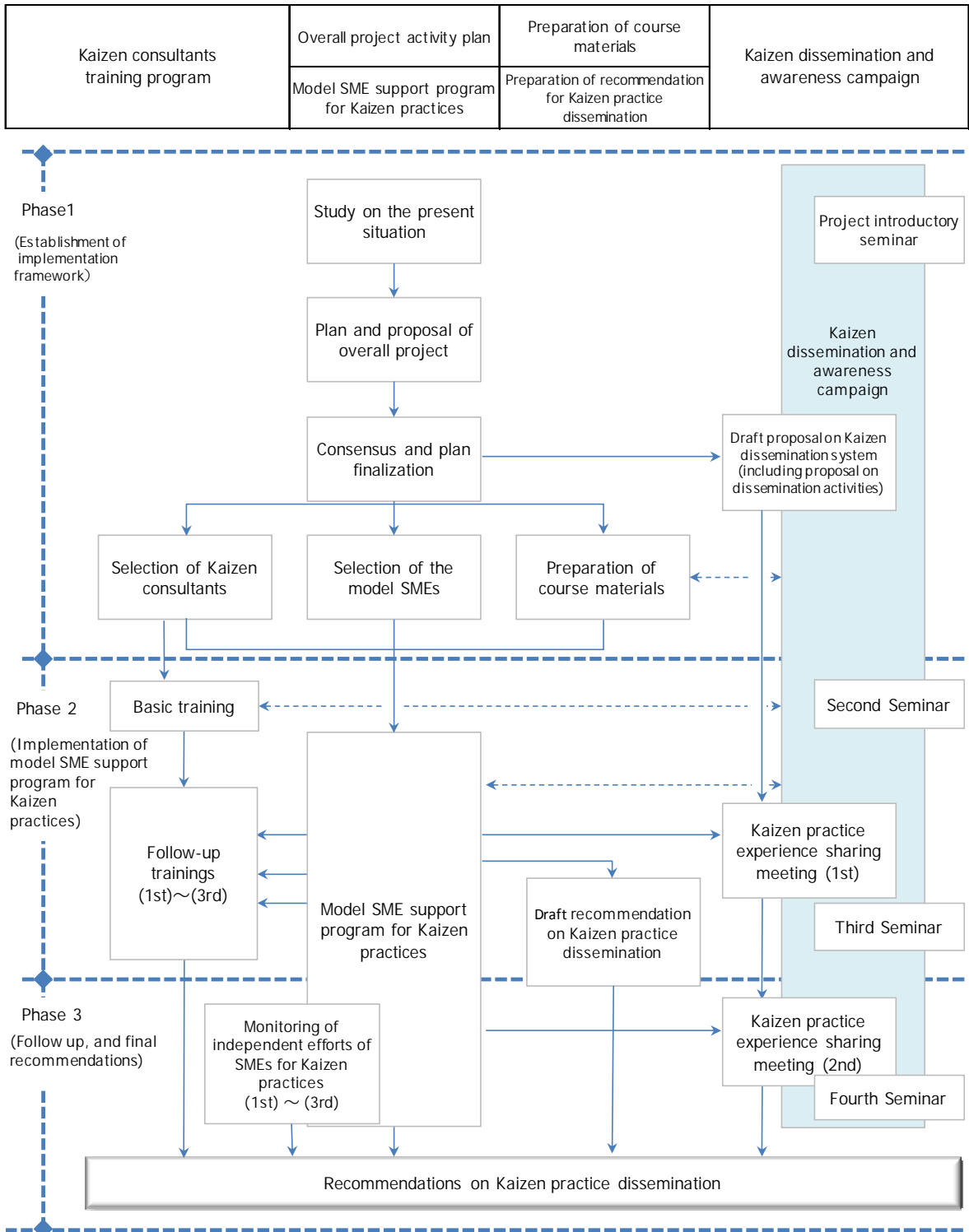


Figure 2-1 Outline of Basic Activities and Implementation Process of the Project

1.2 Outline of the Project by implementation process

The outline of the project is explained below by implementation process. The progress in each project component is explained in sections 1.3 to 1.7.

| Phase 1 (Establishment of the implementation framework) | | | | |
|---|--|--|--|---|
| Overall project activities | KAIZEN dissemination and awareness campaign | KAIZEN consultants training program | Model SME support program for KAIZEN practices | Others (Training material development, and recommendation on KAIZEN dissemination) |
| 1st Fieldwork (November 29 - December 28, 2010, hereinafter except for traveling from/to Japan) | | | | |
| <ul style="list-style-type: none"> • Agreement on the implementation method, procedure and time frame of the Project between the Project Team and C/P | <ul style="list-style-type: none"> • Study on the existing activities relating to KAIZEN dissemination • The First Seminar (Project Launching Seminar) • Request on the cooperation of the systematic PR activities about the Project to the chambers of industry and business associations | <ul style="list-style-type: none"> • Agreement on the criteria to be used in the selection of the participating consultants, with C/P. • Posting the application and selection procedure as well as the application form on the website of JEDCO | <ul style="list-style-type: none"> • Agreement on the criteria to be used in the selection of the participant SMEs with C/P. • Posting the application and selection procedure as well as the application form on the website of JEDCO | |
| 2nd Fieldwork (January 11 - March 21, 2011) | | | | |
| <ul style="list-style-type: none"> • Presentation of the activity plan of Phase2 • Confirmation of the organizational setup of the C/P during Phase 2 | <ul style="list-style-type: none"> • Consulting of meetings with C/P, 4 chambers of industry and the representative of FFF individually on the possibility of developing a network for KAIZEN dissemination | <ul style="list-style-type: none"> • Completion of selection of the consultants to participate in the program • Completion of acceptance of recommendation letters for the participants from government, public organizations and universities | <ul style="list-style-type: none"> • Completion of selection of the participant SMEs • Selection of 20 enterprises as the pilot SMEs for the Program, and notification of the selection results to all the applied enterprises through JEDCO | <ul style="list-style-type: none"> • Preparation of the guideline of guidance and course materials |

Phase 1 (Establishment of the implementation framework)

| Overall project activities | KAIZEN dissemination and awareness campaign | KAIZEN consultants training program | Model SME support program for KAIZEN practices | Others (Training material development, and recommendation on KAIZEN dissemination) |
|----------------------------|---|--|--|---|
| | | <ul style="list-style-type: none"> • Notification of the selection results to all the applied consultants through JEDCO • Selection of participants from government, public organizations and universities | | |

| Phase 2 (Implementation of model SME support program for KAIZEN practices) | | | | |
|---|---|---|---|--|
| Overall project activities | KAIZEN dissemination and awareness campaign | KAIZEN consultants training program | Model SME support program for KAIZEN practices | Others (Training material development, and recommendation on KAIZEN dissemination) |
| 3rd Fieldwork (May 1 - July 30, 2011) | | | | |
| <ul style="list-style-type: none"> • Submission of the Progress Report1 • Obtain approval of Jordanian side on the progress of the project and the plan for Phase 2 | <ul style="list-style-type: none"> • The second KAIZEN dissemination seminar | <ul style="list-style-type: none"> • The basic training • Beginning of on-site KAIZEN guidance training for consultants • The first KAIZEN consultant follow-up training | <ul style="list-style-type: none"> • Introductory training for KAIZEN Leaders of pilot SMEs • Beginning of KAIZEN Guidance for individual companies • First KAIZEN Leader Follow-up Training | |
| 4th Fieldwork (September 18 - November 3, 2011) | | | | |
| | <ul style="list-style-type: none"> • First KAIZEN practice experience sharing meeting • Proposing the concept to build “Productivity Enhancement Unit, PEU” as a part of the JEDCO organization | <ul style="list-style-type: none"> • Continuation of the on-site training at pilot SMEs • Follow-up interview with the target consultants | <ul style="list-style-type: none"> • Continuation of the pilot program to support SMEs for KAIZEN practice | <ul style="list-style-type: none"> • Modification of the course materials (including translation of some parts into Arabic) |

| Phase 2 (Implementation of model SME support program for KAIZEN practices) | | | | |
|--|--|---|--|--|
| Overall project activities | KAIZEN dissemination and awareness campaign | KAIZEN consultants training program | Model SME support program for KAIZEN practices | Others (Training material development, and recommendation on KAIZEN dissemination) |
| 5th Fieldwork (January 7 - March 16, 2012) | | | | |
| | <ul style="list-style-type: none"> • Discussion about the actual plan of setting up the dissemination organization inside JEDCO | <ul style="list-style-type: none"> • Continuation of the on-site training at pilot SMEs • Wrap-up training | <ul style="list-style-type: none"> • Continuation of the pilot program to support SMEs for KAIZEN practice (final stage) • Wrap-up training for KAIZEN leader | <ul style="list-style-type: none"> • Sorting and systematizing the course materials developed |
| | | <p>[Advanced implementation of Phase 3 activities]</p> <ul style="list-style-type: none"> • Mobilizing local consultants to take the role of instructors of the seminar for KAIZEN Leaders | <p>[Advanced implementation of Phase 3 activities]</p> <ul style="list-style-type: none"> • Agreement on the request of JEDCO to extend the program for additional 10SMEs during phase 3 as a part of the dissemination activity • Invitation and selection of SMEs under Round-2 program. • Introductory training of KAIZEN practices for the KAIZEN leaders of those SMEs • Beginning of KAIZEN guidance | |

| Phase 3 (Follow up on Round-1 pilot SME support program for KAIZEN practice and consultants trained, assist KAIZEN dissemination activities by Jordanian side and submission of the final recommendations) | | | | |
|--|--|--|---|---|
| Overall project activities | KAIZEN dissemination and awareness campaign | KAIZEN consultants training program | Model SME support program for KAIZEN practices | Others (Training material development, and recommendation on KAIZEN dissemination) |
| 6th Fieldwork (June 12 - July 12, 2012) | | | | |
| <ul style="list-style-type: none"> • Submission of the Interim Report | <ul style="list-style-type: none"> • Advice on the KAIZEN dissemination plan and discussion about support for the dissemination activities by JEDCO • Mini-seminar for staff of the Ministry of Industry and Trade | <ul style="list-style-type: none"> • Follow-up training and the guidance for KAIZEN consultants • Mobilizing local consultants as KAIZEN guidance instructors for Round-2 SMEs | <ul style="list-style-type: none"> • Continuation of the pilot program to support Round-2 SMEs for KAIZEN practice • Follow up on KAIZEN practices of Round-1 SMEs and KAIZEN leaders | <ul style="list-style-type: none"> • Submission of the interim report including recommendation of KAIZEN dissemination in Jordan, to JEDCO |
| 7th Fieldwork (September 24 - October 11, 2012) | | | | |
| | <ul style="list-style-type: none"> • KAIZEN mini-seminar for JEDCO staff • Experience sharing meeting for KAIZEN leaders of Round-1 and Round-2 SMEs | <ul style="list-style-type: none"> • KAIZEN consultant experience sharing meeting / counsel for preparing KAIZEN guidance • Continuation of mobilizing local consultants as KAIZEN guidance instructors for Round-2 SMEs | <ul style="list-style-type: none"> • Continuation of the pilot program to support Round-2 SMEs for KAIZEN practice • Follow-up training (experience sharing meeting) for KAIZEN leaders of Round-1 and Round-2 SMEs • Follow up on KAIZEN practices of Round-1 SMEs and KAIZEN leaders | |

| Phase 3 (Follow up on Round-1 pilot SME support program for KAIZEN practice and consultants trained, assist KAIZEN dissemination activities by Jordanian side and submission of the final recommendations) | | | | |
|--|---|--|--|---|
| Overall project activities | KAIZEN dissemination and awareness campaign | KAIZEN consultants training program | Model SME support program for KAIZEN practices | Others (Training material development, and recommendation on KAIZEN dissemination) |
| 8th Fieldwork (November 30 – December 22, 2012) | | | | |
| <ul style="list-style-type: none"> • Submission of the Draft Final Report | <ul style="list-style-type: none"> • KAIZEN seminar for JIEC and tenant companies in Abdullah II Ibn Al-Hussein Industrial Estate • KAIZEN seminar for Chambers of Industry and business associations | <ul style="list-style-type: none"> • Follow up training and counsel for preparing KAIZEN guidance • Continuation of mobilizing local consultants as KAIZEN guidance instructors for Round-2 SMEs | <ul style="list-style-type: none"> • Continuation of the pilot program to support Round-2 SMEs for KAIZEN practice | <ul style="list-style-type: none"> • Discussion on recommendations of KAIZEN dissemination in Jordan based on the Draft Final Report |
| 9th Fieldwork (February 22 – March 14, 2013) | | | | |
| <ul style="list-style-type: none"> • Submission of the modified draft final report before the 9th Fieldwork | <ul style="list-style-type: none"> • Experience sharing meeting for Round-1 and 2 SMEs for KAIZEN practice • KAIZEN dissemination seminar to share KAIZEN guidance experiences in Jordan with universities' faculties | <ul style="list-style-type: none"> • Follow up training and counsel for preparing KAIZEN guidance • Continuation of mobilizing local consultants as KAIZEN guidance instructors for Round-2 SMEs | <ul style="list-style-type: none"> • Wrap-up of the pilot program to support Round-2 SMEs for KAIZEN practice • Follow-up training (experience sharing meeting) for KAIZEN leaders of Round-2 SMEs | <ul style="list-style-type: none"> • Training for formulation of the dissemination activity plan |

1.3 Pilot SMEs Support Program for KAIZEN Practice

Outline of the implementation process of the program is as follows:

| |
|--|
| (1) Selection of the pilot SMEs |
| 1) Agreement on the method of public announcement, process and criteria of the participant SME selection |
| 2) Public announcement on the selection |
| 3) Selection |
| 4) Notification of the selection results |
| (2) Implementation of Pilot SME support for KAIZEN practice |
| 1) Introductory training of KAIZEN practice for the companies' KAIZEN leaders |
| 2) Implementation of on-site KAIZEN guidance |
| 3) Follow-up training of KAIZEN leaders |

Following shows the activities conducted under the program. The basic stance in implementing the program, outcomes and the lessons from the program will be discussed in Chapter 2.

1.3.1 Selection of pilot SMEs

The participant SMEs were selected through the following process.

- (1) Agreement on the method of public announcement, process and criteria of the participant SME selection

The Team and the C/P agreed on the selection process and criteria of the participant pilot SMEs.

Regarding the participant SMEs to be selected, the chambers of industry and some industrial associations had requested to increase the number. However, finally, the Project Team and C/P decided to stick to the originally planned number, considering the limitation of the implementation capacity of the Project Team, while making efforts to increase the number of enterprises to be benefited by providing the non-selected enterprises with opportunity of experience sharing meetings with the participant SMEs.

Also there was a request from the chambers of industry to consider the balance of selected number of companies among the industry sectors in the selection process, and it was noted by

the Project Team. A question was raised by the industrial associations particularly from the garment industry sector, regarding the definition of SME; the enterprises with less than 250 employees. The Project Team decided to take this request into consideration in the selection process.

(2) Public announcement on the selection

The public announcement on the participant SME selection was made in the Project Launching Seminar on December 20, 2010, and the guideline for application and the application form were posted on the website of JEDCO (see Annex 1-2). Also the circulars on the Program were distributed among the members of chambers of industry and some industrial associations, notifying the participant SME selection. The announcement was posted also on the website of JICA.

There were 57 applications by due date of January 20, 2011, whereas 2 applications were received after the due date.

(3) Selection

The pilot SMEs were selected through the following steps.

1) Step 1

Firstly, the applications from the sectors other than manufacturing were excluded. These are the sectors of IT, service and consulting industries. The applicants with more than 250 employees were also excluded unless the Project Team was convinced that the company had a nature of SMEs. For the remaining applicants, the Project Team made the evaluation criteria (see Annex 1-3 for the Selection Form).

The Team visited top 18 companies in the first screening.

During the company visit, the Project Team made briefing on the Program, confirmed and evaluated the applicant companies in views of the following:

- a) Their applications are based on the correct understanding and expectation of the top and middle management of the company about the program's aim and contents.
- b) The willingness to share the experience on KAIZEN practices
- c) The company's expectation on the program is not intended the following,
 1. The applicant is expecting the direct guidance or trainings by the Japanese advisors on the technology specific to the industry
 2. The applicant is expecting technological consulting only by the Japanese advisors on the specific technological problems

3. The KAIZEN outcome is hard to be expected through the small-group activities and the operation of improvement suggestion system, only, because of: 1) the process is fully automated, 2) it is difficult to find the problem which can be tackled by the small group, for instance, in case that each worker has completely separate task, 3) it needs to invest a huge amount of money or needs a lot of time to see the outcome.
- d) Assessment of the applicants' current system in order to execute the KAIZEN approach, or management attitude towards establishment of organizational framework to carry out the Program. Among all, following are assessed in view of positive employee participation:
1. Possibility of employee participation from broad range of departments and management-employee levels
 2. Guarantee and encouragement of the employees' participation in the KAIZEN practices within working hours by the top-management
 3. Appointment of the KAIZEN leader

2) Step 2

The additional companies were selected as the targets of visiting assessment, from the standpoint of achieving a balanced mix of participant companies from different industry sectors, including the twelve companies selected through the first step. The priority was given to the applicant companies located outside of Amman from the viewpoint of ensuring a balanced mix of geographical distribution.

To ensure the sector-based balance, the target number of companies for each of the nine industrial sectors (excepting the mining sector) to be selected was determined by the share of each sector's number of companies as well as the share of each sector's export value in the total (see Annex 1-4 and 1-5). Then, companies from each sector were visited and assessed until number of selected companies reached the target set for the each respective sector. Finally, 30 companies were selected for the visiting assessment.

(4) Notification of the selection results

The selection results were notified by JEDCO to each selected company (see Annex 1-6), which was then asked to submit the letter of commitment (see Annex 1-7) on program participation. At the same time, the Project Team sent a letter to all the applicant companies that were not selected, informing the decision, while introducing the possible support for KAIZEN practices through other programs under the project.

1.3.2 Pilot SME support program for KAIZEN practice

(1) Introductory training of KAIZEN practice for the companies' KAIZEN leaders

The training was held for KAIZEN leaders to learn necessary basic knowledge about introduction of KAIZEN into the company.

41 persons attended the training program from the companies participating in the SME support program. The positions of the participants in the respective companies are as follows:

| Position in the company | Number of participants |
|--------------------------------------|------------------------|
| GM, Deputy GM, or equivalent | 4 |
| Factory/Plant Manager etc. | 13 |
| Production Planning, Supervisor etc. | 7 |
| Quality Assurance /Quality Control | 7 |
| Total | 41 (*) |

Note: Including 10 other participants from university faculties, JEDCO staffs, and staffs of Chambers.

The training consists of the following contents:

- 1) Basics of KAIZEN approach, including the concept, features and advantages, which represent “self-motivated participation of employees,” and “bottom-up approach” (for detail, see 2.1)
- 2) Steps of improvement activities (or QC Story), which represent the scientifically and logically justifiable process of planning and implementation process emphasized in the KAIZEN activities
- 3) Tools for situational analysis and cause/factor analysis (or QC 7 Tools) to make the participants to understand the importance of statistical quality control
- 4) Major KAIZEN methods of 5S¹, visualized workplace management, etc.

¹ 5S: Seiri (Disposal), Seiton (Putting in order), Seiso (Cleaning), Seiketsu (Standardizing), Shitsuke (Discipline)

(2) Pilot SME support program for introduction of KAIZEN

1) Participation

Of the 20 companies selected for this program, 2 companies (1 pharmaceutical company and 1 food processing company) declined the program at the final confirmation stage of participation².

Accordingly, they were replaced by 2 companies with the next highest scores in the selection process after confirming their commitment.

2) Stage of KAIZEN guidance

The content of stage by stage KAIZEN guidance is described below.

² The reasons of refusal are 1) difficult to manage the schedule of guidance, 2) expectation of the financial support for improvement from the program

| Guidance Stage | Content |
|---|--|
| a) Stage 1: | <ol style="list-style-type: none"> 1 Orientation of KAIZEN practice and the support program introduction by the Project Team 2 Briefing on the company's policy and KAIZEN goal 3 Guidance and consultation of KAIZEN promotional committee |
| <u>Action by company before Stage 2</u> | <ol style="list-style-type: none"> 1 Setting the company's KAIZEN promotional committee 2 Briefing by KAIZEN leaders for members of the committee. 3 Selecting target work places and group leaders |
| b) Stage 2: | <ol style="list-style-type: none"> 1 Guidance on the KAIZEN practice for the committee members (mainly foreman) and group leaders of small groups 2 Guidance on fact finding, cause analysis and goal setting |
| <u>Action by company before Stage 3</u> | <ol style="list-style-type: none"> 1 Start group activities (fact finding, cause analysis and goal setting): KAIZEN practice step 1 2 Discussion among the committee members about the company KAIZEN goal |
| c) Stage 3: | <ol style="list-style-type: none"> 1 Advice on the result of KAIZEN practice step 1 2 Guidance on KAIZEN practice steps 2 to 4 (data gathering and analysis of KAIZEN theme, preparation of the plan and analysis of the problem) |
| <u>Action by company before Stage 4</u> | - Implementation of KAIZEN practice steps 2 to 4 |
| d) Stage 4: | <ol style="list-style-type: none"> 1 Advice on the result of KAIZEN practice step 2 to 4. 2 Guidance on KAIZEN practice steps 5 to 6 (discussion of measures to be taken, formulation of the draft work standard and verification of the result of measures taken) 3 Guidance on KAIZEN suggestion system |
| <u>Action by company before Stage 5</u> | - Implementation of KAIZEN practice steps 5 to 6 |

(From Stage 5 onward, contents of the guidance will be finalized according to the progress of the practice by the company.)

3) KAIZEN Themes selected by companies

Although the KAIZEN goals set by the (small) groups vary depending on the KAIZEN goal set by the company/department, the typical examples include:

| KAIZEN Theme | No. of company select | No. of KAIZEN group select |
|---|-----------------------|----------------------------|
| 1. Elimination of waste time (such as time used for searching materials or tools, etc.) | 4 | 5 |
| 2. Reduction of waste materials | 6 | 8 |
| 3. Reduction in standard time required for processing/assembling a unit of product (improvement of production efficiency) | 10 | 16 |
| 4. Keep workplace clean and order | 13 | 31 |
| 5. Reduction of processing defects | 5 | 7 |
| 6. Others | 17 | 18 |

Note: Others include the following items. (2, 2) indicates that the theme was selected by 2 companies and 2 KAIZEN groups. Without () means that the theme was selected by one KAIZEN group of one company.

1. Safety (2, 2)
2. Reduction of stock (2, 2)
3. Decrease of re-work
4. Define the work flow (1, 2)
5. Decrease of machine trouble
6. Increase of customers or sales (2, 2)
7. Maintenance of buses for employees' transportation
8. Improvement of quality
9. Improvement of balance between work process (2, 2)
10. Improvement of hygiene management
11. Multi workers
12. Keep the delivery date

(3) Follow-up training and KAIZEN experience sharing meetings for KAIZEN leaders

Follow-up trainings/KAIZEN experience sharing meetings for KAIZEN leaders were carried out as follow.

| | | |
|---------------------------|--------------|---|
| First Training / Meeting | Date | June 16, 2011(3rd Fieldwork) |
| | Participants | 19 from pilot SMEs |
| | Contents | The training was conducted with the following three topics while centering on KAIZEN goal setting, which were considered to be the major challenge for the KAIZEN leaders to face, based on the findings from the SME support program: 1. Feedback from the leaders on the subjects to be strengthened in the company guidance, 2. How to set the KAIZEN goal at the company and department level, 3.How to set the subject for the small-group activities |
| Second Training / Meeting | Date | October 24, 2011 (4th Fieldwork) |
| | Participants | 35 from pilot SMEs and 15 from other SMEs |
| | Contents | Two companies which showed faster progress made the presentations about their experiences of KAIZEN practices. |
| Third Training / Meeting | Date | February 27, 2012 (5th Fieldwork) |
| | Participants | 30 from pilot SMEs |
| | Contents | The Project Team conducted the wrap-up training for KAIZEN leaders at the end of pilot SME support program for KAIZEN practices. 30 persons participated and 2 participant companies made their presentations of their experiences of KAIZEN practices. The Project Team also made the lecture using case studies from on-site guidance. |
| Forth Training / Meeting | Date | October 10, 2012 (7th Fieldwork) |
| | Participants | 42 including KAIZEN leaders from Round-1 and 2 pilot SMEs |
| | Contents | The Experience Sharing Meeting for KAIZEN leaders and KAIZEN group leaders from Round-1 and Round-2 companies was held. Two companies from Round-1 companies made the presentations about their KAIZEN activity experiences. |

(4) KAIZEN guidance for pilot SMEs for KAIZEN practices (Round-2)

JEDCO requested to expand the number of companies practicing in the program for increasing impact of KAIZEN among the Jordanian industries as a part of KAIZEN dissemination. The Project Team decided to extend the program for additional 10 SMEs upon request. With the consideration of the time limitation in Phase 3, the Project Team implemented the following items during the 5th Fieldworks.

- Invitation and Selection of SMEs under Round-2 program: 12 SMEs sent their applications. 10 companies were selected as the companies to receive support for KAIZEN practices. The Project Team conducted 2-days introductory training of KAIZEN practices for the KAIZEN leaders. (36 participated. Among participants, there were three Round-1 companies which changed KAIZEN leaders along the way, and one service company which showed strong interest in KAIZEN practices but not selected as a model company.) Local consultants, who received the KAIZEN guidance training in Round-1 program, were mobilized as the instructors of the training.
- Implementation of guidance: The guidance was made 4 times at most to each company until the end of 8th Fieldwork. Other than this guidance, consultants visited their responsible companies to provide the extra guidance.

1.3.3 Assessment of the performance of the participated companies

Following table (Table 2-1) summarizes the assessment results of the companies³ :

Table 2-1 Summary of Assessments of KAIZEN Approach by Pilot SME Participated

| Performance level | Number of companies categorized under the performance level | % of total (a) | Accumulated total of (a) (in % of total) |
|----------------------------|---|----------------|--|
| A+ (Excellent performance) | 4 | 20 | 20 |
| A (Very good performance) | 4 | 20 | 40 |
| B+ (Good performance) | 1 | 5 | 45 |
| B (Average performance) | 5 | 25 | 70 |
| C (Fair performance) | 2 | 10 | 80 |
| D (Poor performance) | 2 | 10 | 90 |
| E (Not implemented) | 2 | 10 | 100 |
| Total | 20 | 100 | 100 |

Note: Performance level was rated according to the following: A+ (100~93), A (92~85), B+ (84~78), B (77~70), C (69~55), D (54~40)

The factors and weight values in the assessment are shown in Table 2-2. Each company is scored according to given factors (5 points is the full score). The evaluation score of each company is a sum of each score weighted by each value according to the Table 2-2. The reason to weight score of each assessment factor is to reflect degree of significant after one year from the beginning of KAIZEN practice. The assessment results and scores are shown in Table 2-3.

³ For further detail see Annex 1-11

Table 2-2 Weight of the Scores by Assessment Factors

| Assessment factors | Weight of the scores |
|--|----------------------|
| 1) Expectation and commitment of the top management to the KAIZEN practice | 3 |
| 2) Established and sustainable in-house system to promote and implement the KAIZEN practice | 4 |
| 3) Accomplishment of bottom-up type activities with participation of motivated employees and their improvement proposals | 6 |
| 4) Fact and problem analysis using statistical data | 2 |
| 5) Improvement planning and implementation in accordance with scientifically and logically justifiable procedures | 2 |
| 6) Effectiveness on productivity and quality improvement | 3 |

Table2-3 Assessment Results and Scores

| Assessment factors | Average scores of: (Full score is 5.0) | | |
|--|--|----------------------------------|----------------------------|
| | Total 18 companies | 9 companies in A+, A & B+ levels | 7 companies in B & C level |
| 1) Expectation and commitment of the top management to the KAIZEN practice | 4.11 | 4.89 | 3.86 |
| 2) Established and sustainable in-house system to promote and implement the KAIZEN practice | 4.28 | 5.00 | 3.86 |
| 3) Accomplishment of bottom-up type activities with participation of motivated employees and their improvement proposals | 3.94 | 4.67 | 3.43 |
| 4) Fact and problem analysis using statistical data | 3.00 | 3.67 | 2.71 |
| 5) Improvement planning and implementation in accordance with scientifically and logically justifiable procedures | 2.72 | 3.22 | 2.43 |
| 6) Effectiveness on productivity and quality improvement | 4.06 | 4.78 | 3.43 |

Of the participated 20 companies excluding 2 companies⁴, which declined from the program, 9 companies (or 45% of the total) showed the good performance or better. If the companies with the average performance are included to the above number, the number of companies is 14 (or 70% of the total). The KAIZEN practices under the Program may be summarized that companies performed in a satisfactory level as a whole. It is also verified from the feedback from the participated companies as follows (Table 2-4).

⁴ One company declined due to difficulty in continuing guidance with seasonal nature of operation, whereas another company declined due to delay in start-up of the new production line.

**Table 2-4 Usefulness of the KAIZEN Practices to the Participated
(Round-1) Companies**
(Feedback response to a question, “Was the KAIZEN practice useful for
your company?”)

| | Response from the company management | Response from the KAIZEN leaders |
|---------------|---|-------------------------------------|
| 1) Yes | 13 | 13 |
| 2) Yes and No | 0 | 0 |
| 3) No | 0 | 0 |
| Total | 13 | 13 |

However, if the performance is evaluated more in detail, it is obvious that there is a need for further guidance of the KAIZEN practices to bring more sustainable and continuous improvement effects to the management and operation of the companies (See 2.2 (2) through (4)).

1.4 KAIZEN Consultants Training

Outline of the implementation process of the program is as follows:

| |
|--|
| (1) Selection of the consultants |
| 1) Agreement on the method of public announcement, process and criteria of the participant consultants selection |
| 2) Public announcement on the selection |
| 3) Selection |
| 4) Notification of the selection results |
| (2) Basic training of the consultants |
| (3) Implementation of on-site guidance training using the pilot SME support program for KAIZEN practice |
| (4) Follow-up consultants training |
| (5) Follow-up of consultants development in Phase 3 |

Following shows the actual implementation of the program in the respective process.

1.4.1 Selection of consultant trainees

The participant consultants were selected through the following process.

- (1) Agreement on the method of public announcement, process and criteria of consultant-trainee selection

The Project Team agreed with the C/P on the consultant selection process and criteria, (see Annex 2-1) and JEDCO posted the guideline for the application and the application form (see Annex 2-2) on its website.

The C/P expected consultant trainees to have ten-year experience as a qualification requirement, for selecting persons who were capable of gaining confidence from client companies. On the other hand, in light of the fact that young consultants wanted to have opportunity to learn KAIZEN approach, the Project Team and the C/P agreed on possible involvement of additional younger consultants regardless of their year of experience.

- (2) Public announcement on the consultant-trainee selection

In the Program, there were two categories of participants; private consultants, or the staff of government/ public organization including university faculties.

Selection of the private sector consultant trainees were announced with the same method and timing as that of pilot SMEs, and there were 60 applications.

As for the staff of the government/public organizations and university faculties, the following organizations and universities sent the applications with their endorsement.

| Endorsed by: | | Number of applicants | Number of participants finally selected ⁵ | |
|-------------------|----------|----------------------|--|---|
| Government/public | JEDCO | 5 | 5 | |
| | Chambers | JCI | 1 | 1 |
| | | ACI | 2 | 2 |
| | | ZCI | 1 | 1 |
| | | ICI | 1 | 1 |
| University | | 44 | 1 | |

(3) Selection

1) Private Sector Consultants

Consultant-trainees were selected for three categories, namely private sector consultants, staff of government and public organizations, and university faculties. Selection from private sector consultants was carried out in the following two steps.

1. To select around ten consultants who were expected to be capable of providing consulting service immediately after the completion of the training program.
2. To select a maximum of five young consultants, who do not have sufficient experience but were willing to and had potential to become competent KAIZEN consultants by participating in the Program.

First, all the applicants were evaluated on the basis of the application documents submitted (see Annex 2-3 for the evaluation form). Then, they were interviewed in order of scores given in the first screening, thereby making clarification or correction about information given in the application, followed by re-evaluation. Specifically, interview was made with 15 applicants who met either of the following conditions.

Since the length of professional experience (consulting in the related fields and work experience in manufacturing sector) was emphasized during the first step evaluation, thus not providing opportunity for younger consultants, it was decided to accept additional five persons among the applicants who were not selected in the first step and were 37 years old or younger.

⁵ See (3)

2) Staff of government/public institutes and organizations

All the applicants of government organizations were the staffs of JEDCO while those of public organizations were from the chambers of industry, but none of applicants came from business associations. As these applicants were formally endorsed by the respective organizations and the total number was within the prescribed quota, it was decided to accept all of these applicants⁶.

3) University faculties

Participation by university faculties in the training program was expected to help promoting their technical cooperation in the areas of research and education relating to application and dissemination of the KAIZEN approach in the country. While 44 applications were made by university faculties, some of them apparently did not understand the Program's aim and intent. The Project Team therefore sent a letter to help all the applicants to understand the Program's intent and content, and confirmed their expectation for the Program (see Annex 2-6). Due to the limitation of frequency of guidance for SMEs on site (7 times), finally one person joined the program.

Number of applicants who had professional experiences as technical consultants⁷ were few, and it was forced to accept management consultants for the training program. While some of these consultants had work experiences in the manufacturing industry, which was considered favorably in the selection process, most of them lacked such field experience.

1.4.2 Basic training for KAIZEN consultants

The basic training was held for 10 days from May 9, 2011. The objective of the training was to promote systematic understanding of the basics of KAIZEN approach and practice, prior to the on-site guidance of KAIZEN practices to the companies. The training contained the basics of KAIZEN, including the concept, features, implementation steps, methods, case examples as well as the introduction process.

⁶ Among applicants from chambers of industry, due to resignation from the Chamber and refusal of the program, finally one person joined the program.

⁷ Expect for the pharmaceutical industry, where some consultants provide technical guidance, technical consultants are mostly serving as in-house consultants.

The training content consists of the following (see Annex 2-7 for detail and Annex 3-2 for the Textbook contents):

- 1) Basics of KAIZEN approach, including the concept, features and advantages, which represent “self-motivated participation of employees,” and “bottom-up approach” (for detail, see 2.1)
- 2) Steps of improvement activities (or QC Story), which represent the scientifically and logically justifiable process of planning and implementation process emphasized in the KAIZEN activities
- 3) Tools for situational analysis and cause/factor analysis (or QC 7 Tools) to make the participants to understand the importance of statistical quality control
- 4) Identification of the KAIZEN subjects, and development of the ideas for countermeasures
- 5) Major KAIZEN methods of 5S, visualized workplace management, etc.
- 6) KAIZEN guidance methods required for consultants

1.4.3 On-site training of consultants on KAIZEN guidance

The on-site KAIZEN guidance training of the consultants, which will be conducted through the Support Program of SMEs for KAIZEN Practice, started on May 30, 2011, with participation of 20 SMEs.

The consultants are instructed to make guidance to the designated companies on some assigned items according to the guideline for the KAIZEN guidance (see Annex 2-10 for the framework of the guidance).

1.4.4 Follow-up training for the consultants

The Project Team made follow-up trainings for consultants participated in each stage of guidance for pilot SME KAIZEN Practice. During the follow-up training, the Project Team transferred mainly practical guidance application to consultants to cope with various problems in Jordanian companies.

(1) First Follow-up Training (3rd Fieldwork)

The first follow-up training for consultants was held on June 26, 2011. The purposes of the training were to reconfirm the stage by stage company guidance method and to give guidance of practical points to increase productivity since on-site training came to the end and the session for the Round-2 companies partially started. The contents of the training include;

- 1) Important points to increase productivity
- 2) Stage and contents of KAIZEN SMEs guidance

The KAIZEN practices itself is not necessarily organized in a systematic way since it has been developed over the years based on the experiences of individual companies. Under the name of KAIZEN methods, various methods have been introduced and tried in many companies and countries. However, with limited timeframe of the Project, it is essential to concentrate the dissemination efforts to a method most effective. Many companies, which have practiced the KAIZEN, have commonly used a method called “QC Story”, and found the method useful and effective. The current Project was also trying to disseminate the KAIZEN practices using the QC Story as the core of the methods, and so far found this method useful and effective for KAIZEN practices dissemination. The Project continued to focus QC Story as the major method for KAIZEN dissemination.

The follow up training for consultants was significant from the perspective of sharing information; exchange the opinions on difficulties of forming small groups and institutionalizing KAIZEN consultants.

(2) Follow-up Interview with KAIZEN consultant (4th Fieldwork)

The Project Team made interviews with KAIZEN consultants for the purpose of evaluating training effectiveness, and asked their opinions about understandings of KAIZEN and training methods.

Since the progress of improvement activities in the enterprise was slow at the beginning, some consultants were not yet convinced that how the activity by responsible companies would progress. However, many of them evaluated KAIZEN activities highly and were convinced that KAIZEN can be applied to a Jordanian company although it may take long time at the beginning.

Regarding the contents of the basic training carried out and materials provided, there were many opinions that consultants were able to understand them finally through on-site guidance. The tools and techniques taught during the training were simple and easy to be understood by consultants but they were not sure about how to use these tools and techniques for KAIZEN practices at that time.

(3) Wrap up Follow-up Training (5th Fieldwork)

The Project Team conducted wrap-up training for consultants. 14 consultants participated and they exchanged their experiences. The training included the guidance for questions raised during the program.

1.4.5 Assessment of the achievement of the consultants participated in the program

Table 2-5 shows the results of assessment on understanding of he participated private consultants on KAIZEN practice on-site guidance. The result is found good in general.

Table 2-5 Summary of Assessment of Degree of Understanding of On-site KAIZEN Guidance by Private Consultants

| Guidance achievement level | Number of consultants under the level | % of total (a) | Accumulated total of (a) (in % of total) |
|----------------------------|---------------------------------------|----------------|--|
| A+ (Excellent ability) | 0 | 0 | 0 |
| A (Very good ability) | 5 | 50 | 50 |
| B+ (Good ability) | 3 | 30 | 80 |
| B (Average ability) | 2 | 20 | 100 |
| C (Fair ability) | 0 | 0 | 100 |
| D (Poor ability) | 0 | 0 | 100 |
| E (Not performed) | 0 | 0 | 100 |
| Total | 10 | 100 | 100 |

Note: Performance level was rated according to the following: A+ (100~93), A (92~85), B+ (84~78), B (77~70), C (69~55), D (54~40)

The assessment factors are shown in Table 2-6. The full score is 5. The final score of each consultant is a sum of scores of respective factors, which are weighted by the responding weight values given in Table 2-6.

Table 2-6 Assessment Factors and Weights

| Assessment Factors | Weighting values of the scores |
|---|--------------------------------|
| 1) Balanced understanding on basic factors in KAIZEN approach | 4 |
| 2) Careful preparation and responsibility in guidance to the customer companies | 4 |
| 3) Guidance ability on bottom-up type activities with participation of motivated employees and their improvement proposals | 4 |
| 4) Guidance ability on fact and problem analysis using statistical data | 2 |
| 5) Guidance ability on improvement planning and implementation in accordance with scientifically and logically justifiable procedures | 4 |
| 6) Guidance ability on productivity and quality improvement at the site | 2 |

Table 2-7 indicates that understanding of consultant in the fields which need actual on-site guidance experience is rather limited.

Table 2-7 Average Scores by Assessment Factor

| Assessment factors | Average scores by assessment factor: (Full score is 5.0) |
|---|---|
| 1) Balanced understanding on basic factors in KAIZEN approach | 3.80 |
| 2) Careful preparation and responsibility in guidance to the customer companies | 4.70 |
| 3) Guidance ability on bottom-up type activities with participation of motivated employees and their improvement proposals | 4.50 |
| 4) Guidance ability on fact and problem analysis using statistical data | 3.30 |
| 5) Guidance ability on improvement planning and implementation in accordance with scientifically and logically justifiable procedures | 4.30 |
| 6) Guidance ability on productivity and quality improvement at the site | 3.50 |

In conclusion, the table indicates that consultants participated do not have enough necessary knowledge for giving guidance by themselves and need to upgrade their abilities through more guidance experiences.

1.4.6 Follow-up on KAIZEN consultant training during Phase 3

During Phase 3, following items were conducted to enforce the ability of consultants which were trained during Phase 2.

- 1) Mobilized as KAIZEN instructors for the KAIZEN leaders training (See Annex 2-9 for the content of the Training)
- 2) Mobilized as KAIZEN instructors for Round-2 SME support program for KAIZEN practices (See Annex 2-10 for Guidance Instruction to Consultants)
- 3) Continuous follow-up trainings

1.5 KAIZEN Dissemination and Awareness Campaign Activities

The activities included under this item were as follows:

| |
|--|
| (1) Study on the existing activities relating to KAIZEN dissemination |
| (2) Activities to build the KAIZEN dissemination network |
| (3) Implementation of seminars for KAIZEN dissemination and awareness campaign |
| (4) Implementation of KAIZEN practice experience sharing meeting |
| (5) P.R. activities |

(1) Study on the existing activities relating to KAIZEN dissemination

To study the existing activities relating to KAIZEN dissemination, the Project Team conducted the interview surveys on Chambers of Industry, industrial and business organizations, and some manufacturers. The survey covered the following⁸:

Chambers of Industry

1. Jordan Chamber of Industry
2. Amman Chamber of Industry
3. Zarqa Chamber of Industry
4. Irbid Chamber of Industry

Industrial and business organizations

1. Jordan Garments, Accessories and Textile Exporters' Association (JGATE)
2. Institute of Management Consultants and Trainers (IMC Jordan)
3. Jordan Furniture Exporters and Manufacturers Association (JFEMA)
4. Jordan Olive Products Exporters Association (JOPEA)
5. Jordan Cosmetic Products Manufacturers and Exporters Association

Through the interview surveys, the Project Team also made briefing and orientation of the Project to the industrial and business organizations and the enterprises.

⁸ The survey was conducted on all the chambers of industry, and the industrial and business organizations selected to the manufacturing sector, excluding those not covered by the Preparation Study for the current Project.

(2) Build the KAIZEN dissemination network

Throughout the project period, following activities were conducted in relation to the C/P and other relevant organizations, to try to build a network for KAIZEN promotion and dissemination. Following sections shows the detail of the activities conducted.

1) Build the KAIZEN dissemination network (2nd Fieldwork)

To propose the development of the KAIZEN dissemination network with participation of the concerned organizations, the Project Team had discussions with JEDCO, the four chambers of industry, and FFF separately. Taking into the account difficulty to set up the new organization in Jordan, the KAIZEN dissemination network was proposed; this network mobilizes agencies, organizations and individual which agree on the concept and it expects to do necessary activities as a whole. (See Annex 4-1 for detail). As a result, it was confirmed that all the organizations understood the need for the KAIZEN dissemination function at the national level, in addition to dissemination at individual companies' level.

The followings were identified as the good potentials for development of the KAIZEN dissemination function in the country.

1. There are a large number of consultants who are interested in KAIZEN dissemination. They can be mobilized for development of methodology of KAIZEN activity suitable to the country; e.g. the development of methodology for small-group activity by training consultants, preparation of an educational guidebook in Arabic by consultants with years of the field experience, and collection and compilation of sector-based case studies.
2. The Project Team could find out many to-be KAIZEN leaders who have strong interest in and expectation for KAIZEN approach in the participant companies. They are expected to act as the coordinator in disseminating new KAIZEN knowledge to the individual companies.
3. Among university faculties, the knowledge on production management techniques is widely spread. However, most of them do not have experience in field application. They are expected to develop the materials for dissemination through participation to the Project, such as case study.
4. The chambers of industry may also play an important role in promoting KAIZEN, particularly through its members, for example, organization of seminars and the announcement of related events through their circulars. Also, the chamber of industry can take leadership in development of the national-level systems for KAIZEN practices certification and good KAIZEN practices awards, etc.

5. Further, JEDCO agreed to act as the secretariat in developing the dissemination network, at least until a formal organization would be established.

2) Proposing Productivity Enhancement Unit (PEU) as a part of JEDCO organization (4th Fieldwork)

Above proposal was made due to the fact that it was difficult to get approval to set up the new organization. Basically JEDCO, Chambers of Industry and some universities agreed upon this concept, however, there was no organization to become the core organization. At the beginning, JEDCO agreed to take charge of the necessary secretariat functions for development of the network for the time being. Later JEDCO proposed to build the permanent organization. Based on this proposal, the Project Team proposed the concept to build “Productivity Enhancement Unit, PEU” as a part of the JEDCO organization (See Annex 4-2 for detail).

3) Discussion about the above issue (5th Fieldwork)

JEDCO and the Project Team discussed about the actual plan of setting up the dissemination organization inside JEDCO. JEDCO would not be able to build any official organization at this time, but agreed to consider other alternate solutions and assigned a staff of cross cutting service department in charge of KAIZEN dissemination.

(3) Implementation of seminars for KAIZEN dissemination and awareness campaign

Following seminars, mini-seminars and KAIZEN experience sharing meeting among pilot SMEs were held for KAIZEN dissemination and awareness campaign.

1) The First Seminar (Project Launching Seminar) (During 1st Fieldwork)

The Project Launching Seminar was held on December 20, 2010. Participants were as follows:

| | |
|--|----|
| · Chambers of commerce and industry | 8 |
| · Industrial and business associations/organizations | 15 |
| · Enterprises | 42 |
| · Consultants | 22 |
| · Medias | 2 |
| · Others including JEDCO, JICA and unknown | 5 |
| Total | 94 |

2) The Second Seminar (3rd Fieldwork)

The Second Seminar was held on June 30, 2011, to promote awareness on KAIZEN approach among the Jordanian industries.

The seminar was held for the enterprises and individuals who were not involved in any programs under the current Project. Number of participants by category was shown below (excluding those from the Project Team and the KAIZEN consultant trainees):

| | |
|---|----|
| · Chambers of commerce and industry: | 2 |
| · Business/industrial associations: | 8 |
| · Enterprises in manufacturing sector: | 23 |
| · Enterprises in service and agricultural sector: | 19 |
| · Others including JEDCO and JICA: | 15 |
| Total | 67 |

During the seminar, the Project Team introduced the progress of introducing KAIZEN practices in companies and KAIZEN practices cases in the large sized companies.

The participants requested the expansion of number of target companies for SMEs support program for KAIZEN practices. However, the Project Team could not response to it due to the limitation of capacity of the project. For this reason, it seemed to have the seminar (mini seminar) targeted to the certain concerned group is more effective than the general awareness program.

3) Implementation of the seminar for the garment industry (4th Fieldwork)

In response to request from the garment industry, the seminar of improvement productivity in the industry was held on October 29, 2011 and 20 persons participated.

4) The mini seminar for staff of Ministry of Industry and Trade (6th Fieldwork)

The Project Team held the mini-seminar targeted staff who in charge of policy planning in Ministry of Industry and Trade on July 11, 2012. The purpose of this seminar was to increase awareness among people related to the industry policy necessary for KAIZEN dissemination. The Project Team explained the effectiveness of KAIZEN practices in term of the industry development and needs of KAIZEN practices in Jordan. About 30 staff from different sections including Industrial Development Directorate (IDD) of Ministry participated in this seminar.

5) Implementation of Mini-seminar for JEDCO staff (7th Fieldwork)

The mini-seminar for JEDCO staff was held on October 1, 2012. The purpose of this seminar was also to increase awareness among people involved in the industry development for KAIZEN dissemination. The Project Team explained the effectiveness of KAIZEN practices in term of industry development and needs of KAIZEN practices in Jordan. The Project Team also introduced the KAIZEN activity in the local government. 20 staff participated.

(4) KAIZEN practice experience sharing meeting

The meeting included the presentation of KAIZEN practices by pilot SMEs of the support program for KAIZEN practices therefore other companies could use it as reference. The Project offered the follow-up training for KAIZEN Leaders and made the additional guidance regarding the challenges KAIZEN leaders to face during the implementation.

- 1) The first KAIZEN Activity Experience Sharing Meeting: held on October 24, 2011. 68 persons including persons from non-pilot SMEs participated.
- 2) The second KAIZEN Activity Experience Sharing Meeting: held on February 27, 2012. 45 including persons participated and the Project Team made announcement about the plan of the Round-2 SME support program for KAIZEN practices.
- 3) The third KAIZEN Activity Experience Sharing Meeting: held on October 10, 2012. 41 persons including KAIZEN leaders from Round-2 companies participated.

(See 1.3.2 (3) for detail)

(5) P.R.

There was the part of the JEDCO web-site to offer information about different programs of the project.

The Project Team requested the Chambers of Industry to inform the information regarding seminars to their members through their circulation. After the seminars, Press Release was made through JEDCO for dissemination of KAIZEN practices.

1.6 Support for Dissemination Activities by Jordanian Side

During the Phase 3, Jordanian side prepared the plan for KAIZEN dissemination activities, and the Project Team supported these activities, as follows:

- Advice for JEDCO on KAIZEN dissemination activities plan. Discussion about the support method for those activities.
- Support implementation of the seminars of JEDCO on KAIZEN dissemination and application for the following focused groups
 - Staff of Ministry of Trade and Industry
 - Staff of JEDCO
 - Jordan Industrial Estates Corporation and tenants in the industrial estate
 - Business associations representatives
 - University faculties

1.7 Development of KAIZEN Training Course Materials

In Phase 1, the curriculum for KAIZEN guidance, which is the basis of the KAIZEN guidance in Phase 2, was formulated, and the KAIZEN training course materials were developed according to the curriculum. The major points required for KAIZEN dissemination in Jordan, which were identified through discussion and communication with the companies and consultants, in advance to development of the curriculum and the materials, were as follows:

1. What the companies strongly expect from KAIZEN practices, rather than from learning the management improvement methods, was that they would be able to change their corporate culture by applying KAIZEN, employees would actively participate in the process, and carry out on a sustainable basis.
2. In Jordan, some companies introduced small group activity in the past under “HAPPI Program⁹,” whereas others implemented KAIZEN under the guidance of KAIZEN Institute¹⁰. In the latter case the project was conducted with organizing a KAIZEN team within each company, solving problems identified by the consultant under the guidance of the consultant. However, the small group activity was not designed to encourage wide-range of employee participation. Based on this experience, the introduction of problem solving techniques alone does not necessarily create corporate culture that implements KAIZEN on a sustainable basis. It is strongly related to relatively short length of staff and engineers employment, which is identified as a major

⁹ The Human Affiliated Program for Productivity Improvement (See Part I, 4.2.2 for more information)

¹⁰ Private consulting firm headquartered in Switzerland (See Par I, 4.2.2 for more information)

issue faced by many companies in Jordan.

3. Some companies have introduced various KAIZEN techniques on their own, such as 5S, QC circle, and the employee suggestion system. However, 5S has largely ended up as a temporary effort - especially in SMEs - because companies did not have a mechanism to support its sustainable implementation. Similarly, the QC circle and the employee suggestion system did not seem to go well because companies did not understand the methods accurately or in detail.
4. On the other hand, some companies have recently received technical advice from JICA Senior Volunteer¹¹. These companies highly valued KAIZEN activity and were willingness to participate in the Program. Also, successful cases of KAIZEN practices were seen at some large enterprises.

On the basis of these experiences of KAIZEN practices in Jordan and the needs identified through the interview surveys on SMEs, the Project concluded to focus the emphasis of KAIZEN dissemination and promotion on sustainable implementation of small-group activity and the employee suggestion system. Under this concept, a training curriculum and teaching materials were developed (See Annex 3).

The final version of the training/reference materials were developed with revision considering the ease of understanding by the program participants, while providing the supplemental materials including the lessons learnt through the KAIZEN guidance in Jordan under the current project. Major points of the revision are as follows:

1. Structure of the training/reference materials: The materials were compiled into two volumes, namely Volume 1 (Main Text) and Volume 2 (Support Materials). The Main Text (Volume 1) was prepared as a how-to text for those who intend to introduce and start KAIZEN practice in their companies, with minimum description on the philosophy and concept of KAIZEN, while more emphasis on introduction process, steps and methods of KAIZEN practice. The experience of KAIZEN guidance in Jordan was summarized in Volume 2 of the materials. It compiles the detailed and specific guidance on the matters, which the KAIZEN consultants and the KAIZEN leaders tend to raise their questions and feel difficulty, including examples of actual process of the guidance, and document forms to be used in the practice.

¹¹ See Part I, 4.2.3 for more information

2. KAIZEN process and methods: The experience of KAIZEN guidance in Jordan under the current project was reflected to the description of KAIZEN process and methods included in the materials, placing more emphasis of guidance on procession of the practice at their workplaces expecting good understanding on the KAIZEN practice through the actual practice. At the same time the material emphasizes the importance of the basic factors to be insisted in the KAIZEN practice.

(Tables 2-8 and 2-9 show the table of contents of Volumes 1 and 2.)

Table 2-8 Table of Contents of Volume 1

| | |
|--|--|
| Part 1: Introduction to KAIZEN and its Overview | 1.1 Understanding of KAIZEN Concept |
| | 1.2 Features of KAIZEN |
| Part 2: How to introduce KAIZEN Practice to your company? | 2.1 How to start KAIZEN Practice? |
| | 2.2 Organization of KAIZEN Practice |
| | 2.3 How to practice KAIZEN? – Small-group Activity |
| | 2.4 How to practice KAIZEN? – Improvement Suggestion System |
| Part 3: Steps of KAIZEN Practice – QC Story | 3.0 Introduction and Outline of QC Story |
| | 3.1 Step 1: Selection of Improvement Subject |
| | 3.2 Step 2: Fact Findings and Goal Setting |
| | 3.3 Step 3: Preparation of Activity Plan |
| | 3.4 Step 4: Cause Analysis |
| | 3.5 Step 5: Development of Improvement Ideas, and Implementation |
| | 3.6 Step 6: Verification of Effectiveness of the Improvement |
| | 3.7 Step 7: Standardization to Set the Improvement in Place |
| 3.8 Step 8: Plan Updating | |
| Part 4: QC 7 Tools | 4.1 What are the QC 7 Tools |
| | 4.2 Statistical Way of Thinking |
| | 4.3 Check Sheet |
| | 4.4 Histogram |
| | 4.5 Pareto Diagram |
| | 4.6 Control Chart |
| | 4.7 Scatter Diagram |
| | 4.8 Cause and Effects Diagram |
| | 4.9 Stratification |
| Part 5: Effective methods/measures to put the features and advantages of KAIZEN into reality | 5.1 Five S (5S) |
| | 5.2 Visualization of workplace management |
| | 5.3 Foolproof / fail-safe devices (Poka-yoke) |

Table 2-9 Table of Contents of Volume 2

| | |
|--|--|
| 1 Introduction to KAIZEN Approach | 1.1 What is KAIZEN? |
| | 1.2 How will the KAIZEN be practiced? |
| | 1.3 Objective of the KAIZEN group |
| | 1.4 Role and responsibility of company management |
| | 1.5 How will it benefit to you? |
| | 1.6 How will the KAIZEN groups be organized and managed? |
| | 1.7 Effective methods for KAIZEN practice |
| 2 Q&A on KAIZEN Practice | 2.1 Setting the KAIZEN Subject |
| | 2.2 Situational Analysis and Cause-and-effect Analysis |
| | 2.3 Preparation of the Activity Plan |
| | 2.4 Setting the Target |
| | 2.5 KAIZEN Promotion Committee of a Company |
| 3 KAIZEN Subjects for Small-Group Activity | 3.1 Action or countermeasure is proposed first, without examining the background of the problem |
| | 3.2 The subject should be more specific |
| | 3.3 Defects or faults in the other process as the subject for KAIZEN |
| | 3.4 The KAIZEN goal of the company is not appropriate in view of indicating the direction of KAIZEN for the small-groups |
| | 3.5 (Personal) complaints to the supervisor or a certain colleague |
| 4 Steps for KAIZEN | 4.1 Steps for KAIZEN |
| | 4.2 Examples of Steps for Improvement by Type of Improvement Subject |
| | 4.3 KAIZEN Steps Flowchart |
| 5 Examples of Check Lists | 5.1 Check list for machine maintenance |
| | 5.2 Check list for hygiene |
| | 5.3 Check list for 5S assessment |
| 6 Example of Activity Plan | |
| 7 KAIZEN Guidance | 7.1 Stage of KAIZEN Guidance to the Companies |
| | 7.2 Record of KAIZEN Guidance (Form) |
| | 7.3 KAIZEN Group Activity Planning & Monitoring Sheet |

2 Lessons from the Guidance on KAIZEN Practice in the Individual Enterprises under the Current Project

2.1 KAIZEN Practice Targeted under the Current Project¹²

With consideration given to the general concept of KAIZEN and the expectation of industries for KAIZEN dissemination in Jordan, to orient the mindset of the employees toward increased motivation on the job and toward a sense of belonging to the company (for further detail, see 3.1 and 3.2 of Part I), the KAIZEN practice under the current project was defined as “the activity of continuous reforms of the company’s operations and management that is carried out companywide, under the extensive and self-motivated participation of employees, with a strategic focus on improvement of quality and productivity.”

The above concept of KAIZEN practice assumes the following four factors as its requirements:

1. Self-motivated participation of employees
2. Bottom-up approach
3. Scientifically and logically justifiable planning and implementation process
4. Use of statistical quality control method

This means that the KAIZEN practice should go beyond the introduction of management techniques and the accomplishment of some improvements, such as cost reduction. Instead, it is critical to establish a system to drive the KAIZEN practice continuously and consistently¹³, or a “keep improving” culture that does not rely on a specific person (e.g., a manager who has led the KAIZEN initiative) and is unaffected by his leave. In particular, KAIZEN should bring significant changes in attitude and mindset of employees who make innovative efforts to improve their work method for higher productivity and to eliminate waste and loss.

Such “keep improving” culture is expected to allow the company to nurture key personnel who will drive continuous quality and productivity improvement (i.e., those who promote, guide, plan, propose, implement and maintain the KAIZEN practice).

¹² The KAIZEN activities to be disseminated and promoted under the project were defined in the Minutes of Meeting and its annex, which were signed to define the project scope, as the philosophy and methods of quality and productivity improvement as practiced by many Japanese companies. The following section confirms it specifically, instead of newly defining the required conditions.

¹³ This system entails broad and active participation of employees, in addition to an organizational structure.

2.2 and 2.3 below summarize the lessons obtained from the initiatives under the current project. The initiatives for KAIZEN dissemination may be categorized into two. One is the initiative in the individual companies to apply KAIZEN approach, and another is the initiatives to promote, disseminate, support and encourage the initiatives in the individual companies. Following 2.2 discusses about the former, while 2.3 handles the latter.

2.2 Methodological Emphasis of KAIZEN Guidance in the Individual Companies under the Current Project, and Lessons from the Guidance

(1) Emphasis of KAIZEN guidance under the current project, and setting the guidance method

1) Establishment of KAIZEN guidance policy

The current project has provided KAIZEN guidance to 20 companies (SMEs¹⁴), which were selected from those who expressed interest in KAIZEN, for promotion of understanding on KAIZEN by individual companies, and support introduction of KAIZEN practice to their companies. KAIZEN, here, means a companywide and workplace-based continuous activities for improvement of management and operation with self-motivated participation of employees, as explained in 2.1. Thus, the guidance has placed its emphasis on building of a mechanism of a KAIZEN initiative, which is represented by proposals and accomplishments through participation of employees of all the departments, into the company's day-to-day operation and management, instead of emphasizing the effects on quality/productivity improvement alone.

2) Issues of the production management methods in Jordan in the past as the basis for developing the guidance methods for KAIZEN practice under the current project

As pointed out already, the country has experienced some programs which focused on improvement of production management, including guidance on KAIZEN practice. While their details are not available due to an absence of written records, according to the past experiences of KAIZEN guidance, which are available from the individuals who have participated in these programs¹⁵, the difficulty in KAIZEN guidance in Jordan is found in the

¹⁴ Definition of SME is difficult in Jordan. Companies with small number of employees might belong to a company group. They are not always operated as an independent entity, i.e., a company does not have its own sales function, which is left to the group's core company, or a company operates a factory virtually jointly with other group companies. Therefore, a company, which fits the definition of SMEs, might be actually a part of a big-sized company. Nevertheless, most of the companies in Jordan may be classified as SMEs, in the context of corporate operation and management, being far from a well-organized large enterprise consisting of high specialized departments.

¹⁵ On the basis of the information obtained from the interview survey conducted under the current project to identify the KAIZEN needs in Jordan

following points.

1. The primary improvement themes under these programs have been set either with a top-down approach or on the basis of diagnosis made by a consultant, mostly focusing on the modification or upgrading of machinery, equipment or system. The activity was largely carried out by top and middle management, including problem identification and solution development. Participation of employees is negated or limited to related sections. Then, after the target improvement is achieved, further improvement theme has to be proposed by the management or a consultant, failing to produce a continuous improvement mechanism.
2. As the methods and technique relating to quality/productivity improvement or KAIZEN is transferred to a designated person or a limited group of persons, so that the project loses its backbone once they leave the company. Sometimes the technology transfer might not be completed if these persons leave the company before the new technique has been introduced to the company, considering the fact that many Jordanian companies have a high turnover.
3. While the modification or upgrading of machinery or system is achieved to produce some results, it does not accompany a change in attitude or mindset of employees, and proposed change in production management is thus not incorporated into day-to-day operation and management as intended by the project. Worse still, employees fail to practice modified work methods and procedures by instituting on the previous ones, thus day-to-day operation goes back to the state before the improvement proposal.

The KAIZEN guidance was extended to the participated companies to overcome the issues pointed out above, under the current project.

(2) Factors emphasized in the current project, and the outcomes

The guidance on the initiatives for KAIZEN, which were conducted under the current project, was designed to overcome the above issues, particularly emphasizing the following with introducing the small-group activity and the improvement suggestion system:

1. KAIZEN practice under the organizational efforts, instead of individual-based initiative
2. Promotion of understanding and application of the KAIZEN concept, process and techniques through day-to-day operation and management
3. Recognition of and provision of incentives for KAIZEN practice

(Details will be discussed in (3) through (5) below.)

As a result, of the participated 20 companies, 9 companies (or 45% of the total) have shown more than good performance.

Table 2-1 (reproduced from 1.3.3)
Summary of Assessments of KAIZEN Approach by Pilot SME Participated

| Performance level | Number of companies categorized under the performance level | % of total (a) | Accumulated total of (a) (in % of total) |
|----------------------------|---|----------------|--|
| A+ (Excellent performance) | 4 | 20 | 20 |
| A (Very good performance) | 4 | 20 | 40 |
| B+ (Good performance) | 1 | 5 | 45 |
| B (Average performance) | 5 | 25 | 70 |
| C (Fair performance) | 2 | 10 | 80 |
| D (Poor performance) | 2 | 10 | 90 |
| E (Not implemented) | 2 | 10 | 100 |
| Total | 20 | 100 | 100 |

Note: Performance level was rated according to the following: A+ (100~93), A (92~85), B+ (84~78), B (77~70), C (69~55), D (54~40)

If the companies of the average performance are included, the number of companies is 14 (or 70% of the total). The KAIZEN practice under the Program may be summarized to have performed in a satisfactory level, as a whole (see Annex 1-11, for further detail of assessment results of the performance of KAIZEN practice of the companies participated in Pilot SME KAIZEN Support Program).

Among the 20 companies which participated at the start of the program, 2 companies has declined from the program; one is because of the delay in start-up of their new production line, whereas another is because of difficulty in continuing the guidance due to their seasonal operation.

The major factors, which can be contributed to the low performance level of C (Fair) or D (Poor), are definitely weak commitment of the management to KAIZEN approach, including weak support of the management in the actual implementation process. One of the factors also attributable to it is weak transition of power from the management to the staffs in conducting the works, resulting in difficulty in continuation with lack of time for the management to watch the activities.

Figures 2-2 through 2-4 show the results of performance evaluation according to the level of performance (A+ and A, B+ and B, and C, respectively), by 6 evaluation item (regarding the evaluation results of the respective participated companies, see Annex 1-11). Table 2-10 shows the distribution of number of companies by level of the scores by evaluation item.

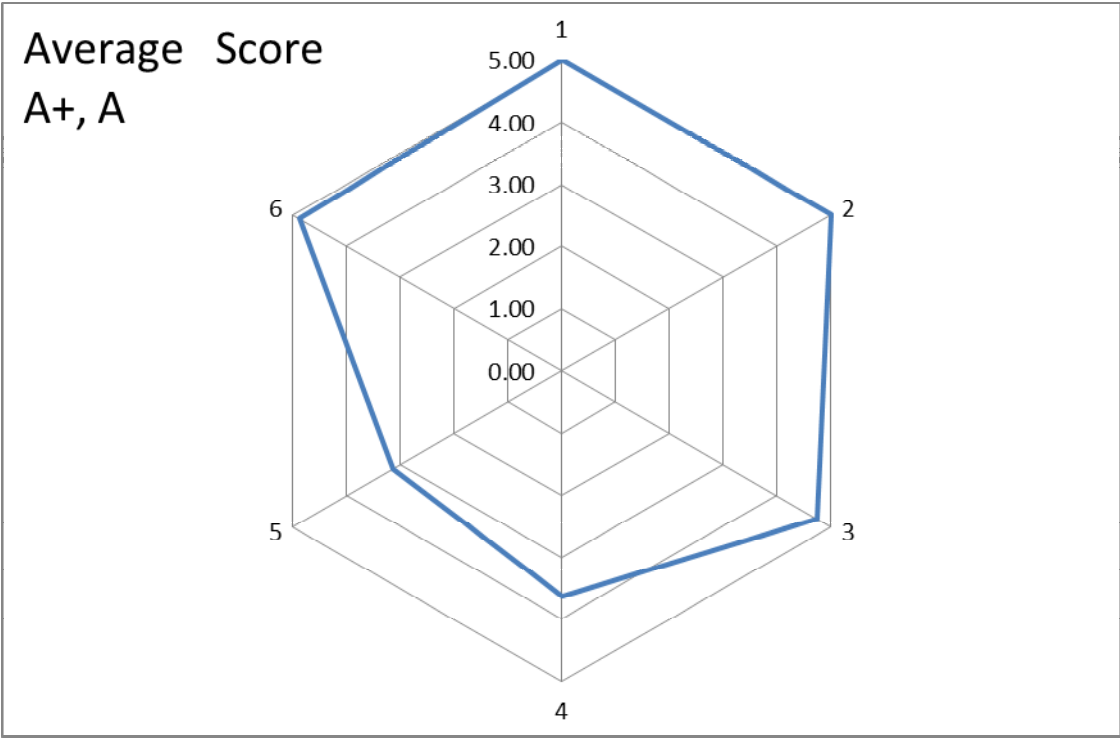


Figure 2-2 Average Scores of Companies in Performance Level A+ and A

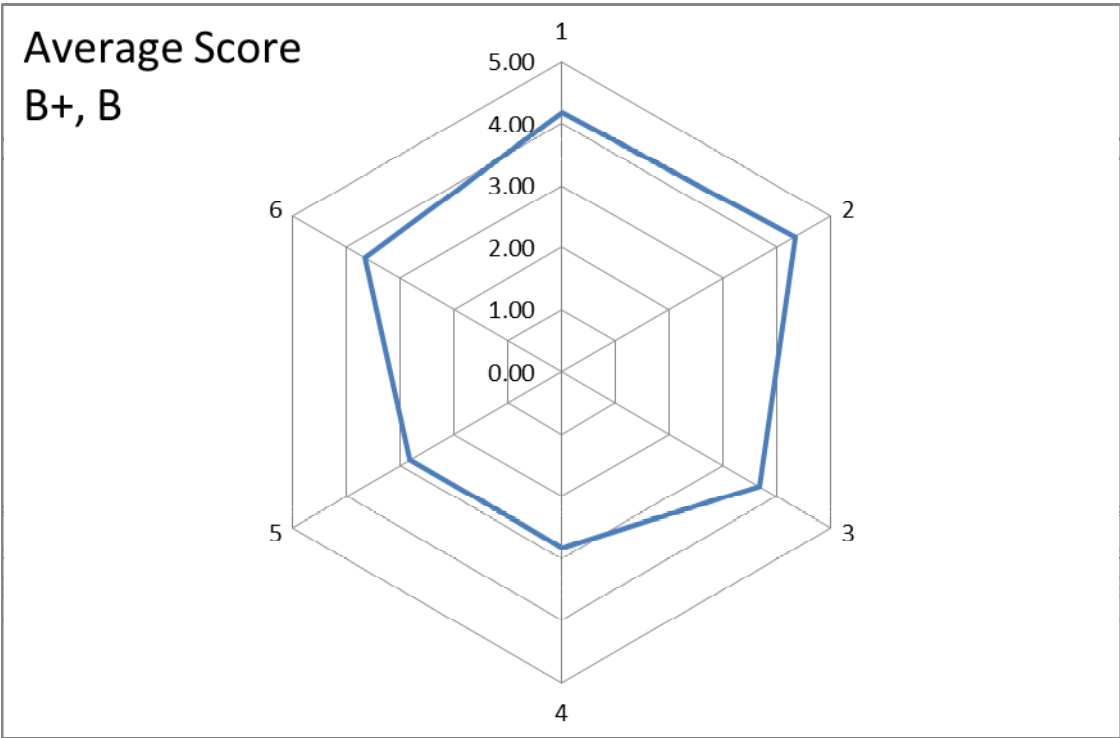


Figure 2-3 Average Scores of Companies in Performance Level B+ and B

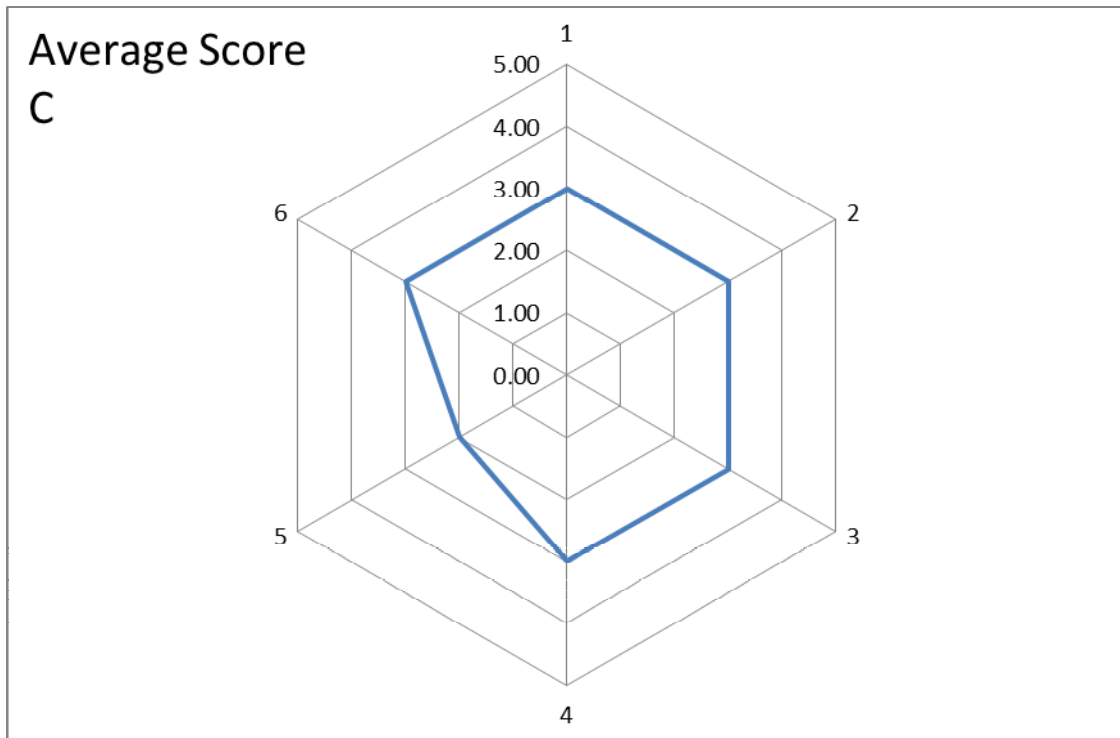


Figure 2-4 Average Scores of Companies in Performance Level C

(Notes): Assessment factors

1. Expectation and commitment of the top management to the KAIZEN practice
2. Established and sustainable in-house system to promote and implement the KAIZEN practice
3. Accomplishment of bottom-up type activities with participation of motivated employees and their improvement proposals
4. Fact and problem analysis using statistical data
5. Improvement planning and implementation in accordance with scientifically and logically justifiable procedures
6. Effectiveness on productivity and quality improvement

The participant companies with the average performance or better, which represent around 70% of all the participated companies have been successful in introducing the small-group activity.

At the same time, it is obvious that the commitment of the management on conducting KAIZEN approach and establishment of in-house promotion committee based on the commitment are the major factors for the success of the small-group activities.

Table 2-10 Distribution of Assessment Score by Assessment Factor

(Unit: Number of companies)

| Evaluation Items | Level of Evaluation Score | | | | | Total |
|---|---------------------------|---|---|---|---|-------|
| | 5 | 4 | 3 | 2 | 1 | |
| (1) Expectation and commitment of the top management to the KAIZEN practice | 9 | 5 | 2 | 1 | 1 | 18 |
| (2) Established and sustainable in-house system to promote and implement the KAIZEN practice | 10 | 5 | 1 | 2 | 0 | 18 |
| (3) Accomplishment of bottom-up type activities with participation of motivated employees and their improvement proposals | 6 | 6 | 5 | 1 | 0 | 18 |
| (4) Fact and problem analysis using statistical data | 1 | 6 | 5 | 4 | 2 | 18 |
| (5) Improvement planning and implementation in accordance with scientifically and logically justifiable procedures | 0 | 3 | 9 | 4 | 2 | 18 |
| (6) Effectiveness on productivity and quality improvement | 8 | 3 | 7 | 0 | 0 | 18 |

We could see good progress, as shown in Table 2-11, not only in terms of workplace management and operation, but also in terms of workers' attitude for their jobs, creating a sense of ambition and ingenuity, which is just as many management have expected for the KAIZEN approach. We believe the base of KAIZEN approach has start lay down its basis in the industry in Jordan, though the number of participating companies are still small compared with total number of companies in the country.

Table 2-11 Feedback from the Companies Participated in Pilot SME KAIZEN Support Program on Useful Points of KAIZEN Practice

| | Number of responses | % of total 13 feedbacks |
|--|---------------------|-------------------------|
| 1. Change in employees' attitude for their jobs | 11 | 85% |
| 2. Self-motivated participation of employees in the small-group activities | 5 | 38% |
| 3. Self-motivated proposals from employees for improvement | 7 | 54% |
| 4. Improvement of work efficiency | 8 | 62% |
| 5. Improvement of workplace organization | 9 | 69% |
| 6. Reduction of defect products/parts | 9 | 69% |
| 7. Reduction of waste/unused materials | 8 | 62% |
| 8. Use of data for assessment of the problems/issues | 5 | 38% |
| 9. Others | 1 | 8% |

Note: The above table is the feedback results of the participant companies of the KAIZEN Program on the question "If yes (you think KAIZEN is useful), please tick the points which you found the KAIZEN practice is useful for your company, among the following (you can tick more than one points)." The total number of the feedback was 13.

Following discusses the performance of KAIZEN practices in the participant companies and the lessons from the practices, particularly focusing on the three major factors stressed in the guidance.

(3) Setting the KAIZEN activities as organizational initiative of the company

To lay down the organizational basis of KAIZEN activities in company, it was proposed to establish the following organizations within each company.

1. Appointment of a KAIZEN leader and the creation of a secretariat for the KAIZEN activity
2. Introduction of workplace-based small-group activities and improvement suggestion system, which are the core approach for KAIZEN practice, with participation of all the employees
3. Establishment of KAIZEN Promotion Committee that sets a strategic direction for KAIZEN practice and serves as a bridge between the management and employees.

In most of the companies participated in the program (or 70% of the participated companies), these organizations have constituted the foundation of KAIZEN practice, which helps maintain sustainability in Jordanian companies, where a high turnover is seen from the management to workers.

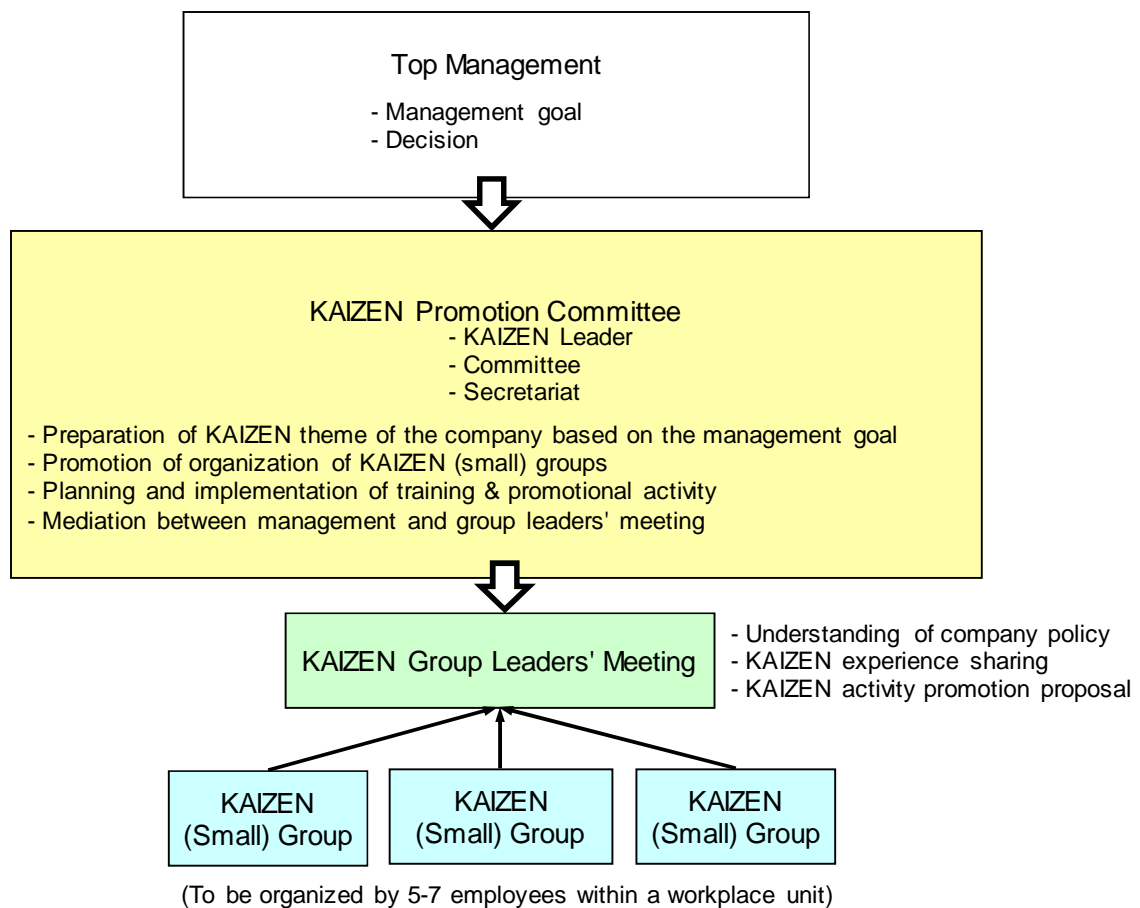


Figure 2-5 Example of the Organizational Set-up for KAIZEN Practice

1) Appointment of a KAIZEN leader and the creation of a secretariat for the KAIZEN practice

As the starting point for the KAIZEN practice, it was proposed to appoint a KAIZEN leader within the company and to establish a secretariat. All the companies have appointed KAIZEN leaders, who are now serving as the primary driving force for the KAIZEN practice. At many companies, the production manager or the factory manager is serving as the KAIZEN leader, while the general manager assumes the position at small companies. As seen in Figures 2-2 through 2-4, the companies successful for KAIZEN practice have established the in-house setup for KAIZEN promotion, such as KAIZEN promotion

committee, etc. An orientation workshop was held for the KAIZEN leaders and sub-leaders to facilitate understanding of the KAIZEN concept and practice. While the workshop was by no means a sole enabling factor for actual implementation of the KAIZEN practice, it undoubtedly contributed to smooth introduction and adoption of KAIZEN practice.

The establishment of the secretariat is considered as equally important. It does not necessarily consist of more than one staff member at all the companies. Personnel in charge of quality control or assurance are assigned in many cases, while some companies have appointed those responsible for HR or employee training. The secretariats generally function well in the area of general support, such as helping data collection and compilation conducted by the small-groups and the recording of day-to-day KAIZEN-related activities.

2) Small-group activity and improvement suggestion system

The small-group activity and the improvement suggestion system have served as the major drivers for the KAIZEN practice by galvanizing employees into active participation in the KAIZEN practice and encouraging them to suggest KAIZEN-related ideas on the basis of their daily work experience and to get involved in a problem solving process.

The small-group activity has played a critical role in the KAIZEN approach in general, including TQM and TPM. There are various types of small-groups, including a project-type small-group that is organized to work for a specific project (e.g., installation of new machinery or the upgrading of a production system, etc.) by mobilizing members representing a variety of fields, and a small-group focusing on a specific theme (such as safety, in-factory material handling, and warehousing). Under the current program, it was proposed to form a workplace-based small- group in order to ensure active participation by all employees.

In Jordan, some companies have experienced the project-team type small-group activities or the theme-based small-group activities, while only limited cases are seen in the case of the workplace-based type. In fact, most of the participating companies have difficulty in starting up the workplace-based small-group activity at an early stage of the program. At present, however, all of 18 companies, which are practicing KAIZEN, consider that the workplace-based small-group activity is applicable to the Jordanian companies.

Some companies suggested adopting the theme-based small-group activity at the start of the program. However, the program recommended organization of the workplace-based

small-groups, in that the activities are likely be top-down style, and not effective in promoting self-motivated efforts of employees encouraging them to identify KAIZEN themes in their own workplaces.

At the same time, several variations have been adopted to reflect local conditions peculiar to Jordan.

Factors which have caused difficulties to the participated companies are: 1) local employees who are not accustomed to work at offices and factories, particularly the female workers who are engaged in the manual assembling and sewing, 2) entry-level short-term foreign workers called “helpers”, who do not understand their works without instruction by the technicians working with them on everything from A to Z, and have no ambition on their jobs, and 3) foreign skilled sewing workers who cannot speak both Arabic and English.

In the case of 1) above, they had a tendency to take up personal difficulty or criticism against the colleges and supervisors in identifying the subjects to be improved by their small-group. However, it was improved with appropriate instructions on KAIZEN goal by the KAIZEN leader. Further, the small-groups composed of this type of workers showed conspicuous advancement in KAIZEN practice proposing useful and effective improvement suggestions on the work efficiency and safety based on their work experiences.

Case 2) is often seen in many companies in Jordan. The small-group leaders have faced difficulty in leading their groups without any proposals from the members. The emphasis of KAIZEN guidance, in such case, is placed on the group leaders, who find out the KAIZEN subject with the support of the KAIZEN leader, and ask members' view on their activities after implementing it involving the members.

Case 3) is seen particularly at the large scale factories of garment sectors. In some cases, they form small-groups by area-supervisors only, considering the difficulty in communication since other workers are the foreign workers who do not speak Arabic. Other cases small-groups found inclusion of a line supervisor who acts as the leader¹⁶. This reflects the local condition that job titles are not clearly defined in Jordanian companies, resulting in the absence of hierarchy between the line supervisor and the worker.

¹⁶ A company organizes a small group by workers only, who elect the leader among the members.

As shown in Table 2-11, at many companies, positive comments are heard about small-group activities and their results: “Participation in the KAIZEN practice has changed my attitude toward work, i.e., I am now thinking about a better work method and a way not to give trouble to the subsequent step; and “I have suggested to the company in the past about modification of a work method, which was never taken up. Now that my voice is heard as a result of the KAIZEN practice, I am trying to make it better in other areas.” They are clear indicative of progress toward a major goal of the KAIZEN practice, “employee participation in management reforms.”

3) Establishment of the KAIZEN Promotion Committee

Another pillar of the KAIZEN organization is the committee responsible for direction setting for the KAIZEN practice while serving as the bridge between the management and employees. Its membership varies among companies. Some companies organize the promotion committee by line supervisors and others by managers representing a wide range of departments including finance and human resource. However, not all companies have established the committee. Small companies do not need forming the committee, which will be functioned by the top management him/her-self.

Many SMEs in the country have a general manager and a production manager or a factory manager, under which a clear hierarchy is not established. As job description and delegation of authority are not clearly defined, corporate policy (including strategic direction of the KAIZEN practice) is not effectively communicated to each department. For this reason, the establishment of the promotion committee is considered to be very important, including the goal setting for the KAIZEN practice. In particular, the committee is expected to analyze corporate policy (or major issues facing the company), identify key factors required for accomplishment or solution, and communicate them to each small group. This approach was taken by some companies and proved to be effective in aligning KAIZEN themes of various small-groups in the same direction. On the other hand, in some cases, companies had launched small-group discussion without such goal setting. They have ended up with desultory discussion covering a number of irrelevant issues. So far, successful cases are limited in setting a clear direction for the KAIZEN practice. This is one of the lessons learnt from the current program. In the next guidance, it is recommended to define the positioning of the promotion committee and its responsibility more clearly, and to incorporate it as an integral part of KAIZEN guidance. Further, promotion of such activities of the committee was found useful also as KAIZEN guidance for middle managements.

- (4) Understanding of the KAIZEN way of thinking, process and techniques, and application of them to the day-to-day operation and management

To make the KAIZEN practice truly functional, it is imperative to ensure that business and production management techniques and clues for KAIZEN are applied to day-to-day operation, and are understood by the management and employees. In this program, however, an indirect approach was applied due to time constraint. Instead of conveying management techniques and KAIZEN ideas entirely (either separately or systematically), the program started with the introduction of KAIZEN implementation steps, followed by relevant ideas and techniques. As KAIZEN-related ideas and techniques vary greatly, it is very difficult to teach them within a limited period of time. Moreover, so far as such ideas and techniques are taught in the form of practical training for day-to-day application, rather than classroom lecture, usable ideas and techniques will be limited in number. Taking into account these factors, in the current program, the emphasis of guidance was placed on the KAIZEN steps, “QC Story,” thereby to teach the methods and techniques used in each step. Through these steps, it was also intended to teach key KAIZEN way of thinking that play an important role in the KAIZEN practice, namely:

1. To grasp the essence of a problem (phenomenon/situation) in an objective manner.
2. To focus on a key aspect or element of the problem.
3. To analyze the problem, identify a real cause, and devise corrective measures against the real cause.
4. To incorporate the devised measures into day-to-day operation.

The KAIZEN guidance has been conducted following the activities of the small-groups of the respective pilot companies. Since the progress and level of KAIZEN practice varied company by company, the methods and tools of KAIZEN practice, which were transferred to the pilot companies, also varied. In some companies, the guidance could not complete all the methods and tools, which were planned to be transferred to all the participated companies, due to time constrains. In order to accomplish technology transfer covering a wider scope of KAIZEN-related knowledge and know-how, therefore, it is imperative to establish a system to provide continuous technical guidance service on KAIZEN practice.

(5) Recognition and encouragement of the KAIZEN practice

Needless to say, transfer of KAIZEN techniques is only the starting point. The ultimate goal is to use the KAIZEN practice as an impetus to change employees' awareness and attitude about their work, so that they always look for better methods and better solutions and make productive suggestions originated in the day-to-day working environment. In other words, the KAIZEN practice should motivate employee for improvement particularly through accomplishment of the goal, and should therefore be designed to contain a mechanism to lead in that direction. In fact, many companies have experienced the changes in attitude and awareness of their employees about work, as the result of the KAIZEN practice.

Now the KAIZEN practice is coming to stay in many companies. The next step is to maintain the momentum. The management needs to provide support by organizing activities to encourage continuous efforts, such as an internal meeting to exchange experience, recognition of individuals and groups who have produced excellent results, and a presentation meeting of the progress of the KAIZEN practice to the management, etc. In fact, most of the companies with the excellent performance under the current program, the management has recognized the outcomes of the KAIZEN practice positively, and awarded their appreciation for encouragement.

Furthermore, external resources can be used as a good stimulus. In various countries, the meeting between two companies participating KAIZEN for the exchange of their experience has proven to be useful for expansion and enhancement of the KAIZEN practice of these companies. Also effective is a commendation of companies and individual for outstanding activities by a renowned organization. The current project had an experience sharing meetings among the participating companies, including KAIZEN leaders' meetings. Regular holding of this type of meeting establishing an institutional basis of conducting the meetings, will be also useful in giving momentum continuously to the employees practicing KAIZEN activities.

(6) Need for establishment of a system to drive the KAIZEN practice continuously

Under the current program, most companies have taken up the KAIZEN themes that focus on minor improvement areas of visible nature, such as improvement of work efficiency by cleanup and tidying up of the workplace and the streamlining of distribution and requisition to and from the warehouse or the procurement division. While there are presumably numerous and diverse KAIZEN themes within the company, the guidance under the current program has covered those that had been selected with the initiative of small-groups. The technique

covered by the guidance under the current program has been also confined to those relating to the themes identified by the small-groups, including analysis, problem solving and evaluation. In the future, there will be a need to continue and upgrade the guidance theme further, to the techniques which meet the needs of future improvement subjects. In this context also, it is quite essential to establish a system to provide continuous and consistent guidance on KAIZEN practice.

2.3 Lessons from the Current Project on the Organized Initiatives for KAIZEN Promotion and Dissemination

(1) Outline of the initiatives under the current project

In Jordan, before the current project was launched, there was no system or institution to undertake KAIZEN promotion and dissemination initiatives as a part of purposes of the system or institution. The current project has carried out a part of the KAIZEN promotion and dissemination activities as follows:

- 1) Activities of KAIZEN practice awareness campaign and dissemination
 1. Seminars and mini-seminars
 2. Promotion of understandings of KAIZEN approach on the part of executives and managers of companies that have applied for the pilot support program of SMEs practicing KAIZEN
- 2) Activities to provide guidance and support for KAIZEN practice
 1. Guidance and advice for SMEs participating in the pilot program to introduce KAIZEN practice
 2. Follow-up guidance to the KAIZEN Leaders of the participating enterprises
- 3) Activities to consolidate the experiences of enterprises on KAIZEN practice
 1. Provision of opportunities for the program participating companies to exchange experience in KAIZEN practice
 2. Provision of reference books and materials, based on the KAIZEN guidance experiences
- 4) Human resource development for KAIZEN practice and dissemination
 1. Training of KAIZEN consultants
 2. Training of KAIZEN leaders and the leaders of the small-group activity, through KAIZEN guidance to the individual enterprises
 3. Nurturing of KAIZEN leaders and small-group leaders, through the experience sharing meetings of KAIZEN practice

4. Provision of training materials, and nurturing of KAIZEN leaders and small-group activity leaders
5. Promotion of understanding on KAIZEN and its approach for those who are in charge of industrial development planning, and the staff of the public organizations
- 5) Activities to create an organization in charge of dissemination of KAIZEN practice

Following discusses the lessons learnt from the organized initiatives for KAIZEN dissemination, which have been performed under the current project.

(2) Activities for awareness campaign and dissemination, and the lessons from the activities

1) Seminars

For the purpose of promoting wide understanding of KAIZEN practice among industries and encouraging its implementation, two seminars and two mini-seminars were held as part of the project.

Both of them were intended to provide basic information and raise awareness of KAIZEN, assuming that it is still in an early stage of understanding in Jordan. Both seminar were participated by 42 companies respectively. At the first seminar, an announcement was made about the pilot program to invite companies to participate in the project to implement the KAIZEN process under the expert's guidance and support. In contrast, the second seminar was attended by companies other than those participating in the pilot program. While many participants of the second seminar expressed their interests in starting up the KAIZEN practice at their own companies, the project could not meet the demand, since there was no program available under the current project to accept the additional participants. It indicates that the effect of the promotion campaigns of KAIZEN will not produce no fruitful result, unless there is any mechanisms to accept the additional participants.

2) Promotion of awareness on KAIZEN targeting the company management

The second activity – promotion of understanding on KAIZEN – was conducted through the interviews with owners/managers of companies that showed interest in the above support program. It is obvious from the performance evaluation result of the program (for further detail see Table 2-10) that the top management's understanding and commitment to the KAIZEN approach is the key to the successful introduction of KAIZEN, besides the appropriate guidance for KAIZEN introduction. There is a need of further awareness campaign targeting top management of enterprises.

- (3) Activities to guide and support the KAIZEN practice of individual enterprises, and the lessons from the activities

The pilot program to provide guidance for SMEs introducing KAIZEN practice was conducted for 20 companies that were selected among those who had made an application to the program. The program has revealed that it is feasible to introduce the KAIZEN practice to Jordanian companies in general. Nevertheless, the companies participated in the program are still small in number to affect significant impacts of the KAIZEN approach on the Jordanian industry. Considering the fact that there are many companies who expressed their expectation of participation in the program at the application process and at the seminars after the launching of the program, there is a need to setup an institutional basis to ensure the continuity of KAIZEN support and guidance services to the companies, who intend to introduce KAIZEN approach to their factories and offices, instead of ending up the KAIZEN support program with the guidance for the current participating companies only.

- (4) Activities to consolidate the experience of KAIZEN practice in Jordan, and the lessons from the activities

The meeting for exchange of KAIZEN experience among the participating companies of the program was the first such attempt made in this country. It appears that the meeting produced good results in that it enabled participating companies to learn from successful cases. At the same time, the meeting seems to have served as a good impetus for participants who reported their experience in front of an audience, presumably creating a strong motivation for continuous efforts.

In fact, there are some companies, which participated in the experience sharing meeting, applied for the second round of the SME KAIZEN practice support program. However, the development of methods, which best fit to Jordanian industries, was not performed through the program, so far.

Reference books and materials are indispensable in providing effective support and guidance for companies that strive to introduce the KAIZEN practice. However, Jordan is not in the stage to develop good reference materials on the basis of its own experience. Under the current project, therefore, the reference materials were developed on the basis of experiences in Japan and some developing countries, which formed the basis of training leaders and providing field guidance. As more and more companies introduce the KAIZEN process to obtain a better understanding of guidance methods suitable for Jordanian companies, as well as specific tools and techniques to be emphasized, it is imperative to develop a better approach and

reference materials that address the needs identified from accumulated experiences¹⁷. These include methods to organize small-groups, to have meetings at the small-groups, and to prepare necessary documents in relation to the small-group activities, according to the experiences so far under the current project. Further, development of the reference/training materials in Arabic is essential particularly for the guidance on workplace-based activities. The country is still in the stage that the KAIZEN process and practice currently undertaken is imported from other countries, and its effectiveness and adaptability in this country is necessary to be reviewed in line with the progress of dissemination of the KAIZEN approach.

For this purpose, it is essential to develop an institutional basis to consolidate the experiences of KAIZEN practices, including consultants who understand the KAIZEN approach and have sufficient knowledge about management of the local enterprises.

(5) Activities to develop human resources for KAIZEN guidance, and the lessons from the activity

1) Targeted human resources for KAIZEN guidance for development

The current project assumed the human resources necessary for KAIZEN guidance and dissemination as follows: (1) private consultants who give advice to individual companies and serve as a training program instructor; (2) KAIZEN leaders and small-group leaders who promote the KAIZEN practice in companies; (3) staff members of public organizations that are expected to play a certain role in promotion and dissemination of KAIZEN (e.g., planning and implementation of a dissemination program), such as JEDCO and the chambers of industry; and (4) policy planning staff of the government and the industrial leaders who advocate and lead the KAIZEN approach at the industry level.

2) Need for human resources with sufficient local knowledge for KAIZEN guidance

Private consultants in the country have generally a strong interest in the KAIZEN practice. As more and more companies introduce it in the future as a result of promotion and dissemination, there will be increasing demand for consulting service, paving the way to step up efforts to training consultants. In this regard, the demand for the consultants who extend guidance directly to enterprises might not increase significantly in Jordan, the demand for the consultants who serve as lecturers of training programs are expected to increase in the future.

¹⁷ At the end of the current project, the training materials, which were used in KAIZEN guidance, were updated reflecting the experience of KAIZEN guidance in Jordan. Consideration made in updating, and contents of the materials are shown in 1.7 of Part II, and Tables 2-8 and 2-9.

The KAIZEN guidance in Jordan has mostly been dependent on foreign advisors. However, the foreign advisors have faced the problems of difficulty in understanding the detailed issues which are caused by difference in culture and way of thinking. Language was also one of the barriers for smooth guidance. Nurturing of the local resources for the guidance is the urgent requirement in promoting dissemination of the KAIZEN approach.

3) Need for development of a mechanism to mobilize KAIZEN consultants

For the development of consultants for KAIZEN guidance, there is a need to develop a mechanism to hire the consultants in the field of KAIZEN guidance. At present, there are many private consultants in the country, but they generally find clients in neighboring countries. This is partly because, most Jordanian companies, especially SMEs, cannot afford to hire a consultant. Efforts should be made to create incentive for local companies to use consulting service, with, for example, incorporation of KAIZEN approach into JUMP's scope to facilitate use of a consultant, and provision of opportunities of group training on a KAIZEN practice while engaging the consultants as the instructors, thereby improving affordability of opportunities to use consultants for SMEs and creating job opportunities for consultants. Needless to say, they should be supported by an organization or a system to promote and disseminate the KAIZEN practice.

4) Need for development of human resources with field experiences for KAIZEN guidance

As for the human resources for KAIZEN guidance, the Project has trained the KAIZEN leaders and the leaders of the small-groups through the "Pilot SME support program for KAIZEN practice (Round-1 and Round-2)", "training program of KAIZEN leaders", and the experience sharing meetings among the companies participated in the program. As mentioned before, most of the consultants participating in this project are those in management field and HR field, with few in the engineering field. It is the challenge for Jordan to nurture the consultants who have experience in production field to support and develop the KAIZEN activities in Jordan. In addition, the development of training materials and consolidation of KAIZEN experience in the country is indispensable to support the activities of the consultants.

5) Need for development of human resources to plan the KAIZEN dissemination activities

At the same time, the range of leader training should be expanded. So far, training has focused on persons in a position to provide direct guidance (or training) for companies. In the future, the target leaders should be extended to government officials in charge of

industrial policy, and the executive staff members of government/public agencies offices (such as directors of JEDCO).

In fact, training has been conducted for staff members of the chambers of industry and JEDCO as part of the Project. However, ACI's personnel in charge of KAIZEN-related programs has not participated due to his private circumstances, despite the fact that the ACI is only one organization that carries out such programs. On the other hand, JEDCO – although the counterpart for the Project - is engaged heavily in implementation of JUMP and is not expected to function as a main promoter of the KAIZEN under the current organization structure. This means that no systematic training has been carried out so far for personnel to be engaged in KAIZEN dissemination.

In addition, the project has extended the mini-seminars for the staffs of MOIT and JEDCO, though it is still insufficient in view of systematic training. In actuality, the training remains at the initial stage of trainings, and it requires further stage of guidance targeting the specific organizations in charge of KAIZEN dissemination.

(6) Activities to develop organizational arrangements for KAIZEN promotion and dissemination

In order for the KAIZEN approach to take roots on the soil of Jordanian industries and have an impact on the competitiveness of them, it is essential to increase the number of enterprises, which apply KAIZEN to their factories and offices, enhance their practice, and let them to be sustained. To this end, there is a need of organized support for KAIZEN promotion and dissemination at the national level, in addition to supporting the initiatives for KAIZEN approach of the individual companies.

The Project proposes the organization of a KAIZEN Network as an instrument to create a mechanism to drive nationwide promotion and dissemination efforts (see Annex 4-1). Since the government's approval to establish a public organization cannot be expected currently in the country, the proposal envisages the networking of stakeholders as an alternative to the creation of a core organization that assumes leadership in the KAIZEN promotion process. Although a basic agreement was reached among JEDCO, chambers of industry, and a university, so far it was difficult to find an organization that would take such leadership role.

Then, JEDCO has expressed their concern to establish a permanent setup for this purpose. It consisted of a proposal of developing a new organization within JEDCO to extend technical guidance. However, the proposal was not accepted by JEDCO, because of the Government policy not to create a new organization in the Government sector (see Annex 4-2).

There is a strong need for an organization that takes a lead in planning and implementation of KAIZEN promotion activities under its own responsibility, and such organization is expected to disseminate the KAIZEN practice more effectively than the proposed network, without the risk of no leadership among the concerned agencies, institutes and organizations.

Part III will propose the institutional setup for better KAIZEN promotion and dissemination, taking into account the current conditions of JEDCO, while expecting future mobilization of potentials of the relevant institutes and organizations in KAIZEN promotion and dissemination.

Part III Recommendation on Dissemination of KAIZEN Approach in Jordan

Since there are many factors impeding efforts by most Jordanian companies to improve quality and productivity, the quality/productivity improvement is to be positioned not only as a strategic factor for survival or development of individual companies, but also as a critical element of the country's industrial policy of accomplishing the objective of the National Agenda. In particular, given the major presence of microenterprises (MEs) and small-and-medium enterprises (SMEs) in the country's industrial sector (in terms of the number of enterprises, the number of employees, and value of production), and in light of the fact that it is generally difficult for MEs and SMEs to make such efforts with their own resources alone, promotion and support of quality/productivity improvement should be focused more as a part of the country's industrial development policy.

The following chapters discuss the future of KAIZEN dissemination in Jordan, and recommends the specific measures for the dissemination, on the basis of findings in Parts I and II. The efforts for KAIZEN dissemination will be carried out in two ways; namely, KAIZEN practice in the individual enterprises, and organized initiatives to increase awareness of KAIZEN, encourage and support the practice in the individual enterprises.

Recommendation 1 Recommendation on KAIZEN practice to be disseminated in Jordan

It is recommended to disseminate the KAIZEN practice, which is defined as a company-wide challenge for continuous improvement of management and operation, featured by self-motivated and proactive participation of employees at their workplaces, and which meets the expectation of the company management for KAIZEN to increase ambition of the employees in their work and enhance their sense of belonging to the company.

1.1 General Concept of KAIZEN

The current Project is primarily designed to provide technical assistance relating to "KAIZEN" dissemination for SMEs in Jordan as an effective means to promote quality and productivity improvement by addressing the key issues that have been identified on the basis of opinions heard from various organizations in Jordan relating to SMEs, i.e., "low productivity of Jordanian industries and companies" and "the lack of human resources and systems to lead and guide productivity improvement."

According to the M/M on the Project scope agreed between Preparatory Survey Mission of JICA and JEDCO, at the stage of project preparation in March 2010, the KAIZEN, which is to be disseminated to SMEs in Jordan under this Project, was defined as “the Japanese-style practices for quality/productivity improvement which includes both philosophy and practical tools typically exercised in Japanese enterprises.”

“KAIZEN” is often used interchangeably with the words “continuous improvement,” but it is a much more profound and broad concept used in the context of management philosophy. At the same time, it contains some ambiguities that are difficult to be defined clearly. General concept of KAIZEN is a company-wide challenge for continuous improvement of management and operation featured by self-motivated and proactive participation of employees at their workplaces, which have been initiated and evolved by Japanese companies¹. In practice, the KAIZEN process is driven by a variety of tools and approaches relating to business and production management, which include 5S at the starting stage while TPM and TQM, etc. at the advanced stage.

1.2 KAIZEN Practice to be Disseminated in Jordan

In consideration of the general concept of KAIZEN, and the expectation of Jordanian industries on KAIZEN to generate employee ambition and enhance their sense of belonging to the company, the KAIZEN practice to be disseminated as developed by the current project is recommended to be defined as **“the activity of continuous reforms of the company’s operation and management that is carried out companywide, under the extensive and self-motivated participation of employees, with a strategic focus on improvement of quality and productivity.”**

Under this concept of KAIZEN practice, it is assumed that there are the following four factors:

¹ While proactive (self-motivated) participation by employees is a key factor for a successful KAIZEN practice, the management’s strong commitment is equally critical, i.e., they are expected to recognize and support the KAIZEN practice and give back the benefits from the KAIZEN to employees and customers (consumers). (This is one of three principles of Productivity Campaign in Japan.)

| Factors | Recommended tools/methods to be used under the current project for realization of the factor |
|--|--|
| 1. KAIZEN activities in accordance with company's management policy and target | KAIZEN Leader, and KAIZEN Promotion Committee |
| 2. Bottom-up approach with self-motivated participation of employees, setting the KAIZEN in place in the daily operation and control | Small-group activity |
| 3. Scientifically and logically justifiable process of planning and implementation | QC Story |
| 4. Statistical quality control methods | QC 7 Tools |

This means that the KAIZEN practice should go beyond the introduction of management techniques and the accomplishment of some improvements, such as cost reduction. Instead, it is critical to establish a system to drive the KAIZEN practice continuously and consistently², or a “keep improving” culture that does not rely on a specific person (e.g., a manager who has led the KAIZEN initiative) and is unaffected by his leave. In particular, KAIZEN should bring significant changes in attitude and mindset of employees who make innovative efforts to improve their work method for higher productivity and to eliminate waste and loss.

Such “keep improving” culture allows the company to nurture key personnel who drive continuous quality and productivity improvement (i.e., those who promote, guide, plan, propose, implement, and maintain the KAIZEN practice).

² This system entails broad and active participation of employees, in addition to an organizational structure.

Recommendation 2 Recommendation on dissemination of promotion method of KAIZEN practice in the individual enterprises, which is developed in due consideration of specific nature of business management of the Jordanian enterprises

It is recommended to disseminate the promotion method of KAIZEN practice, including Recommendations 2-1, 2-2, and 2-3 described below, which was developed with due consideration of the experience of Jordanian companies to have introduced production management methods, and lessons from KAIZEN guidance conducted under the current project.

2.1 Promotion of Organizational Integration of KAIZEN Practice into Company Management and Operation

Recommendation 2-1:

It is recommended to set up the following in-house organizations to ensure the organizational integration of KAIZEN practice to the company's management and operation, including:

1. Appointment of a KAIZEN leader who is responsible for promotion of the KAIZEN practice, and establishment of the secretariat
2. Organization of small group activities in each workplace as the base organization of the KAIZEN practice and establishment of an employee suggestion system
3. Establishment of the KAIZEN promotion committee that sets strategic direction for the KAIZEN practice and serves as a bridge between the management and employees

They are expected to form a stable foundation for implementation of the KAIZEN practice at Jordanian companies that are characterized by a high turnover from top management to workers. They will be useful for the Jordanian companies where many foreign workers are employed, in leading and getting the small-groups on track.

2.2 Promotion of Understanding and Application of the KAIZEN Concept, Process, and Methods Through Daily Operations and Management

Recommendation 2-2:

It is recommended to promote application of following KAIZEN way of thinking and the KAIZEN methods to the day-to-day operation according to the scientifically and logically justifiable standard steps for KAIZEN, which is represented by QC Story, with objective of enhancing the capacity of employees to propose sustainable and effective improvements after due understanding of the way of thinking and methods:

1. To grasp the essence of a problem (phenomenon/situation) in an objective manner.
2. To focus on a key aspect or element of the problem.
3. To analyze the problem, identify a real cause, and devise corrective measures against the real cause.
4. To incorporate the devised measures into day-to-day operation.

To make the KAIZEN practice a truly performing function, it is important to ensure that methods and management techniques, or KAIZEN measures are applied to day-to-day operation and are understood by the management and employees.

For this purpose, understanding of the methods and hints for improvement through lectures is still insufficient. The standard steps for improvement should be understood at first, followed by actual implementation of KAIZEN with application of the way of thinking and methods at the workplace, in line with the standard KAIZEN steps.

2.3 Promotion of Recognition and Encouragement of Good KAIZEN Practice

Recommendation 2-3:

It is recommended to promote recognition and encouragement activities of the management of the company for the individuals and groups who have made an outstanding achievement in KAIZEN practice, to maintain the momentum of them.

It will be the supporting activities of the management to the KAIZEN practice, providing opportunities to share the experiences of KAIZEN practice among the participating employees and/or recognizing the performance of individuals or groups with giving awards for their efforts.

The KAIZEN practice should not end upon transfer of various techniques. More importantly, the practice should affect the influences on the attitude and awareness of employees about their work so that they constantly seek opportunity for improvement and make suggestions for better workshop operation. In other words, the KAIZEN practice should be devised to motivate the employees for the continuous practice of KAIZEN. It is important to design the KAIZEN practice itself to be the process for further KAIZEN practice.

Once the KAIZEN practice starts up, it is recommended to maintain momentum and continue it in a sustainable way as the next step. Here, the role of management is essential in creating opportunity for exchange of KAIZEN experience among the participants, as well as recognizing groups and individuals who are making an outstanding achievement. It will be also useful to provide the opportunities for the employees to present their KAIZEN performance to the management.

Furthermore, external resources can be used as a good stimulus. In various countries, the meeting between two companies participating KAIZEN for the exchange of their experience has proven to be useful for expansion and enhancement of the KAIZEN practice of these companies. Also effective is a commendation of companies and individual for outstanding activities by a renowned organization.

Recommendation 3 Recommendation development of institutional setups to promote awareness of KAIZEN, disseminate and support implementation of KAIZEN practice, and encourage initiatives of individual enterprises for the KAIZEN approach

It is recommended to develop the institutional setups of KAIZEN dissemination functions, including promotion of awareness of KAIZEN, dissemination, support implementation of KAIZEN practice, and encouragement of continuation and development of the KAIZEN approach at individual companies, and make good use of the KAIZEN practices being implemented under the current project.

3.1 Need for Development of Institutional Setups to Promote Awareness of KAIZEN, Disseminate, Support Implementation of KAIZEN Practice, and Encourage Initiatives of Individual Enterprises for the KAIZEN Approach

According to the experiences of the current project of putting the KAIZEN approach into practice, which is expected to overcome the constraints in Jordan against the sustainable efforts for quality/productivity enhancement, the KAIZEN practice, which is recommended to promote in Recommendation 1, is found an effective approach for SMEs for quality/productivity improvement as well as development of human resources for KAIZEN practice (2.2 of Part II). At the same time, it has become apparent that there are strong needs for KAIZEN practice among individual companies and economic sector in Jordan as well for enhancement of competitiveness, as discussed in 3.1 of Part I.

Based on the above, it is strongly recommended to continue activities to encourage KAIZEN practice, including promotion of awareness and understanding, by capitalizing on successful cases. In particular, the activities should target specific groups at this stage of promotional activities, including the management of enterprises, industrial policy planner of the government, and industrial leaders. The promotional activities should be backed by organized/systematic initiatives.

At the same time, similar initiative should be provided to support companies that have implemented the KAIZEN practice so as to ensure its continuation and effectiveness, including on-site guidance, financial support, and a mechanism to disseminate their experience to other

companies. These functions are recommended to be ensured through establishment of institutional setups for KAIZEN dissemination.

The significance of activities to develop the institutional setup for the KAIZEN dissemination, increase the good practices, and disseminate the outcomes of the practices, is obvious from the past experience of KAIZEN dissemination in Jordan (4.2.2 of Part I). Increase in the number of good KAIZEN practices will generate a momentum for KAIZEN related HR development, and promote accumulation of the local KAIZEN experiences. On the other hand, if the number of good practice is limited, it will result in difficulty in ensuring the number of human resources which are interested in dissemination of KAIZEN, and reduce the impact of the practice on the other enterprises.

3.2 Functions to be Institutionalized for Dissemination of the KAIZEN Approach

The institutional setup required for ensuring the dissemination of the KAIZEN approach is the setup which has the following dissemination functions (see Figure 3-1):

| | |
|---|--|
| 1) Function for promoting awareness on KAIZEN and disseminating KAIZEN approach (for promotion of understandings of needs of KAIZEN and benefits of KAIZEN, including the function to providing information on available measures to support application of KAIZEN, etc.) | |
| 2) Functions to support introduction of the KAIZEN approach to the individual companies | 2)-1 Function of technical guidance on approach, methods, and tools for KAIZEN, including guidance for the enterprises wishing to introduce KAIZEN |
| | 2)-2 Function of financial support for the enterprises practicing KAIZEN |
| 3) Functions to consolidate the experiences of KAIZEN practice, develop training and reference materials based on the experience in Jordan, and develop relevant human resources | 3)-1 Function to consolidate the experiences of KAIZEN practice in Jordanian enterprises for dissemination |
| | 3)-2 Function of consolidation, development, and publication of effective methods and good practices of KAIZEN in Jordanian enterprises |
| | 3)-3 Function of development of human resources for KAIZEN guidance |
| 4) Function to provide incentive schemes to encourage continuation and development of KAIZEN practice in the individual enterprises, such as KAIZEN awards | |

(The lower part of Figure 3-1 shows the required functions of organized initiatives in response to the stages of introduction and application of KAIZEN practice in the individual enterprises which are shown in the upper part of the figure.)

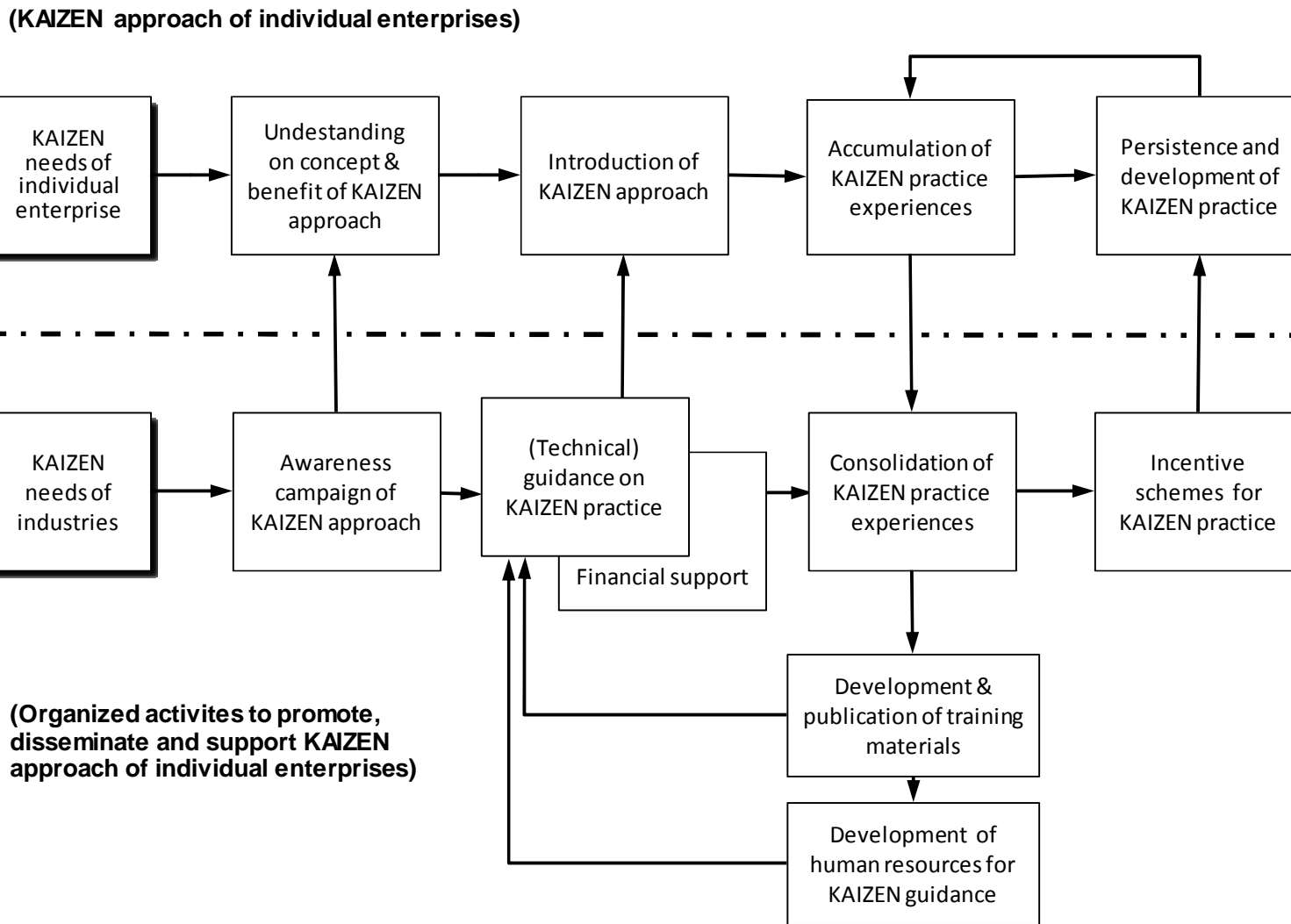


Figure 3-1 Required Functions for Promotion and Dissemination of KAIZEN Approach

The needs of the respective functions, the detail and current status of the functions, and the future of the functions are discussed in the following:

(1) Functions to promote and disseminate KAIZEN approach

1) Needs of the functions of dissemination and promotion of KAIZEN approach

Guidance on KAIZEN practice to individual companies is the core for KAIZEN promotion, but it is not enough for the KAIZEN approach to produce effects on the industries in the country.

In order for KAIZEN approach to produce significant effects on competitiveness of Jordanian industries, good practices of KAIZEN among Jordanian companies are necessary to be increased and be popular. The continuous awareness campaign of KAIZEN approach, and provision of incentives for the companies practicing KAIZEN is a must in this context.

In the meantime, in the Japanese history of quality/productivity improvement (KAIZEN) practices, some organizations have played important roles in introduction, promotion and upgrading of the KAIZEN practices. These include “Japan Productivity Center (JPC)”, “Union of Japanese Scientists and Engineers (JUSE)”, and “Japan Standards Association (JSA)”, etc. They are either a corporate association or a foundation, established with the specific purpose of quality/productivity improvement with the initiative of government agencies or economic organizations. Their activities include researches, seminars/training-programs, publications, exchange of information and KAIZEN experiences among the concerned enterprises and individuals, etc.

2) Functions to promote and disseminate KAIZEN approach

The promotional and dissemination functions include:

- Planning and implementation of series of introductory activities, such as KAIZEN seminars for management, and awareness campaign on publications of industrial/business associations, etc. (*)
- Planning and proposing policy measures to encourage and support KAIZEN practice
- Planning and implementation of seminars and introductory trainings for KAIZEN leaders of enterprises (*)
- Introduction of available technical / financial support measures for the enterprises intending to apply KAIZEN approach

(Note: Among these functions, the functions marked with (*) in the above are the functions, which may be performed on a commercial basis in the future, by the private sector, while others need government/public initiatives in view of enhancement of Jordanian industries – this note is applicable commonly to other functions to be described in the following.)

3) Current situation and future of the functions for promotion and dissemination of KAIZEN approach

According to the interviews with the managements of the companies, which applied for the Pilot SME Support Program for KAIZEN Practice under the current project, it was found that many managements have been interested in KAIZEN approach through publications, etc.

On the other hand, in Jordan, the promotional seminars have been offered by a chamber of industry, etc. in the past, but as a one-shot event without providing the mechanism to support introduction of KAIZEN approach to the interested companies.

In addition, promotion activities of KAIZEN approach have been carried out by highlighting successful cases of KAIZEN practice in other countries. With good practice of KAIZEN in Jordan under the current project, the understanding can be promoted on the basis of the actual experience in the country. It will make a significant difference. Many companies show high interest in KAIZEN practice and its benefits. However, their knowledge is limited to that of success stories in other countries, leaving them unsure about the applicability and effectiveness in Jordan. In particular, most of the managements feel that implementation of KAIZEN practice requires significant cultural changes, which lead them to be skeptical about adaptability in the country.

Producing good practice of KAIZEN serves as a powerful driving force for wide understanding and acceptance among Jordanian industries. While some model cases have been created under the current project, they are still limited in number and are less visible to the public, including workers. It is therefore strongly recommended to continue the efforts of increasing the number of companies practicing KAIZEN by strategically selecting industries and areas.

There is a significant need of establishing core organization which has the function to plan and implement the KAIZEN promotion and dissemination, taking into consideration of the progress of dissemination, and priority of dissemination needs at the time.

(2) The function to support the individual companies to introduce KAIZEN approach

1) Need for function to support the individual companies to introduce KAIZEN approach to their companies

The support function includes technical support function and the financial support function.

a) Need for functions of technical support for companies

There have been ways of learning KAIZEN approach in Jordan regarding the concept, methods, and benefits of the KAIZEN, etc., though they have been very limited. However, when it comes to the information on how to introduce KAIZEN, there has been almost no information, with no preceding case of KAIZEN practice conducted by Jordanian company, resulting in no dissemination of the approach despite the expectation for KAIZEN among the managements in Jordan.

The current project have created the sample cases of KAIZEN practice among the Jordanian companies, though the implementing rate among the Jordanian manufacturing companies is still as low as 0.9%. With further increase in the sample cases, companies intending to introduce KAIZEN approach may have more opportunities to learn KAIZEN practice from them, and will be able to introduce it without the company-base guidance, or only with collective training programs. This tendency of introducing KAIZEN practice without receiving the company-base guidance will be further accelerated by the movement of experienced workers among the companies. Nevertheless, it will take some more time until this tendency prevails in Jordan, and therefore, still there will be a significant need for company-base technical guidance.

b) Need for functions of financial support for companies practicing KAIZEN

The KAIZEN practice is characterized as a long succession of small improvements. While KAIZEN practice can be carried out at a fairly low cost, it sometimes requires capital spending, and calls for financial support. In addition, there will be some cases for the companies to need the fund to hire a consultant who can provide guidance as well as training for the company's KAIZEN leaders and group leaders.

Nevertheless, the need for financial assistance in applying KAIZEN will be declined significantly, once the rate of number of enterprises practicing KAIZEN increases among the total number of enterprises in Jordan since the increased number of companies are expected to introduce KAIZEN approach without company-base guidance.

2) Detail of the functions to support enterprises in introducing KAIZEN approach

a) Detail of technical support function

The technical support function for KAIZEN practice include:

1. Provision of support and technical guidance for the enterprises which intend to introduce, or are in the process of introducing the KAIZEN activities
2. Training of KAIZEN leaders of enterprises (*)

3. Introduction of new production management technologies for furnishing them to the industry
4. KAIZEN consultants registration for introducing to enterprises/organizations as consultants/instructors to meet their technological guidance demand

Activities as a contact point in Jordan for those who need any information regarding quality/productivity improvement, and for the international organizations related to quality/productivity improvement,³ will also become necessary in the future.

b) Detail of financial support function

The financial support function for KAIZEN practice include:

1. Provision of loan or subsidy for the fund required in introducing KAIZEN activities, including fee for consultants
2. Request for the financial institutes / assistance organizations, which have programs to support SMEs, to extend a new scheme of loan or a subsidy for SMEs to cover the fund required in introducing KAIZEN activities
3. Provision of information to those who are intending to introduce KAIZEN approach to their company, on financing schemes available for SMEs

3) Current status and the future of support functions in Jordan

a) Technical support function

At present, there is no system or institution to support companies that want to implement the KAIZEN practice. In fact, many companies have expressed their expectation to participate in the current guidance program at the seminars held under the current project, but the program was not able to accept them. Therefore, they could not have the chance to introduce KAIZEN practice due to lack of appropriate technical support relating to KAIZEN approach.

Furthermore, as the project has focused on support for SMEs in the manufacturing sector, many non-SME⁴ companies and companies in other sectors could not have chance to introduce KAIZEN practice. They need technical guidance supports.

For the technical guidance support, there is a possibility of mobilizing the KAIZEN consultants trained under the current project, and they should be mobilized for this purpose definitely.

³ Such as Asian Productivity Organization (APO).

⁴ Introduction of KAIZEN approach in big companies is expected to stimulate that in Jordanian industries as a whole.

However, in some areas of guidance, the level of understanding of the consultants remains insufficient, as shown in the following.

As shown in Table 3-1, the level of understanding of the consultants is low particularly in the areas of situational analysis using statistical data, cause analysis, and on-site technical guidance on quality/productivity improvement. This is because of the fact that they had no chance to make guidance in these areas, and lack of experience at the production site.

Table 3-1 Average Scores by Assessment Items of the Consultants Participated in KAIZEN Consultants Training Program

| Assessment factors | Average scores by assessment factor: (Full score is 5.0) |
|---|---|
| 1) Balanced understanding on basic factors in KAIZEN approach | 3.80 |
| 2) Careful preparation and responsibility in guidance to the customer companies | 4.70 |
| 3) Guidance ability on bottom-up type activities with participation of motivated employees and their improvement proposals | 4.50 |
| 4) Guidance ability on fact and problem analysis using statistical data | 3.30 |
| 5) Guidance ability on improvement planning and implementation in accordance with scientifically and logically justifiable procedures | 4.30 |
| 6) Guidance ability on productivity and quality improvement at the site | 3.50 |

Note: The above table shows the average scores of all the participated consultants by assessment factor. Full score is 5.0 each. For further detail, see Annex 2-11.

Similarly, many of the pilot SMEs, which participated in the KAIZEN support program, have worried about the guidance capability of the consultants, according to the feedback from them on their capacity, as shown in Table 3-2, though it should be noted that the feedback is based on their subjective personal assessment.

**Table 3-2 Response from the companies for the question of
“Do you think you can promote the KAIZEN activities in your company without
advice from the Japanese KAIZEN advisors?”**

| | Response from: | | |
|--|--------------------|---------------------------------------|---------------------------------|
| | Total 13 companies | 8 companies in A+, A & B+ levels (*1) | 5 companies in B & C level (*2) |
| No more need of the guidance/advice from the Japanese KAIZEN Advisors | 3 | 2 | 1 |
| No more need of the guidance/advice from the Japanese KAIZEN Advisors if the local consultant is available | 2 | 1 | 1 |
| Still need advice from the Japanese KAIZEN Advisors | 8 | 5 | 3 |

Note: The above shows the feedback result of the 13 participant companies. (*1) Feedback from 8 companies with “Good performance” or better. (*2) Feedback from 5 companies with “average performance” or worse. For further detail, see Annex 1-12.

Similar feedback can be seen from that of consultants (see Table 3-3).

**Table 3-3 Feedback from the consultants for the question of
“Do you think you can make advice/guidance on KAIZEN practice without
advice from the Japanese KAIZEN advisors?”**

| | Response from 8 (private sector) consultants |
|--|---|
| 1. No more need of the guidance/advice from the Japanese KAIZEN Advisors | 2 |
| 2. Still need advice of the Japanese KAIZEN Advisors | 6 |

As seen above, the KAIZEN consultants can be mobilized in KAIZEN dissemination and guidance in most of the areas, but further experience of the guidance is necessary for them to have the guidance capability equivalent to that of the Japanese advisors, who have many years of experience in this field of guidance.

Meanwhile, the possibility of further development of qualified consultants largely depends on whether the above consultants find the business opportunity in KAIZEN consultants training.

Again, the effective way to expand the KAIZEN consultant population is to implement the KAIZEN practice at as many companies as possible, thereby to boost demand for KAIZEN consultants including that of training program instructors. Also important is to develop a mechanism to use the qualified consultants for guidance of the KAIZEN practice. However, there is no mechanism to promote mobilization of the KAIZEN consultants in this country. There is a need to establish an institutional setup which create a mechanism to mobilize the consultants systematically, while understanding the need of such mechanism.

b) Financial support function

Currently there is no existing financial support scheme which clearly states KAIZEN practice as one of its financial support targets. However, since the existing financial schemes in Jordan to support SMEs, including JUMP and other programs provided by donors, assume guidance of consultants as the requirements, therefore, these schemes seem to have potential to cover the KAIZEN practice in their scope, with the consultants programing the KAIZEN practice as one of the support targets. For example, in the case of JUMP, introduction of KAIZEN practice could be justifiable as its support target as effective measure for competitiveness enhancement though it does not stated clearly about the possibility. Nevertheless, in order to handle the KAIZEN practice under the JUMP, there might be a need to define the scope of JUMP more explicitly to include the KAIZEN practice as a method of quality and productivity improvement, considering that the KAIZEN practice has difficulty to assume the quantifiable outcomes of the practice before starting it. Also important is to promote registration of KAIZEN consultants to JUMP, and promote understanding of the registered consultants on KAIZEN approach.

Besides the direct financing support function, as mentioned above, indirect financial support functions will be also necessary and useful to expand the available financing schemes in collaboration with other agencies and organizations concerned, and introduce the available schemes to those who need the financial support.

(3) Function to promote consolidation of KAIZEN practice experiences, develop training/ reference materials, and develop human resources for dissemination and guidance

1) Need for function to promote consolidation of KAIZEN practice experiences, develop training/ reference materials, and develop human resources for dissemination and guidance

a) Functions to promote consolidation of KAIZEN practice and develop training/ reference materials

The methodology of KAIZEN practice best fit to the country may vary depending on the business conditions of the country, industry, or even of the individual companies to introduce. The KAIZEN methods are introduced mostly based on the experiences abroad at the initial stage, but are necessary to be modified to fit to the country with accumulation of the experiences in the country. The experience of an individual company alone, however, is not sufficient to mobilize the experience for improvement. The provision of experience-sharing opportunities will be useful for this purpose. The experience sharing is effective if it is practiced among the companies practicing KAIZEN.

In the case of Japan, there are some organizations which have planned and implemented such opportunities of experience sharing for many years, that have contributed significantly to dissemination and upgrading of the methods of KAIZEN practices.

b) Function to develop human resource for dissemination and guidance

Development of human resources is a must for dissemination of KAIZEN practice. The most important among them are the consultants for KAIZEN guidance, KAIZEN leaders of individual companies, and leaders of small-group activities.

2) Details of the functions to promote consolidation of KAIZEN practice experiences, develop training/ reference materials on KAIZEN practice, and develop human resources for KAIZEN dissemination and guidance

Functions required for consolidating the KAIZEN experiences, and mobilize it in Jordan, are the function to provide opportunity to consolidate the experiences, and the function to develop the training/ reference materials for KAIZEN reflecting the results of experience consolidation. In addition, the function to transfer the lessons from experiences to those who will undertake the KAIZEN dissemination and guidance is also important.

- a) Function to promote consolidation of KAIZEN practice experiences, and develop training/reference materials on KAIZEN practice

Functions of promoting consolidation of KAIZEN practice experiences include the following:

1. Plan and implementation of KAIZEN experience sharing meetings (*)
2. Forum among the concerned organization and individuals
3. Promote and support organization of KAIZEN Network among the concerned individuals and organizations
4. Research and development of KAIZEN methods best fit to Jordanian enterprises
5. Development and publication of the relevant training/reference books and materials (*)

- b) Function to develop human resources for dissemination and guidance

Following are the major targets of HRD for dissemination of KAIZEN practice:

1. Consultants
2. KAIZEN leaders of enterprises
3. Leaders of small-group activities

Besides the above, following also are the important target of human resource development:

1. Engineers and middle managements of the companies
2. Core members of KAIZEN small-groups

The organization in charge should have the following functions:

- Development of training curriculum and training materials for respective HRD targets

- 3) Current status and the future of the functions to promote consolidation of KAIZEN practice experiences, develop training/ reference materials on KAIZEN practice, and develop human resources for KAZEN dissemination and guidance

- a) Functions to promote consolidation of KAIZEN practice experiences, and develop training/reference materials on KAIZEN practice

Provision of experience sharing opportunities to the companies implementing the KAIZEN practice is one of the important functions in view of consolidating the KAIZEN experiences. The experience sharing meetings are carried out between two companies practicing KAIZEN, but it is implemented as conferences and forums. However, if the experience-sharing is conducted regularly with establishing an organization specialized for this objective, besides the occasional conferences and forums, it will produce more effects. The KAIZEN network is one of the proposals to organize the companies and individuals for such objectives.

The above-mentioned mechanism to summarize the experience of KAIZEN practices in the country, make the KAIZEN approach fit to the business culture of the country, and encourage further application of KAIZEN practice among the enterprises, is indispensable. Thus, it is highly recommended to establish an organization to play such roles in Jordan, once KAIZEN approach is found useful in Jordan.

As assessed in 2.2 of Part II, unique methods of KAZEN practice, which fit specific to Jordanian SMEs, have been developed and applied in the KAIZEN guidance under the current project. It is recommended to summarize and evaluate the outcomes of such methods, and disseminate them among the industry if it is found useful. In this context, regular review and update of the training/ reference materials developed as the output of the current project, since it reflects the experience of KAIZEN guidance in Jordan.

Currently, however, no institutional setup for this function is available in Jordan.

b) Function to develop human resources for dissemination and guidance

Currently, there is no existing agency/ organization providing schemes to develop human resources for KAIZEN dissemination and guidance. There is one business association of consultants in Jordan, but they have no plan of consultant development program for KAIZEN approach.

Nevertheless, the function to develop human resources for KAIZEN approach is expected to be created by the private sector in the future, as the demand for KAIZEN consultants increases. However, until the time comes, there is a need for institutional setup for the function to develop these human resources with initiative of the government.

As for the consultants trained under the current project, further enhancement of capacity through the actual guidance. For this purpose, it is recommended to develop a mechanism intentionally to provide them with job opportunities as KAIZEN consultant, including the lecturers at KAIZEN leader training, etc.

(4) Functions to support companies practicing KAIZEN for their continuation and further development of the ongoing KAIZEN practice

1) Need for the function to encourage continuation and further development of KAIZEN practice

For companies that have already implemented the KAIZEN practice, it is imperative to encourage and support its continuation and further development with developing a mechanism to support them.

As mentioned in 4.2.2 of Part I, the KAIZEN was introduced in Jordan under a program of HAPPI. However, there was no expansion of number of the companies practicing KAIZEN after termination of the program, and further, the practice has been disappeared even in the companies participated in the program with retirement of the involved employees and managers. This is because there was no organizational initiative for support and dissemination in spite of the recommendation under the HAPPI.

2) Details of the function to encourage continuation and further development of KAIZEN practice

To perform the function to encourage continuation and further development of KAIZEN practice, following activities are assumed:

- Provision of opportunities to share the KAIZEN experiences among the companies practicing KAIZEN
- Recognition and award of good practice of KAIZEN (*)

3) Current status and the future of the function in Jordan to encourage continuation and further development of KAIZEN practice

There is a need for a mechanism to encourage the companies practicing KAIZEN continuation and further development of the practice. The mechanism may consist of provision of opportunities to exchange KAIZEN experiences among companies, thus providing learning opportunity and incentive for sustainable development efforts, and a recognition system to create further motivation for these companies. A consulting system is also useful and necessary to help them to deal with and solve a problem encountered in the course of the KAIZEN practice. There is no institutional setup for these functions currently in Jordan

3.3 Implementation Body

(1) Possible arrangements for the implementation body

Table 3-4 shows the list of functions necessary for dissemination of KAIZEN practice among Jordanian industries, with defining the functions of the respective players tentatively, while assuming JEDCO as the core implementation body of the KAIZEN dissemination activities. In fact, the dissemination functions are not necessarily implemented by one organization. There are some organizations which seem to have potentiality to perform a part of the dissemination function. The collaboration among these organizations regarding the dissemination activities is also useful in view of involvement of the concerned organization in the dissemination activities as much as possible.

Under the current project, the possibility to establish an organization to take a lead in KAIZEN dissemination with collaboration among the concerned organizations has been discussed among them. However, despite the basic consensus on necessity of such organization, no organization has been available to take initiative in establishing a new organization by themselves (or in collaboration with other organizations).

If taking into account the above situation regarding the establishment of new organization for KAIZEN dissemination, the concepts of implementation of the dissemination activities by an organization operated jointly among the concerned organizations, or assignment of the required dissemination functions separately to the potential organizations, seem to involve risks of uncertainty in terms of ensuring the actions. Thus, it is now assumed to put priority in establishing an institutional setup under the initiative of a single organization, namely, JEDCO, as discussed in (2) below.

Nevertheless, there will be a possibility for the organization to undertake a function jointly with other organizations, or through outsourcing by contract. So long as JEDCO plays a core role in KAIZEN dissemination, the joint undertaking or the outsourcing may be favorable in view of promoting the dissemination with collaboration among the relevant agencies and organizations, and also in view of promoting the private sector-led activities. After establishing the institutional basis of dissemination activities, within JEDCO, development of networking among the concerned agencies and institutions is strongly recommended in this context.

Table 3-4 List of Functions Necessary for Dissemination of KAIZEN Practice with Preliminary Consideration on Possibility of Collaboration among the Relevant Organizations and Institutes

| Function | Main activities | JEDCO (KAIZEN dissemination) | JEDCO (JUMP) | Network | Chamber of Industry/ Commerce and business associations, etc. | Private consultants/ consulting companies |
|---|---|------------------------------|--------------|---------|---|---|
| Promotion at the industrial policy level | Promotional activities as a part of enterprise/industrial development | X | | | (#) | |
| | Financing schemes to support introduction of KAIZEN | | X | (a) | | |
| Introduction, dissemination and promotion | Seminars and introductory trainings | X | | | (#) | |
| | Exchange of experiences in KAIZEN practice | (*) | | X | | |
| | Recognition and awards | (*) | | | X | |
| Guidance | Guidance and consultation as a public industrial/business support service | X | | | (#) | |
| | Consultancy service | (*) | | | | X |
| | Training service | (*) | | | (#) | X |
| Research and publication | Research and development of KAIZEN methods best fit to Jordan | X | | | | |
| | Forum among the concerned organization and individuals | (*) | | X | | |
| | Publication of the relevant reference books and materials | (*) | | | | X |
| | Development of guidance tools | (*) | | | | X |
| HRD | Leaders and consultants development | (*) | | | | X |
| | KAIZEN consultants registration system | | X | | | |

Note: Among these functions, the functions marked with (*) above are the functions which may be performed on a commercial basis in the future by the private sector, while others need government/public⁵ initiatives on half of assistance for Jordanian industries. The functions marked with (#) are those which are recommended to be performed with collaboration of chambers of industry/commerce. (a) assumes JEDCO to promote SME related financing institutes to accept KAIZEN activities as one of their financing areas.

The proposed government/public-led KAIZEN dissemination setup is expected to take the initiative for all the above functions at the initial stage, when the existing players are weak to fill the required demand of the industry, while promoting the development of private-sector-led functions for those marked with (*) in the future.

⁵ Including chambers of commerce and industry.

(2) Recommended institutional setup for KAIZEN dissemination with assuming JEDCO as the core implementation body

1) Step 1: Realization of functions for KAIZEN promotion and dissemination with assuming JEDCO as the core implementation body

Although a part of the functions for KAIZEN promotion and dissemination is expected to be carried out by the private sector in the future, it is recommended for JEDCO, which is assumed to be the responsible agency to support enhancement of competitiveness of the industry in Jordan, to establish the organizational set-up for KAIZEN promotion and dissemination as follows:

1. JEDCO will take the core role in promoting, disseminating, supporting and encouraging the KAIZEN approach in Jordan: this role of JEDCO should not be limited to support of KAIZEN applications by individual companies, rather it should be extended to include institutional promotion and dissemination functions.
2. JEDCO will mobilize the existing programs of JUMP and JSMP for KAIZEN promotion and dissemination within the framework of the purpose of these programs to enhance competitiveness of enterprises.
3. JEDCO will appoint the sections and staff among the existing sections and staff as to be in charge of planning and coordination for implementation of KAIZEN promotion and dissemination activities.
4. JEDCO will mobilize the necessary out-side resources, including KAIZEN consultants who have been trained under the current project, for implementation of promotion and dissemination activities with outsourcing the activities.

2) Step 2: Development of the network among the concerned agencies, institutes and organizations

JEDCO is recommended to make efforts for development of a KAIZEN network in Jordan, involving the concerned agencies, institutes and organizations, and mobilize their functions and organizations for KAIZEN promotion and dissemination as much as possible, for development and diversification of the functions (see 3.2).

(3) Internal set-up in JEDCO

On the basis of the organizational set-up of JEDCO, as described above, JEDCO is recommended to function the following, while mobilizing the collaborative network among the concerned agencies, institutes and organizations as much as possible:

1. Planning and implementation of continuous and lasting awareness campaign and encouragement activities for dissemination of KAIZEN approach
2. Provision of support and technical guidance for the companies intending to apply and/or practicing the KAIZEN approach
3. Backup and provision of incentives for the enterprises which are practicing the KAIZEN activities

In order to implement these functions, JEDCO will establish the organizational set-up internally, appointing sections/staffs for the following:

1. A section/staff(s) for planning and coordination of KAIZEN promotion and dissemination activities (Planning and Coordination Section)
2. A section/staff(s) to provide technical advice on the above, and plan and coordinate mobilization of the existing programs of JEDCO, such as Schemes 3 and 5 of JUMP, etc., for KAIZEN dissemination (Technical Section)

1) Planning and Coordination Section

This section/staff(s) will:

1. Prepare the base plan of promotion and dissemination activities, make arrangements for implementation, and manage the implementation. The actual promotion and dissemination activities will be conducted by the consultants and/or the organizations which have experience and capacity to implement it, with outsourcing the activities to them. The Planning and Coordination Section will consult with the Technical Section when they decide the target of the promotion and dissemination activities, contents of the activities, and potential outsourcing sources, etc., if necessary.
2. Make efforts to develop the KAIZEN network. The section/staff(s) will request the potential institutes and organizations, which have the capacity, to provide support for promotion and dissemination activities.
3. Introduce available support measures for the companies intending to apply KAIZEN approach
4. Play a role as a contact point of Jordan regarding KAIZEN approach dissemination

2) Technical Section

This section/staff(s) will:

1. Make advice to, and support the Planning and Coordination Section about important points in dissemination of KAIZEN approach, to make the activities best meet the needs at the time, including the advices on topics, dissemination targets, and outsourcing sources, etc.
2. Plan and promote mobilization of existing programs which may be used for KAIZEN dissemination, including Schemes 3 and 5 of JUMP, etc.

Figure 3-2 shows the concept of institutionalized functions for KAIZEN promotion, dissemination, support and encouragement, which JEDCO will play the core role.

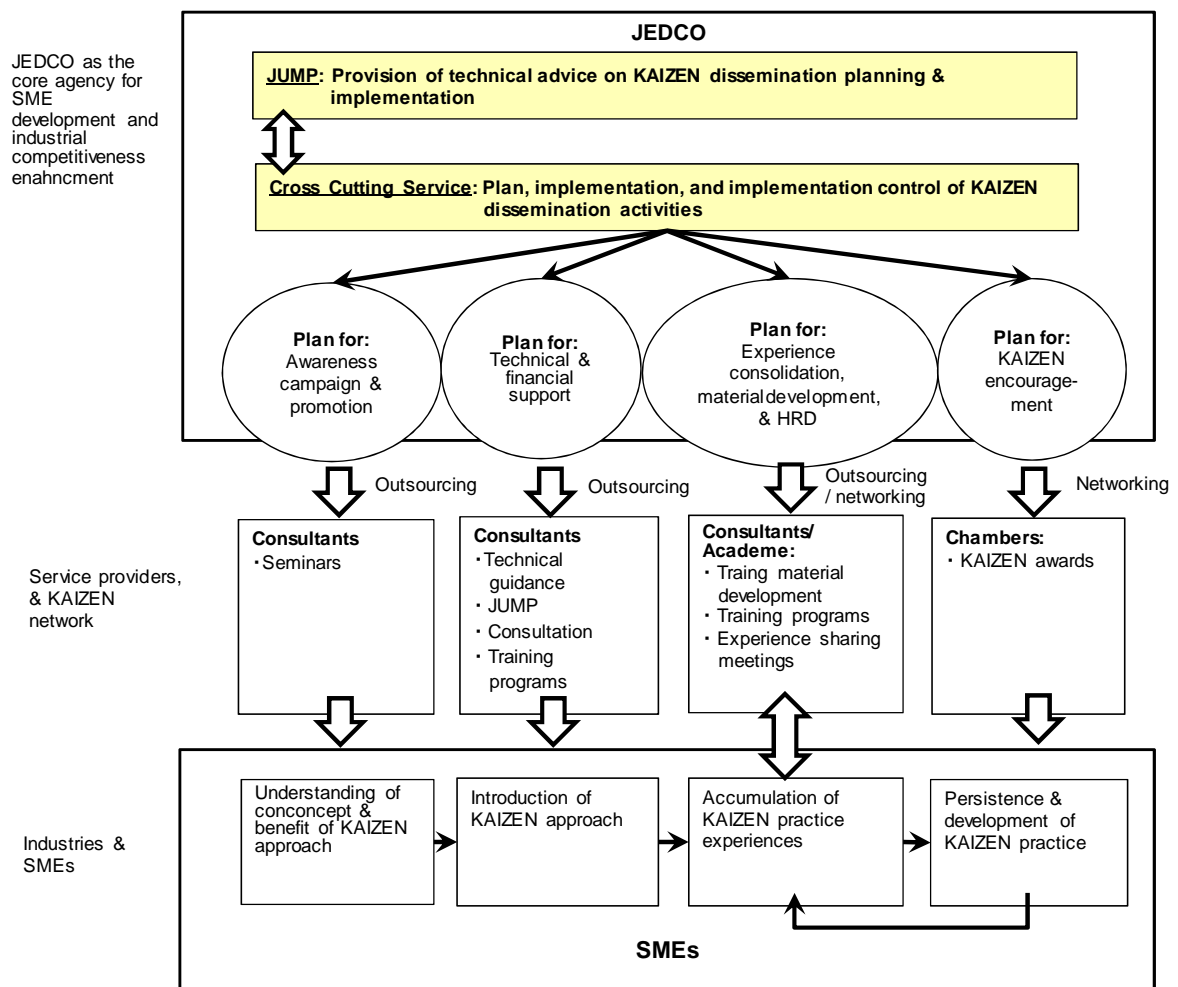


Figure 3-2 Concept of Institutionalized KAIZEN Dissemination Functions

3.4 Proposed Activity Plan of JEDCO for KAIZEN Promotion and Dissemination

3.4.1 Setting the dissemination target

(1) Proposed dissemination target

Assuming 30% of proposed KAIZEN practice implementation rate of all the manufacturing enterprises as the dissemination target at the end of Year 2020, following annual dissemination targets are proposed respectively for the short-term (two years), mid-term (three years), and long-term (three years) periods, as follows:

Table 3-5 Proposed Dissemination Target (Case 1: Manufacturing Sector only)

| Target | At the end of: | Number of enterprises practicing KAIZEN | Dissemination rate (*) |
|------------|----------------|---|------------------------|
| Short-term | Year 2014 | 80 | 4% |
| Mid-term | Year 2017 | 360 | 18% |
| Long-term | Year 2020 | 600 | 30% |

Note: (*) Assuming that total number of enterprises in the manufacturing sector is 2,000 (According to the data provided by Jordan Chamber of Industry, the number of enterprises in the manufacturing sector with more than 10 employees was 2,300 in 2011. This figure is estimated to include that of agriculture sector⁶).

(2) Assumption of the proposed dissemination target

Following shows the change in rate of enterprises practicing the small-group activities in Japan.

⁶ According to the data from Companies Control Department, Ministry of Industry and Trade, the number of enterprises in the manufacturing sector was 1,427 in 2011, whereas that of agriculture sector was 919, totaling 2,346.

Table 3-6 Percent of Enterprises Practicing Small-Group Activities in Japan

(Unit: % of total enterprises)

| Year: | 1972 | 1977 | 1984 | 1989 |
|-----------------------------------|------|------|------|------|
| Size of enterprises | | | | |
| With more than 1,000 employees | 69 | 56 | 79 | 71 |
| With employees between 100 to 299 | 36 | 31 | 49 | 49 |
| Total | 40 | 40 | 60 | 52 |

Source: Estimated from the graphs shown in Shinichi Ogawa, "For easier communication – Until when the small-group activities become popular in Japanese enterprises" (No.3, Vol. 16, October 2007, "Quarterly Research Magazine on Living Welfare (Quarterly Seikatsu Fukushi Kenkyu)")

The small-group activities have started early 1960s in Japan, and it became popular in 1965. The activities were most active in 1980s with reaching the peak in 1984. Then, the dissemination rate of the small-group activity has saturated in late 1980s. In terms of size of enterprises, the highest dissemination rate of the activity hit 79% in the case of large-sized enterprises, whereas the rate remained at slightly above 50% for medium-sized enterprises of employee in-between 100 and 299.

According to the history of the small-group activity in Japan, the dissemination rate of the activity has increased gradually at the introductory stage, whereas it showed conspicuous increase from a certain level of dissemination rate. Further, the trend of change in the rate differs among the different size of enterprises. The dissemination rate was higher for the large-sized enterprises compared with that of SMEs. Nevertheless, the dissemination rates showed a conspicuous increase around 15 years after start of the activities, or 12 years after the activity became popular, for both large-sized enterprises and SMEs.

Given these historical fact, and taking into consideration of the difference in the conditions between Jordan and Japan as shown below, the target of the dissemination rate of small-group activity was set at 30% in 2020 (or 8 years later, or 10 years after commencement of the current project).

1. Applied the dissemination rate of the SMEs, instead of that of the large-sized enterprises or total enterprises, considering that the KAIZEN dissemination in Jordan targets SMEs with employees in-between 100 and 299.
2. The target dissemination rate was set at 30% with reference to the rate at 7 years after the activities have started (or 36%), and the rate in 12 years after (or 31%) in Japan, taking into

account the fact that the experience of the small-group activities in Japan and other countries can be transferred to Jordan, though the introduction of the activity in Jordan is for the first time, and that the aggressive dissemination activities are assumed to be taken in Jordan.

(Note that the data on dissemination rates are not available for the years in-between the starting year and the year described in the above. The dissemination rates were assumed to have increased gradually at low increase rates at the initial dissemination stage of the activity.)

(3) Expansion of dissemination targets

The above proposed dissemination target assumed the KAIZEN dissemination only among the manufacturing sector. However, the dissemination should be extended also to other sectors including commerce and services in view of enhancement of competitiveness of Jordanian industries. The following sets the dissemination targets involving the commerce and service sectors from this point of view. In setting the extended targets, the KAIZEN activities are assumed to be introduced to these sectors in and after 2015, since the consultants who can provide the guidance to these sectors may be limited. The target rates were set at 1/4 of the manufacturing sector with assumption the dissemination lags 3 years behind that of the manufacturing sector.

**Table 3-7 Proposed Dissemination Target
(Case 2: Including commerce and service sectors)**

| Target | At the end of: | Number of enterprises practicing KAIZEN | Dissemination rates (% of total enterprises in the sector in question) (*) | |
|------------|----------------|---|---|---------------|
| | | | Manufacturing sector | Other sectors |
| Short-term | Year 2014 | 135 | 4% | 0% |
| Mid-term | Year 2017 | 610 | 18% | 1% |
| Long-term | Year 2020 | 1,000 | 30% | 4.5% |

Note: (*) Assuming that total number of enterprises in all the sectors is 7,500, while the KAIZEN dissemination rates in the sectors other than manufacturing sector being 1/4 of the manufacturing sector three years ago.

Number of enterprises registered in 2011 by sector was as follows:

| Sector | Number of registered enterprises |
|---------------|----------------------------------|
| Manufacturing | 1,427 |
| Agriculture | 919 |
| Construction | 341 |
| Commerce | 2,435 |
| Service | 2,555 |
| Total | 7,677 |

Source: Ministry of Industry and Trade, Companies Control Department

3.4.2 Setting the activity targets

(1) Activity target

Table 3-8 shows the number of consultants required for dissemination of KAIZEN activities in line with the proposed target set in 3.4.1 for the case for the manufacturing sector only (Case 1), whereas Table 3-9 shows that of the case extended for commerce and service sectors (Case 2).

**Table 3-8 Targets of KAIZEN Dissemination Activities and Estimated Required Actions
(Case 1: Manufacturing Sector Only)**

| Year | Base | Short-term Activities | | Mid-term Activities | | | Long-term Target |
|---|------|-----------------------|------|---------------------|------|-------|------------------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 8 |
| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2020 |
| Assumed Dissemination Targets (*1) | | | | | | | |
| Number of enterprises practicing KAIZEN | 20 | 50 | 80 | 140 | 230 | 360 | 600 |
| % of total number of enterprises with more than 10 employees (*2) | 1% | 3% | 4% | 7% | 12% | 18% | 30% |
| No. of enterprises newly introduced KAIZEN practice in the year | | 30 | 30 | 60 | 90 | 130 | 80 |
| No. of enterprises to receive on-site guidance (*3) | | 43 | 41 | 78 | 110 | 150 | 73 |
| Action Targets | | | | | | | |
| (1) Awareness seminars | | | | | | | |
| 1) No. of awareness seminars (*7), targeting - Industrial leaders - Managements | | 2 | 2 | 2 | 2 | 2 | 1 |
| 2) No. of special seminars for focused targets (*4)(*7) | | 2 | 2 | 1 | 1 | 1 | 0 |
| (2) On-site technical guidance program | | | | | | | |
| 1) No. of enterprises to receive the guidance | | 43 | 41 | 78 | 110 | 150 | 73 |
| (No. of man-days required for the guidance) (*8) | | 301 | 287 | 546 | 770 | 1,050 | 511 |
| 2) Introductory & F/U trainings for KAIZEN leaders for enterprises starting KAIZEN practice | | | | | | | |
| (No. of set of introductory & F/U training) (*5)(#) | | 3 | 3 | 4 | 4 | 4 | 0 |
| (No. of days required for the trainings (Total)) (*7) | | 15 | 15 | 20 | 20 | 20 | 0 |
| - No. of Introductory training (3 days/training) | | 9 | 9 | 12 | 12 | 12 | 0 |
| - No. of F/U training-1 (1 day training) | | 3 | 3 | 4 | 4 | 4 | 0 |
| - No. of F/U training-2 (1 day training) | | 3 | 3 | 4 | 4 | 4 | 0 |
| (3) No. of KAIZEN leader/consultants advanced training (Semi-annual) (*6)(#)(*7) | | 2 | 2 | 3 | 4 | 4 | 0 |

| Year | Base | Short-term Activities | | Mid-term Activities | | | Long-term Target |
|--|------|-----------------------|----------|---------------------|-----------|-----------|------------------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 8 |
| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2020 |
| (4) Review & update of training materials | | | | | | | |
| 1) Basic training materials [No. of updates] | | 1 | 1 | 1 | 1 | 1 | 1 |
| (Man-days required (30 man-days/update)) | | 30 | 30 | 30 | 30 | 30 | |
| 2) Good practice [No. of updates] | | 0 | 1 | 0 | 1 | 0 | 1 |
| (Man-days required (90 man-days/update)) | | 0 | 90 | 0 | 90 | 0 | |
| 3) Guideline for consultants [No. of updates] | | 1 | 0 | 1 | 0 | 1 | 0 |
| (Man-days required (30 man-days/update)) | | 30 | 0 | 30 | 0 | 30 | |
| 4) Other materials to support/encourage KAIZEN practice [No. of updates] | | 1 | 0 | 1 | 0 | 1 | 0 |
| (Man-days required (90 man-days/update)) | | 90 | 0 | 90 | 0 | 90 | |
| (5) KAIZEN experience sharing meeting & good practice awards (*7), No. of; | | 1 | 1 | 1 | 1 | 1 | 1 |
| Total required man-days for consultants | | 539 | 495 | 804 | 1,002 | 1,312 | |
| - Number of KAIZEN consultants required (*9) | | 9 | 8 | 13 | 17 | 22 | |
| Estimated costs/expenses required (Unit: JD) | | | | | | | |
| a) Honararia for lecturers/speakers for seminars, trainings, and training materials review (*10) | | 35,000 | 30,600 | 37,900 | 34,100 | 38,500 | |
| b) Consultants fee for guidance for the individual enterprises (*11) | | 22,800 | 21,700 | 41,300 | 58,200 | 79,400 | |
| c) Miscellaneous costs/expences for invitation, venue, materials, etc. (*12) | | 16,500 | 16,500 | 20,300 | 21,000 | 21,000 | |
| Total | | 74,300 | 68,800 | 99,500 | 113,300 | 138,900 | |

Notes: (*1) At the end of the year (*2) Assumed total number of enterprises: 2,000

(*3) 95% of the companies, which newly introduce KAIZEN practice, are assumed to receive the on-site guidance in 2013. The rate is assumed to decrease by 5% every year. 65% of the SMEs, which receive the on-site guidance, are assumed to continue the KAIZEN practice.

(*4) e.g.; the enterprises in a industry sector designated as the priority sector in the National Agenda, etc. The seminar is targeted to be held semi-annually for the short-term, but the frequency will be reduced accordingly with increased awareness on KAIZEN approach among the industries.

(*5) Assuming that a set of introductory and F/U trainings is held for each 20 participating companies

(*6) Assuming that the training is annually held for each 20 participating companies, while 60% of the companies practicing KAIZEN will participate in the training for the short-term planning period.

The participation rate is assumed to decline to 40% for the mid-term planning period.

(*7) 4 consultants/day is assumed to be engaged

(*8) 8 stages (man-days)/Company

(*9) Assuming 3 man-months (or 60 man-days)/year/consultant

(#) The maximum frequency of the programs will be 4 times a year, whereas additional training programs are assumed to be organized by private sector BDS providers.

(*10) Honararia: JD 140/man-day plus 5% of contingency

(*11) Consultants fee: JD 180/man-day plus 5% of contingency

(*12) Snacks and drinks, invitation letter, material reproduction and others: JD 750/day

**Table 3-9 Targets of KAIZEN Dissemination Activities and Estimated Required Actions
(Case 2: Including Commerce and Service Sectors)**

| Year | Base | Short-term Activities | | Mid-term Activities | | | Long-term Target |
|---|------|-----------------------|------|---------------------|------|-------|------------------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 8 |
| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2020 |
| Assumed Dissemination Targets (*1) | | | | | | | |
| Number of enterprises practicing KAIZEN | 20 | 50 | 80 | 155 | 260 | 410 | 825 |
| % of total number of enterprises with more than 10 employees (*2) | 0% | 1% | 1% | 2% | 3% | 5% | 11% |
| No. of enterprises newly introduced KAIZEN practice in the year | | 30 | 30 | 75 | 105 | 150 | 155 |
| No. of enterprises to receive on-site guidance (*3) | | 43 | 41 | 98 | 129 | 173 | 143 |
| Action Targets | | | | | | | |
| (1) Awareness seminars | | | | | | | |
| 1) No. of awareness seminars (*7), targeting - Industrial leaders - Managements | | 2 | 2 | 2 | 2 | 2 | 1 |
| 2) No. of special seminars for focused targets (*4)(*7) | | 2 | 2 | 1 | 1 | 1 | 0 |
| (2) On-site technical guidance program | | | | | | | |
| 1) No. of enterprises to receive the guidance (No. of man-days required for the guidance) (*8) | | 43 | 41 | 98 | 129 | 173 | 143 |
| | | 301 | 287 | 686 | 903 | 1,211 | 1,001 |
| 2) Introductory & F/U trainings for KAIZEN leaders for enterprises starting KAIZEN practice | | | | | | | |
| (No. of set of introductory & F/U training) (*5)(#) | | 3 | 3 | 4 | 4 | 4 | 0 |
| (No. of days required for the trainings (Total)) (*7) | | 15 | 15 | 20 | 20 | 20 | 0 |
| - No. of Introductory training (3 days/training) | | 9 | 9 | 12 | 12 | 12 | 0 |
| - No. of F/U training-1 (1 day training) | | 3 | 3 | 4 | 4 | 4 | 0 |
| - No. of F/U training-2 (1 day training) | | 3 | 3 | 4 | 4 | 4 | 0 |
| (3) No. of KAIZEN leader/consultants advanced training (Semi-annual) (*6)(#)(*7) | | 2 | 2 | 4 | 4 | 4 | 0 |

| Year | Base | Short-term Activities | | Mid-term Activities | | | Long-term Target |
|--|------|-----------------------|--------|---------------------|---------|---------|------------------|
| | 0 | 1 | 2 | 3 | 4 | 5 | 8 |
| | 2012 | 2013 | 2014 | 2015 | 2016 | 2017 | 2020 |
| (4) Review & update of training materials | | | | | | | |
| 1) Basic training materials [No. of updates] | | 1 | 1 | 1 | 1 | 1 | 1 |
| (Man-days required (30 man-days/update)) | | 30 | 30 | 30 | 30 | 30 | |
| 2) Good practice [No. of updates] | | 0 | 1 | 0 | 1 | 0 | 1 |
| (Man-days required (90 man-days/update)) | | 0 | 90 | 0 | 90 | 0 | |
| 3) Guideline for consultants [No. of updates] | | 1 | 0 | 1 | 0 | 1 | 0 |
| (Man-days required (30 man-days/update)) | | 30 | 0 | 30 | 0 | 30 | |
| 4) Other materials to support/encourage KAIZEN practice [No. of updates] | | 1 | 0 | 1 | 0 | 1 | 0 |
| (Man-days required (90 man-days/update)) | | 90 | 0 | 90 | 0 | 90 | |
| (5) KAIZEN experience sharing meeting & good practice awards (*7), No. of; | | 1 | 1 | 1 | 1 | 1 | 1 |
| Total required man-days for consultants | | 539 | 495 | 948 | 1,135 | 1,473 | |
| - Number of KAIZEN consultants required (*9) | | 9 | 8 | 16 | 19 | 25 | |
| Estimated costs/expenses required (Unit: JD) | | | | | | | |
| a) Honararia for lecturers/speakers for seminars, trainings, and training materials review (*10) | | 35,000 | 30,600 | 38,500 | 34,100 | 38,500 | |
| b) Consultants fee for guidance for the individual enterprises (*11) | | 22,800 | 21,700 | 51,900 | 68,300 | 91,600 | |
| c) Miscellaneous costs/expences for invitation, venue, materials, etc. (*12) | | 16,500 | 16,500 | 21,000 | 21,000 | 21,000 | |
| Total | | 74,300 | 68,800 | 111,400 | 123,400 | 151,100 | |

- Notes: (*1) At the end of the year (*2) Assumed total number of enterprises: 2,000
- (*3) 95% of the companies, which newly introduce KAIZEN practice, are assumed to receive the on-site guidance in 2013. The rate is assumed to decrease by 5% every year. 65% of the SMEs, which receive the on-site guidance, are assumed to continue the KAIZEN practice.
- (*4) e.g.; the enterprises in a industry sector designated as the priority sector in the National Agenda, etc. The seminar is targeted to be held semi-annually for the short-term, but the frequency will be reduced accordingly with increased awareness on KAIZEN approach among the industries.
- (*5) Assuming that a set of introductory and F/U trainings is held for each 20 participating companies
- (*6) Assuming that the training is annually held for each 20 participating companies, while 60% of the companies practicing KAIZEN will participate in the training for the short-term planning period. The participation rate is assumed to decline to 40% for the mid-term planning period.
- (*7) 4 consultants/day is assumed to be engaged
- (*8) 8 stages (man-days)/Company
- (*9) Assuming 3 man-months (or 60 man-days)/year/consultant
- (#) The maximum frequency of the programs will be 4 times a year, whereas additional training programs are assumed to be organized by private sector BDS providers.
- (*10) Honararia: JD 140/man-day plus 5% of contingency
- (*11) Consultants fee: JD 180/man-day plus 5% of contingency
- (*12) Snacks and drinks, invitation letter, material reproduction and others: JD 750/day

(2) Development of human resources necessary for KAIZEN dissemination and guidance

As already shown in Figure 3-1, KAIZEN dissemination activities are necessary to be carried out in response to the different stages of applying KAIZEN practice. Thus, there is a need to nurture the human resources for KAIZEN dissemination and guidance at the different stages of dissemination activities as shown in 1) below, with providing the various types of opportunities for the HRD as shown in 2).

1) Target human resources to develop

- a) For planning and implementation of a promotional initiative (including an organizational setup)

Level 1: Policy designer and administrator

Level 2: Project planner, operator and coordinator

- b) For guidance and technical support on KAIZEN practice

Level 1: Management consultants, and KAIZEN leaders at the company level

Level 2: Group leaders at the company level

- c) For daily activities of KAIZEN practice

Level 1: Technical staff and field supervisor at the company level

Level 2: Group member at the company level

Level 1 is the level with function for planning and promotion, whereas the level 2 is the level with function of real dissemination activities.

While possible human resources for the guidance include consultants, university faculty members and staff members of relevant public organizations, the resources in the individual companies are also expected to play an important role.

2) Method of the HRD

They can be trained either by a public or commercial training programs or through KAIZEN activities within the company.

The following shows the method of HRD by target resource.

| Target resources | Method of HRD |
|---|---|
| For planning and implementation of a promotional initiative (including an organizational setup) | |
| 1) Policy designer and administrator | - Non-regular mini-seminar for the target resources |
| 2) Project planner, operator and coordinator | - Development of operational manual for the target resources, and trainings based on the manuals thus developed |
| For guidance and technical support on KAIZEN practice | |
| 1) Management consultants | <ol style="list-style-type: none"> 1. Regular training program for the target resources (*) 2. Mobilization as a lecture for KAIZEN training program 3. Mobilization as a counselor of KAIZEN consultancy service window 4. Outsourcing development of the training / reference materials 5. Mobilization as a facilitator of KAIZEN experience sharing meetings 6. Mobilization as the consultants in the field of KAIZEN guidance under the existing JEDCO's programs such as JUMP / JSMP |
| 2) KAIZEN leaders at the company level | <ol style="list-style-type: none"> 1. Regular training program for the target resources (*) 2. KAIZEN practice experience sharing meeting |
| 3) Group leaders at the company level | <ol style="list-style-type: none"> 1. Regular training program for the target resources (*) 2. KAIZEN practice experience sharing meeting |
| For daily activities of KAIZEN practice | |
| 1) Technical staff and field supervisor at the company level | - Regular training program for the target resources (*) |
| 2) Group member at the company level | <ol style="list-style-type: none"> 1. Regular training program for the target resources (*) 2. KAIZEN practice experience sharing meeting |

Note:(*): The areas where the private sector-led activities are expected in the future

3) Activities for development of human resources for KAIZEN dissemination and guidance

In summary, following activities are expected for effective HRD for KAIZEN dissemination and guidance.

a) Development of training materials

For further development of the KAIZEN experts, the systematic and continuous training system as well as qualification system is indispensable. The training programs are expected to be provided by private consultants/consulting companies once the demand for consultants can be confirmed. However, until such demand is confirmed, the training is recommended to be provided by the public organization/institutes, namely by JEDCO.

b) Accreditation of qualified resources for KAIZEN guidance

Regarding the qualification of the human resources for dissemination and guidance, the establishment of official system of qualification may be difficult considering that the method of KAIZEN practice is quite diversified, and that no definite method is necessary to be implemented. Thus, the best system will be a KAIZEN consultant registration system, which is similar to the consultant registration system under JUMP. In other words, qualification is necessary to be judged by those who use their services based on their biographical data as well as other information available for them. If the registration system is established, the system will also be useful for the consultants to find out their field of activities.

c) Development of mechanism to mobilize the KAIZEN consultants

For development of consultants, development of mechanism to encourage use of the consultants in the field of KAIZEN guidance is also important, including a system to hire them as the advisors for the individual companies and instructors at the training programs.

d) KAIZEN practice experience sharing meeting and KAIZEN practice award system

Training of company KAIZEN leaders and group activity leaders is an important matter. While it can be accomplished through trainings, the most effective way is to train them through actual KAIZEN practice. Further, the provision of opportunity of experience exchange among those practicing KAIZEN, and encouraging the practice with establishing a recognition system will serve as a powerful tool to foster leadership.

Recommendation 4 Recommendation on measures to materialize the functions to promote, disseminate, support and encourage KAIZEN activities

It is recommended to implement the following measures to materialize and ensure the functions to promote, disseminate, support and encourage KAIZEN activities, according to the activities shown in Table 3-10.

Table 3-10 shows the recommended measures to be implemented by JEDCO to materialize the required functions for dissemination and guidance of KAIZEN approach, indicating also the activity plan (for the period of 2013 and 2014), assuming that JEDCO will function as a core implementation body for dissemination of the KAIZEN approach which is regarded as one of the important functions of JEDCO for support industry's competitiveness enhancement, with the dissemination target set in the previous sections.

The recommended measures to be implemented by JEDCO shown in the table are:

- 1) Measures to build awareness of the KAIZEN approach (e.g. awareness promotion seminars)
 - Expected fund source: JEDCO
 - Implementation method: Outsourcing to KAIZEN consultants, or inviting the experienced visiting lecturers
- 2) Technical training programs on KAIZEN practice
 - Expected fund source: JEDCO
 - Implementation method: Outsourcing to KAIZEN consultants, or inviting the experienced visiting lecturers
- 3) Technical guidance programs for the companies intending to apply KAIZEN practice
 - Expected fund source: Participating companies, use of Schemes 3 or 5 of JUMP, and/or JSMP
 - Implementation method: Introduction of qualified consultants to the companies under the consultant registration system, development and provision of technical guidance curriculum, and financing support in case of necessary
- 4) Measures to provide the companies practicing KAIZEN activities with opportunities to learn lessons from other companies, and measures to provide incentives for the companies for continuation and development of their KAIZEN activities
 - Expected fund source: JEDCO, or contribution by chambers of industry
 - Implementation method: Outsourcing to the consultants

- 5) Measures for technical development on KAIZEN activities (such as regular review and updating of the training/educational materials)
- Expected fund source: JEDCO
 - Implementation method: Outsourcing to the consultants

Table 3-10 Proposed Activity Plan of Productivity Unit

| Objectives | | Contents | Assumed measures | Activity Plan Target (2013 and 2014) |
|--|---|---|---|--|
| (1) Building awareness on KAIZEN approach | Promotion of understanding about the need for promoting KAIZEN approach in Jordan, targeting those who are in a position to lead and support industries | 1. KAIZEN awareness seminars targeting industrial policy planners of the government | 1) Measures to build awareness of the KAIZEN approach (e.g. awareness promotion seminars) <ul style="list-style-type: none"> • Expected fund source: JEDCO • Implementation method: Outsourcing to KAIZEN consultants, or inviting the experienced visiting lecturers | 1) Seminar for MOIT staffs (*1) [One-shot] 2) Seminar for JEDCO staffs [One-shot] |
| | | 2. KAIZEN awareness seminars targeting industry leaders. | | 1) Seminars for chambers of industry & commerce, and for leaders of industrial/business associations (*2) [Annual campaign] |
| | | 3. KAIZEN awareness seminars targeting enterprise managements in the industrial estates (IEs). | | 1) Seminar for companies in IEs (*3) [Annual campaign] |
| (2) Support for companies introducing KAIZEN approach | 1) Technical guidance on KAIZEN practice | 1. Transfer of KAIZEN techniques and methods to field leaders of enterprises (training of KAIZEN Leaders of the companies intending to introduce KAIZEN approach) | 2) Technical training programs on KAIZEN practice <ul style="list-style-type: none"> • Expected fund source: JEDCO • Implementation method: Outsourcing to KAIZEN consultants, or inviting the experienced visiting lecturers | 1) KAIZEN leaders' training for the companies intending to introduce KAIZEN activity, and the leaders newly appointed in the companies practicing KAIZEN activity [3-4 times/year] 2) Follow-up guidance seminar on KAIZEN technology [3-4 times/year] 3) Advanced training program targeting consultants and experienced KAIZEN leaders [Semi-annual program] |

| Objectives | | Contents | Assumed measures | Activity Plan Target (2013 and 2014) |
|--|--|---|---|--|
| (2) Support for companies introducing KAIZEN approach | 1) Technical guidance on KAIZEN practice | 2. On-site technical guidance to the individual companies which intend to introduce KAIZEN approach newly | 3) Technical guidance programs for the companies intending to apply KAIZEN practice <ul style="list-style-type: none"> • Expected fund source: participating companies, use of Schemes 3 or 5 of JUMP, and/or JSMP • Implementation method: Introduction of qualified consultants to the companies under the consultant registration system, development and provision of technical guidance curriculum, and financing support in case of necessary | 1) 40 companies [Annual program](the same program as (2) 2)-2. below) |
| | 2) Financial support for KAIZEN practice | 1. Dissemination of concept, benefits, and method of KAIZEN approach for management consultants | 2) Technical training programs on KAIZEN practice <ul style="list-style-type: none"> • Expected fund source: JEDCO • Implementation method: Outsourcing to KAIZEN consultants, or inviting the experienced visiting lecturers | 1) Guidance seminar on KAIZEN approach and practice for the consultants registered for JUMP [One-shot] 2) Guidance seminar on KAIZEN approach and practice for the consultants engaged in FFF (*4) [One-shot] |

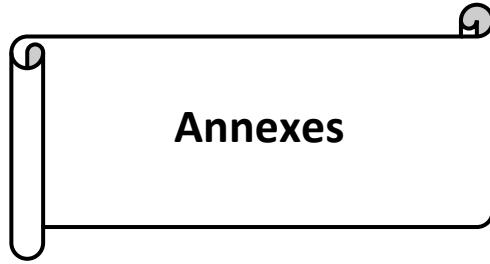
| Objectives | | Contents | Assumed measures | Activity Plan Target (2013 and 2014) |
|--|---|--|---|--|
| (2) Support for companies introducing KAIZEN approach | 2) Financial support for KAIZEN practice | 2. Provision of financial support for the companies applying KAIZEN practice under the programs/ projects by JEDCO | 3) Technical guidance programs for the companies intending to apply KAIZEN practice <ul style="list-style-type: none"> Expected fund source: participating companies, use of Schemes 3 or 5 of JUMP, and/or JSMP Implementation method: Introduction of qualified consultants to the companies under the consultant registration system, development and provision of technical guidance curriculum, and financing support in case of necessary | 1) Financial support for the companies applying KAIZEN practice under JUMP (the same program as (2) 1)-2. above) |
| (3) Consolidation of KAIZEN practice experience, and development of KAIZEN techniques which fit effectively to the business and working culture of Jordan | 1) Consolidation of KAIZEN practice experiences | 1. KAIZEN experience sharing among the companies applying KAIZEN approach | 4) Measures to provide the companies practicing KAIZEN activities with opportunities to learn lessons from other companies, and measures to provide incentives for the companies for continuation and development of their KAIZEN activities <ul style="list-style-type: none"> Expected fund source: JEDCO, or contribution by chambers of industry Implementation method: Outsourcing to the consultants | 1) Annual KAIZEN leaders' meeting [Semiannual program](a part of the Program (4))(*2) |

| Objectives | | Contents | Assumed measures | Activity Plan Target (2013 and 2014) |
|---|---|---|--|--|
| (3) Consolidation of KAIZEN practice experience, and development of KAIZEN techniques which fit effectively to the business and working culture of Jordan | 2) Development & publication of training materials for KAIZEN approach | 1. Compilation of the basic training materials prepared by the JICA Team under the current project | 5) Measures for technical development on KAIZEN activities (such as regular review and updating of the training/educational materials) <ul style="list-style-type: none"> Expected fund source: JEDCO Implementation method: Outsourcing to the consultants | 1) Compilation and updating of the basic training materials prepared by the JICA Team under the current project [Continuous activity with annual review] |
| | | 2. Publication of good practice of KAIZEN in Jordan | | 1) Publication of good practice of KAIZEN in Jordan (*5) [Biennial activity] |
| | | 3. Arabic publication of training/educational materials for KAIZEN practice | | 1) Arabic publication of “KAIZEN Leader Training Text” (*5) [Biennial review and updating] 2) Arabic publication of “Guideline for KAIZEN Guidance” (for consultants) (*5) [Biennial review and updating] |
| | | 4. Development of visual aid materials for training/education of KAIZEN practice based on the experiences in Jordan | | 1) Development of visual materials for training of “5S” [One-shot activity & biennial review and updating] |

| Objectives | | Contents | Assumed measures | Activity Plan Target (2013 and 2014) |
|---|---|--|---|---|
| (3) Consolidation of KAIZEN practice experience, and development of KAIZEN techniques which fit effectively to the business and working culture of Jordan | 3) Development of human resources for KAIZEN guidance | 1. Industrial planners of the government (MOIT, JEDCO, Industrial Estate Corporation, etc.) | | For MOIT & JEDCO, see (1)-1. |
| | | 2. KAIZEN consultants | | See (2)-1)-1-3) |
| | | 3. KAIZEN leaders & small- group leaders of the companies | | See (2)-1)-1-1) & 2), and (2)-1)-2. |
| (4) Provision of incentives for KAIZEN approach | Provision of incentives for persistence and development of KAIZEN practice among the industries | 1. Launching of Good Practice Awards of KAIZEN | 4) Measures to provide the companies practicing KAIZEN activities with opportunities to learn lessons from other companies, and measures to provide incentives for the companies for continuation and development of their KAIZEN activities <ul style="list-style-type: none"> • Expected fund source: JEDCO, or contribution by chambers of industry • Implementation method: Outsourcing to the consultants | 1) Promotion of the awards giving system among the relevant government agencies, industrial/ business organizations, and institutions 2) Launching of “Good Practice Awards System of KAIZEN” 3) Implementation of 2012 awards giving ceremony [Annual program] |

Notes: (*) With collaboration with other agencies/organizations/institutes

(*1) MOIT, (*2) Jordan Chamber of Industry, (*3) Industrial Estate Corporation, (*4) FFF, (*5) Group of KAIZEN consultants engaged in SME KAIZEN guidance program under the current project



Annex 1 Data/documents related to the “Program to Support Pilot SMEs for KAIZEN Practice”

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Annex 1: Data/documents related to the “Program to Support Pilot SMEs for KAIZEN Practice”

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Annex 3-2: Contents of KAIZEN Textbook for Consultants

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Selection Process and Criteria of Model SMEs for KAIZEN Practices

1 Selection

The Project Team will select Model SMEs¹ by using public announcement, showing requirements and selection criteria for participation in the pilot project. The announcement will be made through the following:

- JEDCO's outreach method including web site
- News letters and web sites of chambers of commerce and industry
- Web site of the JICA Jordan office
- The seminar introducing the Project
- Field surveys on the organizations related to quality and productivity improvement

2 Requirements of the SME to apply

- A strong desire of the owner/manager to implement the Kaizen practice
- The intent and ability to organize Kaizen promotion team(s) within the company, and appoint Kaizen leader(s)
- Commitment of participation of Kaizen leaders to a prior training (introductory training) program as per time frames agreed
- Possibility to share the company's experience and outcomes of its Kaizen practice to the public

3 Primary selection criteria and selection process

As model enterprises are expected to produce good outcomes suitable to show to the public, applicants who have met the above requirements will be further screened using the following criteria.

- The company satisfies the above requirements
- The company intends to introduce Kaizen to an area where significant results can be expected from Kaizen, i.e., (1) the company has a clear intent to work with Kaizen, or (2) the company intends to work on the areas which are related not only to reduction of costs, but also to improvement of product performance and quality, improvement of delivery practices, or improvement to meet the satisfaction of customers, or (3) the company will

¹ Enterprises with less than 250 employees will be applied as a general definition of SME. However, the exceptional cases will also be accepted according to the requests from the applicants, in case that the applicants have managerial features of SME, regardless of the number of employees.

likely be able to produce visible (measurable) results within a relatively short period of time.

- Consideration to a good inter-sectorial and locational balance in terms of direction of industrial development in Jordan and appropriateness as models
- JICA Project Team will undertake the selection in accordance with these selection criteria, while MOIT will provide information on the priority industries

4 Selection schedule

A preliminary selection schedule is outlined below.

1. Late December 2010: Start of public advertisement and recruitment (at the time of the first seminar to introduce the Project)
2. February 2011: Primary selection (screening) and orientation for candidate companies (including verification of the readiness to appoint Kaizen leaders)
3. Late March 2011: Notification of selection results to candidate companies
4. Early June 2011: Commencement of the support program

**PROJECT ON DISSEMINATION OF QUALITY/PRODUCTIVITY IMPROVEMENT (KAIZEN) PRACTICE FOR
SMEs IN JORDAN**

**Application Form I
Program to Support Model SMEs
Deadline January 20, 2011**

Part (1): Eligibility Requirements; Selection Criteria & Schedule

The applicant enterprise should be a Jordanian Company (*Registered and Domicile in Jordan*), and should also demonstrate (*through its owner(s)/top-management*) a strong desire to implement the KAIZEN Practice within the company by organizing KAIZEN promotion team(s); appoint KAIZEN leader(s), and a commitment to ensure participation of the KAIZEN leader(s) in all designated trainings programs within the timeframes set by the Program.

The selected enterprise is also encouraged to share its experiences in applying the KAIZEN practice and its outcomes, with other companies participating and/or interested in the KAIZEN. There will be no fees required from the participating company.

20 applicant SMEs will be screened by the JICA Project Team, based on the conditions described herein, and selected industrial priority sectors as indicated by the Ministry of Industry and Trade. The JICA Project Team's decisions are final and are not subject to review by any third party.

The selection schedule is as follows:

1. Opening date for application: December 25, 2010.
2. Deadline for submitting the application: January 20, 2011.
3. Primary selection (screening), and start of orientation (including verification of readiness to appoint Kaizen leader(s)) for the companies which passed the first screening: February 2011.
4. Notification of selection results to candidate companies: Late March 2011.
5. Commencement of the support program: Early June 2011.

Interested Enterprises are requested to send the completed application form

by January 20, 2011

to E-mail: kaizen@jedco.gov.jo

Please specify in the subject line: Model SMEs KAIZEN Project

Supporting documents may be requested at a later stage

| Part (2): Applicant SME Information | | | | | |
|--|--|---|----------------|---|--|
| 1) | Company Name | : | | | |
| 2) | Company Registration No. | : | | | |
| 3) | Company Type | : | | | |
| 4) | Industrial Sector | : | | | |
| 5) | Number of Employees* | : | | | |
| <p><i>*As a general definition of an SME: enterprises with less than 250 employees will be used. However, exceptionally enterprises with more than 250 employees may apply provided they exhibit typical SME managerial features</i></p> | | | | | |
| 6) | Membership in Chamber(s)/Association(s) List (if applicable) | : | | | |
| | | : | | | |
| | | : | | | |
| 7) | Contact information | : | Postal address | : | |
| | | : | Location | : | |
| | | : | Telephone | : | |
| | | : | Fax | : | |
| | | : | e-mail | : | |
| | | : | Webpage | : | |
| 8) | Contact Person | : | Name | : | |
| | | : | Position | : | |
| | | : | Telephone | : | |
| | | : | e-mail | : | |
| Part (3): Substantive Questions | | | | | |
| <p>In answer these questions the applicant company management should demonstrated its commitment to work with KAIZEN,.</p> <p>Note: In assessing the eligibility of the company the JICA Project Team will use the selection criteria of good inter-sectorial and locational balance in terms of direction of industrial development in Jordan as well as the appropriateness of the company as a model SME.</p> | | | | | |
| <p>1) Please describe some main issues which you anticipate will be improvement through application of the KAIZEN practice?</p> <p><i>(please type here, 500 words maximum)</i></p> | | | | | |
| <p>2) Please specify special requests/expectation of the Program, if any?</p> <p><i>(please type here, 500 words maximum)</i></p> | | | | | |

| | | | |
|----|--|------------------------------|-----------------------------|
| 3) | Can you assign a leader for KAIZEN practice in your company? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 4) | Can you guarantee that the leader attends the three (3) half-day training program? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |
| 5) | Can you organize KAIZEN Team(s) in your company? | Yes <input type="checkbox"/> | No <input type="checkbox"/> |

Name:

Position:

(person authorized to sign on behalf of the applicant company)

X

Signature

Date

Model SME Selection Form

No.

| Evaluation items | Details of the evaluation items/ Confirmation required through the orientation program | Evaluation points | | | Point allocation |
|--|--|-------------------|---------------------|--------|--|
| | | 1st Screening | Final Evaluation | Weight | |
| Total weighted marks | | | | 100 | |
| (1) Eagerness for and understanding for KAIZEN activities by the management | | | | | |
| 1) Eagerness and understanding by the top management | 1) Eagerness for KAIZEN activities | | | | Evaluation criteria - Full understanding/ strong eagerness: 10 - Adequate understanding/ significant eagerness: 8 - Fairly understood/ expecting to some extent: 6 - Yes or no: 4 - Somewhat uncertain: 2 - Insufficient understanding/ agree with strong recommendation from others: 0 |
| | 2) Understanding that KAIZEN activities are featured by the bottom-up activities | | | | |
| | 3) Recognition that the current program will focus particularly on the improvement suggestion system and the employee's small group activities | | | | |
| | 4) Understanding on effectiveness of experience sharing of KAIZEN activities with other companies implementing KAIZEN activities | | | | |
| | | | | 30 | [Prerequisite] 7.0 or above |
| 2) Eagerness and understanding by the middle management | 1) Eagerness for KAIZEN activities | | | | Evaluation criteria - Full understanding/ strong eagerness: 10 - Adequate understanding/ significant eagerness: 8 - Fairly understood/ expecting to some extent: 6 - Yes or no: 4 - Somewhat uncertain: 2 - Insufficient understanding/ agree with strong recommendation from others: 0 |
| | 2) Understanding that KAIZEN activities are featured by the bottom-up activities | | | | |
| | 3) Recognition that the current program will focus particularly on the improvement suggestion system and the employee's small group activities | | | | |
| | 4) Understanding on effectiveness of experience sharing of KAIZEN activities with other companies implementing KAIZEN activities | | | | |
| | | | | 15 | [Prerequisite] 6.0 or above |
| (2) Appropriateness of the anticipated areas of improvement in view of KAIZEN Practice | | | | | |
| Appropriateness of the anticipated areas of improvement in view of KAIZEN Practice | Not applicable to the following: 1) Selected issues are those relating to the production technology, or facilities specific to the industry | | | | Evaluation criteria - Not applicable at all: 10 - Almost not applicable: 8 - Seems not applicable: 6 - Yes or No: 4 - Applicable to some extent: 2 - Applicable: 0 |
| | 2) Limited possibility for employees to propose and implement improvement due to (*) | | | | |
| | 3) Difficulty to obtain consensus to undertake KAIZEN activities with the labor union | | | | |
| | | | | 15 | [Prerequisite] 6.0 or above |

Annex 1-3

| Evaluation items | Details of the evaluation items/ Confirmation required through the orientation program | Evaluation points | | | Point allocation |
|------------------|---|--|---------------------|--------|---|
| | | 1st Screening | Final Evaluation | Weight | |
| (3) | Possibility to organize KAIZEN promotion team | | | | |
| 1) | Expecting organization level of KAIZEN promotion team | Confirm the position of the relevant organizations of KAIZEN committee, small groups, and operation secretariat of the improvement suggestion system, etc. in the company organization | - Yes - No | | - All the employees: 10 - All the employees except for the exceptional cases: 9 - Limit to the supervisors or above: 7 - Possibility unknown, although the company thinks the organization possible: 4 |
| 2) | Commitment of top-management on involvement of employees in KAIZEN activities | Confirm the proportion of foreign employees among the total employees, and the average years of continuous employment | | | - To encourage participation with rewards if applicable:10 - Recognizing the usefulness of employee's participation: 8 - No problem for employees to participate: 6 - No specific commitment yet: 4 |
| | | | | | 20 [Prerequisite] 7.0 or above |
| (4) | KAIZEN leader(s) | | | | |
| 1) | Candidate for the leader | Confirm the position of candidate leader in the company organization. Confirm the willingness of the candidate leader, and his/her knowledge and experiences on quality/productivity improvement. Further, confirm the possibility to appoint more than one leaders. | - Yes - No | | - Already appointed: 10 - Already idea on potential leader: 8 - High possibility of appointment: 6 - Not known currently: 4 |
| 2) | Participation of the leader to the experience sharing meetings with other participating companies | | | | - Encourage the participation positively:10 - Understand the effectiveness of participation: 8 - No problem for participation: 6 - Not known currently: 4 |
| | | | | | 10 [Prerequisite] 6.0 or above |
| (5) | Appropriateness of the company as a model SME | | | | |
| 1) | Aggressiveness of the management | | | | - Applicable: 8 - Not applicable: 4 |
| 2) | Targeting export/country-wide markets | | | | |
| | | | | | 10 |
| (6) | Appropriateness as a model SME in view of: | | | | |
| 1) | Consideration on the sectoral balance of model SMEs | | | | |
| 2) | Consideration on the locational balance of model SMEs | | | | |

Selection procedure

- 1) SMEs in ICT/IT, construction, and services are excluded from the selection process. In the case of SMEs in the engineering industry, whether the SME is included in the selection process or not, will be decided based on the types of works they engage. If their work is similar to that of manufacturing, it will be included, otherwise they will be excluded.
- 2) SMEs which do not meet the prerequisites, are excluded from the selection process.
- 3) Select SMEs in the order of marks obtained from highest to lowest, among those who meet the prerequisites.
- 4) Review the selection results, taking into consideration of the sectoral and locational balance of the selected SMEs.

(*) (1) advancement of automation, (2) external business conditions specific to this industry, which are the major causes of the problems, (3) need for major investment before reforming the company to the normal operational conditions, and/or (4) the nature of works, which are performed by the individual workers without any coordination among them.

Annex 1-4

Industrial Sectors in Jordan

| | Industrial Chambers | | | Total of all chambers |
|---------------------------------|---------------------|--------|--------|-----------------------|
| | Amman | Zarqa | Irbid | |
| No. of enterprises | 8,725 | 5,499 | 1,159 | 15,383 |
| No. of employees | 134,224 | 39,294 | 25,044 | 198,562 |
| Registered capital (million JD) | 2,740 | 407 | 61 | 3,208 |
| Total Exports (million JD) | 2,469 | 296 | 269 | 3,034 |

| Sectors 2009 | Industrial Enterprises | | | | Kraft Industries | | | |
|--|------------------------|------------------|---------------------------------|----------------------|--------------------|------------------|---------------------------------|----------------------|
| | No. of enterprises | No. of employees | Registered Capital (million JD) | Exports (million JD) | No. of enterprises | No. of employees | Registered Capital (million JD) | Exports (million JD) |
| Therapeutics and Medical Sector | 57 | 6,780 | 174 | 368 | 40 | 169 | 2 | 1 |
| Plastic and Rubber Sector | 165 | 4,815 | 54 | 48 | 210 | 839 | 8 | 1 |
| Chemical and Cosmetics Sector | 91 | 11,528 | 317 | 298 | 294 | 1,113 | 10 | 26 |
| Engineering, Electrical Industries and Information Technology Sector | 400 | 29,034 | 906 | 486 | 5,000 | 10,692 | 61 | 21 |
| Furniture and Wooden Sector | 101 | 4,078 | 24 | 30 | 2,783 | 5,353 | 27 | 4 |
| Construction Sector | 225 | 10,028 | 265 | 40 | 2,481 | 7,832 | 29 | 4 |
| Packing, Packaging, Paper, Cartoon and Stationeries Sector | 199 | 9,704 | 126 | 313 | 506 | 2,028 | 14 | 11 |
| Food, Supplies, Agricultural and Livestock Sector | 412 | 26,354 | 590 | 594 | 1,057 | 3,442 | 21 | 10 |
| Leather and Garments Sector | 235 | 50,507 | 143 | 544 | 966 | 4,312 | 11 | 9 |
| Mining Sector | 37 | 9,885 | 425 | 166 | 17 | 74 | 1 | 16 |
| Total | 1,922 | 162,713 | 3,024 | 2,887 | 13,354 | 35,854 | 184 | 104 |

Source: Jordan Chamber of Industry

Annex 1-5

Selection of SMEs

| Sector | No. of applications by geographical location | | | | Target No. of SMEs to be selected | | | No. of SMEs selected | Of which: | |
|--|--|----------|----------|-----------|-----------------------------------|-----------------------|------------|----------------------|-----------|----------|
| | Amman | Zarqa | Irbid | Total | Based on No. of enterprises | Based on export value | Target set | | Zarqa | Irbid |
| Garment/Apparel | 3 | | | 3 | 2 | 4 | 3 | 3 | | |
| Pharmaceutical | 4 | | | 4 | 1 | 3 | 2 | 2 | | |
| Chemical/Cosmetics | 7 | 2 | 2 | 11 | 1 | 2 | 2 | 2 | | 1 |
| Plastics | 5 | 1 | | 6 | 2 | 0 | 1 | 1 | 1 | |
| Engineering & Electric (incl. Jewelry) | 8 | 2 | | 10 | 4 | 4 | 4 | 4 | | 1 |
| Furniture | 4 | | | 4 | 1 | 0 | 1 | 1 | | |
| Construction & Glass | 4 | | | 4 | 2 | 0 | 1 | 1 | | |
| Food | 8 | | | 8 | 4 | 4 | 4 | 4 | | |
| Paper | 2 | | | 2 | 2 | 2 | 2 | 1 | | |
| ICT | 3 | | | 3 | | | 0 | 0 | | |
| Service | 4 | | | 4 | | | 0 | 0 | | |
| Total | 52 | 5 | 2 | 59 | 20 | 20 | 20 | 20 | 1 | 2 |

Note: (1) Zarqa includes Mafreq and Hallabat; Amman includes Husseiniyeh. (2) Total No. of SMEs selected includes "others 1".

Annex 1-6

SME Selection by Sector

| Sector | No. of Applications received | Target No. of Model Smes by Sector | S-No | Name of Company | Score | Place |
|--|------------------------------|------------------------------------|------|---|-------|-------------|
| 1. Garment | 3 | 3 | 18 | Sterling Apparel Mfg | 96 | Amman |
| | | | 106 | Primefive Garment Mfg. Co. Ltd | 95 | Amman |
| | | | 107 | Tawileh Trico Co. | 94 | Amman |
| 2. Pharmaceutical | 4 | 2 | 26 | Jordan Sweden Medical and Sterilization Co. | 96 | Amman |
| | | | 104 | Hayat Pharmaceutical Industries Co. PLC | 91 | Amman |
| 3. Chemical / Cosmetic | 11 | 2 | 12 | The Arab Pesticides & Veterinary Drugs Mfg. | 96 | Irbid |
| | | | 14 | Allied Chemical Manufacturing & Trading | 94 | Amman |
| 4. Plastics | 6 | 1 | 103 | The Cypriot Jordanian Co. for Decorating Tools | 95 | Zarqa |
| 5. Engineering & Electric & Other | 10 | 4 | 24 | Arab Electrical Industrial | 98 | Amman |
| | | | 27 | M. Abu Haltam Group for Investment | 97 | Amman |
| | | | 17 | Shawkat Shami & Co. | 96 | Amman |
| | | | 28 | Hammoudeh Thermolab Industries | 94 | Irbid |
| 6. Furniture | 4 | 1 | 23 | Jordan Universal Wood Industries Ltd, JORSAL | 95 | Amman |
| 7. Construction | 4 | 1 | 30 | Attangeeb Construction Material Manufacturing Co. | 97 | Amman |
| 8. Food | 8 | 4 | 21 | Gulf Food Product Co. | 98 | Amman |
| | | | 9 | Quality Food Company | 93 | Amman |
| | | | 33 | Universal Industries Co. | 92 | Amman |
| | | | 102 | Al Toor for Olive Products | 87 | Husseiniyeh |
| 9. Paper | 2 | 1 | 36 | Arab Paper Converting & Trading Co. | 82 | Amman |
| 10. Highest score among those not selected | | 1 | 8 | Jordan Cypriot Construction Ind. | 95 | Amman |
| Total** | 52 | 20 | | | | |

Note: * based on number of enterprises and export amount of each sector

** Excluding IT and Service sectors

STATEMENT OF COMMITMENT

**SME SUPPORT PROGRAM UNDER THE PROJECT ON DISSEMINATION OF
QUALITY/PRODUCTIVITY IMPROVEMENT (KAIZEN) PRACTICE**

The Company, undersigned shall fully and correctly comply and implement the instruction, procedures as communicated to the Company's management and employees by the JICA Team organized for implementation of the Project (hereinafter called the "Project Team"), whether verbally or in writing.

The Company agrees that in order to provide it with the requested technical assistance and support, the Project Team as well as trainee consultants (the "Team") will be conducting visits to the Company's places of business, the factory(s) and/or office(s). The Company shall fully accommodate the visits of the project Team and agrees to facilitate these visits of no more than (6) persons in accordance with a pre-set schedule.

The Company guarantees that its employees will participate in the Program activities, that it shall assign a leader for KAIZEN practice; that this leader fully attends the training program, and that it shall organize KAIZEN team(s) in the Company. The Company further agrees that the program activities and training for its employees will take part during the working hours and that employees' participation shall not adversely affect their labor rights, whether in salary or leave.

The Company shall provide the Project Team with any and all information, data, and documentations required for the implementation of the Program. However, any confidential or private information, data and documentations may be withheld by the Company, until such time as a specific arrangement is made to ensure its safety. Nothing in this Article may be interpreted as an assignment by the Company of any of its Intellectual Property Rights.

The Company is an independent legal entity from the program and acknowledges that under no circumstance and pursuant to this program shall it receive for itself or any of its employees, payments in cash from JICA/JEDCO.

The Company recognizes that Project is implemented through JICA's international cooperation activities to support the development of the Jordanian Private Sector, and accordingly, shall remain committed until the end of the duration of the Program. However and should the Company fail to comply with its commitments, the Project Team is at full liberty, and in its sole discretion, may expel the Company from the Program.

Furthermore, the Company understands that the obligations contained in this Statement of Commitment reflects part of the undertakings needed towards the correct fulfillment of the Program activities, and shall through its management and employees work in good faith and to the best of its ability in partnership with the Team and with JEDCO for the successful implementation of the Program.

| | |
|---|--|
| Company (Authorized Signature) | |
| Signature & Seal | |
| Date | |

Annex 1-8

Framework for introducing KAIZEN practice to the SMEs

| Phase of guidance & consultation | Contents | Time (min.) | Remarks |
|----------------------------------|--|-------------|---|
| Phase 1 | (Observation visit of the factory) | 120 | - Familiarization to the plant and its operation |
| | Orientation | 20 | - Briefing on planned guidance procedure and visit schedule of the program (and today's agenda) <u>Note:</u> Today's agenda will be given to the Company in advance through the KAIZEN Leader, during the Leader Training, which will be conducted ahead of today's "Orientation & Briefing" |
| | 1) Briefing by the company on the issues and expectation for KAZEN 2) Guidance and consultation on preparation for introducing KAIZEN practice | 120 | - Management goal and KAIZEN goal (by the Company) - Required environment to introduce KAIZEN practice (by the Project Team) - Guidance/ consultation on the above |
| Action by the Company | - Setting up of the promotional organization: elaboration of KAIZEN goal, and preparation of the activity plan | | |
| Phase 1 Follow-up | 1) Guidance on the KAIZEN goal, and 2) Preparation for in-house launching of "KAIZEN project" (ceremony and in-house seminar on KAIZEN practice) | 90 | - Planning of in-house launching seminar |
| Action by the Company | 1) Announcement of launching of the KAIZEN Project by the management 2) Preparation for the in-house seminar (launching ceremony of KAIZEN Project): invitation for the seminar | | |
| Phase 2 | 1) Launching of KAIZEN Project 2) In-house seminar on KAIZEN | 120 | - Launching by the management - Guiding speech by the Consultant (on KAIZEN) - Orientation by the KAIZEN Leader/ KAIZEN Promotion Committee - DVD on Five (5) S |

| Phase of guidance & consultation | Contents | Time (min.) | Remarks |
|----------------------------------|---|-------------|--|
| Action by the Company | 1) Organization of small groups (with guidance by managers, and promotion by the Promotion Committee) 2) Start of small group activities: discussion on KAIZEN goal, and identification of the subjects for improvement, with guidance by the KAZEN Leader and Sub-leaders 3) Establishment of Improvement Suggestion System, and promotion | | |
| Phase 3 | Guidance on Small Group Leaders' meeting | 120 | (to be held on the day of the leaders' meeting) - How to identify the subjects for improvement - How to develop the ideas for improvement - Guidance on QC story |
| Action by the Company | - Small group activities: develop the ideas for improvement; preparation of activity plan; data gathering and analysis (by the small groups), with guidance of the KAIZEN leader/ sub-leaders | | |
| Phase 4 | Guidance on Small Group Leaders' meeting | 120 | (to be held on the day of the leaders' meeting) - How to make the data analysis - How to implement the improvement measures - DVD on visualization of production management |
| Action by the Company | - Small group activities: develop the ideas for improvement; preparation of activity plan; data gathering and analysis (by the small groups), with guidance of the KAIZEN leader/ sub-leaders | | |
| Phase 5 & after | 1) Guidance on Small Group Leaders' meeting 2) 2) Guidance on KAIZEN committee | 120 | To be decided according to the needs of the Company |

Note: One phase of guidance and consultation assumes one visit, excluding the follow-up. However, if the phase is not completed in one visit, additional visit(s) will be arranged through the consultation between the JICA Project Team and the model SME.

**Annex 1-9: Introductory Training Program for KAIZEN Leaders
- Training Curriculum -**

| | | Lecturer | Text |
|---------------|---|---------------|---------|
| Day 1: | | | |
| - | Opening (Orientation to the Program) | Inooka | 1.1 |
| (1) | Concept and features of KAIZEN approach | Furuya | 1.2 |
| (2) | For successful introduction of KAIZEN to company management and operation | Furuya | 1.3 |
| (3) | Identification of "MUDA" | Furuya | 1.4 |
| (4) | Five S (5S) | Furuya | 2.1 |
| (5) | Foolproof/ fail-safe devices ("Poka-yoke") | Seki | 2.2 |
| Day 2: | | | |
| (1) | Visualization of workplace management | Furuya | 2.3 |
| (2) | QC 7 Tools | Seki | 3.1-3.4 |
| (3) | Steps to introduce KAIZEN practice to a company | Inooka | 4.1 |
| (4) | Improvement suggestion system | Seki | 4.2 |
| Day 3: | | | |
| (1) | Small-group activity | Furuya | 4.3 |
| (2) | Steps for improvement (QC Story) | Furuya & Seki | 4.4 |
| (3) | KAIZEN Guidance | Inooka | 4.5 |

Annex 1-10: List of Companies Participating in SME Support Program for KAIZEN Practice

| No. | Company code | Company Name | Industrial Sector | Product |
|-----|--------------|--|--------------------------|--|
| 1 | S-8 | Jordan Cypriot Construction Industries | Construction materials | Terrazzo tiles |
| 2 | S-12 | The Arab Pesticides & Veterinary Drugs Manufacturing | Pharmaceutical | Pesticides & veterinary drugs |
| 3 | S-14 | Allied Chemical Manufacturing & Trading | Chemical/Cosmetics | Cosmetics |
| 4 | S-17 | Shawkat Shami & Co. | Jewelry | Jewelry |
| 5 | S-18 | Sterling Apparel Manufacturing | Apparel | Garment |
| 6 | S-21 | Gulf Food Product Co. | Food | Food products |
| 7 | S-23 | Jordan Universal Wood Industries Ltd, (JORSAL) | Furniture | Office furniture |
| 8 | S-24 | Arab Electrical Industrial | Engineering | Switches, sockets, electrical wires and cables |
| 9 | S-27 | M. Abu Haltam Group for Investment | Electrical & engineering | Home appliances |
| 10 | S-28 | Hammoudeh Thermolab Industries | Engineering | Measurement device |
| 11 | S-30 | Attanqeeb Construction Material Manufacturing Co. | Construction materials | Marble granite & natural stones |
| 12 | S-33 | Universal Industries Co. | Food | Food products |
| 13 | S-36 | Arab Paper Converting & Trading Co. | Paper & printing | Paper & printing |
| 14 | S-102 | Al Toor for Olive Products | Agricultural | Olive oil and products |
| 15 | S-103 | The Cypriot Jordanian Co. for Decorating Tools | Plastic and assembly | Paint tools |
| 16 | S-104 | Hayat Pharmaceutical Industries Co. PLC | Pharmaceutical | Pharmaceutical products |
| 17 | S-106 | Primefive Garment Manufacturing Co. Ltd. | Garment | Vest, jacket |
| 18 | S-107 | Tawileh Trico Co. | Garment | Knit products |
| 19 | S-39 | Kilani Paints Industrial Establishment | Chemical | Paint |
| 20 | S-47 | National Drip Irrigation Co. | Plastic | Irrigation pipes and system |

Annex 1-11

Performance of KAIZEN practice of the companies participated in Round-1 KAIZEN Support Program

1 Objective of the Performance Assessment and Its Limitation

“The pilot SME support program for KAIZEN practice” is one of the important project components. “The pilot SME support program for KAIZEN practice” was conducted in the perspective of informing the KAIZEN approach to companies participated in the program and forming the base of persisting KAIZEN practices in the company.

This annex shows the evaluation of progress of KAIZEN practice by SMEs participated in “the pilot SME support program for KAIZEN practice.” The purpose of this evaluation is to draw a lesson about what should be done in Jordan for dissemination of KAIZEN.

Ideally, a company should choose the method of KAIZEN practice, goals and evaluation indicators suitable for the company and but not to be forced to apply the one method. In addition, the content and progress of KAIZEN depend on the conditions of the company. For this reason, the evaluation results in this annex should be used for this purpose only and it is not for comparison among pilot SMEs.

2 Outline of the assessment process and criteria

(1) Assessment process

The Project Team evaluated the progress of KAIZEN in SMEs participated in “the pilot SME support program for KAIZEN practice” based on the evaluation criteria below.

On the top of that, each pilot SME made self-evaluation in the form of questionnaire¹ in parallel with the Project Team’s evaluation. The consultants who participated in the program as a part of training, also made their evaluation on the companies they visited². The purpose of these evaluations are to make the evaluation results of the Project Team more objective, however, the final results fully depends on the Project Team judgment.

(2) Assessment factors of KAIZEN progress in SMEs, evaluation criteria and scores

Evaluation was made by the 6 assessment factors described below. The score is varied from 1 to 5, and 5 is the best score.

¹ The questionnaire is put as an Attachment of Annex 1-12.

² The questionnaire is put as an Attachment of Annex 2-12.

The score in each 6 factor is weighted and added up. Higher weight values are added on factors of “Accomplishment of bottom-up type activities with participation of motivated employees and their improvement proposals” and “Established and sustainable in-house system to promote and implement the KAIZEN practice” which make more sustainability of the practice, considering the facts that each company just started the program a year ago and it was the first experience for them.

Table 1: Weight of the scores by assessment factors

| Assessment factors | Weight of the scores |
|--|----------------------|
| 1) Expectation and commitment of the top management to the KAIZEN practice | 3 |
| 2) Established and sustainable in-house system to promote and implement the KAIZEN practice | 4 |
| 3) Accomplishment of bottom-up type activities with participation of motivated employees and their improvement proposals | 6 |
| 4) Fact and problem analysis using statistical data | 2 |
| 5) Improvement planning and implementation in accordance with scientifically and logically justifiable procedures | 2 |
| 6) Effectiveness on productivity and quality improvement | 3 |

2 Assessment of the performance of the participated companies

Following table (Table 2) summarizes the assessment results of the companies:

Table 2 Summary of Assessment Results

| Performance level | Number of companies categorized under the performance level | % of total (a) | Accumulated total of (a) (in % of total) |
|----------------------------|---|----------------|--|
| A+ (Excellent performance) | 4 | 20 | 20 |
| A (Very good performance) | 4 | 20 | 40 |
| B+ (Good performance) | 1 | 5 | 45 |
| B (Average performance) | 5 | 25 | 70 |
| C (Fair performance) | 2 | 10 | 80 |
| D (Poor performance) | 2 | 10 | 90 |
| E (Not implemented) | 2 | 10 | 100 |
| Total | 20 | 100 | 100 |

Of the participated 20 companies, 9 companies (or 45% of the total) have shown more than good performance. If the companies of the average performance are included, the number of companies is 14 (or 70% of the total). The KAIZEN practice under the Program may be summarized to have performed in a satisfactory level, as a whole. It is also verified from the feedback from the participated companies as follows (for further detail see Annex 3):

Table 3: Usefulness of the KAIZEN practice to the participated (Round-1) companies

| | Response from the company management | Response from the KAIZEN Leaders |
|---------------|--------------------------------------|----------------------------------|
| 1) Yes | 13 | 13 |
| 2) Yes and No | 0 | 0 |
| 3) No | 0 | 0 |
| Total | 13 | 13 |

However, if the performance is evaluated more in detail, it is obvious that there is a need for further guidance for the KAIZEN practice to be more effective for the management and operational improvement of the companies at the sustainable and continuous improvement effects. Table 4 shows the average scores by assessment factor:

Table 4: Average scores by assessment factor

| Assessment factors | Average scores of: (Full score is 5.0) | | |
|--|--|----------------------------------|----------------------------|
| | Total 18 companies | 9 companies in A+, A & B+ levels | 7 companies in B & C level |
| 1) Expectation and commitment of the top management to the KAIZEN practice | 4.11 | 4.89 | 3.86 |
| 2) Established and sustainable in-house system to promote and implement the KAIZEN practice | 4.28 | 5.00 | 3.86 |
| 3) Accomplishment of bottom-up type activities with participation of motivated employees and their improvement proposals | 3.94 | 4.67 | 3.43 |
| 4) Fact and problem analysis using statistical data | 3.00 | 3.67 | 2.71 |
| 5) Improvement planning and implementation in accordance with scientifically and logically justifiable procedures | 2.72 | 3.22 | 2.43 |
| 6) Effectiveness on productivity and quality improvement | 4.06 | 4.78 | 3.43 |

Particularly, the performance of “Fact and problem analysis using statistical data”, and “Improvement planning and implementation in accordance with scientifically and logically justifiable procedures” are weak even for the companies of more than “good performance” (or, the companies of A+, A and B+ performance levels). (For further detail, see Annex 2.) These are the items especially important to identify the problems, define the causes, and implement the effective improvement measures on a continuous basis. The guidance on these points are still insufficient mainly due to the fact that the program particularly placed its emphasis on progress of KAIZEN practice as the first round for the participated companies and employees to experience and be motivated for the practice, with

encouraging the voluntarily proposal for KAIZEN, instead of insisting on the data-based and logical process of subject identification and selection, resulting in small and simple improvement of workplace management and operation, which do not necessarily need the complex analysis.

Thus, in conclusion, although the participated companies have shown good performances in KAIZEN practice, still there is a need for further guidance on KAIZEN practice, particularly on fact and problem analysis using data and statistical QC methods, which are very important for sustainable and effective KAIZEN practice, while these areas of practice requires practical on-site experiences.

Table 5: Feedback from the participated companies

“Will you attend the follow-up training programs on KAIZEN practice, if there will be such programs?”

| | Response from: | | |
|---------------|--------------------|----------------------------------|----------------------------|
| | Total 13 companies | 8 companies in A+, A & B+ levels | 5 companies in B & C level |
| 1) Yes | 10 | 7 | 3 |
| 2) Yes and No | 3 | 1 | 2 |
| 3) No | 0 | 0 | 0 |

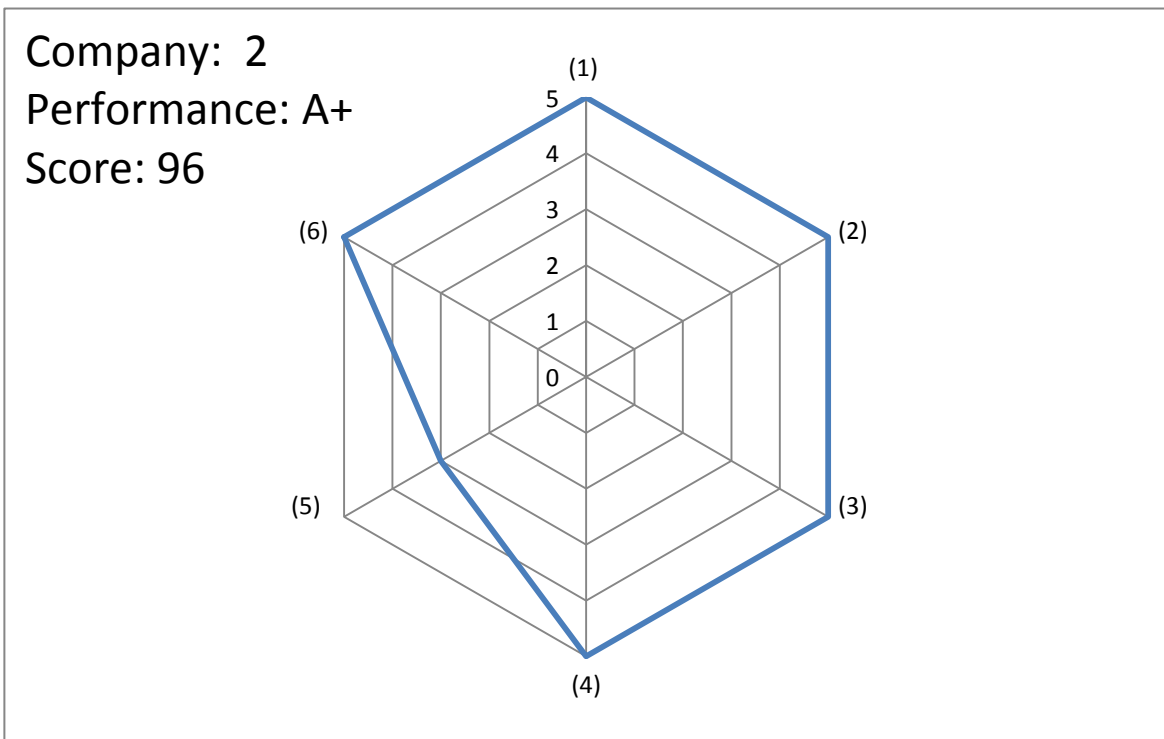
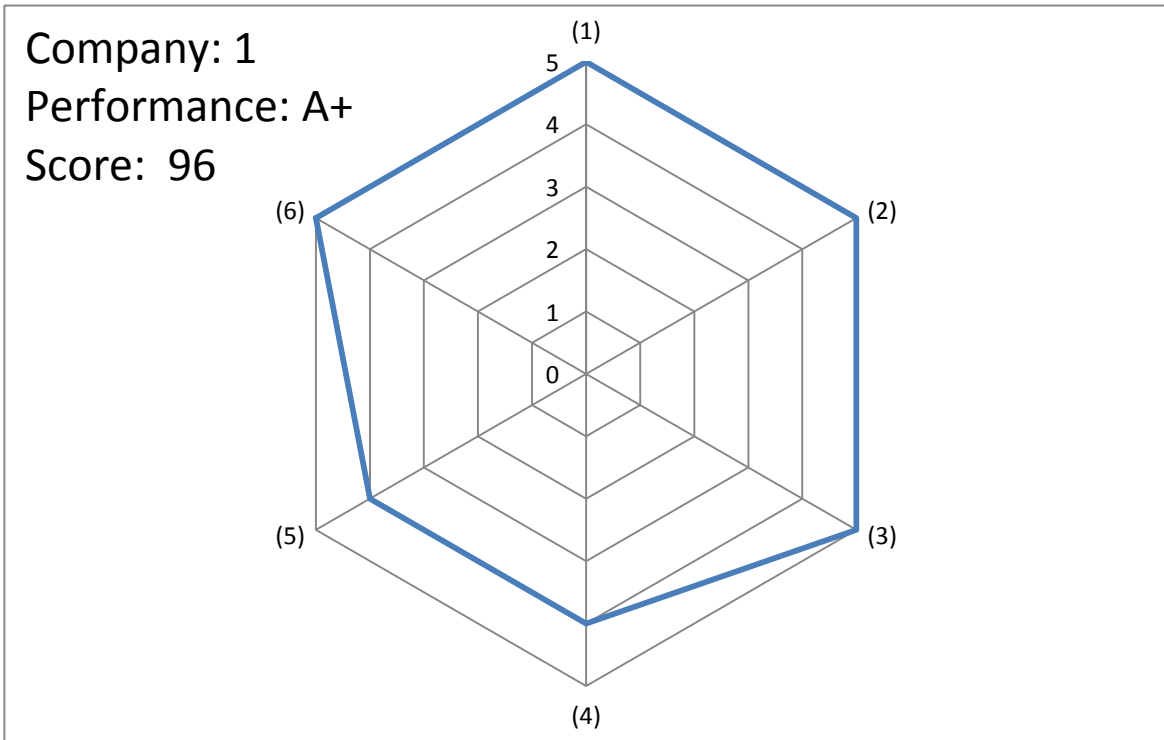
There is a need for continued guidance by the experienced consultants with systematic guidance curriculum both for the consultants and the KAIZEN Leaders of companies.

Annex 1-11 Attachment

A1-21

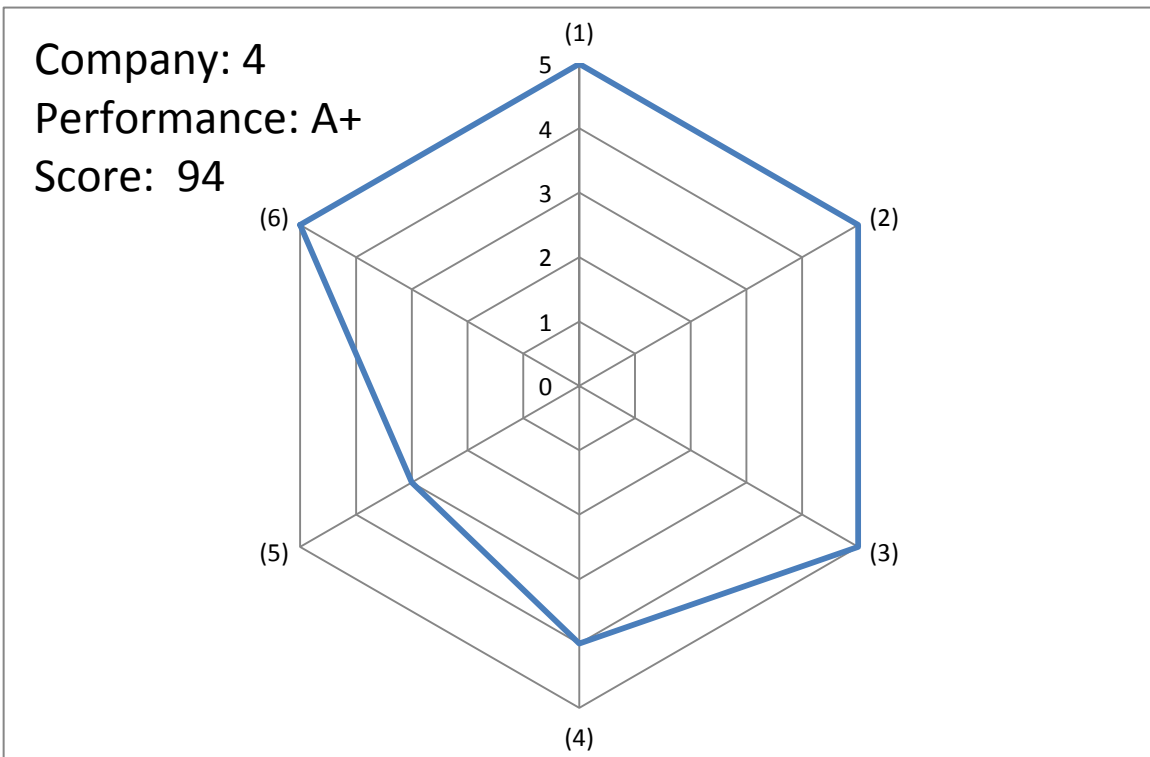
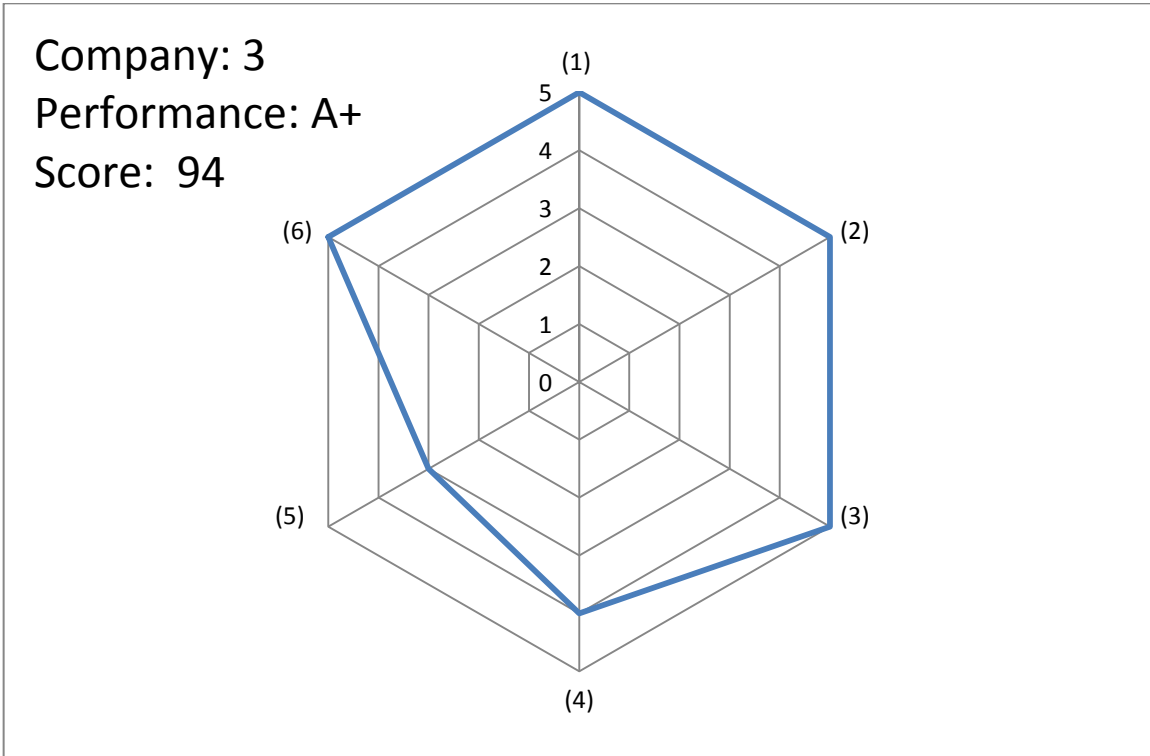
| Evaluation of the Round-1 companies by the Project Team | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | A+, A, B+ | B & C | |
|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|--------------|-------|------|
| | | A | A+ | B | A | A+ | D | A+ | B | C | B+ | B | B | A | A+ | C | A | D | B | | | |
| Evaluation results | | 90 | 96 | 75 | 88 | 94 | 40 | 94 | 70 | 60 | 84 | 71 | 74 | 87 | 96 | 56 | 88 | 47 | 71 | | | |
| Score W | | | | | | | | | | | | | | | | | | | | | | |
| (1) Expectation and commitment of the top management to the KAIZEN practice | 3 | 5 | 5 | 4 | 5 | 5 | 1 | 5 | 4 | 3 | 4 | 4 | 5 | 5 | 5 | 3 | 5 | 2 | 4 | 4.11 | 4.89 | 3.86 |
| (2) Established and sustainable in-house system to promote and implement the KAIZEN practice | 4 | 5 | 5 | 4 | 5 | 5 | 3 | 5 | 4 | 4 | 5 | 5 | 4 | 5 | 5 | 2 | 5 | 2 | 4 | 4.28 | 5.00 | 3.86 |
| (3) Accomplishment of bottom-up type activities with participation of motivated employees and their improvement proposals | 6 | 5 | 5 | 4 | 5 | 5 | 2 | 5 | 3 | 3 | 4 | 3 | 4 | 4 | 5 | 3 | 4 | 3 | 4 | 3.94 | 4.67 | 3.43 |
| (4) Fact and problem analysis using statistical data | 2 | 2 | 4 | 2 | 2 | 4 | 1 | 4 | 3 | 3 | 4 | 3 | 3 | 4 | 5 | 3 | 4 | 1 | 2 | 3.00 | 3.67 | 2.71 |
| (5) Improvement planning and implementation in accordance with scientifically and logically justifiable procedures | 2 | 3 | 4 | 2 | 2 | 3 | 1 | 3 | 3 | 1 | 4 | 3 | 2 | 4 | 3 | 3 | 3 | 2 | 3 | 2.72 | 3.22 | 2.43 |
| (6) Effectiveness on productivity and quality improvement | 3 | 5 | 5 | 5 | 5 | 5 | 3 | 5 | 4 | 3 | 4 | 3 | 3 | 4 | 5 | 3 | 5 | 3 | 3 | 4.06 | 4.78 | 3.43 |

Annex1-11 Attachment



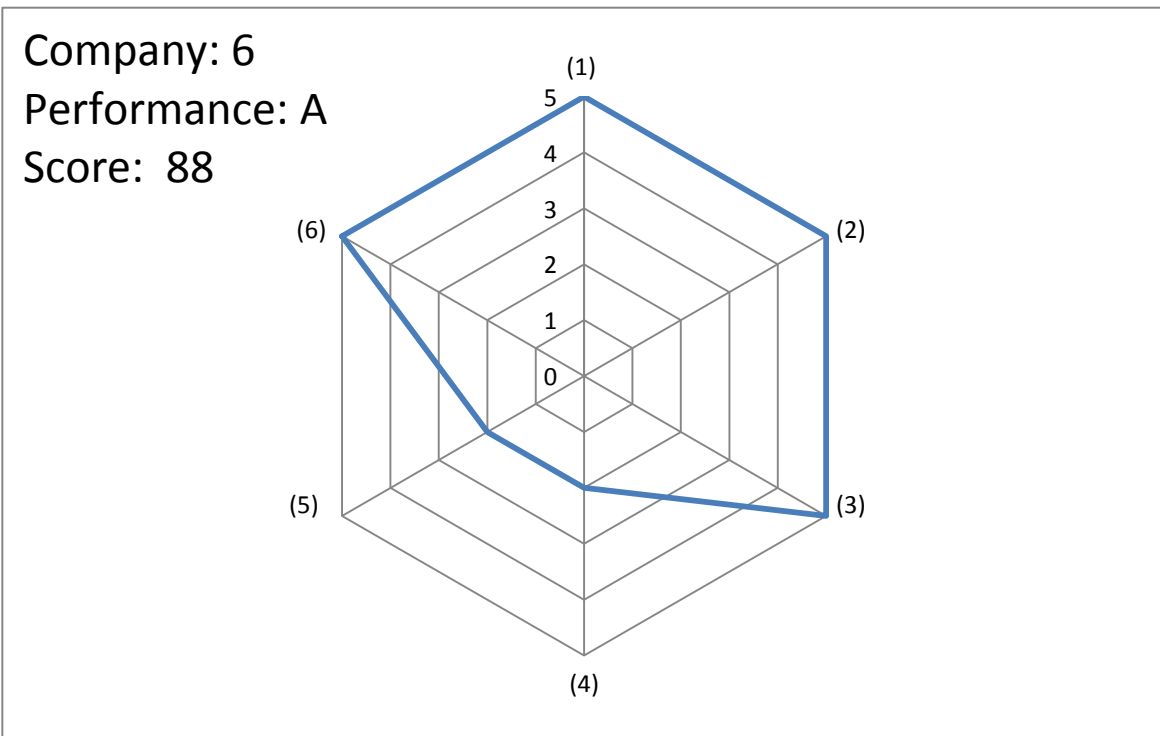
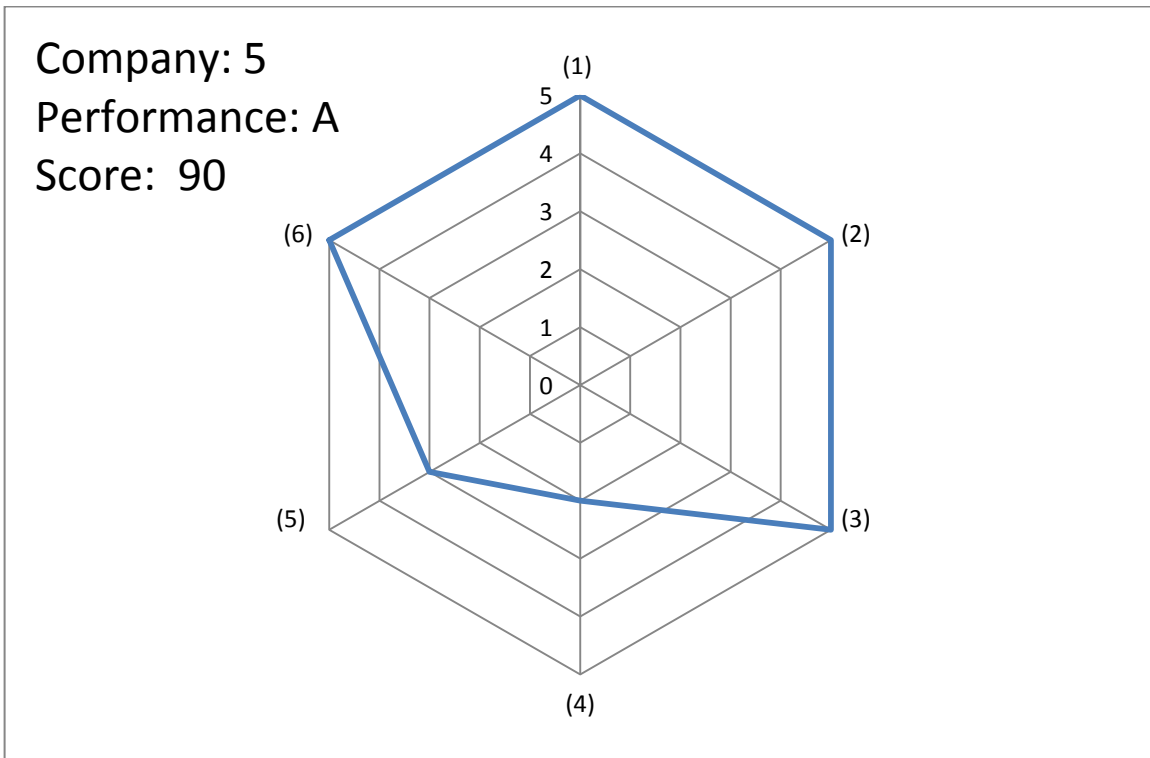
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- (5) Improvement planning and implementation in accordance with scientifically and logically justifiable procedures
- (6) Effectiveness on productivity and quality improvement

Annex1-11 Attachment



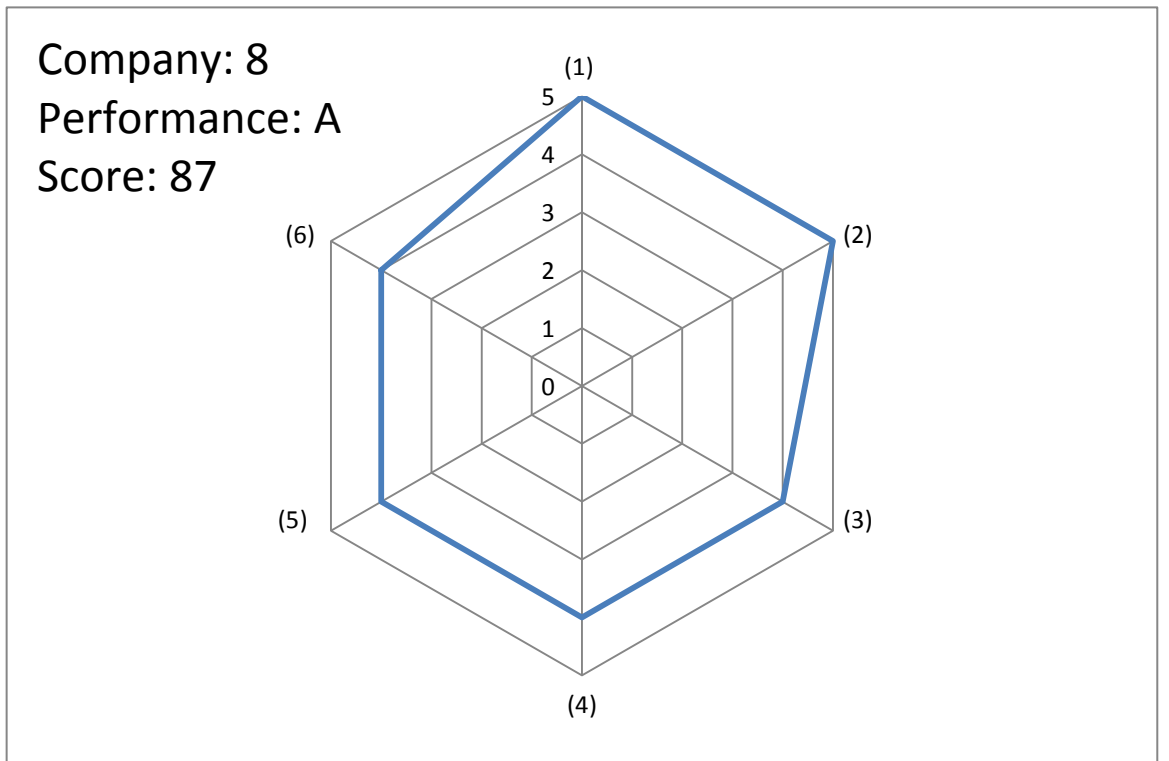
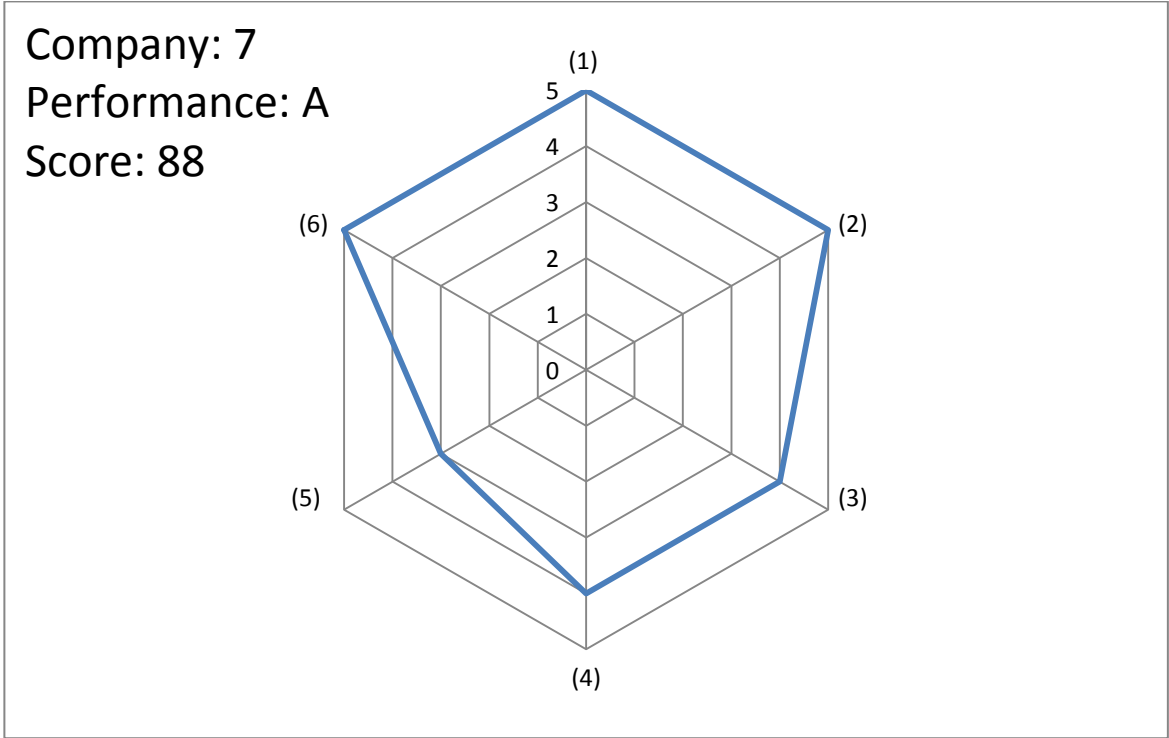
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- (5) Improvement planning and implementation in accordance with scientifically and logically justifiable procedures
- (6) Effectiveness on productivity and quality improvement

Annex1-11 Attachment



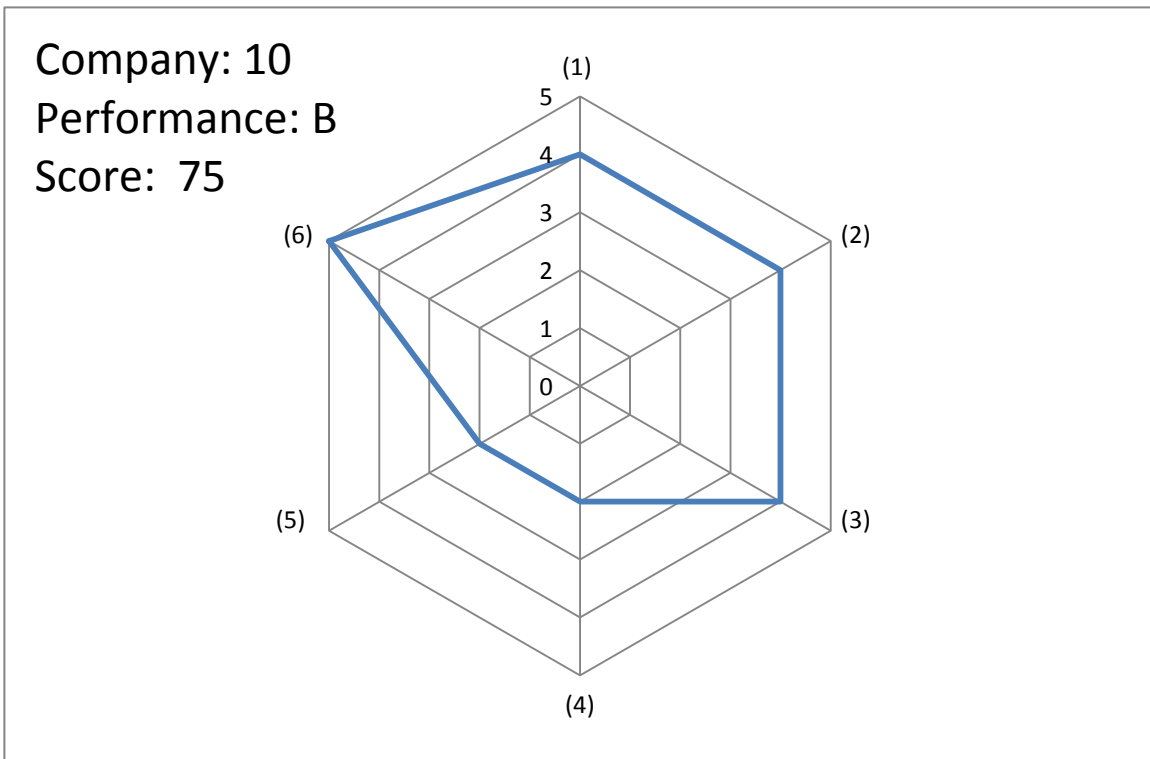
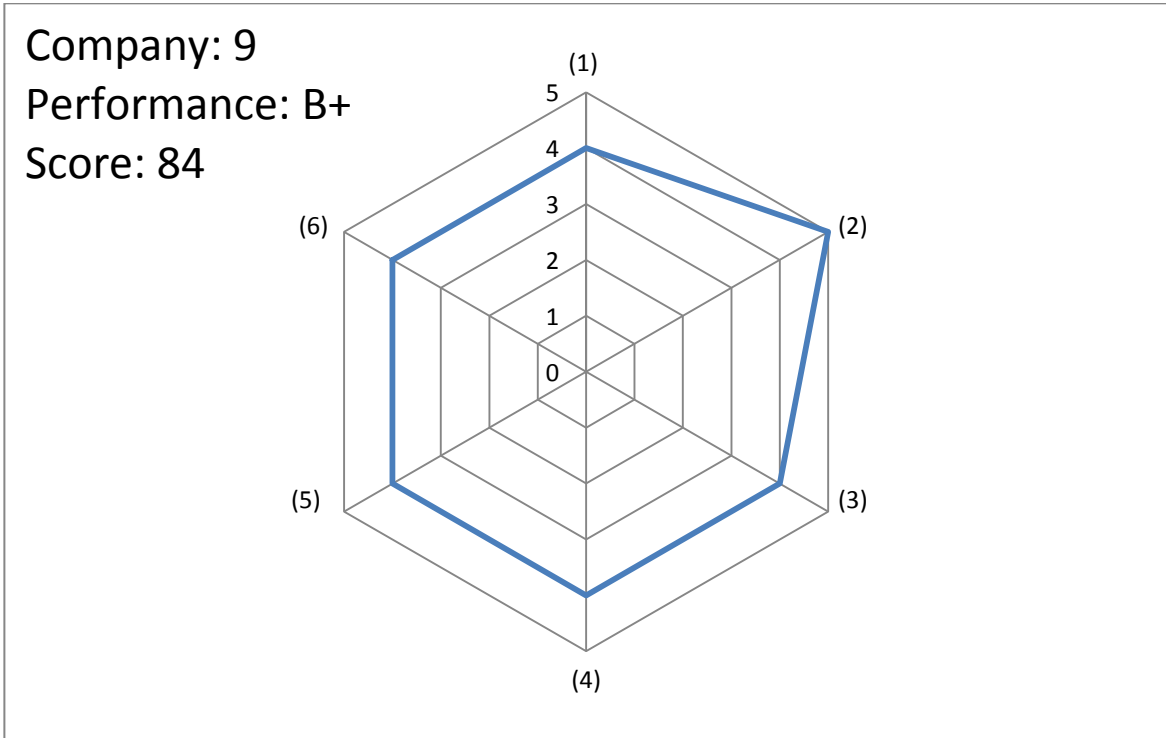
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- (6) Effectiveness on productivity and quality improvement

Annex1-11 Attachment



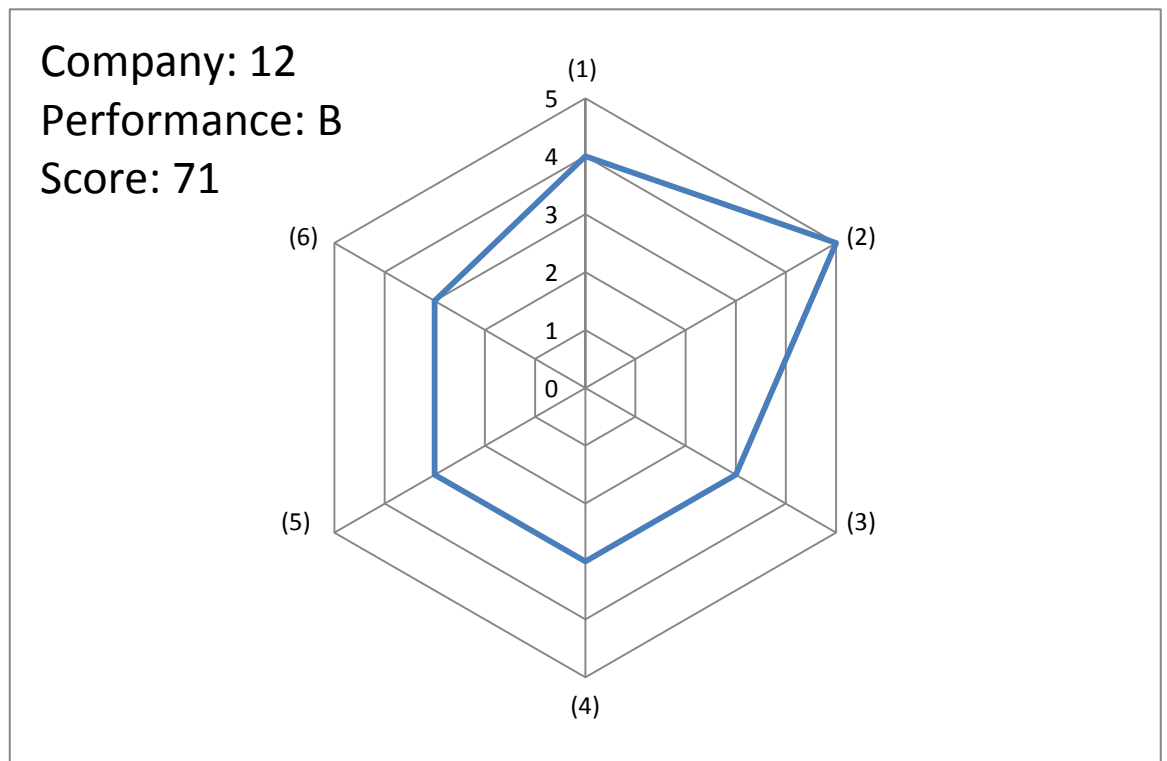
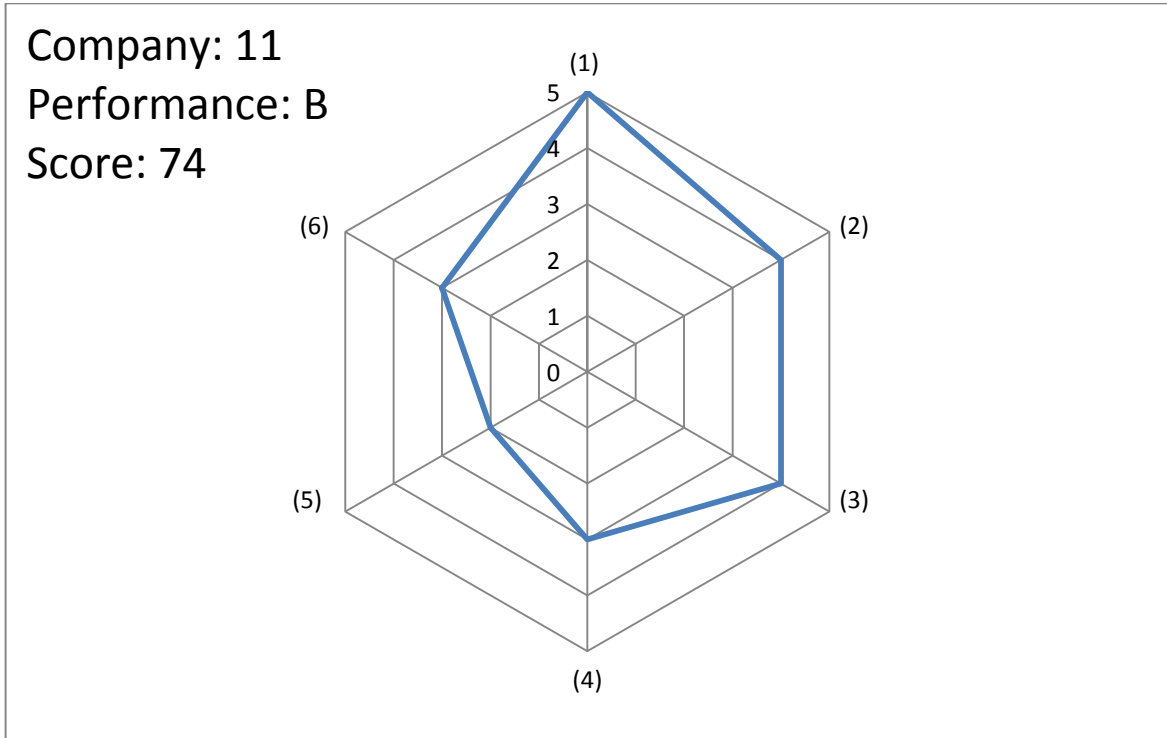
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Annex1-11 Attachment



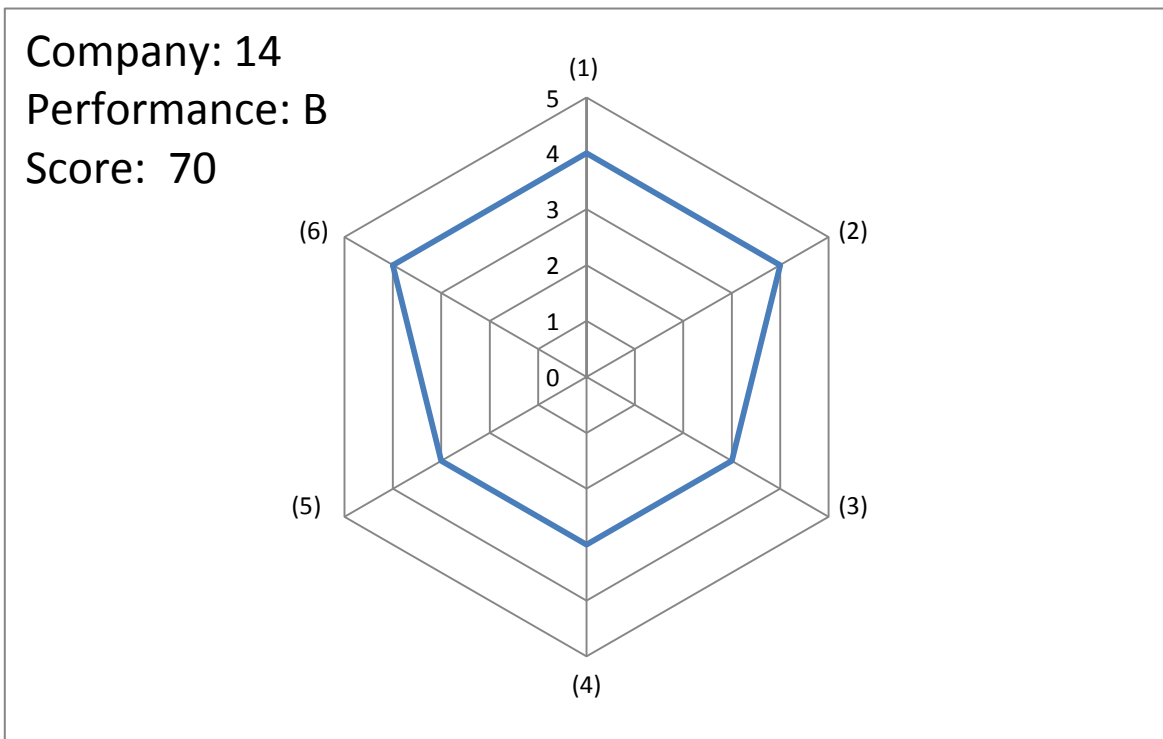
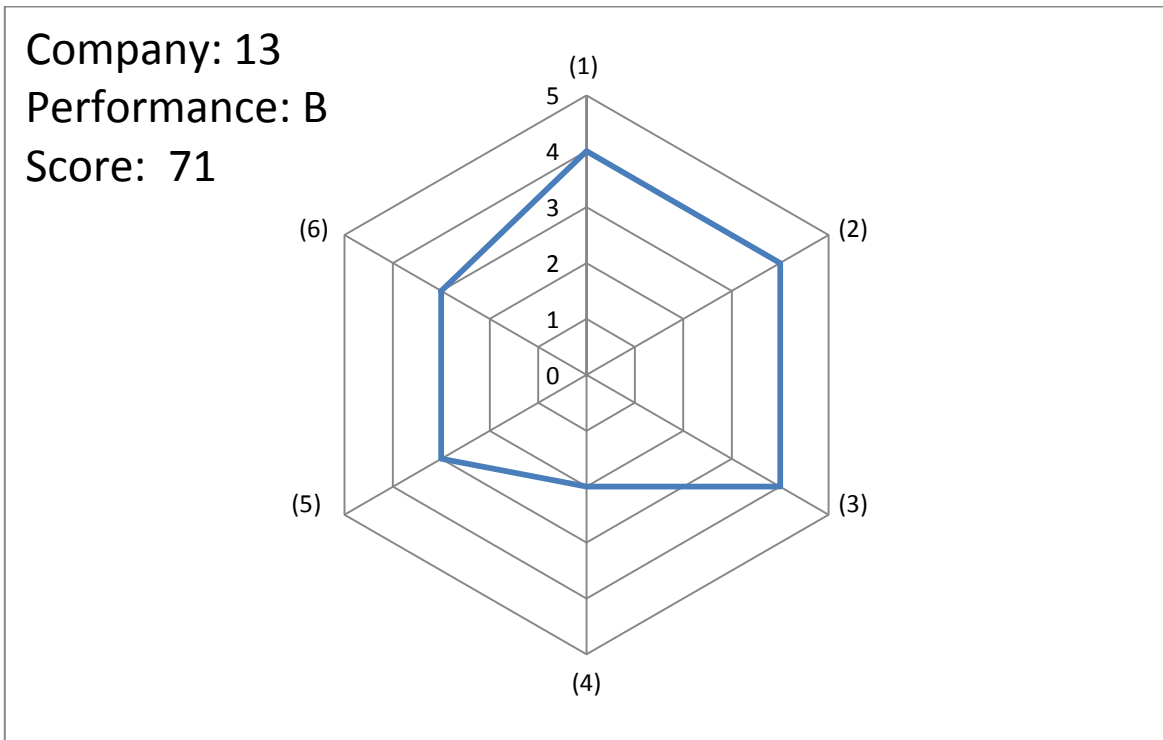
- (1) Expectation and commitment of the top management to the KAIZEN practice
- (2) Established and sustainable in-house system to promote and implement the KAIZEN practice
- (3) Accomplishment of bottom-up type activities with participation of motivated employees and their improvement proposals
- (4) Fact and problem analysis using statistical data
- (5) Improvement planning and implementation in accordance with scientifically and logically justifiable procedures
- (6) Effectiveness on productivity and quality improvement

Annex1-11 Attachment



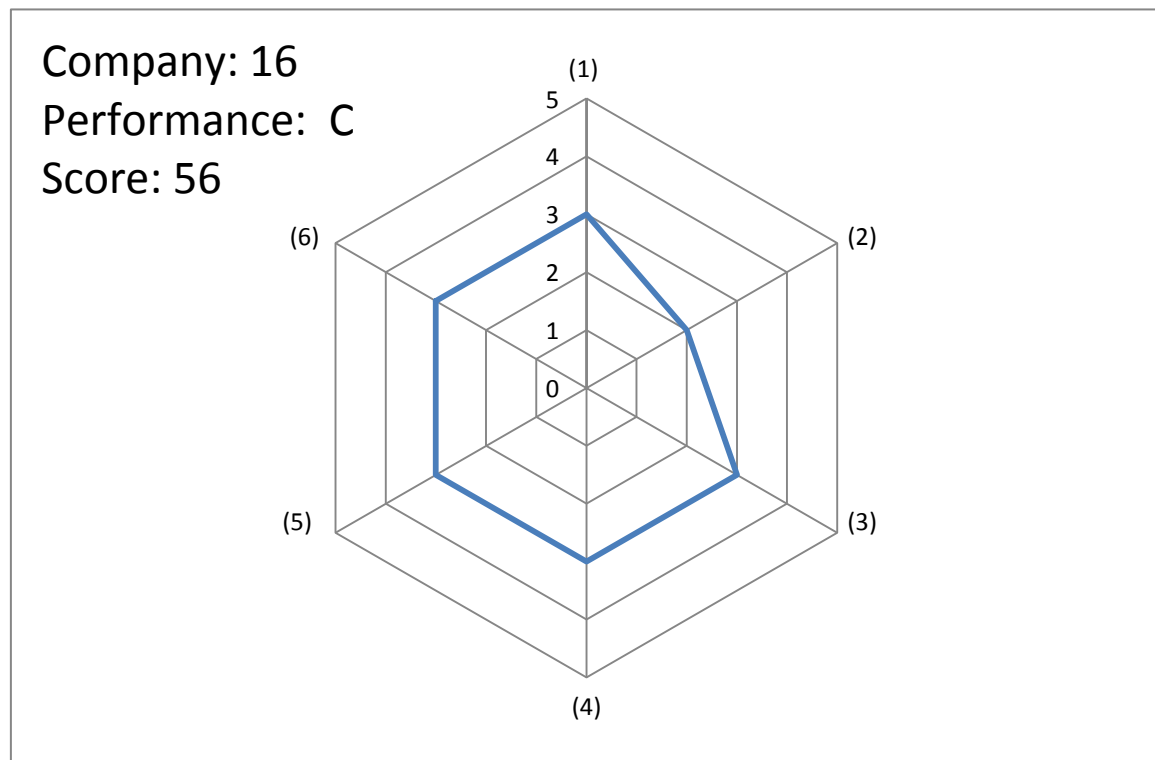
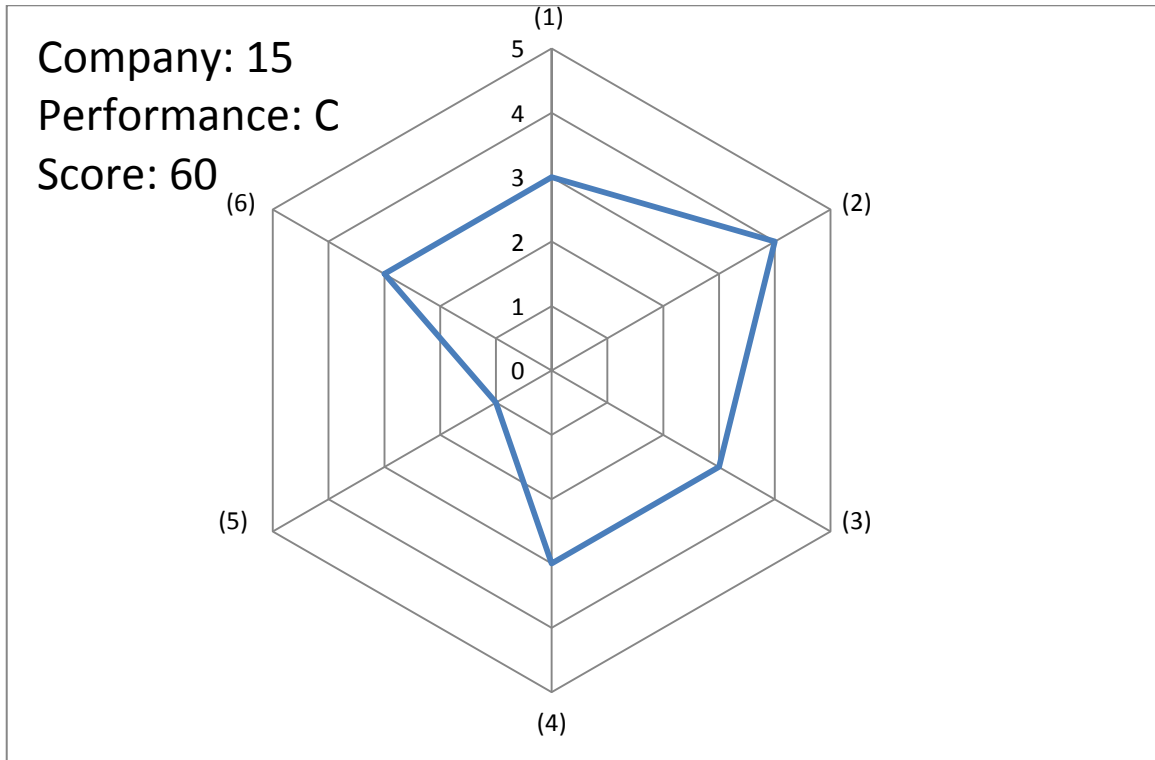
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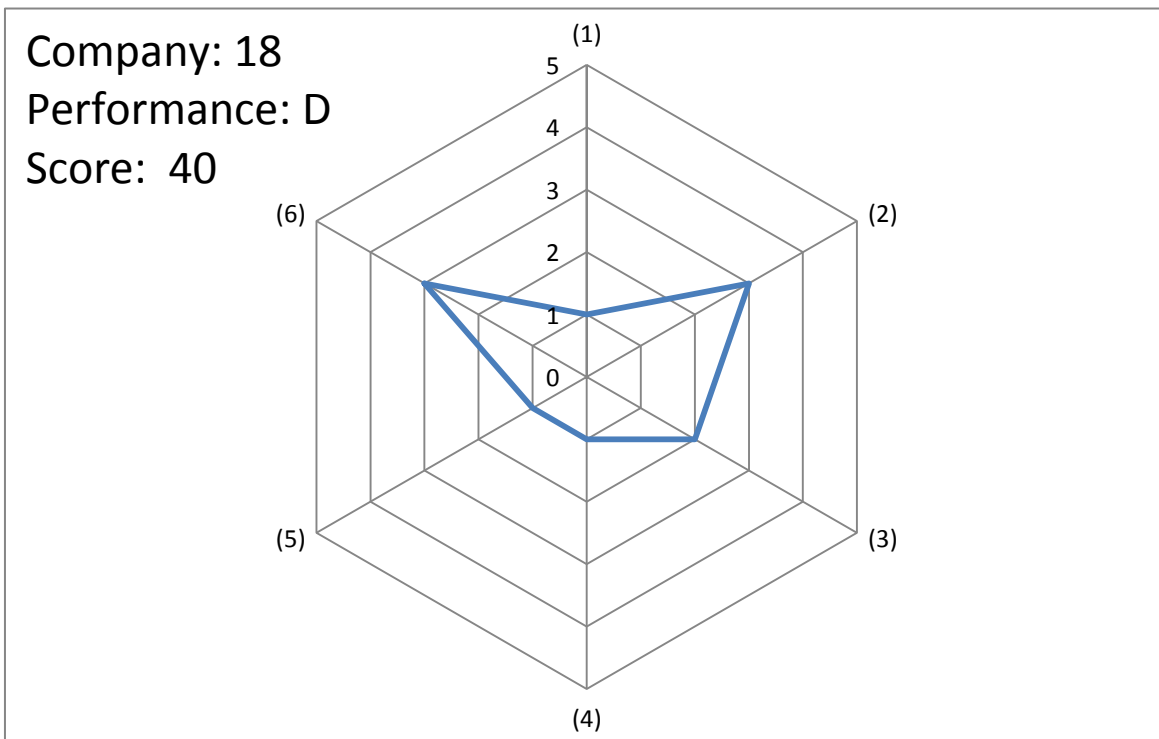
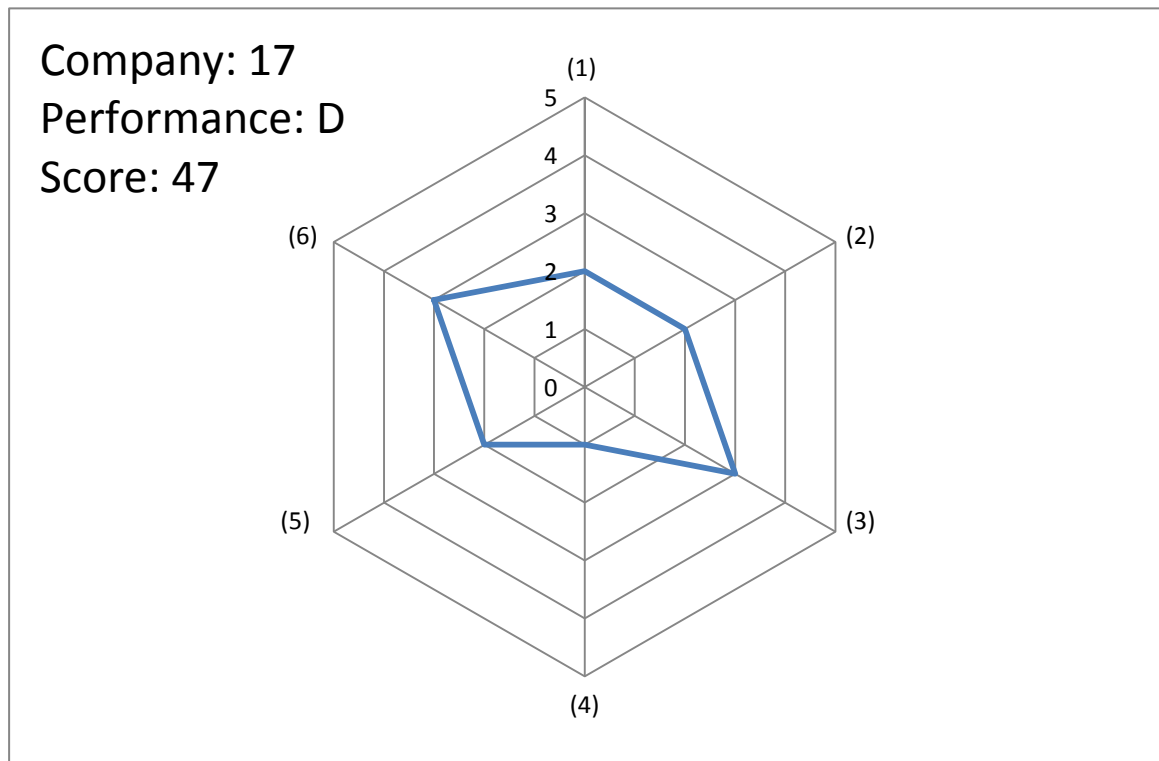
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Annex1-11 Attachment



- (1) Expectation and commitment of the top management to the KAIZEN practice
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Annex1-11 Attachment



- (1) Expectation and commitment of the top management to the KAIZEN practice
- (2) Established and sustainable in-house system to promote and implement the KAIZEN practice
- (3) Accomplishment of bottom-up type activities with participation of motivated employees and their improvement proposals
- (4) Fact and problem analysis using statistical data
- (5) Improvement planning and implementation in accordance with scientifically and logically justifiable procedures
- (6) Effectiveness on productivity and quality improvement

Annex1-12

Summary of Feedbacks from Participated Companies

- No. of Feedback

From the Round-1 companies: 13 (total number of participated companies: 20)

From the Round-2 companies: 4 (total number of participated companies: 10)

Total: 17

(Guidance for the Round-2 companies is still in its early stages, and the feedback results are just for reference only.)

Feedback from the company management:

1) Do you find the KAIZEN practice useful for your company?

| | Round 1 | | Round 2 |
|---------------|---------|------------|---------|
| | Number | % of total | |
| 1. Yes | 13 | 100% | 4 |
| 2. Yes and No | 0 | 0% | 0 |
| 3. No | 0 | 0% | 0 |
| Total | 13 | 100 | 4 |

If yes, please tick the points which you found the KAIZEN practice is useful for your company, among the following (you can tick more than one points):

| | Round 1 | | Round 2 |
|--|---------|------------|---------|
| | Number | % of total | |
| 1. Change in employees' attitude for their jobs | 11 | 85% | 3 |
| 2. Self-motivated participation of employees in the small-group activities | 5 | 38% | 3 |
| 3. Self-motivated proposals from employees for improvement | 7 | 54% | 4 |
| 4. Improvement of work efficiency | 8 | 62% | 2 |
| 5. Improvement of workplace organization | 9 | 69% | 3 |
| 6. Reduction of defect products/parts | 9 | 69% | 2 |
| 7. Reduction of waste/unused materials | 8 | 62% | 2 |
| 8. Use of data for assessment of the problems/issues | 5 | 38% | 1 |
| 9. Others | 1 | 8% | 0 |

2) Will you continue the KAIZEN practice at your company?

| | Round 1 | | Round 2 |
|---------------|---------|------------|---------|
| | Number | % of total | |
| 1. Yes | 10 | 77% | 4 |
| 2. Yes and No | 3 | 33% | 0 |
| 3. No | 0 | 0% | 0 |
| Total | 13 | 100% | 4 |

Feedback from the KAIZEN Leader:

1) Do you think the KAIZEN Practice is useful for your company?

| | Round 1 | | Round 2 |
|---------------|---------|------------|---------|
| | Number | % of total | |
| 1. Yes | 13 | 100% | 4 |
| 2. Yes and No | 0 | 0% | 0 |
| 3. No | 0 | 0% | 0 |
| Total | 13 | 100% | 4 |

If yes, please tick the KAIZEN activities and tools which you think useful for your company, among the following (you can tick more than one):

| | Round 1 | | Round 2 |
|--|---------|------------|---------|
| | Number | % of total | |
| Small-group activities | 10 | 77% | 2 |
| Analysis of problem situation using data | 9 | 69% | 0 |
| Analysis of causes of the problems | 11 | 85% | 2 |
| Activity plan and monitoring | 7 | 54% | 1 |
| Standardization | 7 | 54% | 1 |
| Five (5) S | 12 | 92% | 1 |
| Improvement suggestion system | 7 | 54% | 4 |
| Others | 1 | 8% | 0 |

- 2) How do you find the (local) consultants' assistance in introducing the KAIZEN practice in your company?

| | Round 1 | | Round 2 |
|---------------------------|---------|------------|---------|
| | Number | % of total | |
| 1. Very helpful | 4 | 31% | 1 |
| 2. Helpful to some extent | 6 | 46% | 3 |
| 3. Not so helpful | 3 | 23% | 0 |
| Total | 13 | 100% | 4 |

- 3) Do you think you can promote the KAIZEN activities in your company without advice from the Japanese KAIZEN advisors?

| | Round 1 | | Round 2 |
|---|---------|------------|---------|
| | Number | % of total | |
| 1. No more need of the guidance/advice from the Japanese KAIZEN Advisors | 3 | 23% | 0 |
| 2. No more need of guidance/advice from the Japanese KAIZEN Advisors if the local consultant is available | 2 | 15% | 0 |
| 3. Still need advice from the Japanese KAIZEN Advisors | 8 | 62% | 4 |
| Total | 13 | 100% | 4 |

- 4) Will you attend the follow-up training programs on KAIZEN practice, if there will be such programs?

| | Round 1 | | Round 2 |
|---------------|---------|------|---------|
| | Number | % | |
| 1. Yes | 10 | 77% | 4 |
| 2. Yes and No | 3 | 33% | 0 |
| 3. No | 0 | 0% | 0 |
| Total | 13 | 100% | 4 |

Feedback for KAIZEN Support Program

This is a feedback form on the KAIZEN Support Program, which has been conducted under the KAIZEN Dissemination Project in Jordan supported by JICA and JEDCO. We appreciate it greatly if you could fill in the form and return it to JEDCO through e-mail. This feedback results will be used only internally within the JICA Project Team and JEDCO for the purpose of improving the program. Thank you for your cooperation in advance.

- Company name:
- Name of the Company Management:
- Name of the KAIZEN Leader:

Feedback from the company management:

1) Do you find the KAIZEN practice useful for your company?

- 1. Yes
- 2. No
- 3. Not sure / do not know

If yes, please tick the points which you found the KAIZEN practice is useful for your company, among the following (you can tick more than one points):

- 1. Change in employees' attitude for their jobs
- 2. Self-motivated participation of employees in the small-group activities
- 3. Self-motivated proposals from employees for improvement
- 4. Improvement of work efficiency
- 5. Improvement of workplace organization
- 6. Reduction of defect products/parts
- 7. Reduction of waste/unused materials
- 8. Use of data for assessment of the problems/issues
- 9. Others (please specify):

2) Will you continue the KAIZEN practice at your company?

- 1. Yes
- 2. No
- 3. Not sure / do not know

Feedback from the KAIZEN Leader:

1) Do you think the KAIZEN Practice is useful for your company?

- 1. Yes
- 2. No
- 3. Not sure / do not know

If yes, please tick the KAIZEN activities and tools which you think useful for your company, among the following (you can tick more than one):

- Small-group activities
- Analysis of problem situation using data
- Analysis of causes of the problems
- Activity plan and monitoring
- Standardization
- Five (5) S
- Improvement suggestion system
- Others (please specify):

2) How do you find the (local) consultants' assistance in introducing the KAIZEN practice in your company?

- Very helpful
- Helpful to some extent
- Not so helpful

3) Do you think you can promote the KAIZEN activities in your company without advice from the Japanese KAIZEN advisors?

- No more need of the guidance/advice from the Japanese KAIZEN Advisors
- No more need of the guidance/advice from the Japanese KAIZEN Advisors if the local consultant is available
- Still need advice from the Japanese KAIZEN Advisors

4) Will you attend the follow-up training programs on KAIZEN practice, if there will be such programs?

- 1. Yes
- 2. No
- 3. Not sure / do not know

Thank you for the feedback!!

**Annex 2 Data/documents related to the “KAIZEN
Consultants Training Program”**

Selection Process and Criteria of KAIZEN Consultants for their Training

1 Selection

Participants in the Kaizen consultant training program will be called for application through the following measures:

- Website announcement of JEDCO, JICA and Chamber of Commerce
- The launching seminar of the Project

2 Qualifications and selection criteria

The major factor to be taken into account in setting the qualifications for the consultants is the fact that the Project is positioned as a pilot project for Kaizen dissemination activity in Jordan, and that its success is expected to affect subsequent development of Kaizen dissemination significantly. Program participants are therefore required to have not only capacity and experience suitable for work as a Kaizen consultant, but high potential to work actively in the field of Kaizen guidance.

The qualifications for the consultants are as follows:

- 10 years professional experience as a management or technical consultants
- Demonstrated experience in consultation service in the field of production management
- Certain level of knowledge of production management
- Commitment to participate in basic training, field exercises, and follow-up training
(Note that neither JICA nor JEDCO will pay anyone participating in the training program.)
- Strong interest in dissemination of Kaizen in Jordan and willingness to cooperate in future dissemination activity in the country

3 Selection process

Participants will be selected according to the following schedule.

1. Late December 2010: Start of open recruitment (at the time of the first seminar to introduce the Project)
2. February 2011: Preliminary selection (screening) and interview of applicants who have passed the preliminary selection
3. Mid-March 2011: Notification of selection results to applicants
4. Mid-May 2011: Commencement of the basic training program

4 Allocation of number of participants from the relevant government/organizations/institutes

1. JEDCO (5)
2. Jordan Chamber of Industry (1)
3. Amman Chamber of Industry (1)
4. Zarka Chamber of Industry (1)
5. Irbid Chamber of Industry (1)
6. FFF (1)
7. Universities (20-40)
8. Chamber of Commerce (2)
9. Industrial/business associations (Max. 10)

(The above allocated number is for the first session of training, and may be screened to 10 (or max. 15) before the OJT on KAIZEN guidance.)

**PROJECT ON DISSEMINATION OF QUALITY/PRODUCTIVITY IMPROVEMENT (KAIZEN)
PRACTICE FOR SMES IN JORDAN**

**Application Form II
KAIZEN Consultants Training Program
Deadline January 20, 2011**

Part (1): Qualifications, Selection Criteria & Schedule

The KAIZEN Consultant Training Program is a pilot program that aims to disseminate KAIZEN practice in Jordan. The success of this Program is expected to significantly influence the subsequent development of KAIZEN in the Country. Accordingly, successful participants should have suitable capacity and experience, as well as a high potential to actively work in the field of KAIZEN guidance, and should have at least 10 years of experience in the field, still exceptions may be allowed at the discretion of the JICA Project Team.

Applicants are requested to clear the following qualifications:

1. A natural person having a Jordanian Nationality;
2. Proficiency in the English Language;
3. Professional experience, as a management or technical consultants (10 years preferred);
4. Demonstrated experience in consultation services in the field of production management(10 years preferred);
5. Certain level of knowledge of production management;
6. Commitment to participate in basic training, field exercises, and follow-up training, and
7. Strong interest in dissemination of KAIZEN in Jordan and willingness to cooperate in future dissemination activity in the Country.

10 applicant consultants will be screened by the JICA Project Team, in accordance with the criteria described herein. The JICA Project Team's decisions are final and are not subject to review by any third party.

The selection schedule is as follows:

1. Opening date for application: December 25, 2010.
2. Due date for application: January 20, 2011.
3. Primary selection (screening) and interview of applicants who have passed the primary selection (screening): February 2011.
4. Notification of selection results to the candidate consultants: Late March 2011.
5. Commencement of the training program: Mid May, 2011.

No program fee is required, and no remittance of any kind will be made by JICA and/or JEDCO.

Interested consultants are requested to send the completed application form

by January 20, 2011

to e-mail: kaizen@jedco.gov.jo

Please specify in the subject line: Consultants Training Program KAIZEN Project

Supporting documents may be requested at a later stage

Part (2): Applicant's Information

PERSONAL INFORMATION

Name [SURNAME, other name(s)]
Address [House number, street name, postcode, city, country]
Telephone
Mobile
Fax
E-mail
Nationality
Main field of Consulting
Membership in professional bodies (consultant organizations/associations) (please list if applicable)
Date of birth [Day, month, year]
Gender M F

KAIZEN PROJECT REQUIREMENTS

Number of Years Experience as a consultant
Number of Clients served in the field of production management in the past three (3) years

Identify the techniques you are familiar with:

- | | | | |
|---------------------------|------------------------------|-----------------------------|-----------------------------------|
| - Quality Control | Yes <input type="checkbox"/> | No <input type="checkbox"/> | a Little <input type="checkbox"/> |
| - Production Planning | Yes <input type="checkbox"/> | No <input type="checkbox"/> | a Little <input type="checkbox"/> |
| - Process Control | Yes <input type="checkbox"/> | No <input type="checkbox"/> | a Little <input type="checkbox"/> |
| - Process Layout Analysis | Yes <input type="checkbox"/> | No <input type="checkbox"/> | a Little <input type="checkbox"/> |
| - Production Cost Control | Yes <input type="checkbox"/> | No <input type="checkbox"/> | a Little <input type="checkbox"/> |
| - Inventory Control | Yes <input type="checkbox"/> | No <input type="checkbox"/> | a Little <input type="checkbox"/> |
| - Others(s) | Please specify | | |

WORK EXPERIENCE

(Start From the Last position)

- Dates (from – to) [Add separate entries for each relevant post occupied, starting with the most recent.]
- Name and address of employer
- Type of business or sector
- Occupation or position held
- Main activities and responsibilities

- Dates (from – to)

[Add separate entries for each relevant post occupied, starting with the most recent.]

- Name and address of employer
- Type of business or sector
- Occupation or position held
- Main activities and responsibilities
- Dates (from – to)

[Add separate entries for each relevant post occupied, starting with the most recent.]

- Name and address of employer
- Type of business or sector
- Occupation or position held
- Main activities and responsibilities

EDUCATION AND TRAINING

- Dates (from – to)

[Add separate entries for each relevant course you have completed, starting with the most recent.]

- Name and type of organization providing education and training
- Principal subjects/occupational skills covered
- Title of qualification awarded
- Level in national classification (if appropriate)
- Dates (from – to)

[Add separate entries for each relevant course you have completed, starting with the most recent.]

- Name and type of organization providing education and training
- Principal subjects/occupational skills covered
- Title of qualification awarded
- Level in national classification (if appropriate)
- Dates (from – to)

[Add separate entries for each relevant course you have completed, starting with the most recent.]

- Name and type of organization providing education and training
- Principal subjects/occupational skills covered
- Title of qualification awarded
- Level in national classification (if appropriate)

PERSONAL SKILLS AND COMPETENCIES

Acquired in the course of life and career but not necessarily covered by formal certificates and diplomas.

MOTHER TONGUE

OTHER LANGUAGES

- Reading skills
- Writing skills
- Verbal skills

SOCIAL SKILLS

AND COMPETENCIES

Living and working with other people, in multicultural environments, in positions where communication is important and situations where teamwork is essential (for example culture and sports), etc.

ORGANIZATIONAL SKILLS

AND COMPETENCIES

Coordination and administration of people, projects and budgets; at work, in voluntary work (for example culture and sports) and at home, etc.

TECHNICAL SKILLS

AND COMPETENCIES

With computers, specific kinds of equipment, machinery, etc.

[Specify mother tongue]

[Specify language]

[Indicate level: excellent, good, basic.]

[Indicate level: excellent, good, basic.]

[Indicate level: excellent, good, basic.]

[Describe these competences and indicate where they were acquired.]

[Describe these competences and indicate where they were acquired.]

[Describe these competences and indicate where they were acquired.]

Part (3): Substantive Questions

| | |
|----|--|
| 1) | Describe your expectations from the Program. <i>(please type here, in no more than 500 words)</i> |
| 2) | List any specific training/skills you would like to have in this training: <i>(please type here and in no more than 50 words)</i> |
| 3) | Can you make a firm commitment to participate in the training program? Yes <input type="checkbox"/> No <input type="checkbox"/> |

Name**X**

Signature

Date

Annex 2-3

KAIZEN Consultant-Trainee Selection Form (Category: **A-1**)

No.

| Evaluation items | Details of the evaluation items/ Confirmation required through interview | Evaluation points | | | Point allocation |
|-----------------------------------|---|--|-------------------|--------|--|
| | | By application form | Through Interview | Weight | |
| Total weighted marks of (1) & (2) | | | | 100 | |
| (1) | Eagerness for and understanding on KAIZEN consultants | | | 30 | |
| | Motives for application (Interest in KAIZEN) | Confirm the motives for the application | | 30 | - Taking into account the potential of KAIZEN as an effective measure for managerial improvement: 10 - Considering the KAIZEN as one of the measures for production management: 6 -KAIZEN as a new approach of consulting service to enterprises: 4 |
| (2) | Experience in the relevant fields (as a consultant, or an engineer) (Max. 10) | | | 40 | |
| | No. of years as a consultant in the relevant fields (Max. 10) | Reconfirm the relevance asking the problems which he/she has tackled as a consultant | | | <u>No. of years of work experiences in the age of 28 or over:</u> 10 years or more: 10 Less than 10 years: number of years (- As a technical consultant: x1.0 - As a business management consultant: x0.8 - As a HR consultant: x0.8) |
| | No. of years of work experiences in the manufacturing companies (Max. 8) | Reconfirm the relevance with asking the sector and name of the companies worked for | | | - 10 years or more: 8 - Less than 10 years: no. of years (If in ages 28 or over: x0.8, and in ages 27 or younger: x0.4) |
| (3) | Other evaluation items relating to the experiences and customers in the relevant fields | | | | |
| | Possibility to have customers demanding the services in the relevant fields | Considering the current scope of his/her customers | | 5 | - High possibility: 5 - Yes and no: 3 - Low possibility: 1 |
| | Knowledge and experience required in understanding the methods and techniques to be used in this training program | Confirm the educational/practical background, particularly, of the basis for statistical thinking | | 5 | - Sufficient knowledge and experiences on statistical thinking and approach: 5 - Possible basis to follow the lectures and practices in the Program: 3 - No basis to understand the statistical method and techniques: 1 |
| | Likely to serve as a KAIZEN consultant after completing the training program | Assess the possibility for him/her to work as a KAIZEN consultant, asking his/her relevant qualification, projects participated, and the name of the customers | | 20 | - Highly likely (or registered already for JUMP): 5 - Yes and no (difficult to assess): 3 - Low possibility: 1 |
| (4) | Other prerequisites | | | | |
| | Prerequisites in participating to the program | [Prerequisite] Agreeable to these items | - Yes - No | | 1) Commitment of attendance to all the relevant programs including the OJT 2) Apply for the roster of accredited consultants under JUMP in the field of quality/productivity improvement guidance 3) Agreeable to the contents of the Memorandum of Agreement to be signed with the participants |

Selection procedure

(Max. 10 consultants will be selected under the Category A-1.)

(1) Conduct an interview with those who meet one of the following conditions:

- 1) Those who are ranked within 20 and marked 8.0 or above in item (1).
- 2) Those who are ranked within 10 and marked 6.0 or above in item (1).

(2) Only the applicants with age under 54 or younger are invited for the above interviews. However, those who have sufficient/practical knowledge and experience, regardless of their success or unsuccessful, will be invited if he/she meets the above conditions.

(3) Select the consultants based on the evaluation results.

Annex 2-3

KAIZEN Consultant-Trainee Selection Form (Category: **A-2**)

No.

| Evaluation items | Details of the evaluation items/ Confirmation required through interview | Evaluation points | | | Point allocation |
|-----------------------------------|---|--|-------------------|--------|--|
| | | By application form | Through Interview | Weight | |
| Total weighted marks of (1) & (2) | | | | 100 | |
| (1) | Eagerness for and understanding on KAIZEN consultants | | | 40 | |
| | Motives for application (Interest in KAIZEN) | Confirm the motives for the application | | 40 | - Taking into account the potential of KAIZEN as an effective measure for managerial improvement: 10 - Considering the KAIZEN as one of the measures for production management: 6 -KAIZEN as a new approach of consulting service to enterprises: 4 |
| (2) | Experience in the relevant fields (as a consultant, or an engineer) (Max. 10) | | | 10 | |
| | No. of years as a consultant in the relevant fields (Max. 10) | Reconfirm the relevance asking the problems which he/she has tackled as a consultant | | | <u>No. of years of work experiences in the age of 28 or over:</u> 10 years or more: 10 Less than 10 years: number of years (- As a technical consultant: x1.0 - As a business management consultant: x0.8 - As a HR consultant: x0.8) |
| | No. of years of work experiences in the manufacturing companies (Max. 8) | Reconfirm the relevance with asking the sector and name of the companies worked for | | | - 10 years or more: 8 - Less than 10 years: no. of years (If in ages 28 or over: x0.8, and in ages 27 or younger: x0.4) |
| (3) | Other evaluation items relating to the experiences and customers in the relevant fields | | | | |
| | Possibility to have customers demanding the services in the relevant fields | Considering the current scope of his/her customers | | 10 | - High possibility: 5 - Yes and no: 3 - Low possibility: 1 |
| | Knowledge and experience required in understanding the methods and techniques to be used in this training program | Confirm the educational/practical background, particularly, of the basis for statistical thinking | | 10 | - Sufficient knowledge and experiences on statistical thinking and approach: 5 - Possible basis to follow the lectures and practices in the Program: 3 - No basis to understand the statistical method and techniques: 1 |
| | Likely to serve as a KAIZEN consultant after completing the training program | Assess the possibility for him/her to work as a KAIZEN consultant, asking his/her relevant qualification, projects participated, and the name of the customers | | 30 | - Highly likely (or registered already for JUMP): 5 - Yes and no (difficult to assess): 3 - Low possibility: 1 |
| (4) | Other prerequisites | | | | |
| | Prerequisites in participating to the program | [Prerequisite] Agreeable to these items | - Yes - No | | 1) Commitment of attendance to all the relevant programs including the OJT 2) Apply for the roster of accredited consultants under JUMP in the field of quality/productivity improvement guidance 3) Agreeable to the contents of the Memorandum of Agreement to be signed with the participants |

Selection procedure

(Max. 5 consultants will be selected under the Category A-2, who will participate to the OJT partly. Only those who are under 37 years old will be considered as the applicant for Category A-2.)

(1) Conduct an interview with those who meet one of the following conditions:

Priority 1: Those who are in age 32 or younger, and not selected under the Category 1, but marks 7.0 or above in item (1).

Priority 2: If the 5 consultants are not selected under the Priority 1, those who are in age 37 or younger, and not selected under the Category 1, but marks 8.0 or above in item (1).

(3) Select the consultants based on the evaluation results.

Annex 2-4

Applicants for Consultants Training Program

| Private sector consultants | | |
|----------------------------|-------------|----------------|
| | Application | Selected |
| As a consultant | | |
| 39 or elder | 25 | 10 |
| 38 or younger | 23 | 2 |
| Total | 48 | 12 |
| As a junior consultant | (21) | Max. 3 |
| Private Total | 48 | Max. 15 |

(By gender)

| | Application | | Selected | |
|---------------|-------------|-----------|----------|----------|
| | Male | Female | Male | Female |
| 39 or elder | 20 | 5 | 7 | 3 |
| 38 or younger | 16 | 7 | 2 | 0 |
| Total | 36 | 12 | 9 | 3 |

| Government / Public Inst. | | |
|-----------------------------|-------------|----------------|
| | Application | Selected |
| JEDCO | 5 | 5 |
| Chambers | | |
| JCI | 1 | 1 |
| ACI | 2 | 2 |
| ZCI | 1 | 1 |
| ICI | 1 | 1 |
| Chambers Total | 5 | 5 |
| Universities | 16 | Max. 3 |
| Gov't / Public Total | 26 | Max. 13 |

(To be selected)

(To be selected)

Annex 2-5 STATEMENT OF COMMITMENT AND AVAILABILITY

**THE KAIZEN CONSULTANT TRAINING PROGRAM UNDER THE PROJECT ON
DISSEMINATION OF QUALITY/PRODUCTIVITY IMPROVEMENT (KAIZEN) PRACTICE**

I, the undersigned, hereby declare that I agree to fully participate in the KAIZEN Consultant Training Program (“Program”) for its total duration (12 month), and to respect and comply with the procedures and instructions of the Program, as communicated to me in writing or verbally by the JICA Team that has been organized for implementation of the Project (hereinafter called the “Project Team”).

I agree not to disclose any and all information about any / all companies participating in the Program, their business or products, its employees or customers or partners and JEDCO; which I receive in the course of the Program that is considered to be of a private nature or is designated as confidential information, or may reasonably be considered to be confidential information, then I shall take all reasonable care not to disclose such information to any party outside the Program either during the term of the Program, or subsequently.

I hereby declare that I am an independent party and do not expect nor will I request any payment in cash or in kind neither from the Project Team nor the selected companies participated to the program under the Project.

I agree to apply to the JEDCO roster of accredited consultants in the field of quality/productivity improvement guidance; upon my successful completion of the Training Courses.

I understand that the Project is implemented through JICA’s international cooperation activities to support the development of the Jordanian Private Sector, and accordingly, shall remain committed until the end of the duration of the Project.

I understand that should I fail to comply with the procedures and instructions of the Project Team, then the Project Team is at full liberty, and at their sole discretion to expel me from the Program.

I understand that the obligations contained in this Statement of Commitment and Availability reflect part of the undertakings needed towards the correct fulfillment of the Project activities, and shall work in good faith and to the best of my ability towards the successful implementation of the Project.

| | |
|------------------|--|
| Name | |
| Signature | |
| Date | |

Confirmation of your expectation to the Program

Thank you for your interested in our KAIZEN Practice Dissemination Project, which is the joint efforts of JICA and JEDCO, and is in the stage to establish the implementation framework of the Project. KAIZEN is an approach widely applied by many Japanese enterprises for quality/productivity improvement. The purpose of this Project is to disseminate the KAIZEN practice among Jordanian industries, particularly for SMEs in the manufacturing sector.

The Project consists of 3 component programs, namely; (1) Support program of SMEs to practice KAIZEN, (2) KAIZEN Consultants Training Program, and (3) Awareness Campaigns of KAIZEN Practice. The project will continue until March 2013.

We are encouraging university faculties to participate to this program. However, because of the limitation of time and resources, we have to limit the number of participants. In this context, we would like you to have precise understanding on our project, as described below, and please reconfirm your expectation to our program.

We will accept the university faculties under the following three categories:

| Category | Benefit to apply to this project | Requirements to apply to this project | Required your action |
|---|---|--|--|
| 1 Those who are interested in KAIZEN approach in general | We can provide you with various opportunities to learn about the KAIZEN approach / practices during the Project period, through seminars, workshops, and/or meetings of the concerned people. | You can apply to this program without any specific requirements. We will keep your name in our database for sending the invitation to the seminars and workshops, etc. | Please reply us with an e-mail before March 14, 2011, confirming that your name can be kept in our database. |

| | | | | |
|---|--|--|---|---|
| 2 | Those who want to have a training as a KAIZEN consultants [Limited number of acceptance] | The KAIZEN Consultants Training Program (the Program) is to nurture the consultants to work in the field of KAIZEN practices. [Note: the Program will not pay anything for the participants under this program, and does not necessarily guarantee any job opportunities as KAIZEN consultants.] | Strong expectation to be the consultants in the field of KAIZEN practice, base knowledge and experience to learn about the KAIZEN for consultants, and the possibility to work as a consultant. | You can apply for the program, after obtaining the official approval from your university that you may work as a consultant, besides working as a faculty of the university. We will send you an application form upon your request. The participants will be selected among the applicants including that of private consultants. |
| 3 | Those who are interested in KAIZEN approach from academic viewpoints (the interest on how the KAIZEN approach can be applied to Jordanian industries) [Limited number of acceptance] | Introduction of KAIZEN approach to the Jordanian industries is a new challenge, and requires development of methodology, which best fits to Jordanian industries. In this context, we will provide the opportunities to apply KAIZEN approach to the Jordanian SMEs, to those who are interested in the KAIZEN approach in view of methodological development. [Note: the Program will not pay anything for the participants under this program.] | Those who work on this category needs a certain level of knowledge on KAIZEN and the experiences to have applied the KAIZEN to practice in actual business. | You can apply for the program sending an application form, stating your understanding on KAIZEN, expectation to this program, and your experience in applying KAIZEN to the actual business. We will send you an application form upon your request. We will select the participants based on the application form to be submitted. |

Those who wish to apply in above category 2 or 3 are requested to submit the application form with all the necessary information before March 14, 2011 to the following e-mail address. All applications should be written in English. We will inform the result through JEDCO before the end of March, 2011.

E-mail: kaizen@jedco.gov.jo

Annex 2-7: Basic Training for Consultants
- Training Curriculum -

| | | Lecturer | Text | Remarks |
|----------------|---|----------|----------------|--|
| Day 1: | | | | |
| - | Opening (Orientation to the Program) | Inooka | | |
| (1) | Concept and features of KAIZEN approach | Furuya | 1.1 & 1.2 | |
| (2) | For successful introduction of KAIZEN to company management and operation | Furuya | 1.3 | |
| (3) | Steps for improvement - Introduction to QC Story | Yamamoto | 1.4 | |
| (4) | Introduction to QC 7 tools (incl. "Statistical way of thinking") | Seki | 4.1 | Incl. "Statistical way of thinking" |
| Day 2: | | | | |
| (1) | QC 7 Tools (2) | Seki | 4.1, 4.2 & 4.3 | Check sheet, Histogram, Pareto diagram |
| (2) | Selection of improvement subject | Furuya | 2.1 | |
| (3) | Understanding the issues, setting target, and planning the KAIZEN activities | Furuya | 2.2 & 2.3 | |
| Day 3: | | | | |
| (1) | Analysis of causes of problems and / or factors for improvements | Seki | 2.4 & 4.6 | Incl. Cause-effect diagram |
| (2) | Development of improvement ideas, implementation, and evaluation of the effects | Seki | 2.5 & 2.6 | |
| Day 4: | | | | |
| (1) | Standardization, and implementation of the improvement measures in the daily operation process, and updating of the KAIZEN plan | Furuya | 2.7 & 2.8 | |
| (2) | QC 7 Tools (3) | Seki | 4.4, 4.5 & 4.7 | Control charts, Scatter diagram, Stratification, |
| Day 5: | | | | |
| (1) | Identification of the subjects for improvement | Furuya | 3.1 & 3.2 | incl. 7 Muda |
| (2) | Development of ideas for improvement | Seki | 3.3 | |
| Day 6: | | | | |
| (1) | Development of ideas for improvement (Step 5 for improvement) | Seki | 3.3 | |
| (2) | Introduction of Five-S to the workplace | Furuya | 5.1 | |
| Day 7: | | | | |
| (1) | Introduction of Five-S to the workplace (Continued) | Furuya | 5.1 | |
| (2) | Implement and activate the improvement suggestion system | Seki | 5.2 | |
| Day 8: | | | | |
| (1) | Development and promotion of foolproof/fail-safe devices | Seki | 5.3 | |
| (2) | Visualization of production control procedures | Furuya | 5.4 | |
| Day 9: | | | | |
| (1) | Visualization of production control procedures (Continued) | | 5.4 | |
| (2) | Small-group activities | Furuya | 5.5 | |
| Day 10: | | | | |
| (1) | Small-group activities (2) | Furuya | 5.5 | |
| (2) | KAIZEN Guidance | Inooka | | |
| - | Closing | Inooka | | |

Annex 2-8: List of Participants of the KAIZEN Consultant Training Program

| No. | Serial No. | Name | Gender | Main Field | Organization |
|----------------------------|------------|-------------------------|--------|---|---|
| Private-sector Consultants | | | | | |
| 1 | C-13 | Osama A Ayyash | M | Management, Re-engineering | Independent |
| 2 | C-19 | Enam R. Ayyad | F | Quality, Production | Naratech pharmaceuticals consultancy |
| 3 | C-36 | Shaheen Maisoon S. | F | Management | Al-Boucai Group Investment & Consulting |
| 4 | C-38 | Mohammad Talal Ali | M | Management, Informatics, Finance | KPMG Kawasmy & Partners Co. |
| 5 | C-40 | Khaled A.A.A. Al-Kurdi | M | Strategy and Organizational development | Structure Consulting PSC. |
| 6 | C-41 | Zuhair Mihyar | M | Management, manufacturing | Aalam Albehar |
| 7 | C-45 | Musa M. Hammudeh | M | Strategic marketing | Multilink Consultants |
| 8 | C-47 | Sameh T. Al-Shihabi | M | Operations management | Delphi-Jordan |
| 9 | C-2 | Lama Asaad | F | Operations and Production consulting | PKF ProGroup |
| 10 | C-30 | Shoaib A. Islemeh | M | KAIZEN and TQM | Techno Glass |
| Public / government sector | | | | | |
| 11 | C-8 | Mohammad Mohailan | M | Inventory Management | Irbid Chamber of Industry |
| 12 | J-1 | Mohammad Najjar | M | National Linkage Program | JEDCO |
| 13 | J-2 | Mohammad Nijem | M | JUMP | JEDCO |
| 14 | J-3 | Mamoun Abu Shawar | M | JUMP | JEDCO |
| 15 | J-4 | Rami Hammad | M | JUMP | JEDCO |
| 16 | J-5 | Majd Maragha | F | JUMP | JEDCO |
| University faculty | | | | | |
| 17 | U-2 | Lina Khalil Al-Qatawneh | F | Lecturer | Applied Science University |

Annex 2-9

KAIZEN Leader Introductory Training (Lecture Instruction to Consultants)

(March 6, 2012)

| Item | Time | Contents | Text | Annex for further guidance | Instructor |
|---|-----------------------------------|--|----------------------------|--|------------|
| <u>Day 1:</u> Registration Opening | 9:00-9:30 9:30-9:40 | | | | |
| (1) Understanding of KAIZEN concept | 40 min. (9:40-10:20) Break | Introduction to KAIZEN | 1-3 ~1-9 | “Introduction to KAIZEN” [Annex 1-1 or 1-2, Item 1~5] | [1] |
| | | KAIZEN way of thinking | 1-13 ~1-15 | | |
| | | Examples of improvements | | Video TPM (3) 5’13”~10’15”, 15’22”~16’00” | |
| (2) Steps of KAIZEN practice | | | | | |
| 1) Organization of KAIZEN practice | 40 min. (10:40-11:20) | Organization; Roles of KAIZEN Leader, KAIZEN Promotion Committee, and Small-group leaders in the KAIZEN practice | 2-3 ~2-9 | “Introduction to KAIZEN” [Annex 1-1 or 1-2, Item 6] | [1] |
| 2) Small-group activity | | Small-group activity | 2-11 ~2-17 | | |
| 3) QC Story, the standard step of KAIZEN practice | 40 min. (11:20-12:00) Lunch | Steps for improvement Outline of the KAIZEN steps | 2-23 ~2-25 | | [1] |
| 4) Setting the company KAIZEN goal | | Steps to prepare company KAIZEN goal | 2-29 ~2-36 | | |
| 5) Defining the theme of KAIZEN by the small-groups | 60 min. (12:50-13:50) Break | Review of the relevant problems or subjects for improvement | 2-38 | “Case Examples of Steps of KAIZEN Practice” [Annex 2-1, and 2- 2] | [2] |
| | | Muda | 2-39 ~2-42 | | |
| | | Setting goals for small-group activity | 2-45 ~2-49 | | |
| 6) Fact finding | | Fact finding | 2-52 ~2-54, and 2-57 | | |

Annex 2-9

| | | | | | |
|---|-----------------------------------|--|---------------------------------|--|-----|
| | | Pareto diagram | 2-55 ~2-56 | | [2] |
| 7) Preparation of activity plan | 60 min. (14:10-15:10) | Activity plan PDCA | 2-59 ~2-65 | “Example of activity plan” [Annex 3] | [2] |
| 8) Cause analysis | | Cause analysis | 2-66 ~2-77 | | |
| 9) Implementation, verification & standardization | 50 min. (15:10-16:00) | Development of implementation ideas and implementation | 2-79 | | [3] |
| | | Development of multi-skilled labor | 2-93 ~2-95 | | |
| | | Verification of outcome | 2-97 ~2-99 | | |
| | | Standardization | 2-101 ~2-104 | | |
| | | Check list | 2-105 | “Examples of check sheets to set the improvement in place” [Annex 4-1, 4-2, and 4-3] | |
| 10) Steps to the next round of activities | | Review of the performance using original fishbone chart and check list | 2-109 ~2-111 | | |
| Day 2: Registration 9:00-9:30 | | | | | |
| (3) Useful tools to be used in the process of KAIZEN practice | 60 min. (9:30-10:30) Break | QC 7 tools | 3-3 ~3-5 | | [3] |
| 1) Cause-effects diagram | | Where and how it is used | 2-68 ~2-69 | | |
| 2) Check sheets | | Where and how it is used | 3-11 ~3-15 | | |
| 3) Histogram | 60 min. (10:50-11:50) Lunch | Where and how it is used | 3-19 ~3-22, 3-31 ~3-38 | | [4] |
| 4) Pareto diagram | | Where and how it is used | 3-39 ~3-40, 3-45 ~3-49 | | |

Annex 2-9

| | | | | | |
|---|--|--|------------------------------------|--|-----|
| (4) Useful KAIZEN methods & measures | | | | | |
| 1) 5S - Overview | 60 min. (12:40-13:40) Break | What is 5S? | 4-5 ~4-6 | Video 5S (1) 1'44"~5'50" 7'18"~12'28 | [5] |
| - Examples of 5S | | 5S and safety, efficiency, quality, etc. | | | |
| - 5S practice | | Seiri | | Video 5S (1) 14'53"~27'36" | |
| | | Seiton | | Video 5S (2) 0'42"~11'47" | |
| | | Definition of 5S | 4-7 ~4-11 | | |
| | Target setting Assessment sheet Regular assessment | 4-12 ~4-13 | 5S Assessment sheet [Annex 4-3] | | |
| 2) Visualized workplace management | 30 min. (14:00-14:30) Break | Examples - Filing - Parts storage -Spec. chart - Maintenance | 4-23 ~4-26, 4-29 ~4-31 | Video Visual Control (1) 6'49"~9'59" 18'35"~20'54" Visual Control (2) 4'48"~6'55" 8'09"~10'11" | [6] |
| 3) Foolproof / fail-safe devices | 50 min. (14:50-15:40) | Overview | 4-33 ~4-35 | Video Visual Control (1) 17'23"~18'35" Visual Control (3) 4'58"~7'16" 9'43"~11'09" | [6] |
| 4) Improvement suggestion system | | Overview | 4-39 ~4-44 | | |
| (5) Summary of process of KAIZEN practice | 20 min. (15:40-16:00) | Outline of the KAIZEN steps to be undertaken by the small-groups | | KAIZEN Steps [Annex 5] | [6] |
| Closing | 16:00 | | | | |

▼The slides of the text, which number is marked yellow, will be skipped in the lectures.

Stages of KAIZEN Guidance (Guidance Instruction to Consultants)

(March 5, 2012)

| Stage | Contents | Guidance by the consultant | |
|----------------------------------|--|--|--|
| Stage 1 (Mar. 2012) | Assumed attendances: - KAIZEN leader(s) - KAIZEN Promotion Committee members - To-be small-group leaders | | |
| | 1) Orientation to KAIZEN practice | - "Introduction to KAIZEN Approach" (Annex 1, Item 1~5) | |
| | 2) Improvement at the workplace | - Video TPM Vol.3 (5'13"~10'15") and (15'22"~16'00") - Charts showing examples of work efficiency improvement | |
| | 3) Issues and expectations of the company for KAIZEN (Briefing by the company management to the attendances) | | |
| | 4) How will the KAIZEN groups be organized and managed? | - "Introduction to KAIZEN Approach" (Annex 1, Item 6) | |
| | (For KAIZEN leaders and KAIZEN committee members) 5) Guidance on company's KAIZEN goal | - Role of KAIZEN Leader - Role of KAIZEN Promotion Committee (Text, Slide 2-3~2-9) - Company's management goal, KAIZEN goal and small-groups' goal (Text, Slide 2-29~2-36) | |
| Action by company before Stage 2 | 1. Setting the company's KAIZEN goal by the KAIZEN promotion committee 2. Organize the small-groups 3. Guidance by the KAIZEN Leader to the small-group leaders on KAIZEN process, "brainstorming" and "fishbone chart" 4. Regular meeting of the KAIZEN Committee (every month at least) 5. Regular meetings by small-groups (every two weeks at least) to set KAIZEN theme of the group using brainstorming and fishbone chart | | |

Annex 2-10

| Stage | Contents | Guidance by the consultant |
|----------------------------------|--|---|
| Stage 2 (Jun./Jul., 2012) | 1) Guidance on KAIZEN subject and goal of small-groups 2) Guidance on fact finding, cause analysis and goal setting 3) Guidance on preparation of activity plan | <ul style="list-style-type: none"> - Fishbone chart - Check list for fact finding and performance assessment - Steps of KAIZEN practice - Good practice of 5S activity - Preparation of activity plan |
| Action by company before Stage 3 | <ol style="list-style-type: none"> 1. Regular meetings by the small-groups (every two weeks at least) 2. Prepare the activity plan by the small-groups 3. Regular meeting of the KAIZEN Committee (every month at least) 4. Small-groups to take actions according to the activity plan | |
| Stage 3 (Sep./Oct. 2012) | <ol style="list-style-type: none"> 1) Monitoring of the activity plans of the small-groups 2) Guidance on data gathering and analysis 3) Guidance on activities of Promotion Committee | (Tentative (*)) <ul style="list-style-type: none"> - Publicizing the activities among the employees - Good practice of “maintenance 5S” |
| Action by company before Stage 4 | <ol style="list-style-type: none"> 1. Regular meetings by the small-groups (every two weeks at least) 2. Small-groups to take actions according to the activity plan, while monitoring the performance by themselves according to the activity plan 3. Regular meeting of the KAIZEN Committee (every month at least) 4. The Promotion Committee to review the KAIZEN practice of the small groups | |
| Stage 4 (Dec. 2012) | <ol style="list-style-type: none"> 1) Monitoring of the activity plans of the small-groups 2) Guidance on standardization 3) Guidance on 2nd round of small-group activities | (Tentative (*)) <ul style="list-style-type: none"> - The original fishbone chart / fact finding check list (for evaluation of the activities performed) - Check list to place the improvement into the daily operation - Review of steps for KAIZEN |

Annex 2-10

| Stage | Contents | Guidance by the consultant |
|----------------------------------|--|--|
| Action by company before Stage 5 | <ol style="list-style-type: none"> 1. Regular meetings by the small-groups (every two weeks at least) 2. Small-groups to take actions according to the activity plan, while monitoring the performance by themselves according to the activity plan, including the activity plan of the 2nd round activities, where applicable 3. Regular meeting of the KAIZEN Committee (every month at least) 4. The Promotion Committee to review the KAIZEN practice of the small groups | |
| Stage 5 (Feb. 2013) | <ol style="list-style-type: none"> 1) Wrap-up of the KAIZEN practices <ul style="list-style-type: none"> - Review and guidance of the activities of the KAIZEN Committee, and the small-groups 2) Guidance on further step-up of the practices | (Tentative (*)) <ul style="list-style-type: none"> - Wrap-up of the KAIZEN practice - Guidance on step-up of the practices |
| Action by the Company | <ol style="list-style-type: none"> 1. Regular meetings by the small-groups (every two weeks at least) 2. Small-groups to take actions according to the activity plan, while monitoring the performance by themselves according to the activity plan 3. Regular meeting of the KAIZEN Committee (every month at least) 4. The Promotion Committee to review the KAIZEN practice of the small groups | |

Note: One stage assumes one visit with 2-3 hours of guidance and consultation.

(*) Contents of the guidance will be finalized according to the progress of the practice by the company.

Annex 2-11

Assessment of Consultants Participated in KAIZEN Consultant Training Program

1 Objective of the Performance Assessment and Its Limitation

This annex evaluates the achievement level of consultants participated in “the KAIZEN consultant training program.” “The KAIZEN consultant training program” is one of major components of this project. The program was carried out to have KAIZEN consultants (or candidates) understand necessary guidance including on-site guidance in the perspective of forming the base to proceed the KAIZEN approach sustainably in each company.

In fact, the content and progress of KAIZEN approach are varied according to the conditions of that company. Therefore the understandings of consultants joined in this program were also influenced by the progresses of KAIZEN approach in the companies they visited. For this reason, the result of the evaluation does not show the comparison of consultants’ abilities but it should be used for drawing a lesson of what should be done for KAIZEN dissemination in Jordan.

2 Outline of the assessment process and criteria

(1) Assessment process

The Project Team evaluated the achievement levels of KAIZEN consultants participated in “the pilot SME support program for KAIZEN practice” based on the evaluation criteria below.

In addition, the questionnaires survey¹ to the pilot SMEs was conducted parallel to the evaluation by the Project Team. The purpose of this evaluation is to make the evaluation results of the Project Team more objective, however, the final results fully depends on the Project Team judgment.

(2) Assessment factors of achievement level of consultants participated, and summary of evaluation scores

The achievement levels were evaluated with 5 point scale by 6 assessment factors, and each score in the factor is weighted with following value and added up.

¹ The questionnaire was put as an attachment of Annex 2-12.

Table 1: Weight of the scores by assessment factors

| Assessment Factors | Weight of the scores |
|---|----------------------|
| 1) Balanced understanding on basic factors in KAIZEN approach | 4 |
| 2) Careful preparation and responsibility in guidance to the customer companies | 4 |
| 3) Guidance ability on bottom-up type activities with participation of motivated employees and their improvement proposals | 4 |
| 4) Guidance ability on fact and problem analysis using statistical data | 2 |
| 5) Guidance ability on improvement planning and implementation in accordance with scientifically and logically justifiable procedures | 4 |
| 6) Guidance ability on productivity and quality improvement at the site | 2 |

3 Assessment of the achievement of the consultants participated in the program

The achievement of the private sector consultants participated in the Program in terms of understanding of the on-site KAIZEN guidance is generally good as shown below:

Table 2 Assessment of the achievement of the consultants

| Guidance achievement level | Number of consultants under the level | % of total (a) | Accumulated total of (a) (in % of total) |
|----------------------------|---------------------------------------|----------------|--|
| A+ (Excellent ability) | 0 | 0 | 0 |
| A (Very good ability) | 5 | 50 | 50 |
| B+ (Good ability) | 3 | 30 | 80 |
| B (Average ability) | 2 | 20 | 100 |
| C (Fair ability) | 0 | 0 | 100 |
| D (Poor ability) | 0 | 0 | 100 |
| E (Not performed) | 0 | 0 | 100 |
| Total | 10 | 100 | 100 |

Nevertheless, the understanding of the consultants is also limited particularly in some guidance fields, which require more field experiences, as shown below (Table 5):

Table 3: Average scores by assessment items

| Assessment factors | Average scores by assessment factor: (Full score is 5.0) |
|---|---|
| 1) Balanced understanding on basic factors in KAIZEN approach | 3.80 |
| 2) Careful preparation and responsibility in guidance to the customer companies | 4.70 |
| 3) Guidance ability on bottom-up type activities with participation of motivated employees and their improvement proposals | 4.50 |
| 4) Guidance ability on fact and problem analysis using statistical data | 3.30 |
| 5) Guidance ability on improvement planning and implementation in accordance with scientifically and logically justifiable procedures | 4.30 |
| 6) Guidance ability on productivity and quality improvement at the site | 3.50 |

It is also evidenced by the feedbacks from the companies participated and the consultants regarding the need for further advice by the Japanese experts on KAIZEN practice. (See tables 7 & 8):

Table 4: Response from the companies

“Do you think you can promote the KAIZEN activities in your company without advice from the Japanese KAIZEN advisors?”

| | Response from: | | |
|--|--------------------|----------------------------------|----------------------------|
| | Total 13 companies | 8 companies in A+, A & B+ levels | 5 companies in B & C level |
| No more need of the guidance/advice from the Japanese KAIZEN Advisors | 3 | 2 | 1 |
| No more need of the guidance/advice from the Japanese KAIZEN Advisors if the local consultant is available | 2 | 1 | 1 |
| Still need advice from the Japanese KAIZEN Advisors | 8 | 5 | 3 |

Table 5: Feedback from the consultants

“Do you think you can make advice/guidance on KAIZEN practice without advice from the Japanese KAIZEN advisors?”

| | Response from 8 (private sector) consultants |
|--|--|
| 1. No more need of the guidance/advice from the Japanese KAIZEN Advisors | 2 |
| 2. Still need advice of the Japanese KAIZEN Advisors | 6 |

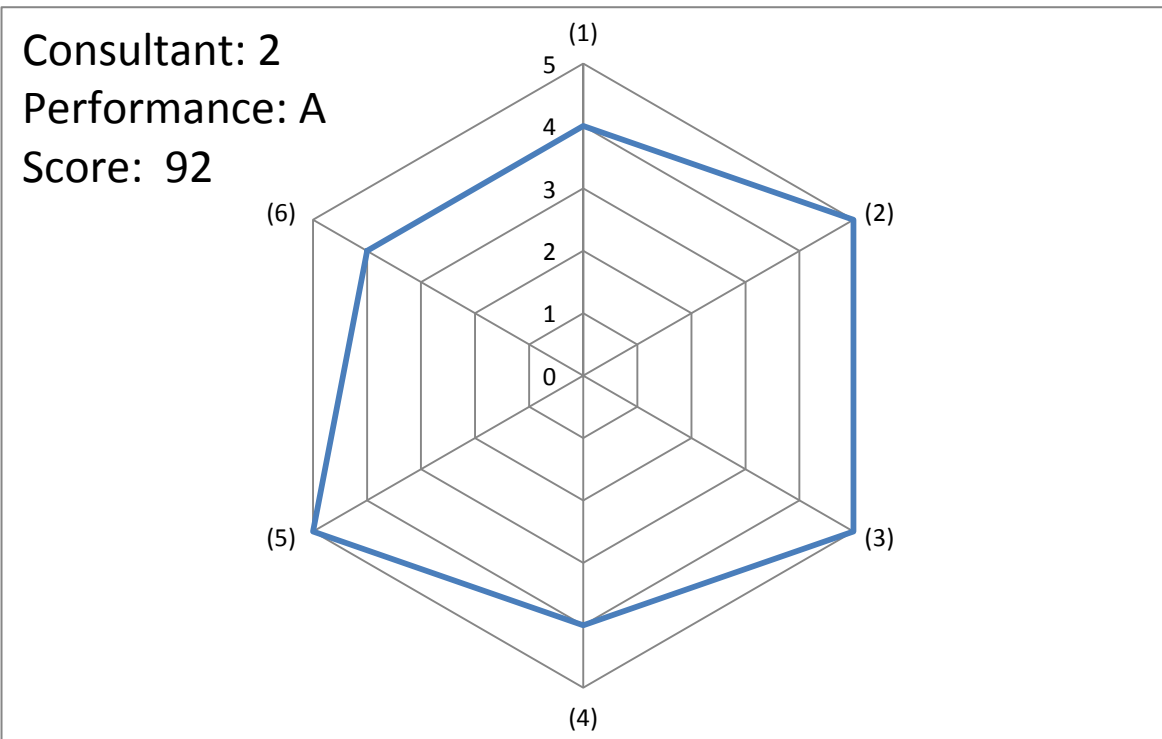
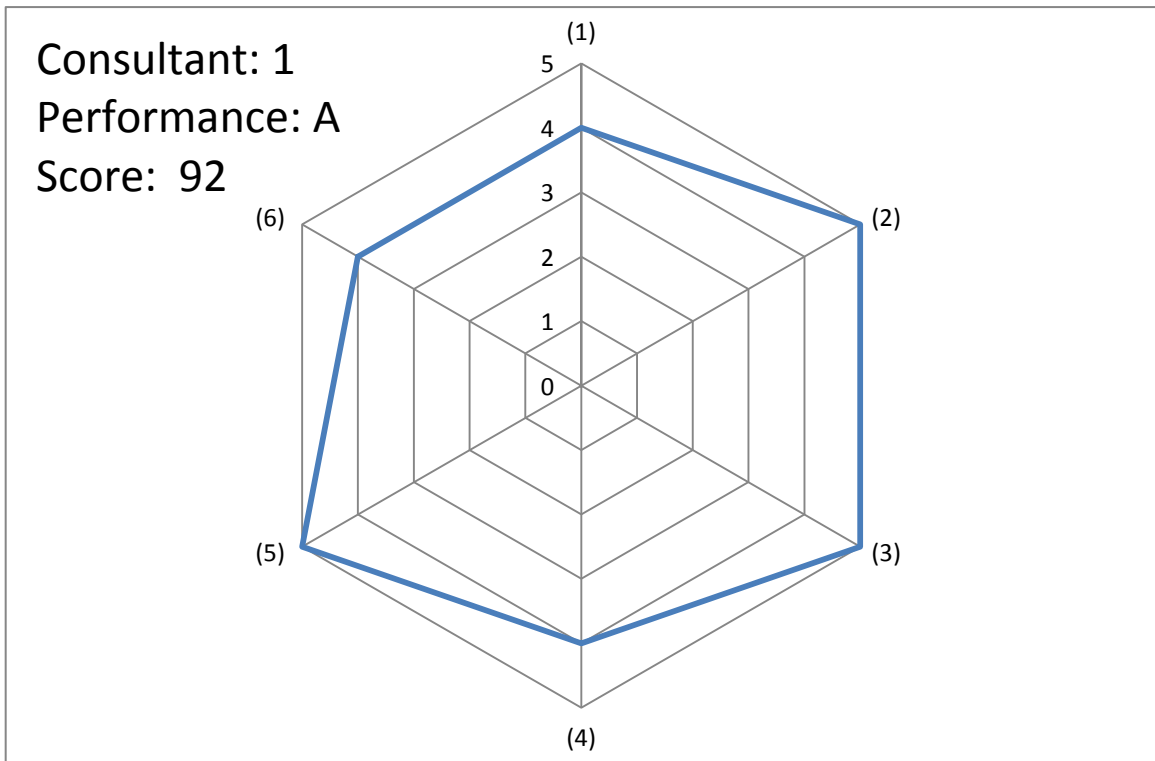
In conclusion, the most of the consultants have acquired KAIZEN guidance ability through the Program to a good performance level, but the ability is still weak in general, because of the fact that none of the companies they guided have successfully proceeded to the upgraded level of KAIZEN practice. It requires more practical and on-site experiences for the consultants.

There is a need for continuing guidance by the experienced consultants with systematic guidance curriculum both for the local consultants and the KAIZEN Leaders of companies.

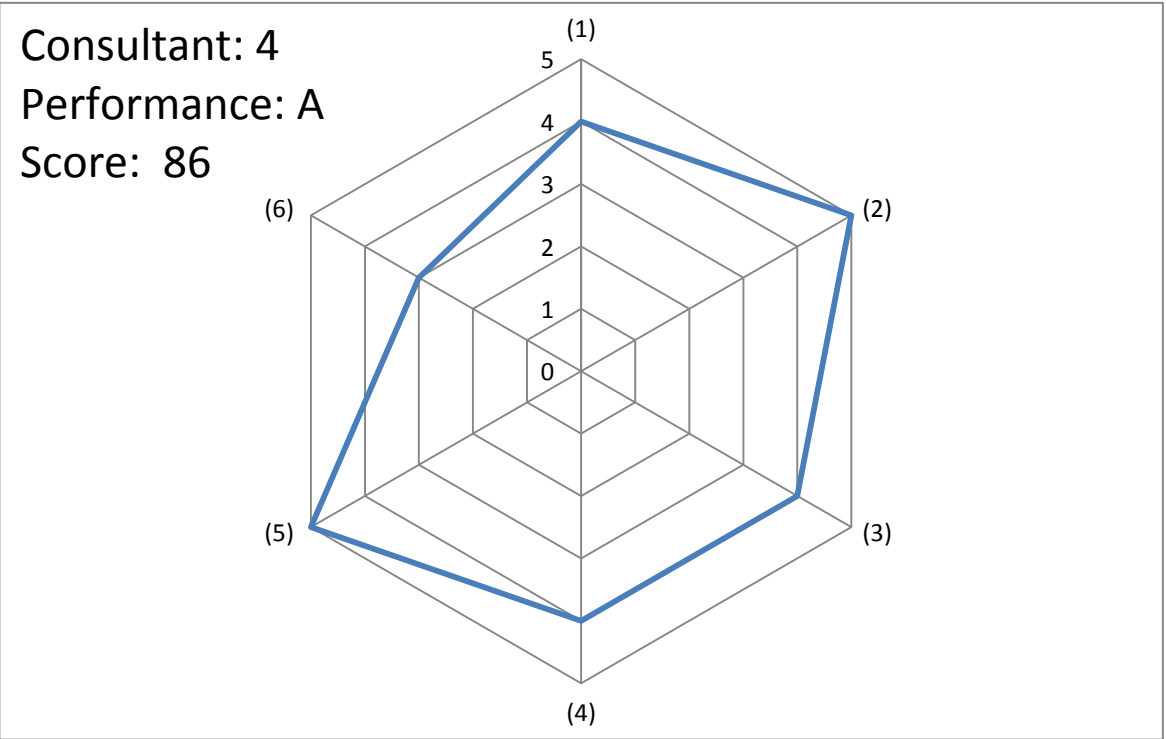
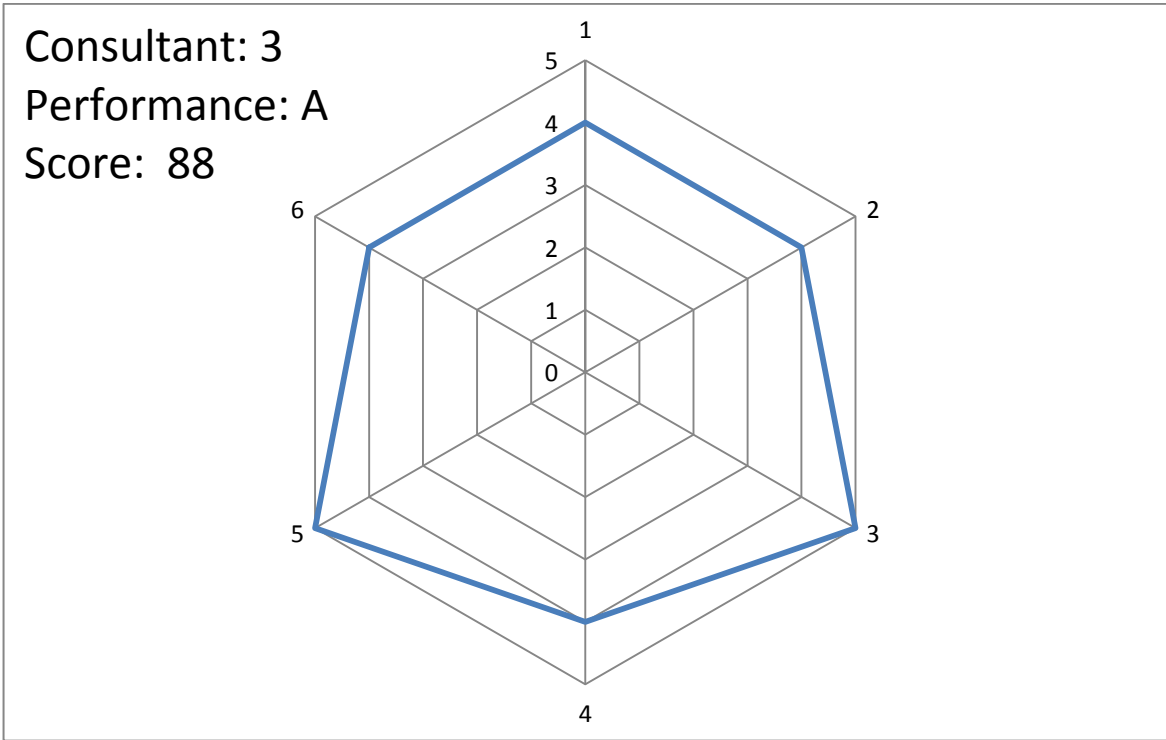
Annex 2-11 Attachment

A2-26

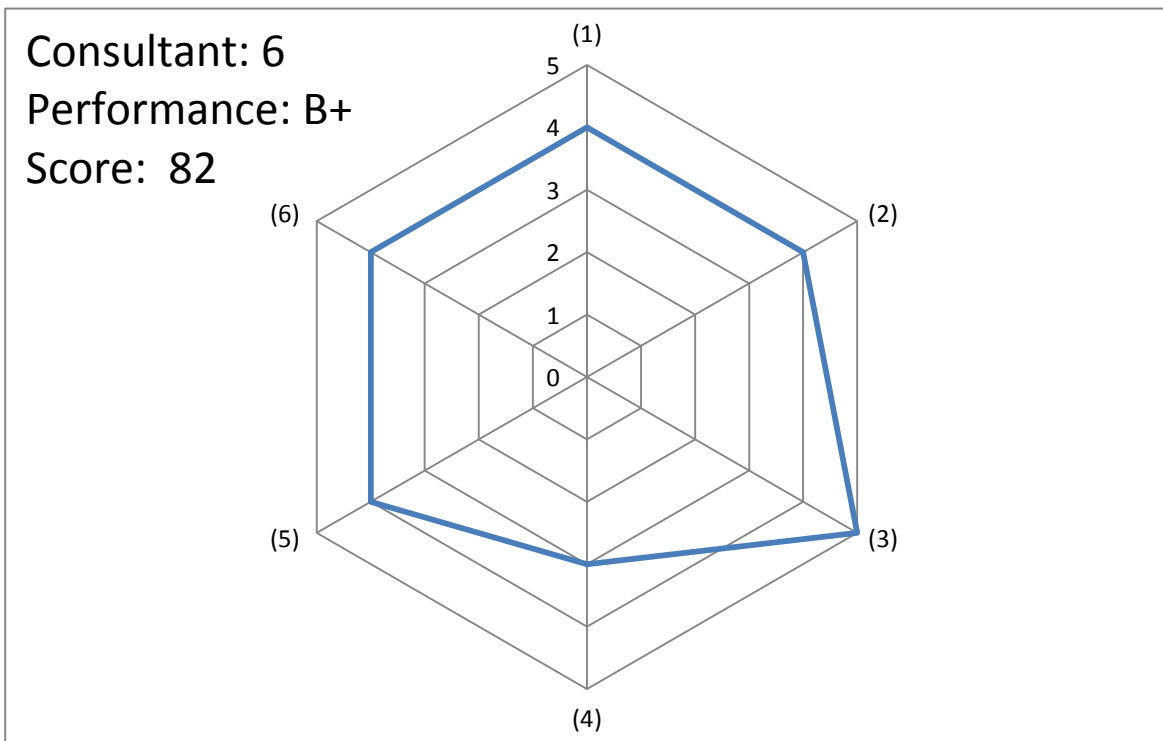
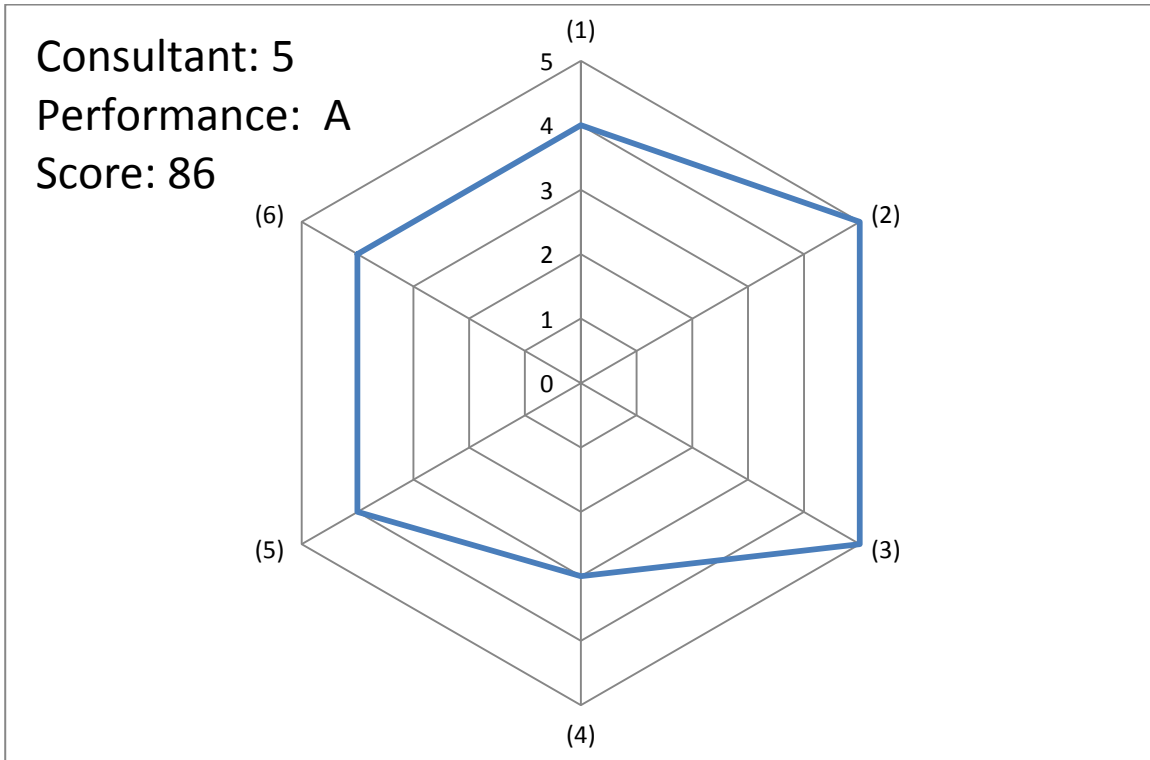
| Evaluation of the consultants by the Project Team | | | | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | Average |
|--|--|----------|--|----------|-----------|----------|----------|----------|----------|-----------|-----------|----------|----------|---------|
| | Evaluation results | | | A | B+ | B | A | B | A | B+ | B+ | A | A | |
| | Score | W | | 92 | 80 | 72 | 86 | 70 | 92 | 80 | 82 | 86 | 88 | |
| (1) | Balanced understanding on basic factors in KAIZEN approach | 4 | | 4 | 4 | 3 | 4 | 3 | 4 | 4 | 4 | 4 | 4 | 3.80 |
| (2) | Careful preparation and responsibility in guidance to the customer companies | 4 | | 5 | 5 | 4 | 5 | 5 | 5 | 5 | 4 | 5 | 4 | 4.70 |
| (3) | Guidance ability on bottom-up type activities with participation of motivated employees and their improvement proposals | 4 | | 5 | 4 | 4 | 4 | 4 | 5 | 4 | 5 | 5 | 5 | 4.50 |
| (4) | Guidance ability on fact and problem analysis using statistical data | 2 | | 4 | 3 | 3 | 4 | 2 | 4 | 3 | 3 | 3 | 4 | 3.30 |
| (5) | Guidance ability on improvement planning and implementation in accordance with scientifically and logically justifiable procedures | 4 | | 5 | 4 | 4 | 5 | 3 | 5 | 4 | 4 | 4 | 5 | 4.30 |
| (6) | Guidance ability on productivity and quality improvement at the site | 2 | | 4 | 3 | 3 | 3 | 3 | 4 | 3 | 4 | 4 | 4 | 3.50 |



- (1) Balanced understanding on basic factors in KAIZEN approach
- (2) Careful preparation and responsibility in guidance to the customer companies
- (3) Guidance ability on bottom-up type activities with participation of motivated employees and their improvement proposals
- (4) Guidance ability on fact and problem analysis using statistical data
- (5) Guidance ability on improvement planning and implementation in accordance with scientifically and logically justifiable procedures
- (6) Guidance ability on productivity and quality improvement at the site

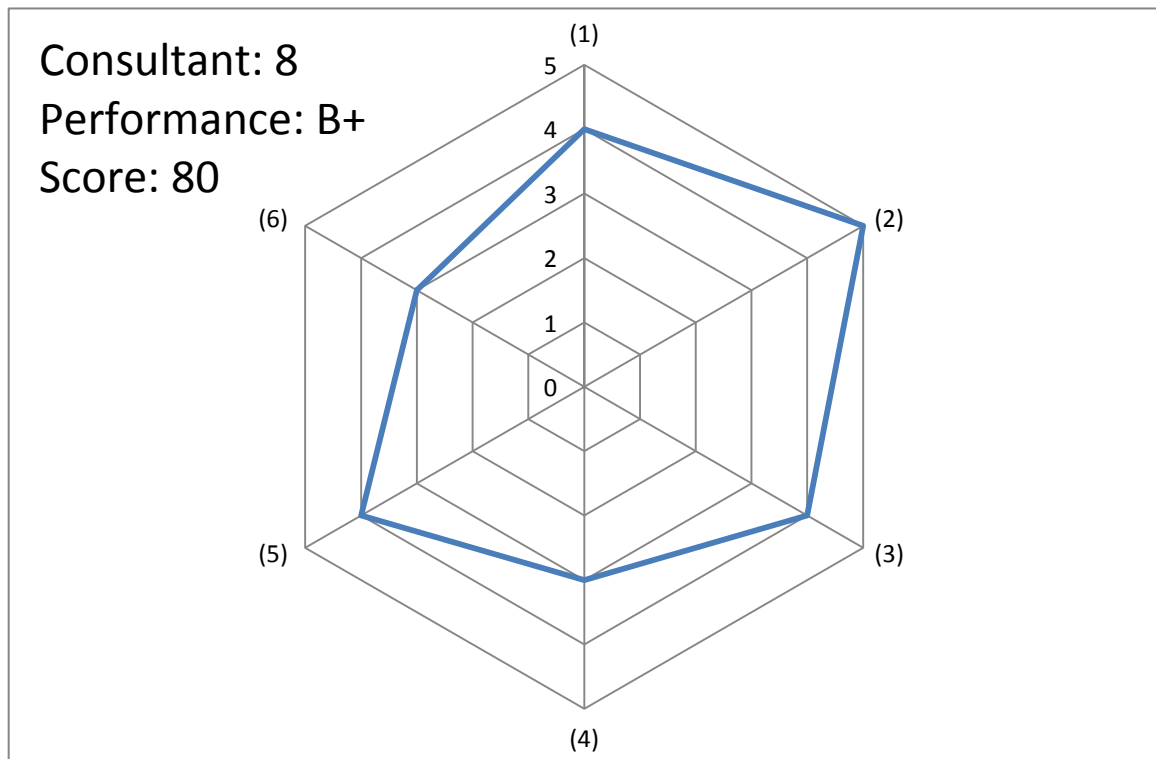
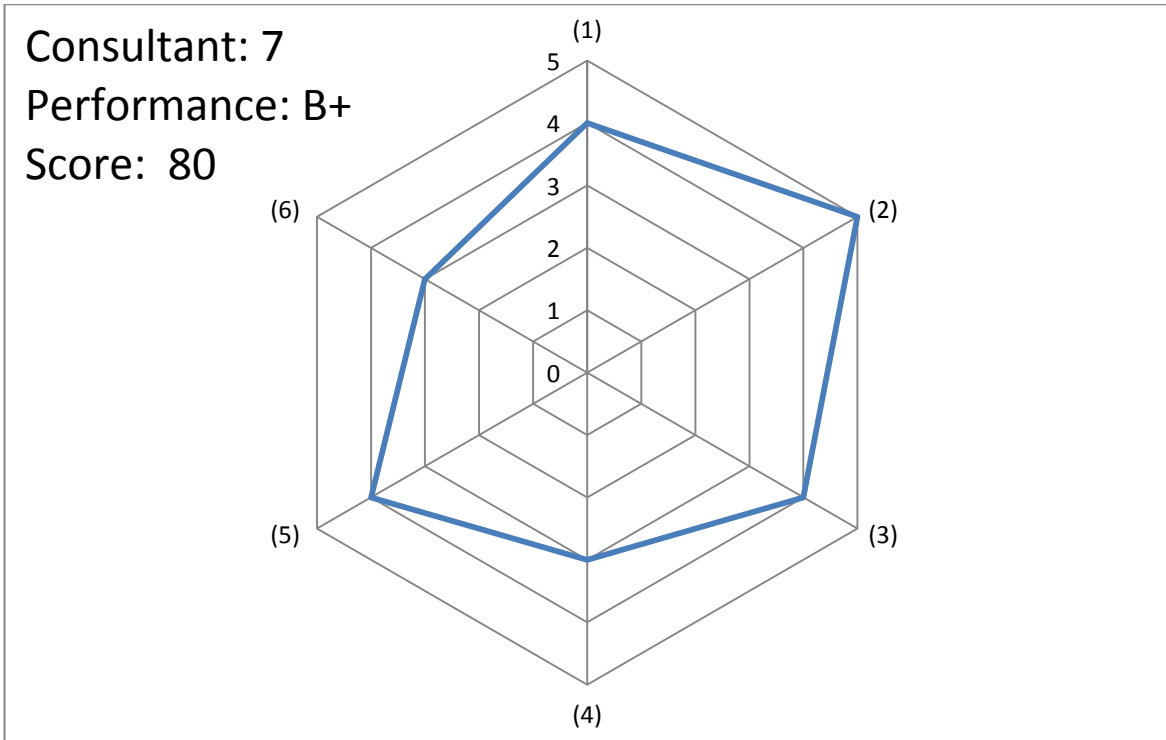


- (1) Balanced understanding on basic factors in KAIZEN approach
- (2) Careful preparation and responsibility in guidance to the customer companies
- (3) Guidance ability on bottom-up type activities with participation of motivated employees and their improvement proposals
- (4) Guidance ability on fact and problem analysis using statistical data
- (5) Guidance ability on improvement planning and implementation in accordance with scientifically and logically justifiable procedures
- (6) Guidance ability on productivity and quality improvement at the site



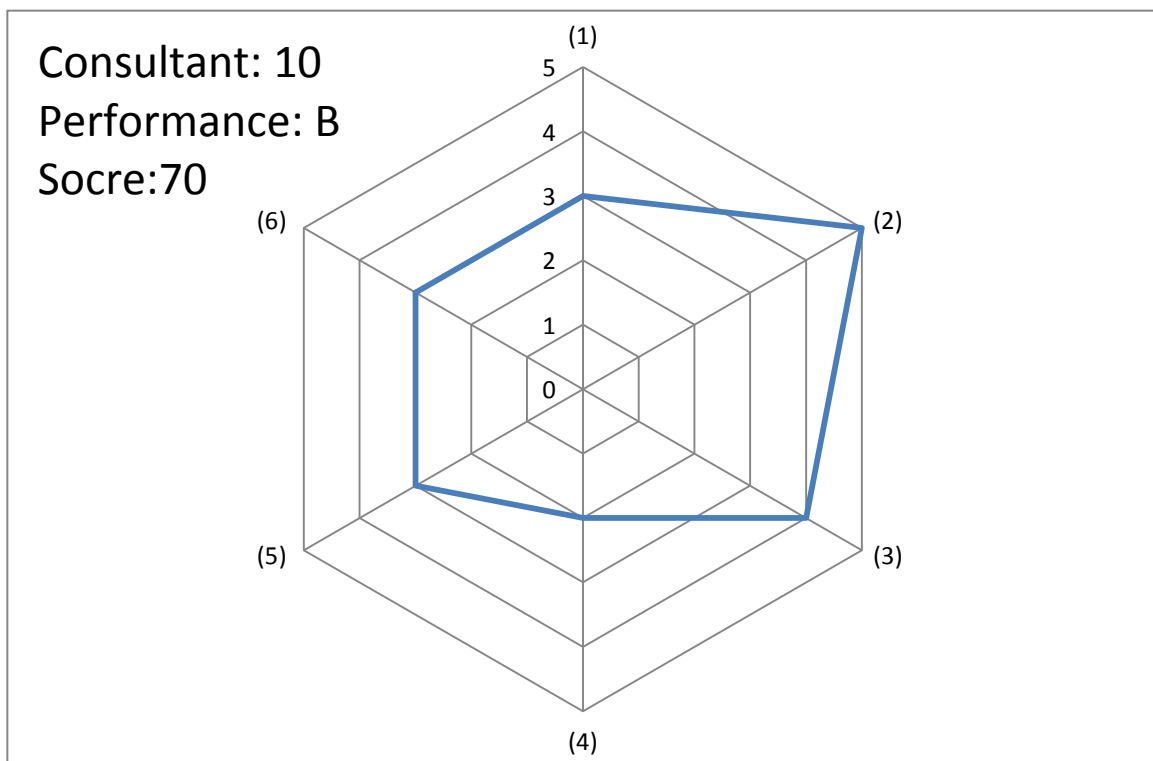
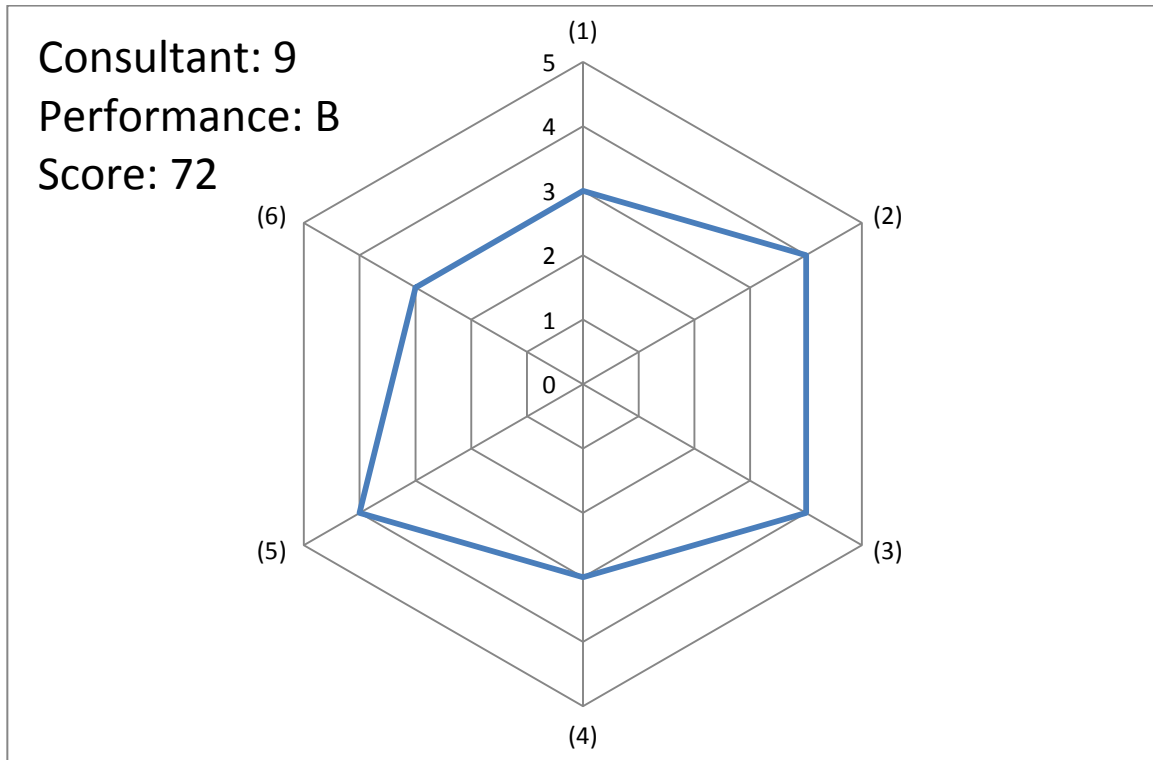
- (1) Balanced understanding on basic factors in KAIZEN approach
- (2) Careful preparation and responsibility in guidance to the customer companies
- (3) Guidance ability on bottom-up type activities with participation of motivated employees and their improvement proposals
- (4) Guidance ability on fact and problem analysis using statistical data
- (5) Guidance ability on improvement planning and implementation in accordance with scientifically and logically justifiable procedures
- (6) Guidance ability on productivity and quality improvement at the site

Annex 2-11 Attachment



- (1) Balanced understanding on basic factors in KAIZEN approach
- (2) Careful preparation and responsibility in guidance to the customer companies
- (3) Guidance ability on bottom-up type activities with participation of motivated employees and their improvement proposals
- (4) Guidance ability on fact and problem analysis using statistical data
- (5) Guidance ability on improvement planning and implementation in accordance with scientifically and logically justifiable procedures
- (6) Guidance ability on productivity and quality improvement at the site

Annex 2-11 Attachment



- (1) Balanced understanding on basic factors in KAIZEN approach
- (2) Careful preparation and responsibility in guidance to the customer companies
- (3) Guidance ability on bottom-up type activities with participation of motivated employees and their improvement proposals
- (4) Guidance ability on fact and problem analysis using statistical data
- (5) Guidance ability on improvement planning and implementation in accordance with scientifically and logically justifiable procedures
- (6) Guidance ability on productivity and quality improvement at the site

Annex 2-12

Summary of the feedbacks from the participated consultants

(1) Performance evaluation of the Round-1 companies (Number of the **Round-1** company evaluated = 15)

1) How do you assess the KAIZEN practice at the company?

| | Number | % of total |
|--|--------|------------|
| 1. Very successful | 3 | 22% |
| 2. Successful | 3 | 22% |
| 3. Implemented, but still insufficient | 3 | 22% |
| 4. Implemented, but poor | 5 | 37% |
| 5. Not implemented | 1 | 7% |
| Total | 15 | 100% |

2) How do you evaluate the following factors in KAIZEN practice at the company (please tick an appropriate column for each factor)?

| Factor | Number of the applicable companies | | |
|---|------------------------------------|------|------|
| | Excellent | Good | Poor |
| 1. Commitment of the management for KAIZEN practice | 9 | 3 | 3 |
| 2. Capability and performance of KAIZEN Leader, or promotional organization in the company | 4 | 5 | 6 |
| 3. Bottom-up type activities including small-group activity | 2 | 6 | 7 |
| 4. Analysis and control using data (such as use of QC 7 tools) | 2 | 6 | 7 |
| 5. QC Story | 1 | 7 | 7 |
| 6. Improvement as the result of the KAIZEN practice (such as, improvement of work efficiency, workplace organization, reduction of defects, wastes/unused materials, etc. | 3 | 6 | 6 |

(2) Performance evaluation of the Round-2 companies (Number of the **Round-2** company evaluated = 6)

(The following assessment on the Round-2 companies is just for reference only.)

1) How do you assess the KAIZEN practice at the company?

| | Number | % of total |
|--|--------|------------|
| 1. Very successful | 1 | 17% |
| 2. Successful | 1 | 17% |
| 3. Implemented, but still insufficient | 3 | 50% |
| 4. Implemented, but poor | 1 | 17% |
| 5. Not implemented | 0 | 0% |
| Total | 6 | 100% |

2) How do you evaluate the following factors in KAIZEN practice at the company (please tick an appropriate column for each factor)?

| Factor | Number of the applicable companies | | |
|---|------------------------------------|------|------|
| | Excellent | Good | Poor |
| 1. Commitment of the management for KAIZEN practice | 3 | 2 | 1 |
| 2. Capability and performance of KAIZEN Leader, or promotional organization in the company | 1 | 4 | 1 |
| 3. Bottom-up type activities including small-group activity | 1 | 3 | 2 |
| 4. Analysis and control using data (such as use of QC 7 tools) | 0 | 2 | 4 |
| 5. QC Story | 0 | 3 | 3 |
| 6. Improvement as the result of the KAIZEN practice (such as, improvement of work efficiency, workplace organization, reduction of defects, wastes/unused materials, etc. | 2 | 2 | 2 |

(3) Do you think you can make advice/guidance on KAIZEN practice without advice from the Japanese KAIZEN advisors?

| | | |
|---|---|-----|
| No more need of the guidance/advice from the Japanese KAIZEN Advisors | 2 | 18% |
| Still need advice of the Japanese KAIZEN Advisors | 6 | 82% |

Feedback for KAIZEN Support Program

This is a feedback form on the KAIZEN Support Program, which has been conducted under the KAIZEN Dissemination Project in Jordan supported by JICA and JEDCO. We appreciate it greatly if you could fill in the form and return it to JEDCO through e-mail. This feedback results will be used only internally within the JICA Project Team and JEDCO for the purpose of improving the program. Thank you for your cooperation in advance.

• **Name of the Consultant:**

(1) Name of the **Round-1** company (first company) of your on-site training on KAIZEN practice:

()

1) How do you assess the KAIZEN practice at the company?

1. Very successful
 2. Successful
 3. Implemented, but still insufficient
 4. Implemented, but poor
 5. Not implemented

2) How do you evaluate the following factors in KAIZEN practice at the company (please tick an appropriate column for each factor)?

| Excellent | Good | Poor | Factors |
|--------------------------|--------------------------|--------------------------|--|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. Commitment of the management for KAIZEN practice |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. Capability and performance of KAIZEN Leader, or promotional organization in the company |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. Bottom-up type activities including small-group activity |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 4. Analysis and control using data (such as use of QC 7 tools) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 5. QC Story (Steps for improvement) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 6. Improvement as the result of the KAIZEN practice (such as, improvement of work efficiency, workplace organization, reduction of defects, wastes/unused materials, etc.) |

(2) Name of the **Round-1** company (second company) of your on-site training on KAIZEN practice:

()

1) How do you assess the KAIZEN practice at the company?

- 1. Very successful
- 2. Successful
- 3. Implemented, but still insufficient
- 4. Implemented, but poor
- 5. Not implemented

2) How do you evaluate the following factors in KAIZEN practice at the company (please tick an appropriate column for each factor)?

| Excellent | Good | Poor | Factors |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. Commitment of the management for KAIZEN practice |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. Capability and performance of KAIZEN Leader, or promotional organization in the company |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. Bottom-up type activities including small-group activity |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 4. Analysis and control using data (such as use of QC 7 tools) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 5. QC Story |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 6. Improvement as the result of the KAIZEN practice (such as, improvement of work efficiency, workplace organization, reduction of defects, wastes/unused materials, etc. |

(3) Name of the **Round-2** company, which have made guidance on KAIZEN practice:

()

How do you assess the KAIZEN practice at the company?

- 1. Very successful
- 2. Successful
- 3. Implemented, but still initial stage of the KAIZEN practice
- 4. Not yet implemented, but active in introducing KAIZEN practice
- 5. Not yet implemented

How do you evaluate the following factors in KAIZEN practice at the company (please tick the appropriate column?)

| Excellent | Good | Poor | |
|--------------------------|--------------------------|--------------------------|---|
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. Commitment of the management for KAIZEN practice |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. Capability and performance of KAIZEN Leader, or promotional organization in the company |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. Bottom-up type activities including small-group activity |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 4. Analysis and control using data (such as use of QC 7 tools) |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 5. QC Story |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 6. Improvement as the result of the KAIZEN practice (such as, improvement of work efficiency, workplace organization, reduction of defects, wastes/unused materials, etc. |

(4) Do you think you can make advice/guidance on KAIZEN practice without advice from the Japanese KAIZEN advisors?

- 1. No more need of the guidance/advice from the Japanese KAIZEN Advisors
- 2. Still need advice of the Japanese KAIZEN Advisors

Thank you for the feedback!!

Annex 3 Contents of KAIZEN Textbooks

Annex 3-1: KAIZEN Textbook System

| | |
|-----|--|
| 1 | Introduction of KAIZEN to the company management and operation |
| 1.1 | Concept and features of KAIZEN approach |
| 1.2 | Evolution of KAIZEN practice by Japanese companies for improvement of quality management |
| 1.3 | For successful introduction of KAIZEN to company management and operation |
| 1.4 | Methods, tools and techniques of KAIZEN practice |
| 2 | Steps for improvements; QC Stories |
| 2.0 | Introduction |
| 2.1 | Selection of improvement subject |
| 2.2 | Understanding the issues, and setting the target |
| 2.3 | Preparation of KAIZEN activity plan |
| 2.4 | Analysis of causes of problems and/or factors for improvements |
| 2.5 | Development of improvement ideas, and Implementation |
| 2.6 | Evaluation of the effects |
| 2.7 | Standardization, and implementation of the improvement measures in the daily operation process |
| 2.8 | Updating of the KAIZEN activity plan |
| 3 | Identification of the subjects for improvement and development of ideas for improvement |
| 3.1 | Introduction |
| 3.2 | Identification of the subjects for improvement |
| 3.3 | Development of ideas for improvement |
| 4 | Tools and techniques of KAIZEN practice - QC 7 Tools |
| 4.0 | Introduction |
| 4.1 | Check sheets |
| 4.2 | Histograms |
| 4.3 | Pareto diagrams |
| 4.4 | Control charts |
| 4.5 | Scatter diagrams |
| 4.6 | Cause-and effects diagrams |
| 4.7 | Stratification |
| 5 | Effective methods/measures to put the features and advantages of KAIZEN into reality |
| 5.1 | Five(5)-S |
| 5.2 | Implement and activate the Improvement Suggestion System |
| 5.3 | Development and promotion of foolproof/fail-safe devices |
| 5.4 | Visualization of production control procedures |
| 5.5 | Small-group activities |
| 6 | KAIZEN Guidance |

Annex 3-2: Contents of KAIZEN Textbook for Consultants (detail)

| | |
|----------|--|
| 1 | Introduction of KAIZEN to the company management and operation |
| 1.1 | Concept and features of KAIZEN approach |
| | (1) KAIZEN |
| | (2) Improvement vs. Maintenance |
| | (3) "KAIZEN approach" vs. "Taskforce/Project approach" |
| | (4) Concept and features of KAIZEN |
| | (5) Fundamentals of KAIZEN approach |
| | (6) Strength of KAIZEN approach |
| 1.2 | Evolution of KAIZEN practice by Japanese companies for improvement of quality management |
| 1.3 | For successful introduction of KAIZEN to company management and operation |
| | (1) Characteristics of KAIZEN practice |
| | (2) Basic requirements for introducing KAIZEN practice |
| | (3) How to proceed the KAIZEN practice systematically |
| | (4) Crucial areas of focus in KAIZEN practice: SQCDPM |
| | (5) Promotion of KAIZEN practice in the company |
| 1.4 | Methods, tools and techniques of KAIZEN practice |
| | (1) Overview |
| | (2) QC Story: the standard steps of KAIZEN planning, evaluation and implementation |
| 2 | Steps for improvements; QC Stories |
| 2.0 | Introduction |
| | (1) QC Story: the standard steps of KAIZEN planning, evaluation and implementation |
| | (2) Problem-solving approach vs. Task-achieving approach |
| | (3) Outline of steps of QC Story |
| 2.1 | Selection of improvement subject |
| | (1) Confirm/ understand the KAIZEN goal |
| | (2) Review of the relevant problems |
| | (3) Selection of improvement subject |
| 2.2 | Understanding the issues, and setting the target |
| | (1) Problem-solving approach |
| | (2) Task-achieving approach |
| | (3) Procedure of situation analysis by improvement subject |
| | (4) Objective setting |
| 2.3 | Preparation of KAIZEN activity plan |
| 2.4 | Analysis of causes of problems and/or factors for improvements |
| | (1) Cause-effect analysis |
| | (2) Verification of the relationship |
| | (3) Decision on the target improvement |

| | |
|-----|---|
| 2.5 | Development of improvement ideas, and Implementation |
| | (1) The Five Whys |
| | (2) Eliminate MUDA (wasteful / useless) |
| | (3) Leave the works of machines to machines |
| | (4) Avoiding apparent / misguided productivity |
| | (5) System efficiency should be the target |
| | (6) Need for development of multi-skilled operators |
| 2.6 | Evaluation of the effects |
| 2.7 | Standardization, and implementation of the improvement measures in the daily operation process |
| | (1) Procedure |
| | (2) Standardization |
| | (3) Requirement conditions and recommendations for preparing the work standard |
| | (4) Putting the standard in place in the workplace |
| 2.8 | Updating of the KAIZEN activity plan |
| 3 | Identification of the subjects for improvement and development of ideas for improvement |
| 3.1 | Introduction |
| 3.2 | Identification of the subjects for improvement |
| | (1) Identification of the subjects from the workplaces |
| | (2) Identification of the subjects for customer satisfaction |
| | (3) Identification of the subjects in view of employees' manner and discipline |
| | (4) Identification of the subjects in the area of parts/materials procurement, acceptance and storage |
| | (5) Identification of the subjects in view of improving SQCDPM |
| 3.3 | Development of ideas for improvement |
| | (1) General |
| | (2) Check lists method for idea development |
| | (3) Effective methods/measures to put the feature and advantage of KAIZEN into reality |
| | (4) Learning from case examples of KAIZEN practice |
| 4 | Tools and techniques of KAIZEN practice - QC 7 Tools |
| 4.0 | Introduction |
| | (1) QC 7 Tools |
| | (2) Way of statistical thinking |
| 4.1 | Check sheets |
| 4.2 | Histograms |
| 4.3 | Pareto diagrams |
| 4.4 | Control charts |
| 4.5 | Scatter diagrams |
| 4.6 | Cause-and effects diagrams |
| 4.7 | Stratification |

| | |
|-----|--|
| 5 | Effective methods/measures to put the features and advantages of KAIZEN into reality |
| 5.1 | Five(5)-S |
| | (1) Introduction |
| | (2) Advantage of introducing Five-S practice |
| | (3) Activities of 5S |
| | (4) Effective way of 5S implementation |
| | (5) 5S techniques |
| 5.2 | Implement and activate the Improvement Suggestion System |
| | (1) Introduction |
| | (2) Organizational structure of the system |
| | (3) Management and operation of the system |
| 5.3 | Development and promotion of foolproof/fail-safe devices |
| | (1) Introduction |
| | (2) Target and mechanism of foolproof/fail-safe activity |
| | (3) Plan and implementation of foolproof/fail-safe device |
| 5.4 | Visualization of production control procedures |
| | (1) What is "Visualization of Workplace Management" |
| | (2) Advantage of the visualization |
| | (3) Plan and implementation of the visualization |
| 5.5 | Small-group activities |
| | (1) Introduction |
| | (2) Benefit of introducing small-group activity |
| | (3) Implementation of small-group activity |
| 6 | KAIZEN Guidance |
| | (1) Steps to introduce KAIZEN practice to a company |
| | (2) Framework of KAIZEN guidance |

Annex 3-3: Contents of KAIZEN Textbook for KAIZEN Leaders

| | |
|---------------|---|
| Part 1 | Concept and Features of KAIZEN |
| 1.1 | Welcome to KAIZEN Leader Training Program |
| 1.2 | Concept and features of KAIZEN |
| | (1) KAIZEN |
| | (2) Features of KAIZEN |
| | (3) Fundamentals of KAIZEN approach |
| 1.3 | For successful introduction of KAIZEN practice to company management and operation |
| | (1) Basic requirements for introducing KAIZEN practice |
| | (2) Areas of focus in KAIZEN practice: SQCDPM |
| 1.4 | Identification of MUDA |
| Part 2 | Effective methods/measures to put the features and advantages of KAIZEN into reality |
| 2.1 | Five S (5S) |
| | (1) Introduction |
| | (2) Definition, aim and points for activities of 5S |
| | (3) Activities of 5S |
| | (4) Effective way of 5S implementation |
| | (5) A Few Minutes 5S |
| 2.2 | Foolproof / fail-safe devices (Poka-yoke) |
| 2.3 | Visualization of workplace management |
| | (1) What is "Visualization of Workplace Management" |
| | (2) Advantage of visualization |
| | (3) Plan and implementation of the visualization |
| Part 3 | QC 7 tools |
| 3.1 | Introduction |
| 3.2 | Check sheet |
| 3.3 | Histogram |
| 3.4 | Pareto diagram |
| Part 4 | Steps to introduce and implement KAIZEN practice in the workplaces |
| 4.1 | Steps to introduce KAIZEN practice to a company |
| 4.2 | Improvement suggestion system |
| | (1) Introduction |
| | (2) Organizational structure of the system |
| | (3) Management and operation of the system |
| 4.3 | Small-group activity |
| | (1) Introduction |
| | (2) Implementation of small-group activity |
| 4.4 | Steps for improvement (QC Story) |
| | (1) QC Story: the standard steps of KAIZEN planning, evaluation and implementation |
| | (2) Outline of steps of QC Story |
| 4.5 | KAIZEN guidance |

**Annex 4 Discussion Papers Presented by the Project
Team on Institutional Frameworks for
KAIZEN Dissemination**

Concept of A Network for Dissemination of Quality/Productivity Improvement (KAIZEN) Practices

1 Rationale

In the Japanese history of quality/productivity improvement (KAIZEN) practices, some organizations have played an important role in introduction, promotion and upgrading of the KAIZEN practices. These are “Productivity Center”, “Union of Japanese Scientists and Engineers”, and “Japan Standards Association”, etc. They are either a corporate association or a foundation, established with the specific purpose of quality/productivity improvement with the initiative of government agencies or economic organizations. Their activities include researches, seminars/training programs, publications, exchange of information and KAIZEN experiences among the concerned enterprises and individuals, etc.

Guidance on KAIZEN practice to individual companies is the core for KAIZEN promotion, but it is not enough for the KAIZEN to be useful tool for the country. The mechanism to summarize the experience of KAIZEN practices in the country, make the KAIZEN approach to fit to the business culture of the country, and encourage further application of KAIZEN among the enterprises, is indispensable. Thus, establishment of an organization to undertake such function in Jordan is highly recommended, once KAIZEN approach is found useful in Jordan.

In this context, establishment of a network is proposed to play such role in Jordan in parallel with the implementation of KAIZEN Dissemination Project by JEDCO-JICA, supporting the Project and other movement related to quality/productivity improvement, while seeking for formulating a collaborative relationship among the industry, government, and academia, with tapping the professional capacities of the respective sectors for this purpose.

2 Objectives and activities of the Network

The network will primarily undertake the following activities, which are related to the KAIZEN Dissemination Project by JEDCO-JICA, including:

- 1) Collaborative activities for dissemination of KAIZEN practices among Jordanian enterprises, particularly SMEs, including seminars (KAIZEN conferences), experience-sharing meetings among the participants of model SME support program for KAIZEN practices, and campaign activities, etc.

- 2) Information exchange among the network members regarding the trend and movement of quality/productivity improvement
- 3) Function as a contact point in Jordan for those who need any information regarding quality/productivity improvement, and for the international organizations related to quality/productivity improvement

3 Organization

The network is a loose-knit consultative body, establishing a secretariat, while members contributing to the activities of the network on their own initiatives.

3.1 Secretariat

JEDCO will take the role of the Secretariat of the network. The major roles of the network-secretariat assume, but not limited to, the following:

- 1) Prepare a membership list for communication among the members of the network
- 2) Draft the action plan of the network for consultation among the members
- 3) Preparation of seminars and KAIZEN practice experience-sharing meetings
- 4) Preparation of news releases on the activities of the network for media exposure, and/or for use for in-house magazine and newsletters of the members
- 5) Publication/distribution of educational materials on quality/productivity improvement

3.2 Members

Members include individual members and group members. The group member is the member representing an organization, or a group of unorganized individuals.

- 1) Members, or representatives of group members are requested to participate to the regular meetings, and plan, monitor and update the activity plan of the network.
- 2) Group members are requested to circulate the information related to the activities of the network among their own members
- 3) Members are requested to contribute to the activities of the network utilizing their professional capacities and organizational resources as much as possible.

4 Contribution by JICA Project Team under the KAIZEN Dissemination Project

JICA Team for the Project to disseminate KAIZEN practices to SMEs in Jordan, will support the activities of the network providing the following:

- 1) Resource persons from the Team members for the speaker/lecturer in the seminars, conferences and experience-sharing meetings, etc.
- 2) Guidance and advice to the participants in the experience-sharing meetings of KAIZEN practice
- 3) Basic information for developing educational/promotional materials for publication/reproduction
- 4) Guidance/advice regarding the promotional activities of the network

Concept of Productivity Enhancement Unit
(Discussion Paper)

1 Productivity Enhancement Unit

Productivity Enhancement Unit (PEU) is expected to be one of the core units of JEDCO in the future, which provides the industries with technological support based on the professional expertise of the staffs and attached consultants.

At the initial stage of establishment, however, the objectives and functions of the unit will be focused on promotion and guidance of production management technology, particularly of those related to quality and productivity improvement. In the later stage, their field of activities may be expanded to the specific production technologies or element technologies of strategic (or priority) industrial areas after confirming the existence of such needs of the industry.

2 Needs of PEU in Productivity Enhancement in Jordan

According to the experiences so far of the KAIZEN dissemination in Jordan, there is an urgent need of establishing a permanent and specialized organization for KAIZEN dissemination. JUMP of JEDCO has played this role during the JEDCO-JICA KAIZEN Dissemination Project, but JEDCO is not the organization specially assigned for KAIZEN dissemination. Without such a permanent and specialized organization, the movement of KAIZEN practice will remain that among the limited enterprises, and will not give significant impacts on the industry.

The proposed PEU will have the following functions in this regard:

1. Plan and implementation of continuous and lasting awareness campaign and encouragement activities for dissemination of KAIZEN approach
2. Provision of support and technical guidance for the enterprises which intend to introduce, or are in the process of introducing the KAIZEN activities
3. Backup and provision of incentives for the enterprises which have practiced the KAIZEN activities

The current Project was launched to provide technical assistance for KAIZEN promotion to improve quality/productivity, in keeping with the recognition of various organizations concerned with SMEs in Jordan, that “one of the serious issues SMEs are facing in Jordan is a low level of productivity and lack of human resources and systems capable of guiding productivity improvement.”

Under the current KAIZEN dissemination project, guidance on KAIZEN practice to individual companies has been the core activities for KAIZEN promotion, and so far, 19 SMEs have applied KAIZEN practice to their operation with at least 13 successful cases of KAIZEN introduction. Nevertheless, it will not be enough for the KAIZEN approach to produce significant effects on the competitiveness of industries in the country. The impact of the success of the Project is still minor compared with the number of SMEs in the country.

In order to produce the significant impact of KAIZEN practice on competitiveness of Jordanian industries, there is a need for expansion of the successful cases further, while establishing a mechanism for continuous dissemination efforts.

In the Japanese history of quality/productivity improvement (KAIZEN) practices, some organizations have played important roles in introduction, promotion and upgrading of the KAIZEN practices. These include “Productivity Center”, “Union of Japanese Scientists and Engineers”, and “Japan Standards Association”, etc. They are either a corporate association or a foundation, established with the specific purpose of quality/productivity improvement with the initiative of government agencies or economic organizations. Their activities include researches, seminars/training-programs, publications, exchange of information and KAIZEN experiences among the concerned enterprises and individuals, etc.

In addition to these organizations, technical research and guidance institutes of governments (mainly, of local governments) have also played important roles in guiding the technological aspects particularly to SMEs.

The proposed PEU is expected to provide both of these two categories of services to SMEs in Jordan. In fact, without such a mechanism, KAIZEN practice in individual enterprises will face difficulty in sustainment. The PEU is expected to support the industry in introducing and sustaining the KAIZEN practice with all the required dissemination and

guidance activities, which the private sector cannot assume currently in Jordan, summarizing the experience of KAIZEN practices in the country, making the KAIZEN approach fit to the business culture of the country, encouraging further application of KAIZEN practice among the enterprises, and giving technical guidance for those practicing KAIZEN.

Following functions are also assumed for the PEU:

1. Provision of base information for those who are intending to publish guidance materials and tools, etc.
2. Activities as a contact point in Jordan for those who need any information regarding quality/productivity improvement, and for the international organizations related to quality/productivity improvement¹.

3 Internal Organization and Staffing

At the start of the Productivity Enhancement Unit, it will consist of two sections, namely,

1. Promotion Section
2. Technical Guidance Section

The function of Promotion Section include:

1. Planning and implementation of continuous and lasting awareness campaign and encouragement activities for dissemination of KAIZEN approach, such as;
 - 1) Series of introductory activities, including KAIZEN seminars for management, awareness campaign making use of publications of industrial/business associations, etc. (*)
 - 2) Policy measure proposals to encourage and support KAIZEN practice
 - 3) Seminars and introductory trainings for KAIZEN leaders of enterprises (*)⁽⁺⁾
2. Backup and provision of incentives for the enterprises which are practicing the KAIZEN activities
 - 1) Research and development of KAIZEN methods best fit to Jordanian enterprises
 - 2) Forum among the concerned organization and individuals^(#)
 - 3) Publication of the relevant training/reference books and materials⁽⁺⁾
 - 4) Development of guidance tools⁽⁺⁾

¹ Such as Asian Productivity Organization (APO).

- 5) Leaders and consultants development (trainings) (†)
- 6) KAIZEN consultants registration for introducing to enterprises/organizations as consultants/instructors
- 7) Recognition and awards of the KAIZEN best practices (*)
- 8) Plan and implementation of KAIZEN experience sharing meetings (#)

The function of Technical Guidance Section includes:

- Provision of support and technical guidance for the enterprises which intend to introduce, or are in the process of introducing the KAIZEN activities

Note:

Among the above functions, the functions marked with (†) in the above are the functions, which may be performed on a commercial basis in the future, by the private sector, while others need government/public² initiatives in view of enhancement of Jordanian industries. The functions marked with (*) mean the functions which will be performed in collaboration with chambers of industry/commerce.

The functions with (#) are the functions to be performed by PEU as a promotor of collaboration among the government, public, private and academia sectors in KAIZEN dissemination (see “6 KAIZEN Network”).

The proposed PEU is expected to take the initiative for all the above functions at the initial stage, when the existing players are weak to fill the required demand of the industry, while promoting the development of private-sector-led functions for those marked with (†) in the future.

4 Steps for establishment

Step 1: Decision of JEDCO on establishment of the Unit

Step 2: Recruitment of technical staffs of certain level of expertise in production management technology, and assignment of staffs for promotional functions

Step 3: Basic training on production management technologies and KAIZEN practice for the staffs of Technical Guidance Section, while advice for the staffs of Promotion Section during Phase 3 of the current project

² Including chambers of commerce and industry.

Step 4: Start of guidance on production management technologies with assistance of JICA senior volunteers³, while continuing the on-the-job training for the staffs of Technical Guidance Section

Step 5: Upon identifying the needs of the industry on technical guidance on specific production technologies or element technologies, prepare for establishing a new section(s) to technology guidance of a specific production technologies, including training of the technical staffs with assistance of JICA senior volunteers⁴, and introducing testing and research facilities and equipment

5 Possible Sources of Revenue

- 1) Publication
- 2) Fee for training programs
- 3) Fee for awareness campaign (such as seminars)

Some of the proposed activities of PEU may be conducted in collaboration with chambers of industry with financial support from the chambers.

6 KAIZEN Network

The PEU is assumed to take a role as a promoter of the collaboration among the government, public, private and academia sector in KAIZEN dissemination. KAIZEN Network is a possible organization for such collaboration.

The network is a loose-knit consultative body, with members contributing to the activities of the network on their own initiatives, taking advantage of the capacities of existing relevant organizations and individuals.

The Network assumes the following activities with organizing the ad-hoc implementation committees.

1. Collaborative activities for dissemination of KAIZEN practices among Jordanian enterprises, including KAIZEN conferences, experience-sharing meetings among the companies practicing KAIZEN, and other campaign activities, etc.
2. Provision of opportunities of information exchange on KAIZEN practice in Jordan

³ It does not necessarily mean the commitment by JICA on this matter.

⁴ It does not necessarily mean the commitment by JICA on this matter.

for the network members, including KAIZEN Forum, and issuance of the network magazine, etc.

(For reference)

The technological support/guidance and R&D by the government/public sector, in general, consists of two different levels, at least, namely,

Level 1 (Basic research level):

1. Basic and original research and advancement in the field of industrial science and technology
2. Support of industrial technology development in the private sector providing support programs such as tax incentives, financing and conditional loans
3. Consolidate the infrastructure for R&D, including industrial technology network of research personnel and research information, which is needed for enhancement of R&D on a nationwide basis, conduct of leading basic research, and promotion of industrial standards with basic research on a standards base

Level 2 (Applied research and technology level):

1. Research based on the needs of the existing industry for:
 - 1) Promotion of technological leveling up
 - 2) Solving problems of core technology of the industry
 - 3) Creating new industries in the country
2. Technical support for the industry with:
 - 1) Contracted research requested from enterprises
 - 2) Contracted tests, analysis and measurements requested from enterprises
 - 3) Facilities and equipment service for enterprises to use for their technology/product development
3. Technical consultation and transfer service on technical development and productivity enhancement, through:
 - 1) Counseling, consultation, and visiting guidance, etc.
 - 2) Presentation of research results, seminars, and training programs, etc.
4. Provision of technological information and technological interchange

The above levels of services are provided generally with the institutes/organizations which have professional research/guidance staffs and facilities and equipment and facilities for research and testing, since the technological guidance and advice is necessary to be supported with tests and researches.

Regarding the industrial technologies, they can be categorized into the following:

1. Product development technologies (R&D and technologies of basic product design)
2. Production technologies (including element technologies, and process technologies)
3. Operation technologies or technique
4. Production management technologies

Of these technologies, the most needed technologies for the industry are the operation technologies and the production management technologies, except for the technologies for product development. According to the experiences of technology guidance and advice by the public institutes, most of successful technology transfer has been performed in the field of production management technologies, while there has been a lot of difficulty in transferring the specific production technologies and element technologies from public institutes to the private enterprises. There are some factors behind the difficulty. One is the difficulty of acquiring the sufficient level of technology by the public institutes, and another is the difficulty of developing these technologies by the public institutes by themselves, resulting in loss of advancement compared with the private enterprises. Further, the facilities and equipment of the institutes are difficult to be updated timely with budget constraints of the public/government sector compared with the case of private profit-seeking enterprises.

In the case of JEDCO, it has no facilities for research and testing currently. They have no professional technical staff. Even if they recruit new staffs of technological expertise, they will not be able to meet the needs of technological guidance of individual companies, in a short term, due to lack of experiences.

Building of capacity for guidance, or transfer of technology in the field of specific industrial area is extremely hard tasks even with efforts of many years, unless there is a basis of industrial development in the country. Further it requires enormous investment on the research and testing facilities and equipment.

Considering the current state of JEDCO, and nature of technological transfer through public institutes, it is recommended to start with the function of guidance in the field of production management technology, particularly of productivity, instead of specific production technologies or element technologies.