

**Data Collection Survey on Human Resources
for Industrial Development in Africa
(TICAD V Initiative)**

**Final Report
Summary**

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**IC Net Limited
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1 Introduction

1.1 Background

African countries have enjoyed a robust economic growth since 2000. The IMF estimates that the average growth rate in Africa to be approximately 5.4% until 2016. However, this growth has been largely due to the recent rise in prices of natural resources such as oil and other minerals, and the boom in mineral resource development in the region. To avoid risks of economic stagnation caused by heavy reliance on natural resources, diversification of industrial structures through enhancement of the secondary and tertiary industries has been a common challenge for many African countries. Unemployment of the youth is another striking issue in Africa.

Given the circumstances above in Africa, the Fifth Tokyo International Conference on African Development (TICAD V), held in Yokohama, Japan, in June 2013, set the following three important themes for development in Africa: Robust and Sustainable Economy; Inclusive and Resilient Society; and Peace and Stability. Among them, the Robust and Sustainable Economy work group's conclusion includes necessity for capacity building and institutional development.

As part of its commitment to TICAD V, JICA conducted the "Data Collection Survey on Human Resources for Industrial Development in Africa" (hereinafter the "Survey") from March to July, 2013, in order to collect necessary information to consider future Japanese assistance for industrial human resource development in Africa.

1.2 Objectives of the Survey

Here are the main objectives of the Survey.

- 1) Collect information necessary for consideration of future JICA projects in industrial human resource development for selected sample countries.
- 2) Identify industrial sectors and technology areas to conduct the survey in the sample countries.
- 3) Identify areas and levels of skills and technologies for human resource development in the selected sectors of the sample countries.

1.3 Method of the Survey

1.3.1 Steps of the Survey

The Survey was conducted with the following steps.

- 1) Identification of possible target industries for the Survey
- 2) Analysis of the status of the possible target industries and selection of the ultimate target ones
- 3) Identification of priority technology areas of each target industry
- 4) Collection of information on the status of institutions of technical education and vocational training
- 5) Analysis on possible frameworks of future Japanese assistance for industrial human resource development

1.3.2 Survey period

The Survey was commenced in March 2013 and completed in July 2013. The Survey team visited the sample countries between early April and the end of May.

1.3.3 Sample countries

The following eight countries were selected as the sample countries of the Survey: Cameroon, Kenya, Mozambique, Nigeria, Senegal, South Africa, Botswana, and Namibia. Botswana and Namibia were added in order to conduct a more brief survey to consider possible spill-over activities from South Africa. However, after the commencement of the Survey, JICA and the Survey team agreed that a broader range of possibilities for assistance to these two countries should also be analysed.

The Survey team formed three sub-teams to cover the countries as follows: sub-team one to deal with South Africa, Botswana, Namibia and Mozambique; sub-team two, Kenya and Senegal; and sub-team three, Cameroon and Nigeria.

1.4 Important Considerations

1.4.1 Range of the “Industrial human resources”

This Survey is expected to provide necessary information for consideration of future Japanese assistances in the field of human resource development for industrial development,” and the survey framework indicates that the main target of the future assistance is the “industrial human resources.” In order for the Survey team to conduct the Survey in appropriate manner, the team needs to have a clear understanding on the “industrial human resources” in this case.

The most simple and natural understanding of “industrial human resource” can be people who are directly involved in either production or company management activities. However, considering the current situations of industrial development in African countries, capacity building of these prime targets may not be enough to secure robust and sustainable effort for the human resource development in Africa. We may have to widen our scope, so that human resources of other important stakeholders including technical and vocational training institutions and relevant government organizations can also be covered.

Based on this consideration, the “industrial human resource” in this Survey covers all the stakeholders relevant to industrial development in the target countries.

1.4.2 Japanese uniqueness

This Survey also tried to identify effective approaches to show the “Japanese uniqueness” in future assistance in this field. Originally, the discussion started with a consideration of possibilities of applying knowledge, skills and methods of Japanese origin, such as 5S (Seiri, Seiton, Seiso, Seiketsu, Shitsuke)¹ and Kaizen². However, later on, through the consultation with JICA, the Survey team broadened the aspects of the Japanese uniqueness. Given that the ultimate purpose of this matter is to improve the recognition of Japanese assistance by the African countries, using such Japanese technology is just one of possible measures we can take. Other approaches such as the Technical Cooperation Project, the Third Country Training and South-South Cooperation, which are Japanese unique assistance styles, or collaboration with Japanese private companies can be very good alternative approaches to enhance the recognition of Japanese assistance to Africa.

¹ “5S” is the name of a Japanese business management method. It comes from a list of five Japanese words which start from “S,” namely: Seiri, Seiton, Seiso, Seiketsu and Shitsuke. They are the key words of how to organize a work place for better efficiency and effectiveness. The Japanese 5S words mean sorting, set in order, systematic cleaning, standardising, and sustaining, respectively.

² “Kaizen” is a Japanese word meaning “improvement” or “change for the better” refers to philosophy or practices that focus on continuous improvement activities in manufacturing, engineering, and business management. Kaizen activity is a continual improvement by all functions and involves all employees from the top management to the factory workers. The improvements initiated by Kaizen activities should be standardized and incorporated into regular work processes, and eliminate wastes of time, work and money.

2 South Africa, Botswana, and Namibia

2.1 South Africa

2.1.1 Overall condition and priority human resource needs of the target industries

(1) Target industries

In order to realize the long-term sustainable development of South Africa, it is very important for the country to become less dependent on its mining industries and make its overall industrial output more diversified. In this regard, the Survey team selected target industries from all industries excluding the mining industry. The selection of the target industries was done mainly based on the significance of exports, the number of employees and the potential for import substitutions. After considering the industrial development policies of the South African government, the aid policies of Japan and the latest trends of the Japanese companies already in the country, the survey team selected the auto parts manufacturing industry, the food processing industry, and the textile and apparel manufacturing industry for this survey.

a) Auto parts manufacturing industry

The auto manufacturing industry has been in a very important position because of its very broad industrial base which includes its supporting industries and service industries. At the end of 2011, the auto and parts manufacturing industry accounts for 6.8% of GDP and the number of people it employs is about 60,000. Moreover, there are about 200,000 employees in retail sales and the maintenance sector. The “Motor Industry Development Program” and the “Automotive Production and Development Program” also support this industry. The “Automotive Investment Scheme” also supports this industry, which induces auto manufactures in South Africa to increase shares of local contents.

b) Food-processing industry

Food and beverages manufacturing is important in South Africa because of its high degree of forward and backward linkages with other industries, which allow it to play an important role in accelerating economic activity. The number of employees in this sector is about 183,000, which is the highest among the other industrial sectors. Processed food export goods include foods, beverages, alcohol (such as wine), sugar and other sweeteners, and vinegar; they make up 9% of the country’s total exports, and the percentage is the fourth largest among all the export components. The “Medium Term Strategic Framework” (MTSF) for the period between 2009 and 2014 designates this sector as a focus area.

c) Textile and apparel manufacturing Industry

This sector has faced many challenges such as the high value of the rand (South Africa’s currency), the dumping of imported goods by other countries, illegal imports, the lack of technologies for quality improvement and cost reduction. However, after the introduction of the “Clothing and Textiles Competitiveness Programmes” (CTCP), the declination of this sector has stopped. The number of employees in this sector is about 77,000, which represents 6% of GDP and is ranked second in the manufacturing sectors. The MTSF has appointed this sector as a lead sector. At this time, it is important to make this sector more competitive by enhancing productivity and introducing new technologies for better quality.

(2) Priority human resource needs

In each of the selected target industry, human resource with the following skills and knowledge are needed.

a) Auto parts manufacturing industry

The immediate top priority in this sector is to supply artisans working at production lines. Moreover, securing competitiveness requires cost reduction as well as productivity enhancement. The auto parts manufacturing industry has a wide range of supporting industries, which means that various kinds of technologies are necessary, such as iron casting, metal processing, welding, cutting work, thermal processing, hammered work, and metal moulding. As there are many small and medium sized-enterprises that make up these supporting industries, it is also important to instruct them in good management skills including 5S (Seiri, Seiton, Seiso, Seiketsu, Shitsuke)³ and Kaizen⁴.

b) Food-processing industry

There are big corporations in the food processing sector; however, the small- and medium-sized companies in rural areas should be the main target of this sector. Supporting rural food processing enterprises can be an engine for overall rural development in the areas where they are located. In addition, the top priority technologies are the food processing, packaging and canning technologies necessary to give processed products higher added value, greater differentiation and better branding. As consumer interest in nature-oriented and health-conscious products has increased, the technologies related to these aspects of food processing are becoming more necessary as well. At the same time, in order to compete against imported products, the introduction of leading edge technologies for new product lines and the operation and maintenance of food processing factories is necessary as well.

c) Textile and apparel manufacturing industry

One of the main reasons for putting a high priority on this sector is its labour-intensive character. In South Africa, the employment trend has until very recently been downward across the entire sector. However, after the CTCP was launched in 2010, the decline has slowed down and is being reversed. Under these circumstances, enhancing productivity in this sector and adding value to products are urgent issues. In terms of securing cost competitiveness, technologies such as industrial engineering, production management, production organization and the means to enhance productivity are needed urgently, which means that more Japanese-style methods such as 5S and Kaizen are considered of value. A CAD/CAM, database for African sizes and 3-D scanning technology are also important because they are technologies that are necessary for manufacturing high-quality products.

2.1.2 Potential counterpart organizations

(1) Technology universities and comprehensive universities

Although those in the industrial circle claim that graduates from technology universities and comprehensive universities lack practical skills, they are, in general, satisfied with the level of theoretical skills and knowledge of the graduates. Concerning the need to review the curriculum in order to meet the needs of the industrial circle better, an advisory committee has been formed for each faculty at each university to change their curriculum together with the industrial circle. On the other hand, the graduates do lack some practical skills such as communication skills with colleagues and superiors, problem analysis and the ability to make suggestions for improvement. To improve practical skills of students, the universities have introduced the “Work Integrated Learning (WIL)” program

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⁴ “Kaizen” is a Japanese word meaning “improvement” or “change for the better” refers to philosophy or practices that focus on continuous improvement activities in manufacturing, engineering, and business management. Kaizen activity is a continual improvement by all functions and involves all employees from the top management to the factory workers. The improvements initiated by Kaizen activities should be standardized and incorporated into regular work processes, and eliminate wastes of time, work and money.

which is compulsory, requiring that students have field experience at factories.

(2) Further Education Training Colleges (FETs)

The industrial circle has had a low rating for FETs. Though the curriculum of FETs in South Africa includes skills such as accounting and finance, FETs have not supplied artisans who work at factories, which is what the industry circle expects from FETs the most. This is the main reason that the employment rates of FET graduates are very low. For example, the employment rate of graduates of Elangeni College for Further Education and Training is about 13%. FETs face the following problems.

- FETs do not offer curricula that meet the needs of the industrial circle.
- The knowledge of FET lecturers has not been updated and the quality of the lecturers is low.
- The equipment used at FETs for training is obsolete.

(3) Sector Education and Training Authority (SETA)

The main role of SETAs is to develop human resources that the industrial circle needs. SETAs are under the Department of Higher Education and Training (DHET) and there are 21 SETAs in total, each classified according to economic sectors. SETAs have played the role of retraining the lecturers at the FETs for dealing with the current problems of FETs and coordinating human resource development comprehensively to meet the needs of the industry circle as well as to train employees of Small and Medium Enterprises (SMEs), unemployed people and high school graduates. Though there are negative views on SETAs regarding what the stakeholders perceive as a rigid training menu and inflexible operations, some SETAs such as MerSETA have gained a good reputation from the industrial circle. Thus the capacities and contributions of SETAs vary.

2.1.3 Preliminary results on possible Japanese support for industrial human resource development

(1) Common challenges

Low productivity is an issue that all industries in South Africa face. Many executives claim that low productivity is not only in production divisions but also in management divisions, meaning that the need for productivity improvement training such as 5S and Kaizen is high. It would be beneficial if the Employability Improvement Program (EIP), managed by the JICA South Africa Office and the DHET, could be added to a training program provided by FET colleges and SETAs.

(2) Auto parts manufacturing industry

As a means of providing assistance to the auto parts manufacturing industry, the first priority is to establish a framework to supply artisans in a stable manner. In this regard, MerSETA has dealt with bringing up artisans as top priority and has planned to strengthen the FETs in terms of capacity building in cooperation with technology universities and private companies. The SETAs have been dedicated solely to the 50 FET Colleges for programme-related activities. Furthermore, the SETAs are beginning to play a meaningful role in FET Colleges by influencing some programme offerings to help align them with local community and industry needs. Assistance to SETAs is likely to make industrial human resource development assistance more beneficial. The following are the possible methods to support industrial human resource development in the auto parts manufacturing industry through MerSETA:

- Reform the curriculum on technology and the enhancement of productivity.
- Retrain the lecturers on pedagogical methods and practical skills.
- Update the equipment used for training.

(3) Food-processing industry

With regard to the food processing industry, assistance for building up management abilities,

improving food processing technologies and securing funds to cultivate entrepreneurs could be done through the FoodBev SETA, by taking advantage of Productivity SA, UNIDO and the Land Bank.

(4) Textile and apparel manufacturing industry

Concerning assistance to the textile and apparel manufacturing industry, assistance for enhancing productivity and advancing technology by way of SETAs has been proposed, taking advantage of the Productivity SA, Industrial Development Cooperation and the University of Technology.

2.2 Botswana

2.2.1 Overall condition and priority human resource needs of the target industries

(1) Target industries

Botswana is heavily dependent on the mining industry, especially for diamonds. To ensure the sustainable development of the country, Botswana has to diversify its manufacturing sector for the following reasons.

- Industry concentration of manufacturing is very low, depending too much on mining.
- Escaping from the natural resource curse is essential for sustainable development.
- To do so, the manufacturing sector has to be developed much more to create various kinds of jobs.
- The manufacturing industry in Botswana should be developed to facilitate deeper links with South Africa's industries and markets.

Based on the above conditions, the Survey team selected the following industries within the manufacturing sector for this survey.

Textile and apparel manufacturing industry

The export share of the textile and apparel manufacturing industry is 14.6% which is ranked as the second largest in 2011. The number of employees in this industry is 5,239, which was the highest in 2011; this means that this industry has played an important role in creating jobs and invigorating the economy.

Auto parts manufacturing industry

The automotive industry accounts for 13.8% of exports in the manufacturing sector, which is ranked as the third largest. There are about 10 automotive manufacturing companies in Botswana. Some of them assemble the bodies of buses and trucks and manufacture electric harnesses and leaf springs. An automobile manufacturing company that assembles Hyundai cars was located in Botswana, which can imply that there is potential of automotive parts industry development in Botswana.

Food processing industry

The food processing industry in Botswana has a 9.2% share of exports in the manufacturing sector and the third highest share in terms of the number of employees. Thus the food processing industry is an important sector. About 80% of processed food sold at supermarkets in Botswana is reportedly made in South Africa.

(2) Priority human resource needs

As the industrial concentration in Botswana has been so low, there has seemed to be less competition in the whole manufacturing sector in Botswana. Thus the productivity of Botswana is said to remain low. As productivity enhancement issues are a common agenda for the entire manufacturing industry, introduction of management tools such as 5S (Sieri, Seiton, Seiso, Seiketsu, Shitsuke)⁵ and Kaizen⁶

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⁶ "Kaizen" is a Japanese word meaning "improvement" or "change for the better" refers to philosophy or practices that focus on continuous improvement activities in manufacturing, engineering, and business management. Kaizen activity is a continual improvement by all functions and involves all employees from the top management to the factory workers. The improvements initiated by Kaizen activities should be standardized and incorporated into regular work processes, and eliminate wastes of time, work and money.

should have good potential for all sectors in Botswana.

a) Textile and apparel manufacturing industry

One of the big challenges that this industry in Botswana faces is the lack of skilled workers. This industry needs skilled workers to make their products more value-added and improve its productivity. It is essential that productivity enhancement in this sector ensures long-term sustainability. In that sense, this sector needs to secure and upgrade skills of workers in fabric techniques and sewing techniques to add value to their products.

b) Auto parts manufacturing industry

It is important to produce workers with more practical skills, such as mechanics, electronics and welding, which are necessary as basic skills in manufacturing products.

c) Food processing industry

Beef and beef products are the main export goods of the country, while dairy products have not been produced much yet. It is worth exploring the possibilities of creating other value-added products from the livestock industry. There are also promising agricultural products such as vegetables and fruits with much potential. This sector needs livestock-processing and food-processing technologies to make their products more value-added.

2.2.2 Potential counterpart organizations

(1) TVET colleges

There are eight TVET colleges with 10,000 students. Two of them are under the jurisdiction of the Ministry of Labour. The rest are under the Ministry of Education and Skills Development.

(2) Universities

There are two universities, namely the University of Botswana and Botswana International University of Science and Technology. The University of Botswana has 15,000 students. The latter university just opened in 2011.

(3) Human Resource Development Council

The Botswana Training Authority (BOTA) and the Tertiary Education Council were integrated into the Human Resource Development Council (HRDC) to close the gap between the needs for human resources in the private sector and the supply of human resources from TVETs and universities. HRDC is expected to play an important role in revitalizing industry-academia-government collaboration.

2.2.3 Preliminary results on possible Japanese support for industrial human resource development

The following are major possible support undertakings for the industrial human resource development for Botswana:

- Sending TOT trainers and lecturers to third countries such as South Africa to be further trained on TOT and lecture on practical skills.
- Dispatching experts to core TVETs to teach cutting-edge theories, technologies and skills.
- Dispatching senior volunteers to core TVETs to teach practical skills.
- Dispatching lecturers to Japanese companies in Japan and South Africa to learn cutting-edge technologies and experience working in lines.
- Dispatching Japanese coordinators to the HRDC to accelerate industry-academia-government collaboration.

2.3 Namibia

2.3.1 Overall condition and priority human resource needs of the target industries

The Government of Namibia emphasizes the importance of the manufacturing industries for its economic development. As natural resources are finite, it is widely recognized that economic growth should not rely too much on the export of raw natural resources. On the other hand, the National Human Resource Development Plan of Namibia lists the beneficiation of local raw materials as one of the promising and feasible manufacturing industries for the development of the country. In one sense, this could encompass a contradictory idea from the standpoint of growing manufacturing industries independent from the natural resources. However, this also points to the difficulties of the Namibian government in identifying promising manufacturing industries other than the raw material related industries. In this survey, the team selected three industries, including the automotive parts industry, food processing industry, and textile industry; however, it turned out that it is more appropriate to contemplate possible future Japanese assistance targeting the broader manufacturing industries, rather than the specific target ones.

Therefore, in Namibia, contributions to the development of human resources are essential so that it can become the basis of future economic growth. In this regard, from the standpoint of human resource development, it is critical to tackle the improvement of basic education. One of the managers with whom the Survey team conducted an interview pointed out that the general lack of understanding on basic mathematics and science forced higher education institutions to take time to hold extra supplemental classes for their students.

The Ministry of Education and the Ministry of Labour and Social Welfare pointed out that Namibian industries in general need to improve productivity. For instance, many products from South Africa are imported into Namibia without tariffs because of a customs agreement with Southern African countries. As a result, the manufacturers in Namibia need to be competitive with the Southern African manufacturers in order to survive in the Namibian market. It is said that the abundance of cheap imported goods hinder the development of the manufacturing business in Namibia. Therefore, in order to improve competitiveness vis-à-vis the imported goods, improving the productivity of domestic products is an urgent issue. For example, one of the interviewees suggested that the issue of manufacturing industries in Namibia is as follows. Firstly, the top priority is to reduce the number of defective products in order to cut unnecessary production costs. Secondly, there are not enough production line managers who can analyse and solve the causes of bottlenecks as well as employees who can manage the staffing of production lines in a cost-effective way.

However, as of May 2013, there is virtually no government agency providing training on productivity improvement in Namibia, while the Ministry of Labour and Social Welfare plans to establish a training centre for productivity improvement. In this regard, there is a great demand for general productivity improvement in Namibia, including quality management and personnel management for factories and production lines.

2.3.2 Potential counterpart organizations

In Namibia, there are four higher education institutions. Among them, the University of Namibia, the Polytechnic of Namibia, and the International University of Namibia are the three major institutions. In 2010, enrolment in these three institutions was 11,745, 13,786, and 2,319, respectively. Work Integrated Learning (WIL), which requires the students to experience practice in the field, such as in a private company, in order to obtain a bachelor's degree, has been institutionalized since 2012. As of May 2013, the Polytechnic of Namibia is the only institution to have implemented WIL. In addition, there is no equivalent institution like SETA of South Africa in Namibia, but the Polytechnic of Namibia plans to provide vocational training to current employees through its Centre for Cooperative

Education unit.

2.3.3 Preliminary results on possible Japanese support for industrial human resource development

As discussed above, there is a great need for training related to productivity improvement. Especially in the Namibian context, it is important to introduce practical management skills which can be applied to the wide ranging manufacturing industries. Given these points, collaborative assistance with the Employability Improvement Project (EIP), which has been implemented in South Africa by the Department of Higher Education and Training (South Africa) and JICA South Africa office, can be one area for possible Japanese support.

It is important to educate the future workforce through educational institutions, but it is also important to develop the capacity of current employees. In this regard, the Polytechnic of Namibia has been serving in both roles. One is to train students with the higher level of technical human resources such as technicians and engineers. Polytechnic of Namibia is also responsible for training provided in the public vocational training centres as well. Another role of the Polytechnic is to provide training opportunities to current employees through the Centre for Cooperative Education unit. Thus it is fair to say the Polytechnic of Namibia is one of the most appropriate institutions to work with when JICA is ready to implement the EIP in Namibia.

3 Mozambique

3.1 Overall condition and priority human resource needs of the target industries

3.1.1 Target industries

The industrial structure of Mozambique for 2011 is as follows. The agriculture sector produced 30.9% of the GDP; the commercial and services sector, about 50%; and the manufacturing sector, 13.2%. The agriculture sector is still a main production sector in the country and the manufacturing sector is underdeveloped. Considering the current situation, the Survey team selected the target industries considering the following points.

- As the agriculture sector's share represents 31% of the GDP, 80% of total employment and 14% of export sales, the agriculture sector is the main sector in Mozambique.
- As foreign direct investment (FDI) plays an important role in accelerating industrial development in the country, the natural gas sector which is expected to introduce foreign investments and to process natural gas domestically must be considered one of the more important economic sectors as well.
- On the other hand, developing the manufacturing sector is vital to securing sustainable development without falling into the natural resource curse.

Based on the above conditions, the team selected the following industries for this survey as follows.

- **Parts manufacturing for agricultural machinery and their maintenance.**
Though arable land in Mozambique is 36 million ha, only 5 million ha of land is currently being utilized. For the expansion of agricultural production and the enhancement of agricultural productivity, the utilization of agricultural machines is considered one of the main boosters, and an "Agriculture Mechanization Strategy" has been prepared. Manufacturing parts for agricultural machines and their maintenance could help expand agricultural production and enhance productivity.
- **Food-processing industry**
The food processing industry sector in Mozambique has been highly ranked in exports, the "Action Plan for Reducing Poverty" (PARP) 2011-14 and the Agri-Business Strategy regards this sector as an important one. It is important to increase farm income and export and enhance agricultural development by adding value to agricultural and fishery products.
- **Natural gas processing industry:**
The natural gas sector could be the main sector for inviting FDI, which could lead the economy of Mozambique. One of the largest gas fields in the world was found in Mozambique; its current reserves of natural gas are 170,000 cubic feet. Natural gas can be processed into Liquefied Natural Gas (LNG) which can be exported without pipelines, and converted to fertilizer which can be consumed domestically for agriculture and exported to neighbouring countries.

3.1.2 Priority human resource needs

Human resources with the following technology areas are needed for the development of the target industries.

(1) Manufacturing parts for agricultural machinery and their maintenance industry

In this industry, mechanics, electronics and welding are particularly necessary and the level of skills needed is at the moderate level which is taught at the secondary technical schools and vocational

training centres. However, workers with the ability to conduct immediate work and who have practical skills are in short supply. Based on the above observations, human resources with middle-level mechanics, electronics and welding are found to be the priority.

(2) Food processing industry

The food processing industry covers a variety of areas, and the Survey team looked into agricultural primary processing, fishery primary processing and agricultural secondary processing. The agricultural primary processing sector has needs of human resources with capabilities of medium-level mechanics and electronics. The fishery has needs of medium-level food-processing and mechanics. The agricultural secondary processing sector has management and medium-level chemistry as the priority human resource areas.

(3) Natural gas processing industry

The natural gas processing industry needs architects civil engineers, electronic engineer, mechanics and welders with advanced techniques for those who work under the supervision of foreign engineers.

3.2 Potential counterpart organizations

The optimal technical vocational and training organizations (TVETs), which were designed for the development of human resources at medium skill level and for practical abilities, are at an intermediate level. They provide medium-level education for technology and vocational training centres that give priority to training on practical skills.

3.2.1 TVETs

The number of intermediate-level TVETs is 47 and the total number of their students in 2011 was 14,655. The schools provide 60 courses, but most of them are for agriculture and animal husbandry. According to the Ministry of Education, the priority areas of TVET include 1) agriculture and agricultural product processing, 2) industrial machinery maintenance, 3) management and administration, and 4) tourism.

3.2.2 Higher education: universities, colleges, polytechnics, higher institutes and academies

There are 42 higher education institutions in Mozambique, including 18 public ones and 24 private ones. They are all under the National Directorate for Higher Education. The number of students in the public ones in 2011 was 79,311 and that of the private ones was 33,454.

3.2.3 National Institute for Employment and Vocational Training (INEFP)

There are 13 vocational training centres operated by INEFP of the Ministry of Labour. They are located in each province. A new vocational training centre under the INEFP is to be set up in Nacala. There are 81 private vocational training centres approved by the Ministry of Labour. Vocational training centres provide training courses focusing on more practical and specific skills than the intermediate-level TVETs under the Ministry of Education.

3.3 Preliminary results on possible Japanese support for industrial human resource development

3.3.1 Possible Japanese support for industrial human resource development

The following is a list of possible actions Japan can implement to support industrial human resource development in Mozambique.

- Dispatch experts to DINET, intermediate level TVETs and the Don Bosco Higher Institute to

improve curriculum and course materials, and to implement training of trainers (TOT) and to instruct lecturers.

- Provide necessary equipment for mechanics, electronics, welding, architecture, civil engineering, food processing and chemistry.
- Send TOT trainers and lecturers to third countries such as South Africa to conduct TOT and for lecturers to have them acquire practical skills.
- Provide scholarships to send lecturers to foreign and domestic universities and allow them to earn bachelor's and/or master's degrees.
- Dispatch Japanese coordinators to strengthen public-private partnerships in the TVET sector to improve the quality of training courses and increase training courses for private companies at the intermediate-level TVETs and vocational and training centres.
- Dispatch Japanese volunteers to intermediate-level TVETs and vocational training centres to teach students directly as well as to private companies to instruct workers there.
- Send workers at private firms and lecturers to the Employability Improvement Program (EIP) which is conducted in South Africa.

3.3.2 Quick-impact Japanese support actions for industrial human resource development

The following are some quick-impact actions Japan can implement to support industrial human resource development in Mozambique.

- Dispatch experts on mechanics, electronics, welding, architecture/civil engineering, food-processing technology and chemistry to technical schools and vocational training centres to run training programs for private firms.
- Provide schools which can run training programs for private companies with the necessary equipment.
- Send TOT trainers and lecturers to third countries such as South Africa to have them undergo TOT, take lectures, and acquire practical skills.
- Dispatch Japanese coordinators to formulate tailor-made training programs for private firms.
- Send workers from private firms and lecturers to the EIP in South Africa.

3.3.3 Support for industrial human resource development to address the needs of Japanese companies

Support is also required for industrial human resource development in Mozambique to meet the needs of Japanese companies. They are particularly interested in the mining-related industries of Mozambique including the natural gas processing industry. Thus it is beneficial to both Japanese and Mozambican companies to provide support in bringing up human resources in the fields of construction, civil engineering, electronics, mechanics and welding that the mining-related industries require.

4 Kenya

4.1 Overall condition and priority human resource needs of the target industries

4.1.1 Target Industries

Kenya has enjoyed constant economic growth for the last couple of years, which the Kenyan government has addressed through implementation of “Kenya Vision 2030.” In light of this vision, JICA has prioritized the industrial sectors of foods and beverages, oil and petrochemical industries, electric machinery, non-ferrous minerals, agricultural machinery and ICT industry.

Based on the policies and possible contributions to future growth, the Survey team has selected three different sectors, namely ICT industry, food processing and agriculture/construction machinery industries.

4.1.2 Primary human resource needs

(1) ICT industry

This sector has been quite active and intrinsically energetic with a sufficient volume of qualified human resources who are equipped with updated engineering/programming skills in software development. Most companies are young, with a workforce in their mid-20s. Gender balance has been well maintained in comparison with the other two target industries. Demand for human interaction and managerial skills were commonly observed amongst the company managers in relation to the young engineers who are not well trained in these skills. General analytical skills were also in demand, especially among the younger members of the workforce.

(2) Food processing industry

Conventional industries have operated for a long time with a labour intensive modality of operation, in which more female workers are engaged in comparison with agriculture/construction machinery industries. The business environment has been promising because of the constant increase in population and a stable market in exports to neighbouring countries. Common challenges of the business are observed with regard to cost and productivity management of the production process.

(3) Agriculture/construction machinery industries

The industries find stable demand in domestic market, where price competition with imported machines has intensified, particularly with regard to agricultural machinery. Skills and knowledge of machinery production and maintenance are particularly in demands for human resources, which would take time for an individual to acquire. Management and systematic enhancement of workers’ skills seemed to have been a challenge in this sector.

4.2 Potential counterpart organizations

There has been an ongoing discussion led by the JICA Kenya Office on the introduction of a platform for policy dialogue made up of private-sector industries, academic institutions and the government with para-statal agencies to discuss a policy for human resources development for the industries. Through the Survey and particularly at the dissemination workshop on 29 April 2013 in Nairobi, it was confirmed that the platform proposed by the JICA Kenya Office would be an ideal opportunity for tripartite coordination. The issue of the counterpart organizations may accordingly be taken up by the platform.

4.2.1 ICT industry

The sector demands higher academic input (university degree or diploma) than the others (food, machinery). Universally, the human resource development curriculum of ICT industries requires cutting-edge information as the content. In this area, Jomo Kenyatta University of Agriculture and Technology (JKUAT) has a comparative advantage to the other educational institutions. Likewise, bilateral cooperation programs to be offered to JKUAT became highly competitive, and it may not be a given conclusion that JKUAT will automatically become the counterpart organization for Japan. Prudent but consistent coordination work will be needed in finding the right party to deal with.

4.2.2 Food processing industry

This sector demands practical knowledge of productivity management based on operational data in the factory. In this regard, JKUAT seems to be the most advantageous and suitable candidate as a counterpart because of its readiness to cooperate with Japan at relevant faculties and facilities to accommodate training programs focused on productivity improvement.

4.2.3 Agriculture/construction machinery industries

Although eligibility as the official counterpart was not well confirmed amongst those institutions whom the Survey team has contacted, there are certain opportunities for cooperation with Japanese firms who would host educational institutes to cover the technical areas. Since some of the institutes would be operated as a CSR program to be open to the public, cooperation with Japan's ODA may possibly be incorporated.

4.3 Preliminary results on possible Japanese support for the industrial human resource development

The Survey team suggests prioritizing the launch of a tripartite coordination platform where long-term human resource development policy should be discussed and agreed as a common and persistent target. For this purpose, Japan can offer a structure of production management techniques, the so-called Integrated Productivity Improvement (IPI), which was once applied in Singapore and other ASEAN countries in 1980s–1990s. The IPI is an approach to upgrade production management from 5S (Seiri, Seiton, Seiso, Seiketsu, Shitsuke)⁷ and other entry-level applications to the middle level (elimination of waste, quality control, industrial engineering) and thereafter to the sophisticated level (Total Quality Management, Just in Time, Total Productive Maintenance), based on the stage of development and performance.

Those who demand growth beyond the introduction of 5S, e.g. food processing industry, and those who may substantially benefit from IPI, e.g. machinery industry and others, should directly benefit from IPI and technical cooperation by Japan. Even the ICT industry whose clients need to enhance productivity may expect indirect benefits from the input as well.

The Survey team would suggest that the Productivity Centre of Kenya be made the pivotal pillar, provided that capacity of the secretariat can be reinforced or covered by other institutions through policy coordination at the tripartite platform. Since there are already indications that some private consulting firms can handle a Kaizen⁸ program in Kenya, the role of the platform in coordinating with

⁷ “5S” is the name of a Japanese business management method. It comes from a list of five Japanese words which start from “S,” namely: Seiri, Seiton, Seiso, Seiketsu and Shitsuke. They are the key words of how to organize a work place for better efficiency and effectiveness. The Japanese 5S words mean sorting, set in order, systematic cleaning, standardising, and sustaining, respectively.

⁸ “Kaizen” is a Japanese word meaning “improvement” or “change for the better” refers to philosophy or practices that focus on continuous improvement activities in manufacturing, engineering, and business management. Kaizen activity is a

those consulting firms to seek synergy would be crucial.

4.3.1 ICT industry

This sector would primarily seek technical input to upgrade the human interaction and managerial skills of the young engineers. In this regard, Japan may field business management experts to relevant institutions where suitable training programs would be rendered, in accordance with coordination through the tripartite platform.

4.3.2 Food processing industry

The industry would benefit more by support programs focused on productivity enhancement. If the IPI is successfully introduced, the food processing industry would be the primary recipient amongst the three selected target industries because of the industry's observed eligibility.

4.3.3 Agriculture/construction machinery industries

The primary interest may fall on machinery maintenance skills to be brought in by the Japanese program "Corporate Social Responsibility (CSR)". ODA support may be extended to field relevant expertise to the programs, or to offer remote schooling opportunities to the CSR programs, through interactive cooperation with ODA.

continual improvement by all functions and involves all employees from the top management to the factory workers. The improvements initiated by Kaizen activities should be standardized and incorporated into regular work processes, and eliminate wastes of time, work and money.

5 Senegal

5.1 Overall condition and priority human resource needs of the target industries

Senegal's effort on human resources development for industries has focused on filling technical gaps between what private sector companies demand and what local workers can deliver. The effort represented by the Competence Based Approach (CBA) stems from immediate demands of the private companies whose management system may not necessarily have been modernized.

Since the CBA focuses well on technical demands of the industries, it is likely to effectively fill the gaps to a good extent; however, it may not be a solution for modernization of company management models that have been left untouched in the CBA.

Although there are cases to look into for modernization of management, many private companies still have conservative management modalities with concentrated authority in the top management and workers perform as simple labourers. Those firms are not yet ready for modernization of their management.

5.2 Potential counterpart organizations

Modernization of management models may become as a future goal to attract attention of international investors who are eager to seek higher productivity, which can only be achieved through empowerment of production lines, regardless of where the management models are generated (US, Europe, Japan). For this purpose, a discussion must be encouraged amongst relevant stakeholders, including the government, private companies and educational and training institutions.

In fact, there are a sufficient number of educational institutions that offer resonant educational programs to technical demand of the companies, while there is no such long-term perspective to change or upgrade the management model per se. Accordingly, the educational institutions are not in a position to furnish human resources who are motivated to modernize the business model in this country at the time of this Survey.

5.3 Preliminary results on possible Japanese support for industrial human resource development

In light of the above findings, the Survey team suggests that the Senegalese government initially establish a tripartite platform of cross-cutting policy dialogue, consisting of government organizations, educational institutions and private sector representatives, through which the long-term perspectives of human resource development can be discussed. In order to assure sustainability and legitimacy, involvement of government authority is indispensable.

On top of the qualitative issue of modernization of the management model, the "Integrated Productivity Improvement" may be a future topic to upgrade manufacturing industries in Senegal in a practical manner, whose management techniques are yet uncultivated.

The above suggestion ought to be carefully examined of its validity, since it was not exhaustively clarified why the management model had stayed without modernization till today. There might have been some intangible constraints which has posed negative risks. In this perspective as well, the proposed platform and tripartite discussion are likely to be materialized consistently.

6 Nigeria

6.1 Overall condition and priority human resource needs of the target industries

6.1.1 Target industries

Japan has supported Nigeria in the following two major areas: a) building fundamental infrastructure and b) promoting social development. For the selection of the target industries for Nigeria, the Survey team took into account these two major areas as well as the following aspects of the Nigerian economy.

- Agriculture has been the biggest industry in Nigeria, accounting for 40.2% of its GDP in 2011; approximately two-thirds of the labour force in this country. The agriculture is important in reducing the import of basic food materials such as wheat, rice and sugar, as well as in creating employment opportunities.
- Since the majority of city residents are engaged in the trade and service industries, advancement of these industries will contribute to the development of the economy.
- As the number of imported used cars has been increasing, and a Japanese motorcycle factory has started operations recently, there is a need for improvement in a wide variety of technical areas ranging from the distribution system for used cars and spare parts to maintenance and repair works. In addition, the same technologies could be applied to the similar activities for machinery in the food processing industry.

In this regard, the Survey team selected the following industries for this survey: 1) food distribution and processing industry, 2) Retail and wholesale business industry of personal computer (PC) and ICT equipment and 3) aftermarket industry for transport machineries.

6.1.2 Priority human resource needs

(1) Food distribution and processing industry

Among others, maintenance and repair technologies for processing equipment for agricultural products should be given higher priority. For the purpose of preserving and improving the quality of post-harvest and processed products, technology for machine maintenance and repair is considered as technical input with priority in this field.

(2) Retail and wholesale business industry of PC and ICT equipment

With the spread of PC and ICT equipment in Nigeria, the necessity will greatly increase for further improvement in skills to maintain and repair them. At the same time, technical guiding services for PC users to teach them how to use these machines and basic software are also a potential area.

(3) Aftermarket industry for transport machineries

Because of the increased number of imported used cars, disposal of scrapped cars has become a new issue for both the economy and environmental conservation. Therefore, enhancement of capabilities to disassemble cars and select re-usable parts and the introduction of technologies for safe disposal, reuse and/or recycling of the scrapped cars are necessary. In this regard, human resource development at a car scrapping factory and its operation management will also be needed.

6.2 Potential counterpart organizations

The following three government organizations and one private business association were found to be qualified as potential counterpart organizations.

6.2.1 Government organizations

(1) Industrial Training Fund (ITF)

ITF was established in 1971 under the jurisdiction of Federal Ministry of Industry, Trade and Investment to boost supply of skilled human resources to industry sector in the country. ITF has been conducting variety of vocational training programs. ITF has a Model skill Training Centre in Abuja, and two other Industrial Skill Training Centres in Ikeja, Lagos and Kano.

(2) Nigeria Automotive Council (NAC)

The NAC is a council in charge of automobiles and machines for transportation, including related industries.

(3) Small and Medium Enterprises Development Agency of Nigeria (SMEDAN)

SMEDAN takes charge of developing small and medium-sized enterprises and has been related to three target industries.

6.2.2 Private business association

Nigeria Computer Society (NCS) is located in Lagos, the largest commercial city of Nigeria. It has 300 corporate and over 10,000 individual members, and could be a good intermediary for human resource development.

6.3 Preliminary results on possible Japanese support for the industrial human resource development

6.3.1 Food distribution and processing industry

Education and training activities for effective maintenance and repair should be one of the high priority issues in supporting this industry. Several Nigerian government organizations pointed out that without good maintenance and repair technologies, their scheme to assist private companies in introducing common agriculture equipment would not work. Therefore, the development of training programs for maintenance and repair work of the processing machines should be a priority. The following are the main content of possible Japanese support.

- Development of educational programs for both classroom lectures and on-the-job training
- Cultivation of trainers of the above programs
- Development of criteria for those who finish training programs and formulation of certification system such as “machine maintenance master”

The counterpart in Nigeria for this support can be ITF as it is currently conducting various training programs at their model-skill training centres and thus has certain resources.

6.3.2 Retail and wholesale business industry for PC and ICT equipment

In this field, primarily private firms request support in improving maintenance, making repairs and learning how to use PC. Therefore, human resource development is needed to cultivate trainers who can cover these areas. The counterpart can be the NCS who is well-informed about the actual situation in this field.

6.3.3 After-sales services of transport machineries

This industry needs to improve its capabilities in disassembling cars, selecting usable parts, and using the technology for disposing and recycling scrapped cars. In this regard, human resource development for factories and its operation management will be effective. The NAC is recommended as the counterpart as it has already started proposing relevant waste disposal regulations, collecting scrapped cars and securing sites for disassembly factories.

6.3.4 Support programs to cultivate entrepreneurs as a common theme

Increasing the numbers of industries and enterprises for employment generation is a key issue in Nigeria, together with the political priority of promoting unification and reconciliation of citizens and self-sustainability. Therefore, support programs to facilitate development of entrepreneurs have become important. To this end, the Survey team would recommend nationwide promotion in order to improve business development, which includes enhancement of management skills, entrepreneurship education and vocational training programs for the youth and micro-sized enterprises. SMEDAN is recommended as the counterpart for this purpose.

6.3.5 Overall support to automobile manufacturing in Nigeria

Nigeria had an automobile manufacturing industry in the past, but it stopped automobile production because of the recession of the 1980s. Currently, imported cars fill the demand for automobiles. Thus the NAC plans to reconstruct the automobile manufacturing industry, and overall support for this field would be desirable. At the same time, it will be a good opportunity for Japan to increase its influence and contribution to the Nigerian automobile industry. Details are provided below.

(1) Education and training programs

In order for Japan and its automobile industry to cope with the NAC's new development plan, it will be important to offer overall support to Nigeria's automobile industry. To enhance the capabilities of local staff employed by Japanese companies is a key task. In this regard, educational programs to deepen the local staff members' understanding of Japan, learning how to share a sense of the value of work, and improving basic skills will be required. For this purpose, the following support can be considered.

- One possibility is to set up a centre with human resource development functions of the Japanese automobile industry at the ITF Ikeja vocational centre in Lagos. In addition, technical support for the centre to manage lectures will be required. The contents of the lectures should be considered from the viewpoint of deepening understanding of Japan and human resource development to improve the business circumstances of the industry in Nigeria. Lectures on productivity improvement methods such as 5S (Seiri, Seiton, Seiso, Seiketsu, Shitsuke)⁹, Horenso (Report, Contact and Consult), 5-why analysis, elimination of waste, Kaizen¹⁰, and business manner improvement are suggested.
- For improving the basic skill levels of automobile production, maintenance and repair, technical support to enhance the ITF model vocational centre in Abuja and ITF mechanical service workshops are worth considering.
- As for instructors of the vocational training facilities above, dispatching people who have rich experience in Japanese enterprises operation is recommended. This could result in efficient human resource development for local staff working in Japanese companies.

(2) Political aspects to be considered for Japanese support

In order for the NAC to make an effective work plan, NAC should ask the Nigerian automobile industry to join and develop a concrete action plan together. Thus the following support undertakings from Japan are recommended.

⁹ "5S" is the name of a Japanese business management method. It comes from a list of five Japanese words which start from "S," namely: Seiri, Seiton, Seiso, Seiketsu and Shitsuke. They are the key words of how to organize a work place for better efficiency and effectiveness. The Japanese 5S words mean sorting, set in order, systematic cleaning, standardising, and sustaining, respectively.

¹⁰ "Kaizen" is a Japanese word meaning "improvement" or "change for the better" refers to philosophy or practices that focus on continuous improvement activities in manufacturing, engineering, and business management. Kaizen activity is a continual improvement by all functions and involves all employees from the top management to the factory workers. The improvements initiated by Kaizen activities should be standardized and incorporated into regular work processes, and finally eliminate wastes of time, work and money.

- Observation of policy-making in relevant governmental organizations.
- Representatives from Japanese automobile companies should observe plans and their implementation.

Through this kind of support to government organizations and the private sector, it will be possible to make a successful plan to actualize automobile production with a high percentage of local content. At the same time, this is how Japanese automobile manufacturers have succeeded in South East Asian countries and could be considered as utilization of uniquely Japanese ingenuities.

7 Cameroon

7.1 Overall condition and priority human resource needs of the target industries

7.1.1 Target industries

The Japanese cooperation to Cameroon focuses its policy on education, small- and medium-sized enterprise (SME) promotion, agriculture and rural development. It is believed that these priority areas can be the main engine for stable development, economic growth and employment generation in the country.

In this regard, the Survey team selected the following industries to be surveyed: 1) food processing industry based on agricultural, livestock and fish products, 2) wood industry for furniture, and 3) maintenance and repair industries for used cars and other used machinery.

7.1.2 Priority needs for human resource

(1) Food processing industry based on agricultural, livestock and fish products.

Agriculture, livestock and fishery industries accounts for 26% of Cameroon's GDP. If its competitiveness is increased, it could become a strong force to increase the GDP and provide local substitutes for a variety of imported products.

Following were found to be the challenges and needs identified from the survey.

- Technical capabilities are insufficient to use new processing technologies.
- Financial institutions are difficult to access.
- Relevant training opportunities are limited to processing materials.
- The cost of equipment is too high.

In general, they lack both the money and information needed to introduce new machines and technology, and they are willing to accept any support available to help them. However, these demands are very general, and no clear priority areas were identified.

(2) Wood industry for furniture

Since Cameroon is rich in timber production, a higher level of processing technology could help make the country more prosperous and competitive in the wood processing industry. Therefore, improvements in specific capabilities such as drawing for furniture assembling, timber cutting, painting and final polishing are identified as priority areas.

(3) Maintenance and repair industries for used cars and other used machinery

In order to develop the automobile related industries as well as the above mentioned food and timber processing industries, Cameroon needs to strengthen the capacity of its machinery maintenance and repair services.

The team observed that common techniques used by the current maintenance and repair services are out of standard and are mostly just stopgap measures. This situation might cause difficulties when standardized methods of maintenance and repair are introduced by Japanese ODA assistance.

However, motorization is expected to progress in Cameroon, and the demand for after-sale services including maintenance and repair that are closer to world standards will grow.

7.2 Potential counterpart organizations

Through the survey on five government organizations, three business associations and two educational facilities, the following two organizations were found to be potential counterpart organizations: the Ministry of Small and Medium Size Enterprises, Social Economy and Craft Industries (MINPMEESA) and the Ministry of Employment and Vocational Training (MINEFOP).

7.3 Preliminary results on possible Japanese support for industrial human resource development

7.3.1 Food processing industry on agricultural, livestock and fish products

Although some particular needs were noted as listed in 7.1.2, the business activities of the food processing industry varied widely, thus it was not easy to determine possible support programs from the viewpoint of “new technology”, “processing using machines” and “training opportunities”, which would benefit the “food processing industry” as a whole. Instead, the Survey team proposes to build supporting programs to improve the overall management capabilities of small- and medium-sized enterprises in the industry. For details, see the section “common issues of the three targeted industries” stated below.

7.3.2 Wood industry for office and home furniture

It is fair to say that there is a possibility for many firms to strengthen their competitiveness through improvement in specific capabilities such as wood furniture design, timber cutting, painting and final polishing. Thus it would be effective to implement training programs to upgrade the above capabilities. These training programs are to be implemented through vocational training organizations such as MINEFOP and its designated schools.

7.3.3 Maintenance and repair industries for used cars and other machinery

As described above, the technologies currently used in Cameroon are different from those that are used in Japan. However, motorization and the popularization of a variety of machinery are expected to progress in Cameroon and the demand for better after-sales services including maintenance and repair will grow. As a result, there will be opportunities for Japan to offer its technical assistance. In that case, the contents of Japanese technical assistance should be considered in collaboration with private firms such as Japanese automobile manufacturers.

7.3.4 Common issues for the three target industries

The current development stages of the target industries in Cameroon are yet to be matured. Japan can help both the management staff and workers in acquiring better management capabilities so that they can apply better management skills and knowledge at work on a day-to-day basis. This is especially true for quality control and productivity improvement. Therefore, the enhancement of business development support services in Cameroon will be effective and worthwhile.

The following is an outline of the business development support services.

Possible main contents of the educational programs in the support services are following.

- Bookkeeping and cost accounting
- Quality and productivity improvement
- Management-strategy decision making
- Marketing and promotions
- Human resources management

Training courses to cultivate business development service providers on the above subjects can be developed for public officials who support SMEs. The Survey team believes that the counterpart in Cameroon for this assistance can be MINPMEESA, the ministry in charge of SMEs business development and improvement. Candidates for trainees will be those who will support or improve the management capabilities of SMEs (considered here as beneficiaries), namely the staff at MIMPMEESA. Moreover, some instructors at vocational training centres directly belonging to and designated by MINEFOP will also be involve in that task. Private consultants who are eligible to be business development service providers can be considered as well in the future. These trainees will be trained by Japanese expert in order for them to be able to train beneficiaries.

The training courses should consist of classroom lectures and on-the-job training which can be carried out at the designated companies called “model companies” after being recommended by private business associations such as “Enterprise of Cameroon” or “Groupement Interprofessionnel des Artisans”, model companies should be selected based on proper criteria, and should receive management training guided by previously trained trainers. In this system, the technical cooperation will assist in also setting criteria for selection. Furthermore, it is important to demonstrate at the end of the process, through indicators and results that there is a real improvement in managerial skills.

During the survey and dissemination workshop at the end of the field survey in Cameroon, the team recognised that there were substantial needs in the private enterprises and business associations involved, and that direct benefits to private enterprises instead of benefits only to the public sector should be considered and planned for in future Japanese assistance programs. The Survey team believes that the proposed program this time should directly benefit private enterprises as the training is to be done for private enterprises and the results are to be shared with other private enterprises through the model companies.