

Ex-Post Project Evaluation 2018: Package III- 6 (Sudan)

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JAPAN INTERNATIONAL COOPERATION AGENCY

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The Republic of the Sudan

FY 2018 Ex-Post Evaluation of Technical Cooperation Project

“Capacity Development Project for the Provision of Services for Basic Human Needs
in Kassala”

External Evaluator: Keiko Watanabe, Mitsubishi UFJ Research & Consulting Co., Ltd.

0. Summary

The project was implemented in Kassala state of eastern Sudan aiming at improving access to the quality public services and meeting the basic needs for residents by enhancing public services through strengthening capacity of implementing agencies in the five sectors (clusters) of planning, water supply, agriculture, health and vocational training. The objective of the project is consistent with the national and state plans which put priority on enhancement of basic services such as water supply, agriculture, health and vocational training for residents affected by the conflict. It also is in line with the development needs and the Japan’s assistance policy for Sudan. In addition, the project design which adopted a multi-sectoral approach and the timing of project implementation were appropriate. Thus, the relevance is high. It can be said that the project purpose was achieved when judged comprehensively since the project purpose of the clusters other than health were achieved. In the health cluster, a part of the objectives was not achieved such as Wad el Helew Primary Hospital (hereinafter referred to as “WEH PH”) did not produce expected effects. Overall goals were achieved in the water supply and vocational training clusters, and largely achieved in planning, agriculture and health clusters. Therefore, overall goal of this project was largely achieved. Furthermore, other positive impacts were also observed in each cluster. Therefore, effectiveness and impact are high. On the other hand, the efficiency is fair because both the project period and the project cost exceeded the plan. The sustainability of the project effect is fair since some problems have been observed in terms of institutional/organizational, technical and financial aspects.

In light of the above, this project is evaluated to be satisfactory.

1. Project Description



Project Location



Raising cabbage seedling on tray introduced by the project (Horticulture Zone of Agriculture Cluster)

1.1 Background

Sudan has been facing regional conflicts such as conflicts in North-South, and in Darfur. Even in eastern region¹, frustration to the government over the regional disparity in development led to the conflict between local tribe rebels and government forces since 1994. After signing of the comprehensive peace agreement between the Government of Sudan and the Sudan People's Liberation Movement, the eastern conflict has ended by signing peace agreement in 2006.

Kassala state has population of about 1.8 million², borders Ethiopia and Eritrea, and most affected by the conflict in the eastern region with accepting many refugees and internally displaced persons. In this regard, socio-economic indicators were in poor condition compared to the overall value of Sudan. Even after the peace agreement, a fundamental improvement in chronic poverty was necessary. The Sudanese government has requested the Japanese government to implement a technical cooperation project in the areas of water supply, agriculture, maternal and child health and vocational training which were identified as most important areas in terms of preventing the recurrence of conflicts. The project also aimed to strengthen capacity of the state government to provide public services in development planning that are important for proceeding state projects. Under this background, Record of Discussion (R/D) was signed and concluded in February 2011 and the project was implemented from May 2011.

1.2 Project Outline

Overall Goal	Basic Human Needs of the people in Kassala State are ensured by enabling them to access quality public services by the State.
Project Purpose ³	(Planning) Directorate of Economic Planning and Development (DPD) in Kassala State Ministry of Finance, Economy and Manpower can manage development projects in various sectors better, so that they can produce visible, positive impacts on the local population. (Water Supply) Kassala State Water Corporation (SWC)'s capacity to provide service for water supply is strengthened. (Agriculture and Livelihood) The capacity of Kassala State Government for providing agricultural and rural development services to small scale farmers and women is strengthened. (Health) Kassala State Government's capacity to provide services for maternal and neonatal health is strengthened through activities of 2 pilot localities. (Vocational Training) Capacity of Kassala Vocational Training Center

¹ Eastern region consists of three states, Kassala, Red Sea and Gedaref.

² Fifth Census of Sudan (2008)

³ This project targeted five sectors (clusters) and project purposes have been set for each cluster. Therefore, the outputs were also set for each cluster.

		(KVTC) as public institute of Kassala State will be improved in providing vocational training that aims to train diverse and effective workforce for the socio-economic growth and stability of Kassala state.
Outputs	Planning	<p>Output 1: DPD's capacity to manage, monitor, evaluate and sustain development projects is strengthened, through implementation of the multi-sectoral K-TOP Project.</p> <p>Output 2: DPD's organizational culture to improve its work environment and work process with bottom-up initiatives is developed, through introduction of Kaizen approach.</p>
	Water Supply	<p>Output 1 : O&M and financial capacity of SWC for urban water supply is strengthened.</p> <p>Output 2 : A financial management and O&M model for rural water supply facilities in the pilot areas is established.</p> <p>Output 3 : SWC's capacity of water resources development for rural water supply is strengthened.</p>
	Agriculture and Livelihood	<p>Output 1 : Extension officers and other technical staffs are able to utilize technologies/knowledge for verifying profitability of horticulture crops in "Horticulture Zone (HZ)."</p> <p>Output 2 : Extension officers and other technical staffs are able to utilize technologies/knowledge for introducing new cash crops in "Flood Irrigation Zone (FIZ)."</p> <p>Output 3 : Extension worker and other technical staffs are able to utilize technologies/knowledge for stabilizing production of staple food crop in "Traditional Rain Fed Zone (TRZ)."</p> <p>Output 4 : Extension officers and other technical staffs are able to utilize technologies/knowledge for providing agricultural mechanization services in "Mechanized Rain Fed Zone (MRZ)."</p> <p>Output 5 : Extension officers and other technical staffs are able to utilize technologies/knowledge for creating sustainable rural development activities for extension offices in selected zones.</p> <p>Output 6 : Institutional support of SMoA for extension service is strengthen.</p>
	Health	<p>Output 1 : The capacity of Village Midwives (VMWs) ⁴ in communities is improved.</p> <p>Output 2 : The system to receive maternal and neonatal emergency patients in pilot localities is prepared.</p> <p>Output 3 : Capacity to support VMWs is strengthened.</p>
	Vocational Training	<p>Output 1 : Quality training program responding to local needs is implemented.</p> <p>Output 2 : Performance of KVTC staff is highly improved.</p> <p>Output 3 : Training facilities and equipment are improved.</p> <p>Output 4 : Effective management system is established.</p>

⁴ VMW is currently called community midwife (CMW) since 2014, however, this ex-post evaluation report uses VMW.

		Output 5 : Necessary amount of budget is secured for managing KVTC. Output 6 : Partnership between KVTC and its stakeholders (SCVTA ⁵ , K-SCVTA, industrial sector, union/cooperatives, donor/NGO, educational institutions, etc.) is improved.
Total Cost (Japanese Side)		1,857 million yen
Period of Cooperation		May, 2011 – April, 2015 (Extension Period: May, 2014 – April, 2015)
Target Area		Kassala State; Pilot areas (Kassala city and Rural Areas near Kassala city for Agriculture and Livelihood clusters, Wad el Helew for Health, Water supply, Agriculture and Livelihood clusters, Girba for Health cluster, Girba (Banard village for Water supply, Aroma area (Atbara East) for Agriculture and Livelihood cluster, Aroma area (Gash river flood irrigation zone) for Agriculture and Livelihood cluster)
Implementing Agency		Higher Council for Decentralized Governance ⁶
Other Relevant Agencies/Organizations		Planning: Directorate of Economic Planning and Development, State Ministry of Finance, Economy and Manpower (DPD/SMoF) Water Supply: State Water Corporation (SWC) Agriculture and Livelihood: State Ministry of Agriculture (SMoA) Health: State Ministry of Health (SMoH) Vocational Training: Kassala Vocational Training Center (KVTC)
Supporting Agency/Organization in Japan		None
Related Project		<p>【Technical Cooperation】</p> <p>“Human Resources Development for Water Supply” (2008-2011) “Human Resources Development for Water Supply Phase 2” (2011-2015) “Frontline Maternal and Child Health Empowerment Project” (2008-2011) “Frontline Maternal and Child Health Empowerment Project phase 2” (2011-2014) “The Study for Master Plan for the Vocational Training System in Sudan” (2009-2010) “Project for Strengthening Vocational Training in Sudan” (2011-2013) “Project for Human Resources Development for Darfur and the Three Protocol Areas” (2009-2013)</p> <p>【Grant Assistance】</p> <p>“The project for Urgent Improvement of Water Supply Facilities at Kassala City” (April, 2011) “The Project for Improvement of Water Supply System at Kassala City” (October, 2012)</p>

⁵ An institution that plays a role in institutional development, curriculum development, instructor training, etc. of vocational training at the federal level.

⁶ Federal organization responsible for local administration. At the time of ex-post evaluation, it was renamed as Federal Governance Chamber (FGC) due to the reorganization of the government. It conducted overall monitoring of the project such as through participating Joint Coordination Committee from the federal government. However, the actual implementing agencies are relevant organizations of Kassala state.

1.3 Outline of the Terminal Evaluation

1.3.1 Achievement Status of Project Purpose at the Terminal Evaluation

It was judged that each cluster was expected to achieve its project purpose by the end of the project. However, it was pointed out in the agriculture that the activities of horticulture zone should be organized from the viewpoint of profitability and cost-sharing method between farmers and SMOA should be established in flood irrigation zone and traditional rain-fed zone. It was also noted that health cluster needed to improve maternal and child health services utilizing WEH PH.

1.3.2 Achievement Status of Overall Goal at the Terminal Evaluation (Including other impacts.)

The overall goal was expected to be achieved in the water supply and vocational training clusters. The planning cluster did not explicitly state the prospect of achievement. In the agriculture, it was stated that it was likely to be achieved if the action plan of pilot activities was implemented. In the health cluster, although it was assumed possible to achieve the overall goal by expanding beyond pilot localities, the decision of achievement was premature since the effect from the expansion of WEH PH had not been produced due to the delay of construction.

1.3.3 Recommendations from the Terminal Evaluation

Table 1 shows the recommendations at the terminal evaluation.

Table 1 Recommendations from the Terminal Evaluation

Cluster	Recommendations before the end of Project	Recommendations after the Completion of the Project
Planning	<ul style="list-style-type: none">• Conducting monitoring and evaluation activities by their own initiative• Establishing efficient reporting system for the result of monitoring and evaluation	<ul style="list-style-type: none">• Making linkage between M&E with budget planning and management• Strengthening the M&E capacity of other state ministries• Improving communication with DPD staff in localities and other state ministries• Making continuous effort of improvement of daily work such as through process mapping• Dissemination of Kaizen concept• Making supervision of proper operation and maintenance of procured equipment and facilities
Water Supply	<ul style="list-style-type: none">• Support of SWC's supervision for pipe replacement work of the east area under construction• Support of dissemination for the large and small village water supply modes	<ul style="list-style-type: none">• Further acquisition of knowledge and experience in strategic and integrated water resources development and management in order to improve rural water supply, operation and maintenance skills on urban water facilities

	<ul style="list-style-type: none"> • Technical support for the integrative water-resource management (monitoring) of the Gash river area 	
Agriculture and Livelihood	<ul style="list-style-type: none"> • Development of utilization of K-TOP Fund⁷ • A five-year extension plan to continue pilot activities needs to be formulated and approved by SMOA 	<ul style="list-style-type: none"> • Each department of SMOA should discuss with planning, monitoring and evaluation unit with legitimate action plans and budget proposals • Allocation of extension officers to the appropriate position • Payment of allowance to extension officers • Operation and maintenance of procured equipment and facilities • Promotion of understanding on cost-sharing system among farmers and SMOA • Development of coordination system among departments of SMOA
Health	<ul style="list-style-type: none"> • Allocation of personnel in preparation for the post-WEH PH expansion work • Allocation of procured equipment in WEH PH • Setting up a task force in SMOH for the sustainability of the project activities • Information sharing with the Federal Ministry of Health • Improve implementation method of Supportive Supervision (SS) more efficiently 	<ul style="list-style-type: none"> • Allocation of necessary budget and staff at WEH PH • Provision of clear missions and description of responsibilities at pilot hospitals • Development of work environment for VMW (regulations, payment, in-service training, SS, etc.)
Vocational Training	<ul style="list-style-type: none"> • Proper disbursement of the state budget • Continuous capacity building of Women's activity section on technical and management issues • Placement of vacant position for KVTC instructors 	<ul style="list-style-type: none"> • Correcting work and technical gaps between instructors • Development of KVTC strategic plan (2015-2017) • Accumulation of KVTC's good practices

2. Outline of the Evaluation Study

2.1 External Evaluator

Keiko Watanabe, Mitsubishi UFJ Research & Consulting Co., Ltd.

⁷ This project is called as "K-TOP" (Kassala Take-Off Project). K-TOP Fund is a revolving self-managed fund that inputs a part of the profits from income generation activities in the Rural Development area in the agriculture cluster. The fund is used for services for other women's groups and for future activities.

2.2 Duration of Evaluation Study

This ex-post evaluation study was conducted with the following schedule.

Duration of the Study: October, 2018 - February, 2021

Duration of the Field Study: December 22, 2019- February 2, 2020

(Field survey conducted by local consultants)

2.3 Constraints during the Evaluation Study

In this evaluation survey, the external evaluator was not able to enter the project sites due to coup d'état in April 2019, the subsequent epidemic of dengue fever, and the epidemic of COVID-19 in 2020. The evaluation was conducted remotely by coordinating with a local consultant who located in Sudan (Khartoum) and by collecting information through questionnaire surveys and interviews to the implementing agency and relevant stakeholders. Therefore, the evaluator could not directly confirm outputs at the sites and there were restrictions on the quantity and quality of information and data compared to the cases where the evaluator herself conducted a field survey as in usual ex-post evaluation. Furthermore, the second field survey was conducted remotely because even the local consultant could not enter the project site due to the epidemic of COVID-19. In this regard, the evaluator made an evaluation judgement based on the literature reviews such as terminal evaluation and completion reports; as well as the questionnaire results to the implementing agency, interview results with implementing consultants, and interview / actual observation reports by the local consultants.

3. Results of the Evaluation (Overall Rating: B ⁸)

3.1 Relevance (Rating: ③⁹)

3.1.1 Consistency with the Development Plan of Sudan

The objective of the project is aligned with *Five-Year Plan* (2007-2011) of Sudan government at the time of planning. It sets important issues on poverty reduction, achievement of the Millennium Development Goals, balancing between capital and local states, rural development and development of conflict-affected areas. It prioritizes basic needs such as health care, water supply and education for conflict-affected people. The objective is also in line with the *Five-Year Strategic Plan of Kassala state* (2007-2011) which sets priority on improvement of livelihood and basic services. Each target sector also aligns with the following development plans and strategies at the time of planning and completion. *Strategic Plan of Water/ Sanitation/ Hygiene Sector of Kassala state* (2011-2016) aiming at providing safe water to the residents by 2016; *State Agriculture Development Strategy* (2008-2011) aiming at transforming

⁸ A: Highly satisfactory, B: Satisfactory, C: Partially Satisfactory, D: Unsatisfactory

⁹ ③: High, ②: Fair, ①: Low

subsistence-level agriculture to market-oriented one, growth through agricultural and rural development, empowerment of farmers and women, and etc.; *Five-Year Strategic Plan of Kassala state* (2007-2011) putting high priority on improvement of agricultural extension services through human resources development; *Five-Year Health Sector Strategy* (2007-2011) and *National Health Sector Strategy II* (2013) considering improvement of maternal and child health as one of priority issues and emphasizing training and improvement of technical skills of VMWs; *National Twenty-Five Year Strategy* (2007-2023) citing promoting private sector-led economic development as one of its priorities.

Therefore, the objective of the project is highly consistent with the development plan considering that development of conflict-affected areas as well as policies of four target sectors are highly consistent with the project.

3.1.2 Consistency with the Development Needs of Sudan

At the time of planning, indicators of basic needs such as health and access to safe water in Kassala state were much worse than the national average. For example, according to the Sudan Household Health Survey (2006), in Kassala state the access rate to drinking water was 39% (national average 56%) and maternal mortality rate (MMR) was 1,414 (national average 600) per 100,000 live birth. In 2010 the percentage of home delivery was as high as 81%¹⁰ and there was a high need to strengthen the capacity of VMWs. In addition, about 80% of the state population lived in the rural area and mostly engaged in agriculture. Therefore, agriculture was the main source of income and important means of securing food. However, there were different agricultural zones within the state, each with its own productivity and profit challenges.

The main cause of the conflict in eastern region was the frustration with the delay in development, but, as of 2010, four years after the peace agreement, chronic poverty continued, and economic and social development needs were high. Therefore, the improvement of public services in the areas of water supply, health, agriculture and vocational training which are directly linked to people's lives was an urgent issue in order for the people to feel benefit of peace from the perspective of peacebuilding to prevent the recurrence of conflicts. Furthermore, strengthening the capacity of the officers in charge of Ministry of Finance which is responsible for development administration and budget allocation for the entire state, was also an important issue.

At the time of project completion, the poverty rate in Kassala state remains high at 28%¹¹, infant mortality rate was 13th out of 18 states in Sudan, stunting rate under five was the lowest in 18 states, and access rate to safe water¹² was 11th out of 18 states. Indicators in the field of

¹⁰ Results of the questionnaire to the implementing agency

¹¹ National Baseline Household Budget Survey (2014-2015)

¹² The ranking of Infant mortality rate, stunting rate under five, and access rate to safe water are based on Multi-Cluster Indicators Survey (2014).

maternal and child health, agriculture (nutrition), and water supply were inferior in Sudan as a whole and the improvement needs were high. In the vocational training as well, the demand of providing courses that meet the market needs continued to be high. Thus, the project is highly consistent with the development needs.

3.1.3 Consistency with Japan's ODA Policy

The project was implemented in Kassala state, conflict-affected area of eastern Sudanese civil war and aimed at regional stability through improvement of public services in the areas of basic living of people affected by the conflict. Therefore, the project is in line with the Japan's country assistance policy for Sudan (June 2007) which prioritizes support for conflict-affected people/social reintegration and basic social needs (support for basic living fields such as health, water and sanitation, education and transportation). In addition, the project can contribute to the priority issue in *Yokohama Action Plan* of TICAD IV (2008). Therefore, the project is in line with the Japan's ODA policy at the time of planning. The project provided assistance in enhancing the administrative capacity of the highly-needed sectors during the period when the support from the international community was mainly emergency humanitarian assistance to address urgent issues. Therefore, the political and policy significance of the Japanese government was also recognized by showing Japan's strong commitment to Kassala state.

3.1.4 Appropriateness of the Project Plan and Approach

The project is a large-scale one with five clusters each of which has a large component. It is judged appropriate to have taken a multi-sectoral approach, which intervene simultaneously in the highly-needed sectors in order to make a certain impact on areas where development had not progressed even four years after the peace agreement and to show the commitment of Japan. At the time of planning, the international community focused on emergency and humanitarian assistance to meet urgent needs such as assistance for refugees and internally displaced persons, and development projects to strengthen the capacity of government agencies, which becomes the basis of medium- to long-term economic development, were limited. In fact, as of 2010 at the time of planning, only 20% of the reconstruction and development projects by the Eastern Sudan Reconstruction and Development Fund, which was launched to carry out reconstruction and development after the 2006 peace agreement, were implemented¹³. Under such circumstances, it can be said that the timing of the commencement of the project was appropriate from the perspective of peacebuilding to avoid the recurrence of conflict through the implementation of pilot projects that produce tangible outputs, which make people realize peace

¹³ News article by DABANGA (June 22, 2014)
(<https://www.dabangasudan.org/en/all-news/article/eastern-sudan-reconstruction-and-development-fund-does-not-work-mp>)

and contribute to the correction of development disparities, one of the causes of conflict.

This project was highly relevant to the country's development plan and development needs, as well as Japan's ODA policy. Therefore, its relevance is high.

3.2 Effectiveness and Impact¹⁴ (Rating: ③)

3.2.1 Effectiveness

3.2.1.1 Achievement of Project Purpose

In this project, each of the five clusters set project purposes and outputs respectively. However, the comprehensive project purpose is to improve capacity to provide public services in each cluster. As shown in Table 2, the project purposes were achieved in the planning, water supply, agriculture and vocational training clusters, and largely achieved in the health cluster. Therefore, it can be said that the project purpose for this project has been achieved as a whole. In the ex-post evaluation, the achievement of outputs and project purpose of each cluster have been confirmed and the project purpose was comprehensively judged without weighting each cluster. The attachment table shows achievement status of each output. The achievement status of each cluster is described below.

In the planning cluster, the capacity on monitoring and evaluation (M&E) was strengthened by implementing M&E of the development projects that actually visited the pilot project sites of other clusters of the project, which has not been practiced before the project (Output 1). In addition, in order to strengthen institutional capacity of DPD in Kassala State Ministry of Finance, Economy and Manpower, DPD officers recognized the importance of working together as a team to solve the problems rather than the previous top-down organizational structure through 5S and Kaizen activities¹⁵ (Output 2). According to the interviews with the implementing consultants, starting with the improvement of the work environment, some officers have made efficient budget allocations and work improvements from their own initiatives rather than instruction from above. For example, it was the idea of the staff to convert the salary payment and the account book into data from the manual bookkeeping. Kaizen activities led to activities in collaboration with other clusters through introducing Kaizen by DPD staff as facilitators. Through the two outputs above, DPD staff members have come to understand the needs and issued of relevant ministries and agencies more deeply. DPD self-evaluated that they had strengthened their capacity on project management including M&E, external relation, etc. Thus, the objective of planning cluster has been achieved.

In the water supply cluster, the purpose was to improve the capacity of SWC staff members

¹⁴ Sub-rating for Effectiveness is to be put with consideration of Impact.

¹⁵ Kaizen is the continual improvement which improves the work environment by adopting 5S (Sort, Set in order, Shine, Standardize, Sustain) and eliminates waste of work.

regarding the maintenance of facilities for urban and rural water supply. In urban water supply, the project established the structure to formulate and update the distribution network map utilizing GIS and GPS and contributed to the sustainable strengthening of SWC's organization through establishing maintenance department dedicated to maintenance, launching a training unit, and revising water tariff (Output 1). In rural water supply, two types of model for rural water supply based on population size were developed. The models were adopted by the state (Output 2). SWC gained capacity to take the initiative in conducting new and rehabilitation works for rural wells and exploring water resource development through provision of necessary training courses and equipment as well as lots of actual implementation (Output 3). In constructing and rehabilitating rural wells, consideration was given to the regional balance from the perspective of peacebuilding and the works were also conducted in conflict-affected areas and under-supported areas. The indicators of project purpose were largely achieved, and the cluster objective of water cluster has been achieved.

In the agriculture, the activities in four different natural conditions and farming styles zones of "horticulture," "flood irrigation," "traditional rain-fed" and "mechanized rain-fed," and activities in "rural development" aiming at improving the livelihood of women were targeted as outputs. As a result, the project aimed to improve extension system of entire SMoA. CUDBAS scores¹⁶ for capacity development of SMoA staff in charge of each output were largely achieved and it can be said the project led to the capacity development of relevant staff members. In addition, the understanding of SMoA on cultivation methods of new varieties through practice and on new concept of cost-sharing between the government and farmers was deepened. In the pilot areas, the number of farmers adopting the technology of this project has increased and yield of products has also increased. As a result, the satisfaction level of the farmers was high. It is also the result of this project that extension officers with a purpose were assigned to areas and provide services where there were no extension officers before. From the above, the project purpose of agriculture cluster is judged as achieved.

In the health cluster, capacity of VMWs in the pilot localities were strengthened (Output 1). Training materials and facilitators for VMW in-service training that can be used for entire Kassala state were developed and the instruction system for VMWs by Health Visitors (HV) (Supportive Supervision: SS¹⁷) was established (Output 3). Accordingly, a system has been established to disseminate the project results throughout the state. Furthermore, the training materials for VMW in-service training developed in this project were approved by the federal

¹⁶ CUDBAS means that "Method of Curriculum Development Based on Vocational Ability Structure". According to the terminal evaluation report (p.42), in CUDBAS, point 1 indicates "unable to do independent/ Don't know anything/ No knowledge", point 2 indicates "Able to do but still need help/ Little knowledge", point 3 indicates "Able to do by their own / has knowledge/reliable", point 4 indicates "Fairly capable /Know a lot/ can guide but not creative" and point 5 indicates "Capable to do completely and can instruct other/Sufficient knowledge / Can improve"

¹⁷ SS is the system for VMWs who have received in-service training and will receive regular visits and guidance from HVs or Assistant Health Visitors (AHVs). It also aimed to promote cooperation between HVs, AHVs and VMWs.

government, which was a great achievement. The project strengthened the provision of reproductive health (RH) services through procuring equipment and building capacity of relevant personnel in four medical facilities in order to enhance emergency maternal obstetric care (EmOC) (Output 2). The RH services at WEH PH, however, were not as effective as expected by the time the project was completed due to external factors such as no obstetricians and other medical personnel remaining. On the other hand, many communities in the target localities recognized the “positive changes” of the hospitals and VMWs by the project and rated as highly satisfactory on their services. Accordingly, the project purpose of health cluster is judged as largely achieved.

In the vocational training cluster, the project clarified the market needs, and built capacities of instructors on course management and teaching skills through developing and implementing the long- and short-term courses. In addition, facilities and equipment necessary to realize those courses were improved (Output 1, Output 2, and Output 3). The short-term courses were introduced for the first time in this project, and it was significant to provide training opportunities to vulnerable groups such as women and the poor. Two new long-term courses (auto electric and electricity) have also been established. The public relations activities of this project have increased the recognition of KVTC and increased the number of applicants for admission. In the operation of the vocational training center, by formulating a strategic plan and conducting human resources development, equipment planning, budget planning and their implementation under the operation management of the implementation committee, the ownership of the staff regarding VTC operation has also increased (Output 4 and Output 5). The project established strong partnerships with local SMEs and large companies such as the Sudanese Sugar Company (SSC) to promote in-plant training and employment of graduates (Output 6). The participants of short- and long-term courses were increased and the awareness of KVTC staff have been increased. The satisfaction rate of the students was also high. Accordingly, the project purpose of vocational training cluster is judged as achieved.

Table 2 Achievement of Project Purpose

Project Purpose	Indicator	Actual	Achvt* of Indicator	Achvt of Output	Achvt of Project Purpose
Project Purpose (Planning) DPD can manage development projects in various sectors better, so that they can produce visible, positive impacts on the local population.	① DPD's self-assessment of its organizational capacity using Spider Diagram (3.4 out of 5 points⇒4 points)	<ul style="list-style-type: none"> Self-assessment on capacity on organization, project management skill, personnel management, financial management and external relations reached to 4.08 points on average out of 5 points, thus, achieved the target value. The relationship was strengthened through this project by discussing with various relevant ministries and agencies and implementing 	◎	Output 1:◎ (Capacity on M&E) Output 2: ◎ (Improvement of Work and Environment through Kaizen)	◎

Project Purpose	Indicator	Actual	Achvt* of Indicator	Achvt of Output	Achvt of Project Purpose
		collaborative works.			
<u>Project purpose (Water Supply)</u> Kassala State Corporation (SWC)'s capacity to provide services for water supply is strengthened.	① Percentage of SWC works to respond to customer complaint records for Kassala city urban water supply. (from 60% in March 2012 to 80%)	• At the time of project completion, responding rate to customer complaints were 72% in east office and 81% in west office. In average, the rate was 76.5%. • According to the results of interviews with implementing agency at the time of ex-post evaluation, the average of east and west offices was 82% in 2015. In this regard, the indicator was largely achieved.	○		
	② Kassala resident satisfaction degrees for urban water supply. (actual average score 3.3 in November 2011 to target 4.0)	• Satisfaction degree was 3.4 and not reached to the target value. • However, it was judged that the indicator was not appropriate to measure project purpose since it is related to the implementation of interviews with customers whose water charges have increased due to the tariff revision in the project and the problems that could not be dealt with by improving skills (water outage due to insufficient water volume)	—	Output 1: ◎ (Urban water supply) Output 2: ◎ (Rural water supply) Output 3: ◎ (Water resources development in rural water)	◎
	③ Ratio of functioning of the rural water supply facilities in WEH and Girba localities (from 36 % to 64 % as of March 2012, to 80% in WEH, from 57% in April 2012 to 80% or higher in Girba)	• Improved the ratio from 36% (2012) to 80% (March 2015) in WEH locality, and from 60% (2012) to 80% (March 2013) in Girba locality.	◎		
<u>Project Purpose (Agriculture and Livelihood)</u> The capacity of Kassala State Government for providing agricultural and rural development services to small scale farmers and women is strengthened.	① Satisfaction rate of farmers who have participated in extension activities by the Project, for extension service are increased to 60% or higher as of March 2014, in each target zone, which are "Horticulture Zone (HZ)," "Flood Irrigation Zone (FIZ)," "Traditional	1) HZ (21 households surveyed) Average 89.5% 2) FIZ (30 households surveyed) Average 90.7% 3) TRZ (32 households surveyed) Average 90.7% 4) MRZ (47 households surveyed) Average 95.0%	◎	Output 1: ◎ (HZ) Output 2: ◎ (FIZ) Output 3: ◎ (TRZ) Output 4: ◎ (MRZ) Output 5: ◎ (Rural Development) Output 6: ◎ (Extension	◎

Project Purpose	Indicator	Actual	Achvt* of Indicator	Achvt of Output	Achvt of Project Purpose																		
	Rain-fed Zone (TRZ)," and "Mechanized Rain Fed Zone (MRZ)."			Planning)																			
	② No. of rural development activities that have been confirmed as sustainable ones (2 with 1 for income generation and 1 for livelihood improvement)	<ul style="list-style-type: none">• Ramla extension center in HZ: activities for biscuit production and sales group, restaurant management for income generation activity• WEH locality: 3 production groups which produced vegetable using water pump• 8 kinds of livelihood improvement activities were conducted.	◎																				
	③ Arrangement of budget and allocation of extension officers necessary to implement next five year extension plan which make sure to sustain the outcome of the Project.	<ul style="list-style-type: none">• By the completion, 5-year extension plan has been developed in collaboration with C/P in the activities of each zone.	◎																				
<u>Project Purpose (Health)</u> Kassala state government's capacity to provide services for antenatal and maternal and neonatal health is strengthened through activities of two pilot localities.	① Realizing, recognition, willingness and use of pregnant women and nursing mothers to take antenatal care and delivery either in improved medical facility or from trained village midwives in 2 pilot localities.	<ul style="list-style-type: none">• Impact survey was conducted in Girba and WEH localities at the end of December 2013 which surveyed 49 and 43 people respectively. The results confirmed as shown below that a high percentage of both localities answered towards the changes in hospitals and VMWs as “good change” and “would like to use.” It is considered that the reason why the changes in each care was not significant is that the respondents did not recognized the situation before. <div>Noticed changes in hospital (%)<table><tr><td></td><td>Girba</td><td>WEH</td></tr><tr><td>Anti-natal care</td><td>35</td><td>49</td></tr><tr><td>Delivery care</td><td>31</td><td>26</td></tr><tr><td>Postnatal care</td><td>29</td><td>16</td></tr><tr><td>Good changes</td><td>97</td><td>95</td></tr><tr><td>Would like to use</td><td>97</td><td>92</td></tr></table></div>		Girba	WEH	Anti-natal care	35	49	Delivery care	31	26	Postnatal care	29	16	Good changes	97	95	Would like to use	97	92	◎	<div>Output 1: ◎ (Capacity building of VMWs)</div> <div>Output 2: △ (EmOC system)</div> <div>Output 3: ○ (Capacity to enhance support for VMWs)</div>	○
	Girba	WEH																					
Anti-natal care	35	49																					
Delivery care	31	26																					
Postnatal care	29	16																					
Good changes	97	95																					
Would like to use	97	92																					

Project Purpose	Indicator	Actual	Achvt* of Indicator	Achvt of Output	Achvt of Project Purpose																		
		2. Noticed changes in VMWs (%) <table><tr><td></td><td>Girba</td><td>WEH</td></tr><tr><td>Anti-natal care</td><td>57</td><td>47</td></tr><tr><td>Delivery care</td><td>41</td><td>33</td></tr><tr><td>Postnatal care</td><td>29</td><td>28</td></tr><tr><td>Good changes</td><td>100</td><td>100</td></tr><tr><td>Intention of use</td><td>89</td><td>87</td></tr></table> <ul style="list-style-type: none">Source: Both 1 and 2 above are from Project Completion Report and Terminal Evaluation Report		Girba	WEH	Anti-natal care	57	47	Delivery care	41	33	Postnatal care	29	28	Good changes	100	100	Intention of use	89	87			
		Girba	WEH																				
Anti-natal care	57	47																					
Delivery care	41	33																					
Postnatal care	29	28																					
Good changes	100	100																					
Intention of use	89	87																					
	② Satisfaction rate of VMW services for pregnant women and nursing mothers and community leaders in pilot localities (80% in 2014)	<ul style="list-style-type: none">93.1% of pregnant women and mothers with children answered “very satisfied” or “moderately satisfied” with VMW’s work in Girba locality and 100% in WEH locality.96.1% of community leaders answered “very satisfied” or “moderately satisfied” with VMW’s work in Girba locality and 76.1% in WEH locality.Satisfaction rate of the community leaders of WEH locality of 76.1% has not reached the target value (80%), but, the other indicators have been achieved. Therefore, it can be said that the indicator ② has been achieved.	○																				
<u>Project Purpose (Vocational Training)</u> Capacity of KVTC as public institute of Kassala state will be improved in providing vocational training that aims to train diverse and effective workforce for the socio-economic growth and stability of Kassala state.	① Number of trainees enrolled in long-term courses increase from 258 to 460 by April 2014	<ul style="list-style-type: none">There were 400 trainees for long-term courses as of October 2012, and 323 trainees as of December 2013. The number of applicants for admission was on the rise due to the reputation of graduates and the implementation of public relations video screenings.Since 2013, the number of trainees has decreased due to the strict application of condition for graduating from primary school. This policy was from the federal government and it can be said that the reduction was due to external factors.	○	Output 1: ○ (Development of courses) Output 2: ◎ (Capacity Development of instructors) Output 3: ○ (Enforcement of Facilities and Equipment) Output 4: ◎ (Operation and Management System)	◎																		
	② KVTC receives more than 300 trainees in short courses annually	<ul style="list-style-type: none">Short-term training courses were conducted for a total of 1,207 by April 2014.Obtained 787 trainees in one year between May 2013 and April 2014.	◎	Output 5: ◎ (Budget plan for Operation) Output 6: ◎ (Collaboration																			

Project Purpose	Indicator	Actual	Achvt* of Indicator	Achvt of Output (with relevant organization)	Achvt of Project Purpose
	③ Motivation of KVTC staff toward their work is increased. (4.0 or higher /5.0 point)	• According to the survey by the project conducted in January 2014, the average point was 4.12 and most KVTC staff answered their motivation had raised toward their work.	◎		
	④ More than 70% of the KVTC trainees are satisfied with the trainings	• According to both follow-up surveys in 2011 (25 out of 40 graduates who were traceable) and 2012 (27 out of 44 graduates who were traceable), 100% respondent answered satisfied with the training.	◎		

Source: Project Completion Report, Terminal Evaluation Report, Results of questionnaire to and interview with implementing agencies, Interview results by implementing consultants

*Achievement: ◎: Achieved, ○: Largely Achieved, △: Partially Achieved, ×: Not Achieved, — Not applicable

3.2.2 Impact

3.2.2.1 Achievement of Overall Goal

Overall goal of the project is “basic human needs of the people in Kassala state are ensured by enabling them to access quality public services by the state.” As shown in Table 3, overall goal has been achieved in the water supply and vocational training clusters and largely achieved in the agriculture and health clusters. As regard to the planning cluster, its goal was set as the achievement level of the other four clusters, it can be said that the planning cluster has also largely achieved. Comprehensively, the overall goal of the project was largely achieved. The status of each cluster is as follows.

In the water supply cluster, according to the results from questionnaire to SWC, the set access rate to safe water has been achieved. However, since the access rate has many external factors other than the contribution of this project, the following points were confirmed, namely, ① length of water pipe replacement work utilizing the knowledge gained by SWC in the project, ② number of water supply facilities in operation, ③ number of newly installed and rehabilitated water facilities in rural water (wells). It can be said that the project contributed to the improvement of access rate considering the fact that ① and ③ have been steadily implemented from the completion of the project to the time of ex-post evaluation, although the data on ② could not be obtained.

In the agriculture cluster, the project has broadened the areas that provide services such as supply of improved varieties of crops to farmers, land protection and technical support. The support to the women groups in rural development activities have also been expanded. Although it was not clear to what extent it had expanded, each agricultural zone provided services to areas other than the pilot areas. The target number of farmers set in the overall goal has been achieved. In this regard, the project has largely achieved the overall goal of expanding access to extension

services through improving the capacity of officers of SMoA.

In the health cluster, MMR which was set as target indicator did not have official data since 2006, therefore, the following status after the project completion were confirmed and analyzed them as substitute indicators; ① implementation status of VMW in-service training (covering rate of VMWs), ② number of continuum care (anti-natal care, delivery care, and post-natal care), ③ implementation status of SS, and ④ assessment on VMWs by relevant persons. As a result, as shown in Table 3 the overall goal has been largely achieved.

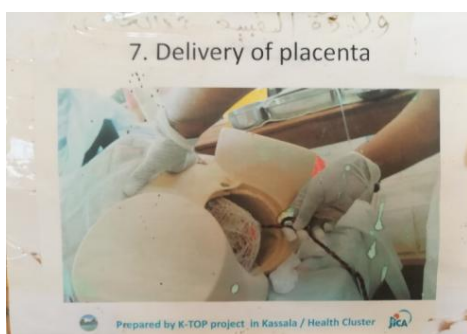
In the vocational training cluster, employment rate set in overall goal, is not only the contribution of the project, but is also largely affected by external factors such as labor market and economic conditions. According to the last follow-up survey conducted in 2014 by KVTC, as shown in Table 3, more than half of the graduates did not find employment in the trained field. However, the graduation certificate from VTC could work in favor of employment in Sudan where the employment situation is severe. Therefore, the indicator was judged as largely achieved. Employers uniformly highly evaluate KVTC graduates in terms of basic technique and safety management. It was found that such evaluation was linked to the acceptance of in-plant training and employment. In this regard, the overall goal has been achieved.



Kaizen Effect: Archive office set up after the project (Planning)



Rehabilitated rural water supply using solar system (Water Supply)



Training material for VMW In-service Training (Health)



Outputs from the Women Course at KVTC (Vocational Training)

Table 3 Achievement of Overall Goal

Overall Goal	Indicator	Actual	Achvt of Indicator	Achvt of Overall Goal															
<u>Overall Goal</u> <u>(Water Supply)</u>	Percentage of households who have access to safe water in Kassala State (from 48% in 2010 to 60% in 2017)	• According to the implementing agency, the population with access to safe drinking water was estimated to be 82% in urban areas and 60% in rural areas in 2017, the target year.	◎	◎															
	Additional Indicators	< Status of Water Pipe Replacement Work >	◎																
	① Implementation status of water pipe replacement work carried out using the provided equipment in line with the skills and manuals of the project.	<table><tr><th>Year</th><th>2015</th><th>2016</th><th>2017</th><th>2018</th></tr><tr><td>Replacement (km)</td><td>30.070</td><td>18.108</td><td>85.284</td><td>120.612</td></tr><tr><td colspan="4">Total Replacement length in 2015-2018 (km)</td><td>254.070</td></tr></table>			Year	2015	2016	2017	2018	Replacement (km)	30.070	18.108	85.284	120.612	Total Replacement length in 2015-2018 (km)				254.070
		Year			2015	2016	2017	2018											
		Replacement (km)			30.070	18.108	85.284	120.612											
Total Replacement length in 2015-2018 (km)				254.070															
Source: Questionnaire results to SWC																			
• At the time of project completion, 140 km of the total length of 306 km of water pipes had to be replaced due to water leakage. It means that the replacement work was proceeding smoothly even after the completion of the project.																			
② Number of water supply facilities in operation	• Data could not be obtained from SWC.	—																	
③ number of newly installed and rehabilitated water facilities in rural water (wells) in line with the skills and manuals of the project.	< Number of New and Rehabilitated Wells >	◎																	
	<table><tr><th>Year</th><th>2015</th><th>2016</th><th>2017</th><th>2018</th><th>Total</th></tr><tr><td>Number of Wells</td><td>97</td><td>40</td><td>52</td><td>30</td><td>219</td></tr></table>		Year	2015	2016	2017	2018	Total	Number of Wells	97	40	52	30	219					
	Year		2015	2016	2017	2018	Total												
	Number of Wells		97	40	52	30	219												
Source: Questionnaire results to SWC																			
• Four years after the project completion, a total of 219 wells were newly constructed or rehabilitated (mostly rehabilitation).																			
<u>Overall Goal</u> <u>(Agriculture and livelihood)</u>	No. of households who have direct access to extension services of agriculture and livelihoods (TTEA, Horticulture and Land Use Departments) (from 25,000/year to 50,000/year)	• According to the questionnaire results to SMoA, households were expanded from 2,500 farmers in 2011 to 4,500 farmers in 2018. Thus, the indicator was largely achieved. • The status of effects of each zone at the time of ex-post evaluation is as follows. Overall, the effect was judged as moderate.	○	○															
	<table><tr><th>Zone</th><th>Status of Effect at the time of ex-post evaluation</th><th>Effect</th></tr><tr><td>Horticultural Zone (HZ)</td><td>• Among the crops introduced on a trial basis, potatoes have become established. • As for cultivation methods introduced, those that do not cost much such as ridges, have become established, but only a limited number of farmers have continued to use drip irrigation which were costly. • The joint purchase of materials and direct sales methods introduced by the project have not been continued.</td><td>Moderate</td></tr></table>	Zone			Status of Effect at the time of ex-post evaluation	Effect	Horticultural Zone (HZ)	• Among the crops introduced on a trial basis, potatoes have become established. • As for cultivation methods introduced, those that do not cost much such as ridges, have become established, but only a limited number of farmers have continued to use drip irrigation which were costly. • The joint purchase of materials and direct sales methods introduced by the project have not been continued.	Moderate										
Zone	Status of Effect at the time of ex-post evaluation	Effect																	
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Overall Goal	Indicator	Actual			Achvt of Indicator	Achvt of Overall Goal
		Flood Irrigation Zone (FIZ)	<ul style="list-style-type: none"> Farming land became limited due to fluctuations in the Gash River and expansion of mesquite (a plant that causes a decrease in groundwater level), and priority was given to sorghum cultivation, which is the staple food. The pigeon pea and sunflower which were introduced by the project were cultivated only by a limited number of farmers. 	Moderate		
		Traditional Rain-fed Zone (TRZ)	<ul style="list-style-type: none"> With financial cooperation from Italy, terrace construction has been still supported in collaboration with SMoA (TTEA and Land Use Department). Even after the project was completed, it expanded beyond pilot project areas. According to the questionnaire results to SMoA, cost sharing system has not been continued in the pilot area (WEH) due to poor areas, but it has been introduced in it being other area. According to the interview to the target farmers, the production of sorghum has increased by terrace construction (from 6 sacks to 20 sacks per 15 feddans¹⁸) and increased faming income. As a result, the farmers participated in the project have spread the skills to other farmers even at the time of ex-post evaluation. SMoA continued PR activities (video creation, pamphlets and posters) and dissemination activities were being carried out. 	High		
		Mechanized Rain-fed Zone (MRZ)	<ul style="list-style-type: none"> By the year 2018, the renting services of agricultural machineries to small scale farmers through Agriculture Machinery Service Association (AMSA) had been conducted in the two pilot localities. At the time of ex-post evaluation, due to the policy change of SMoA that prioritizes increased food production, the agricultural machineries procured by the project have been directly stored and managed by SMoA. The machineries were lent to large-scale farmers from the view point of food safety. In el Karde village, one of target villages, all agricultural machinery were returned to SMoA. As a result, 10 small-scale farmers stopped farming. 	Low		

¹⁸ A unit of farmland used in Egypt and Sudan. 1 Feddan is about 4,200 m².

Overall Goal	Indicator	Actual						Achvt of Indicator	Achvt of Overall Goal																					
		Rural Development (RD)	<ul style="list-style-type: none">Groups that continues food processing (restaurant, biscuit making, etc.) were confirmed at three locations (Kassala, Ramla and Aroma areas). In particular, the restaurant opened in the premises of TTEA was so successful that it had plans to open a branch restaurant.A part of the profits from the rural development activities went into the K-TOP Fund and was used for training for other women's groups by the SMoA staff who participated in the training in Japan. K-TOP Fund is managed by the Rural Development Directorate as an account of SMoA, but the fund level was not sufficient to expand its activities.On the other hand, women's group of food processing in remote areas and pump cultivation groups did not continue because of soring material cost and the activities did not continued income.					Moderate																						
		Source: Interview Results with the implementing agency																												
Overall Goal (Health)	MMR in Kassala state reduced from 1,414 (per 100,000 live birth) (2006) to 244.9 (2010), 233 (2014) and 221 (2018).	<ul style="list-style-type: none">The only available official data of MMR in Sudan is 1,414 (per 100,000 live birth) by the Sudan Household Health Survey in 2006. Therefore, the achievement level cannot be judged from the MMR indicator.						—																						
	Substitute indicators ① Implementation status of VMW in-service training (cover rate of VMWs)	< Implementation Status of VMW In-Service Training > (Unit: VMW) <table><tr><th>Year</th><th>2014</th><th>2015</th><th>2016</th><th>2017</th><th>2018</th><th>Total</th></tr><tr><td>VMW in total</td><td>-</td><td>-</td><td>1,065</td><td>1,210</td><td>1,370</td><td>-</td></tr><tr><td>Trained</td><td>100</td><td>75</td><td>100</td><td>75</td><td>80</td><td>607*</td></tr></table> <p>Source: Questionnaire results to SMoH * including 177 people who have received training in the project</p> <ul style="list-style-type: none">607 out of 1,370 VMWs have received in-service training with a cover rate of 44%. Of the 607 VMWs, 177 VMWs were trained in this project (30%), which can be said to be a large contribution.						Year	2014	2015	2016	2017	2018	Total	VMW in total	-	-	1,065	1,210	1,370	-	Trained	100	75	100	75	80	607*	◎	
Year	2014	2015	2016	2017	2018	Total																								
VMW in total	-	-	1,065	1,210	1,370	-																								
Trained	100	75	100	75	80	607*																								
	② Transition of number of continuum care	<ul style="list-style-type: none">Quantitative data could not be obtained from the implementing agency. However, the interview to the relevant persons (SMoH, supervising HV, and VMWs of pilot localities) at the time of ex-post evaluation revealed that the number of consultations from and requests for anti-natal, postnatal cares and delivery assistance to VMWs from pregnant women has increased since the community understood VMWs better and recognized that their capacity has increased, and that the motivation of VMWs has raised through this project.						○																						
	③ Implementation of VMW supervision by HV (SS)	<ul style="list-style-type: none">Implementation of SS had not been conducted after the project completion due to the lack of transportation caused by shortage of budget.Although it is not the form of SS, VMWs have been						△																						

Overall Goal	Indicator	Actual	Achvt of Indicator	Achvt of Overall Goal
		received supervision from HV when they report to HVs on basic RH data monthly.		
	④ Assessment on VMWs by relevant persons	<ul style="list-style-type: none"> • VMWs whose capacity were strengthened in this project were assessed high at the time of ex-post evaluation by SMOH, supervising HVs and nurses at hospitals. The points that were highly evaluated were the improvement of basic skills of VMWs (how to measure blood pressure, implementation of urinalysis, delivery using scissors and forceps, disinfection method, etc.), improvement of communication ability with pregnant women, and smooth referral to the hospitals by strengthening the relationship with HV and relevant hospital personnel. 	◎	
<u>Overall Goal (Vocational Training)</u>	① More than 60% of the KVTC graduates have jobs within 1 year from their graduation by 2017. (31% → 60%)	<ul style="list-style-type: none"> • According to the follow-up survey (at the end of 2014) after the project completion, as an estimate, about 25% of graduates were employed in the fields where they were trained, and about 50% of graduates have obtained some kind of jobs. In total, about 75% got a job within a year. About 10% of them went to work overseas (Saudi Arabia, UAE, etc.) relying on their relatives. • Stable in-plant training recipients and employment destinations have been secured by having established strong relationship with local companies such as SSC and Kassala Small Industry Association. 	○	◎
	② More than 70% of the employers of KVTC graduates are satisfied with their performance. (NA → 70%)	<ul style="list-style-type: none"> • Since KVTC had not obtained satisfaction data from employers, it was not possible to measure with numerical data. • According to the SSC and local small workshops, which employ many of graduates, they highly appreciated the performance and work attitude of KVTC graduates compared to other staff. There are many inquiries from the Port Sudan Port Authority and the Girba Dam Project for in-plant training, which is the evidence of the high reputation of KVTC students. 	◎	

Source: Results of questionnaire to and interview with implementing agencies, Interview results with implementing consultants

Achievement: ◎: Achieved, ○: Largely Achieved, △: Partially Achieved, ×: Not Achieved, — Not applicable

3.2.2.2 Other Positive and Negative Impacts

(1) Impact on the Natural Environment

The negative impact has not been observed.

(2) Resettlement and Land Acquisition

In the health cluster, expansion of the WEH PH was conducted, but it was on the premises of the hospital and no resettlement and land acquisition has occurred.

(3) Unintended Positive/Negative Impacts

Table 4 Unintended Positive Impact in Each Cluster

Cluster	Unintended Positive Impacts
Planning	<p><u>Dissemination effect of Kaizen</u></p> <p>After the project completion, an “archive office” was set up in DPD and the materials were stored systematically. In addition, the initiative of a staff member has been promoting the digitization of these materials, which has led to the improvement of efficient processes such as reduction of information retrieval time. There were also several staff members who planned work schedule weekly or monthly. Furthermore, the director of DPD (at that time) became a national master instructor of Kaizen inspired by the project and upon request, DPD carried out 5S and Kaizen promotion activities for the staff of ministries and agencies in other states. He also attends international conference of Kaizen.</p>
Water Supply	<p><u>Organizational strengthening of SWC</u></p> <p>The project separated operation and maintenance department and established a maintenance department dedicated to maintenance. The questionnaire results to and interview with the implementing agency at the time of ex-post evaluation revealed that it was useful for the staff to concentrate on maintenance and clarify the roles. Although the training unit established by the project was temporarily stagnant after the project completion, the presence of the training unit allowed it to host internal training courses and to serve as a contact point for NGOs and donors externally to give training.</p> <p><u>SWC Management improvement</u></p> <p>According to the questionnaire results to and interview with SWC, the revision of urban water supply tariff started in the project has been continued even at the time of ex-post evaluation. The income was improving year by year, which led to the improvement of SWC’s management. However, the degree of management improvement was unknown because the income and expenditure situation was unknown.</p>
Agriculture and Livelihood	<p><u>Contribution to the institutional aspect (HZ)</u></p> <p>According to the interview with TTEA, TTEA urged the state government to sell the crop production on shelves rather than on the ground, which was the instruction from the project. This practice has become mandatory when doing business in Kassala at the time of ex-post evaluation. It was an institutional contribution of the project to marketing and hygiene.</p> <p><u>Social contribution to the local community (MRZ)</u></p> <p>According to the interview with AMSA in Abuda village, the revenue earned by renting agricultural machinery were used to lend land to local poor farmers free of charge or at half price, to build a health center, and to support teachers at village schools. The procured tractors by the project were also used as emergency vehicles during the rainy season. The agricultural machinery rental activities have also led to the social contribution to the local community.</p> <p><u>Led to the JICA Small and Medium Enterprise (SME) Partnership Project (HZ)</u></p> <p>After the project completion, the dried onion storage activities undertaken in the horticultural zone has been linked to a Feasibility Study in FY2015 and a Verification Survey in FY2017 in collaboration with a Japanese private company. Behind this, there was a cooperation of implementing agency and the implementing consultants of this project.</p>

Agriculture and Livelihood	<p><u>Input to the other donor’s strategy (Introduction of cost-sharing system)</u></p> <p>Based on the results of questionnaire to and interview with the implementing agency, at the time of ex-post evaluation, the concept of cost-sharing system has been introduced to the agri-business project in WEH supported by UNIDO. SMOA understood the usefulness of the concept of cost-sharing which was introduced by the project to enhance the ownership of farmers themselves during the project period. Then, SMOA has encouraged other donors to introduce it.</p>																								
Health	<p><u>Improving status and Stabilizing income of VMWs</u></p> <p>VMW used to be positioned as a volunteer, but the Presidential decree issued in 2013 stipulates to encourage SMOH to employ VMWs. In Kassala as a whole, the employment rate increased from 15% in 2015 to about 74% in 2018 as shown in the table below. In addition, there are some VMWs who are not directly employed by the state but receive incentives through the state from the Federal Ministry of Health. The total number of VMWs including those employed by the state and incentive recipients is 1,194, accounting for 85% of the total number of VMWs. In the pilot areas, comparing 2014, when the project was completed, and 2018, Girba locality increased employment from 9 to 75 and WHE locality also increased from 9 to 37, accounting for 87% and 60% of the total respectively. The SMOH and VMWs responded in the interview that employment or incentive secured the stable income and achieved a stable life. Despite the policy backing of the Presidential decree, the SMOH recognized the importance of VMW and the project also helped SMOF to understand it, which led to secure budget for VMW salaries. It can be said that the project has contributed to a certain degree to the increase in VMW employment rate and to the stabilization of VMW’s income. Furthermore, according to the results of questionnaire to the implementing agency and VMWs and interview results with the relative officials of SMOH, the community became more confident in VMWs through public relations activities to the community regarding the capacitated VMW and delivery kit¹⁹ given after the VMW in-service training. Then, the number of consultations from pregnant women has increased. The trust in VMW by the community increase, such as calling VMW a “doctor” since VMWs began to measure blood pressure and implement urinalysis after the VMW in-service training.</p> <p style="text-align: center;">< Transition of Number of VMWs and VMWs Employed by SMOH ></p> <p style="text-align: right;">(unit: VMWs)</p> <table><tr><th></th><th>2010</th><th>2015</th><th>2016</th><th>2017</th><th>2018</th></tr><tr><td>Number of VMWs</td><td>608</td><td>1,065</td><td>1,210</td><td>1,370</td><td>1,402</td></tr><tr><td>VMWs employed by SMOH (Employment rate)</td><td>NA</td><td>156 (15%)</td><td>1,032 (85%)</td><td>1,032 (75%)</td><td>1,032 (74%)</td></tr><tr><td>VMWs received incentive from the Federal Ministry of Health*</td><td>—</td><td>245</td><td>162</td><td>162</td><td>162</td></tr></table> <p>Source: Data of 2010 is from information provided by JICA, Data of 2015 -2018 were from questionnaire results to the implementing agency</p> <p>*Provision of incentive from the Federal Ministry of Health started in 2015.</p>		2010	2015	2016	2017	2018	Number of VMWs	608	1,065	1,210	1,370	1,402	VMWs employed by SMOH (Employment rate)	NA	156 (15%)	1,032 (85%)	1,032 (75%)	1,032 (74%)	VMWs received incentive from the Federal Ministry of Health*	—	245	162	162	162
	2010	2015	2016	2017	2018																				
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VMWs employed by SMOH (Employment rate)	NA	156 (15%)	1,032 (85%)	1,032 (75%)	1,032 (74%)																				
VMWs received incentive from the Federal Ministry of Health*	—	245	162	162	162																				

¹⁹ Minimum tools and consumables required for VMW to assist delivery (stethoscope, blood pressure measuring device, scissors, disinfectant, cotton wool, soap, etc.)

Health	< Number of VMWs in the Pilot Localities and VMWs Employed by SMoH > (unit: VMWs)								
		Locality	2011	2014	2018				
	Number of VMWs	Girba	-	64	86				
		WEH	-	31	62				
	Employed by SMoH	Girba	9	9 (14% of VMWs)	75 (87% of VMWs)				
		WEH	4	9 (29% of VMWs)	37 (60% of VMWs)				
	Source: Questionnaire results to the implementing agency (There were no answers on number of VMWs in 2011 and 2014.)								
	<u>Strengthening relations among VMWs</u>								
	According to the interviews with VMWs, since a VMW usually work alone in the village, many VMWs are isolated without cooperating with other VMWs. Many VMWs answered that the project enhanced cooperation with HV, doctors and nurses at hospitals to which patients transported. In addition, they stated that implementation of in-service training strengthened the horizontal linkage among VMWs. With the training as an opportunity, VMWs came to easily contact each other on mobile phones for consultation and information sharing.								
	<u>VMW employment at medical facilities in pilot localities</u>								
	According to the interview with SMoH, among VMWs employed by SMoH, there were more than 10 VMWs who have been hired as assistants in the Girba locality hospital and WEH PH. Employment at medical facilities made it possible to upgrade their skills continuously as well as to further strengthen the relationship with medical personnel, which facilitated the transfer of patients to hospitals by VMWs.								
Vocational Training	<u>Improvement of the quality of training</u>								
	As seen in the table below, the pass rate of the final examination of KVTC was 74% in 2015 after the end of the project, a leap from the previous 20% level. It ranked 8 th among 20 VTC schools nationwide. Since the students who took the examination in 2015 were beneficiaries of the project (who entered during the project period), it can be said that the project contributed to the improvement of the pass rate to a considerable extent. It also can be said that it contributed to the improvement of the quality of KVTC training.								
	< Pass rate of final examination for long-term course graduates in KVTC >								
	Year	2011	2013	2014	2015	2016	2017	2018	2019
	No. of students taking exam (person)	72	84	40	42	44	87	66	66
	Pass (person)	21	20	9	31	21	44	38	26
	Pass rate (%)	29.2%	23.8%	22.5%	73.8%	47.7%	50.6%	57.6%	39.4%
	National average pass rate (%)	57.9%	47.6%	38.0%	60.5%	61.0%	64.7%	65.5%	65.1%
	Ranking (No. of Total VTCs)	16 (17)	17 (17)	15 (18)	8 (20)	19 (23)	19 (23)	16 (25)	25 (29)
	Source: Regarding the data from 2011 to 2016 were obtained from SCVTA at the time of ex-post evaluation of “Project for Strengthening Vocational Training in Sudan” (examination was not conducted in 2012 due to the political changes caused by separation with Southern Sudan), Data from 2017 to 2019 were obtained from SCVTA at the ex-post evaluation of this project.								
	<u>Stable Acceptance of in-plant training and securing of employment</u>								
	The strong cooperative relationship with local companies such as SSC and Kassala Small Industry Association established in this project has led to stable acceptance of in-plant training and securing of employment even at the time of ex-post evaluation.								

Vocational Training	<p><u>Continuous implementation of short-term courses</u></p> <p>As shown in the table below, the short-term courses were still on-going even at the time of ex-post evaluation and have become part of KVTC’s regular activities which expanded the vocational training opportunities for citizens. GIZ, German International Cooperation Agency, values KVTC to a certain extent that KVTC has well-equipped facilities and that some departments have highly qualified instructors although the number of instructors were limited. Therefore, GIZ-supported vocational training course were offered at KVTC.</p> <p>< Implementation Status of Short-Term Courses in 2018 and 2019 ></p> <table><tr><th>Course</th><th>No. of participants</th><th>Funding Source</th></tr><tr><td>Electricity, Refrigerator, Air Conditioning, Automotive</td><td>50</td><td>GIZ/SORD (NGO)</td></tr><tr><td>Food Processing, Make-up, Traditional Perfumes</td><td>90</td><td>GIZ/SORD (NGO)</td></tr><tr><td>PC Basic</td><td>14</td><td>GIZ</td></tr><tr><td>Start Your Business (SYB)</td><td>17</td><td>JICA</td></tr><tr><td>Basic technical drawing, Sheet metal work</td><td>3</td><td>JICA</td></tr><tr><td>Basic Training on Leather Product and SYB</td><td>14</td><td>SMoF</td></tr><tr><td>Sewing</td><td>20</td><td>SMoF and participant</td></tr><tr><td>Training on Leather shoes product and SYB</td><td>16</td><td>JICA</td></tr></table> <p>Source: Results of questionnaire to KVTC (In 2019, due to the deterioration of public security the course could not be implemented except for JICA support courses)</p>	Course	No. of participants	Funding Source	Electricity, Refrigerator, Air Conditioning, Automotive	50	GIZ/SORD (NGO)	Food Processing, Make-up, Traditional Perfumes	90	GIZ/SORD (NGO)	PC Basic	14	GIZ	Start Your Business (SYB)	17	JICA	Basic technical drawing, Sheet metal work	3	JICA	Basic Training on Leather Product and SYB	14	SMoF	Sewing	20	SMoF and participant	Training on Leather shoes product and SYB	16	JICA
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Sewing	20	SMoF and participant																										
Training on Leather shoes product and SYB	16	JICA																										
Coordination Effect	<p><u>Strengthening relationship among clusters</u></p> <p>According to the questionnaire results to and interviews with implementing agencies of water supply, agriculture and health clusters, the project strengthened the relationship with the SMoF, which made it possible to consult in advance before submitting the annual plan to the state. It has become possible to improve the quality of the plan. KVTC has been under the jurisdiction of SMoF, but, according to interview with KVTC, SMoF has assigned a dedicated KVTC person for the first time after the project and has come to regularly monitor activities. Furthermore, in the water supply cluster, SWC staff were becoming more actively involved in the water problems in other clusters such as attending meetings as members on hospital leakage issues and on agriculture related projects.</p> <p><u>Sharing experts and conducting efficient activities among clusters</u></p> <p>In the project, coordination effects were seen such as sharing of experts among clusters. For example, the expert in the vocational training cluster also played a role as an expert on developing teaching materials in health cluster and provided advice on capacity building assessment for agriculture cluster. Expert on financial analysis for water supply cluster provided advice on financial analysis for women’s livelihood improvement projects in the agriculture cluster. Furthermore, in the water supply cluster, GPS training was conducted together with agriculture cluster. Such coordination activities have also led to the implementation of efficient activities.</p>																											

Effects from the viewpoint of peacebuilding	<p><u>Consideration for conflict-affected and vulnerable people</u></p> <p>Kassala state is the conflict-affected area and it is said that the traditional customs remain strong in Sudan. According to the terminal evaluation report, rather than considering the bias of ethnic groups, the pilot project sites of the project were resulted in a well-balanced manner including WEH locality where ethnic group are mixed, Girba locality which was a refugee receiving area, eastern part of Atbara river in the north Aroma locality which was the poorest area and the minority Hadendawa tribe people live in. On the contrary, the project took the intentional consideration so that no negative impact of the project was observed. Typical examples are as follows.</p> <p>Water Supply: Consideration was given to the construction and rehabilitation of wells in rural areas in a well-balanced manner in Kassala state. In particular, it was made sure that the activities were implemented in the minority Rashaïda residential areas in West Kassala locality, which was affected by the eastern conflict, and Hamashokreb locality, which was the living area of Hadendawa tribe, with poor access and less development projects.</p> <p>Vocational Training: In consideration of vulnerable people, the project developed courses for women who have never had vocational training opportunities due to the traditional society. The first women's course in Kassala received applications from more women than the capacity.</p> <p>Agriculture: The pilot activity areas were selected in consideration of conflict-affected, such as settlement areas of Hadendawa and Rashaïda, where no extension workers have been assigned. As a result, access to services has been expanded to areas where extension services had not been available.</p>

It was confirmed that this project has achieved the project purpose of the improvement of capacity of the implementing agencies officers of each cluster to provide public services. It was also confirmed that number of residents who could access to public services in each cluster has been increased as for the overall goal. Considering that the effects have exhibited as planned, the effectiveness and impact of the project are high.

3.3 Efficiency (Rating: ②)

3.3.1 Outputs

Table 5 Plan and Actual of Inputs

Inputs	Plan	Actual (at the Project Completion)
(1) Experts	Number not listed. Planning 68MM*, Water Supply 44MM, Agriculture 68MM, Health 41MM, Vocational Training 36MM <u>Total 257MM</u>	Short-term Experts: A total of 36 experts (Breakdown/Planning 5, Water Supply 4, Agriculture 8, Health 11, Vocational Training 8) Planning 75.3MM, Water Supply 55.23MM, Agriculture 80.13MM, Health 75.73MM, Vocational Training 47.01MM <u>Total 333.40MM</u>
(2) Trainees received	Training in Japan: 15-20 people	Planning: 15 people (9 courses), Water Supply 10 (6 courses), Agriculture 28, (16 courses), Health 10 (7 courses), Vocational Training 4 (3 courses) <u>Total 67 people</u>

(3) Equipment	(Planning) Office equipment	(Planning) Office equipment
	(Water Supply) Equipment for customer data management, training, water quality analysis, maintenance and pilot project	(Water Supply) Large equipment such as crane truck, Equipment for water facility workshop, Related maintenance tools, Office equipment, etc.
	(Agriculture) Equipment for agriculture mechanization (tractors, etc.), Training equipment for rural development, Equipment for extension activities (pick-up trucks, bikes, etc.)	(Agriculture) Agriculture machineries such as tractors and their accessories, Motor bikes, Office equipment such as PCs.
	(Health) Medical equipment for Girba Locality Hospital, WEH PH, Saudi Obstetrics and Gynecology Hospital, and Kuwait Pediatric Hospital, Office equipment	(Health) Medical equipment for four pilot hospitals, Generators, Motor bikes, etc.
	(Vocational Training) Equipment for automotive, plumbing, food processing and sewing	(Vocational Training) Equipment necessary for training courses
(4) Third Country Training	Number not listed.	Planning: 27 (4 courses), Water Supply: 3 (1 course), Health 12 (4 courses), Vocational Training 6 (2 courses) <u>Total: 48 people</u>
Japanese side Total Project Cost	Total: 1,200 million yen	Total: 1,857 million yen
Sudanese side Total Project Cost	No plan value stated.	Total: 44 million yen (Local cost) (as of the terminal evaluation)

*MM stands for man month

Source: Information provided by JICA, Project Completion Report, Terminal Evaluation Report

Note: Project cost of Sudanese side was estimated SDG 1,931,732 from IMF statistics (IFS) using the 2011-2013 exchange rate on average (\$1=SDG3.67, \$1 =¥85.7, SDG 1=¥23.2).

3.3.1.1 Input

The major difference between the plan and the actual in the inputs of Japanese side was the addition of WEH PH rehabilitation work when installing an EmOC system in WEH locality in the health cluster. It was conducted in order to transfer the patients to the higher-level hospital and to perform cesarean section surgery even in WEH locality with poor access. Along with this, it required to add necessary equipment and strengthen capacity such as on management of hospital operation and equipment. Thus, the man month (MM) of experts were increased. Expert MM increased by 76.4 MM (29%) overall. The main reason is considered to be the extension of the project for one year in addition to the additional activities associated with the rehabilitation of WEH PH. On the other hand, the experts in the planning cluster were in charge of the operation and management of the entire project including procurement work and management of drivers and cars. Therefore, the experts in other clusters could concentrate on the substantial activities in each cluster. As mentioned above, it can be said that the cooperation of experts among clusters flexibly led to efficient and effective implementation.

On the Sudanese side, a total of 155 counterpart officers were assigned. Project offices

including facilities and local costs (labor costs, vehicle fuel costs, utility costs of the project offices, etc.) were invested in each cluster.

3.3.1.2 Project Cost

During the project period, construction work, equipment procurement and country-specific training that were not originally planned were carried out. Specifically, there were additional equipment (vehicles, generators, equipment for WEH multipurpose training center, office equipment for water cluster, etc.) (13 million yen), expansion of the WEH PH obstetrics building (55 million yen), increase in the number of participants in the country-specific training (9 million yen), increase in the cost of implementation of Mid-term Review²⁰ (3 million yen), and additional work for short-term experts due to additional construction and equipment procurement and transportation cost (142 million yen). When this is added to the originally planned value of 1,200 million yen, the total becomes 1,422 million yen. Comparing this adjusted planned value with the project cost of 1,857 million yen, it exceeded the plan (130% of the plan). The increase beyond the plan is thought to be due to the increase in short-term experts with the one-year extension of the project.

3.3.1.3 Project Period

The project period was three years (36 months) in the plan. However, since each cluster other than vocational training was extended by one year, the actual was four years (48 months), which exceeded the plan (133% of the plan). The reasons for the extension of each cluster were as follows. In the water supply cluster, SWC mainly requested technical support for construction supervision when carrying out the replacement work of water pipes in Kassala city. In addition, it was necessary to establish the effect by conducting training and dissemination of water tariff model and large-scale rural water supply model. In the agriculture cluster, the background reason for extension was that the pilot projects could not be implemented due to the shortage of rainfall in 2012 in the flood irrigation and the traditional rain-fed zones so that commencement of the project was delayed. In the health cluster, due to the delay in rehabilitation work of WEH PH, defection inspection, operation improvement, and training opportunities for newly installed medical equipment became necessary. One of the causes of the delay in construction was that the start of construction was delayed due to the delay in approval of the construction by SMoH, and that the construction did not proceed as planned due to the remote area. The planning cluster also extended for the necessity of monitoring and operation management of the three extended clusters. It can be judged that the extension was necessary and appropriate for achieving the outputs.

It can be considered that the initial period of three years was ambitious. In this project,

²⁰ Due to one additional consultant for "Evaluation Analysis."

various new concepts and methods were introduced in each cluster, and the officers of the implementing agencies had to not only understand the theory but also put it into practice and establish the skills.

Both the project cost and project period exceeded the plan. Therefore, efficiency of the project is fair.

3.4 Sustainability (Rating: ②)

3.4.1 Policy and Political Commitment for the Sustainability of Project Effects

Five-Year Strategic Plan of Kassala state (2017-2022) and the policy of Eastern Sudan Reconstruction and Development Fund, which are valid at the time of ex-post evaluation, continue to put importance on the improvement of basic service areas such as water supply, health, and poverty reduction measures through livelihood development and expansion of vocational opportunities. SWC lists the supply of safe water of sufficient quality and quantity, high customer satisfaction and human resources development as priority issues. *Five-Year Agricultural Strategic Plan of Kassala state* (2017-2022) stipulates the improvement of agricultural productivity and increase in food production by introduction of new technology, enhancement of extension activities, diversification of crops, and improvement of water harvesting technology²¹. At the time of ex-post evaluation, home delivery rate was still high in Kassala (78% (2018) ²²) and *Road Map for Maternal and Child Mortality Reduction in Kassala* (2016-2020) sets the basic training of VMWs and capacity development of VMWs through in-service training, strengthening of emergency and obstetric newborn care, and heightening the awareness of people as priority issues. In *Strategic Plan of KVTC* (2016-2020) the priority issues are improving the quality of training, building capacity of instructors, developing safe training environment, efficient administrative work, and effective utilization of financial resources.

Therefore, it can be said that at the time of ex-post evaluation, the policies of Kassala state as a whole and the policies of each cluster ensure a policy environment that contributes to the sustainability of the project effects.

3.4.2 Institutional / Organizational Aspect for the Sustainability of Project Effects

DPD continues to oversee state-wide development budgets, formulate annual development plans, and disseminate budget to relevant ministries and agencies. The number of staff member in DPD has not changed significantly from 48 at the time of planning to 44. It can be thought that a certain level of stable number will be ensured in the future. As for SWC, the maintenance

²¹ Technology for collecting and storing surface runoffs due to limited rainfall for agricultural use.

²² Questionnaire results from the implementing agency.

department, which has been strengthened by the project, was functioning and the training unit has been also utilized. The system has been strengthened by allocating staff members to rural areas. However, according to the questionnaire results to SWC, the skilled staff members such as those with engineer qualifications are aging, and young qualified members have been changing jobs to international organizations and other donor staff. At the time of ex-post evaluation, there were only eight engineers among seventy officers in the headquarters. 10 to 120 staff members have been allocated in six regional offices depending on the scale, but there are only 16 employment in the four regional offices with technical qualification. Therefore, some issues remain in the organizational aspect due to the limited number of qualified human resources. According to the results of the questionnaires to SMoA, it was pointed out that the number of extension workers is insufficient due to budget limitation. However, the level of number of extension workers remains 63, which is the same as during the time of the project. In addition, it has contributed to the sustainability in terms of organizational aspects to some extent that extension workers were placed in rural areas where they had not been before. On the other hand, agricultural machinery renting system introduced in this project to support small-scale farmers was not implemented at the time of ex-post evaluation as mentioned above. The continuation of effects in the mechanized rain-fed zone was limited. Therefore, some issues regarding institutional and organizational aspects were remained. Three facilitators for VMW in-service training have been fostered after the project completion. There are 14 facilitators in total, which is sufficient to continue the in-service training. On the other hand, in WEH PH an obstetrician has been assigned at the time of ex-post evaluation, but there was a shortage of anesthesiologists and nurses. There was a problem with the system for providing the expected RH services. Therefore, although the institutional and organization aspects in developing and supporting VMWs was guaranteed, there is a minor problem with the organizational aspects of WEH PH. In KVTC, the instructor position for welding has been vacant for a long time. In addition, there are minor problems with the organizational aspects of instructors. According to the questionnaire results to and interview with the implementing agency, there were only small number of instructors in the popular fields of auto electric, women and turning. Thus, the implementation of short-term courses of these fields was limited. However, although there are minor issues with the number of instructors, it can be said that there are no major issues with the organizational aspects for managing long-term courses.

There is no major problem in the planning and vocational training clusters. However, since there were minor issues in the water supply, agriculture and health clusters, some issues regarding sustainability of institutional and organizational aspects of this project remain.

3.4.3 Technical Aspect for the Sustainability of Project Effects

In this project six Kaizen trainers have been fostered through Kaizen activities and the

dissemination of Kaizen was implemented in and outside DPD. Interviews with DPD revealed that two out of six Kaizen trainers remained in DPD and that they conducted 5S training courses twice annually in 2018 and 2019. After the project completion, six new DPD staff members have received Kaizen training both internally and externally. They have continued dissemination activities such as distributing 5S and Kaizen manuals when there were workshops and seminars sponsored by DPD. Even at the time of ex-post evaluation, it was found that DPD was continuing 5S and Kaizen activities such as setting up a cleaning day on the last Thursday of every month and posts posters proposing to reduce waste in DPD. On the other hand, according to the interviews with M&E Unit of DPD, the staff members whose capacity was strengthened in this project had some basic knowledge and experience regarding M&E, but they did not widespread in other officials in DPD and the M&E system proposed during the project has not been institutionalized. In addition, M&E unit stated that monitoring activities have been carried out, but evaluation have not implemented partly due to lack of budget. Therefore, there are some issues regarding the technical sustainability of M&E. In the water supply cluster, SWC became one of the targets of capacity development of technical cooperation project “Project for Strengthening Capacity of Institutional Management, Operation and Maintenance in State Water Corporations” (February 2016-August 2020) which was implemented after this project, and continued enhancement of maintenance and management capacity. SWC actually continued revising water distribution network map, replacing water pipes, modifying urban water supply tariff and constructed and rehabilitated wells in rural areas. Therefore, it is considered that there are no major technical problems on sustainability of the project effects. According to the questionnaire results to SMOA, the renewal of skills of staff members were done through internal and external training, OJT and seminars²³. On the other hand, four out of six counterpart officers in horticulture zone who were fostered in this project have left their jobs. The utilization status of the manuals prepared for each agricultural zone for the maintaining ability and the practice of activities could not be confirmed. Accordingly, some issues remain in the agriculture.

VMW in-service training has been continued by the facilitators fostered in and after the project and after the project utilizing the developed training materials. There are no major problems with the technical aspects for VMW in-service training by SMOH officers. In regard with the maintenance status of equipment procured for four hospitals, they were generally in good status in Saudi Obstetrics and Gynecology Hospital, Kuwait Pediatric Hospital Saudi hospital, and Girba locality hospital. However, in WHE PH there were the numbers of equipment which was not being used or had problems²⁴. Although it has been reported to SMOH,

²³ For example, in 2019 the training was conducted on Farmers’ Field School (dissemination of skills from model farmers to other farmers) and post-harvest processing methods, etc. sponsored by FAO and IGAD.

²⁴ The incubator and neonatal phototherapy unit were not out of order but were not utilized. The equipment which had problems at the time of ex-post evaluation were the electric operating table, the refrigerator for blood bank, the vehicle, the generator and the air conditioner in the operating room.

some equipment has not been supported for more than one year. The maintenance manuals for equipment were not utilized in all four hospitals. Therefore, there are some issues in the health cluster. In vocation training, the technical training opportunity for KVTC instructors is limited but there are a few opportunities to receive training in specialize field from SCVTA. Until the time of ex-post evaluation, training courses on electricity, automotive, computers, and technical drawing have been conducted. Furthermore, the technical cooperation project “Project for Strengthening Vocational Training System targeting State Vocational Training Centers” (February 2016 -February 2020) which include KVTC as one of target VTCs has been implemented at the time of ex-post evaluation. Therefore, KVTC were receiving capacity development support on KVTC instructors and school management. In the meantime, according to the results of the final examination, the pass rate declined after the project completion as mentioned above. It is necessary to analyze the factors of the decline by department, but there are still some issues in terms of instructor skill. The procured training equipment and the improved facilities by the project were generally utilized without problems. Therefore, some issues have been observed in terms of technical aspects to sustain the project effect.

There were no major issues in the water supply cluster, but there were some minor issues in the planning, agriculture, health, and vocational training clusters. Therefore, there are some issues in the sustainability of the technical effects of this project.

3.4.4 Financial Aspect for the Sustainability of Project Effects

Regarding the monitoring and evaluation carried out in the planning cluster, evaluation has not been conducted and monitoring activities have been limited since the budget required for transportation to visit the sites and allowances were insufficient. As to Kaizen activities, since they are to carry out operations efficiently within a limited budget, there are no financial issues.

In the water supply cluster, the collection amount of urban water supply tariff has been increasing every year due to annual revision of tariff, which has contributed to the improvement of SWC’s management. Even after the project was completed, the state government provided funds for the replacement work of the aged water pipes in the urban area, and 90% of the planned was completed at the time of ex-post evaluation. In urban and rural water supply sector, approximately 1 billion SDG (about 2.38 billion yen²⁵) is planned to be invested from Eastern Sudan Reconstruction and Development Fund. In addition, NGOs and other donors has supported the rehabilitation of rural water supply. On the other hand, two rural water supply models developed by this project have not been expanded to other regions because the cost of monitoring activities could not be secured. Furthermore, the water supply linked to the WEH PH by this project has been stopped due to the influence of a huge dam (Setit and Atbara Twin Dam) constructed nearby. As a result, WEH PH remains incapable of performing obstetric

²⁵ Estimated based on the exchange rate of IMF IFS in 2019. (\$1 = SDG45.77, \$1=¥109.01, SDG1=¥2.38)

surgery. According to SWC, the cause was that the wells and pipes that serve as the water source for the water supply facility were submerged due to the construction of the dam. As an alternative, SWC is considering installing water pipes from a water source in a town 4 km away, but this has not been implemented because financial resources have not been secured at the time of ex-post evaluation. Since it is also related to sustaining the effects of health cluster, early response is desired.

In order to sustain the effect of agriculture cluster, activities by extension workers are important. However, the lack of budget has hindered their activities. In regard to the income generation for women, K-TOP Fund has been activated, although limited amount, which was used for training for women.

In the health cluster, VMW in-service training has been conducted every year with support from the Federal Ministry of Health, UNFPA, UNICEF, etc. The SS that instructs VMWs has not been implemented due to lack of budget.

In the vocational training cluster, budget source of KVTC is mainly from the financial allocation by SMoF. The revenue from outsourced short-term courses and from the government vehicles maintenance is not a large portion of the financial resources. Overall, the financial situation cannot be said as good, but it is not a major problem for running long-term courses and managing facilities and equipment.

Except vocational training cluster, some problems were observed in the planning, water supply, agriculture and health clusters. Therefore, some minor problems have been observed in terms of financial aspects to sustain the project effects.

Some minor problems have been observed in terms of the institutional/organizational, technical, and financial aspects. Therefore, sustainability of the project effects is fair.

4. Conclusion, Lessons Learned and Recommendations

4.1 Conclusion

The project was implemented in Kassala state of eastern Sudan aiming at improving access to the quality public services and meeting the basic needs for residents by enhancing public services through strengthening capacity of implementing agencies in the five sectors (clusters) of planning, water supply, agriculture, health and vocational training. The objective of the project is consistent with the national and state plans which put priority on enhancement of basic services such as water supply, agriculture, health and vocational training for residents affected by the conflict. It also is in line with the development needs and the Japan's assistance policy for Sudan. In addition, the project design which adopted a multi-sectoral approach and the timing of project implementation were appropriate. Thus, the relevance is high. It can be said that the project purpose was achieved when judged comprehensively since the project

purpose of the clusters other than health were achieved. In the health cluster, a part of the objectives was not achieved such as WEH PH did not produce expected effects. Overall goals were achieved in the water supply and vocational training clusters, and largely achieved in the planning, agriculture and health clusters. Therefore, overall goal of this project was largely achieved. Furthermore, other positive impacts were also observed in each cluster. Therefore, effectiveness and impact are high. On the other hand, the efficiency is fair because both the project period and the project cost exceeded the plan. The sustainability of the project effect is fair since some problems have been observed in terms of institutional/organizational, technical and financial aspects.

In light of the above, this project is evaluated to be satisfactory.

4.2 Recommendations

4.2.1 Recommendations to the Implementing Agency

(1) Recommendation to SWC and SMoH

Regarding the problem of inability to supply water to WEH PH, which was implemented in collaboration with health cluster, the necessary budget should be secured to solve the problem in consultation with SMoH and SMoF and safe water should be supplied to the hospital as soon as possible. Since strengthening the function of WEH PH is related to sustaining the effect of health cluster, early response is desired. In addition, SMoH should urgently allocate an appropriate number of personnel (especially anesthesiologist and nurses) in order for WEH PH to eliminate the obstacle to the provision of RH services.

(2) Recommendation to KVTC

The pass rate of the final exam after the end of the long-term courses has been declining after the project. The pass rate in 2019 is 39.4% which is significantly lower than the national average of 65.1%. Because the pass rate indicates the average of all departments, it is necessary to check the pass rate for each trade in collaboration with SCVTA, to check the reasons behind, and to improve the quality of the courses for the following year.

(3) Recommendation to SMoA

The agricultural machineries introduced to support small-scale farmers in this project were currently rented to large-scale farmers due to a policy change of SMoA that prioritized increased food production in response to food shortages because of drought and the economic crisis since the end of 2018. The change in usage of equipment was happened only about four years being passed from the completion of the project. Advanced explanation to JICA is required if there are policy changes being conducted.

4.2.2 Recommendations to JICA

None

4.3 Lessons Learned

Setting a realistic project period in anticipation of the establishment of outcome

In the case of this project, the initial project period of three years is considered to have been ambitious. When setting the project period especially in a conflict-affected country/region, in addition to the physical aspects such as the distribution of activity areas and the access to each area, consideration should be made to the experience of JICA's technical cooperation project, and achievement status of outcome of other projects in the country or region, the degree of conflict impact, and the susceptibility to external factors such as the weather. The project period should be longer than that of a conventional project to establish outcome.

In the case of multi-sectoral project, it is useful to involve the agency responsible for development administration such as Ministry of Finance

By providing technical support to SMoF, which coordinates development administration and budget allocation for the entire state, as one of target sectors rather than as a cooperating agency, SMoF became actively involved in the project, which promoted their understanding on the issues and needs of relevant ministries and agencies. This included having the SMoF take on the role of strengthening capacity in areas common to each ministry and agency, such as 5S and Kaizen. By strengthening the relationship between the relevant ministries and agencies, and SMoF, the expenditure of local component of each cluster, which was a burden to the implementing agency required for the pilot projects was smoothly allocated. In addition, the quality of the state-wide budget plan has been improved by strengthening cooperation between SMoF and each ministry such as being able to consult before officially submitting an annual budget plan to the state.

Implementation of projects targeting multiple sectors can lay the foundation for medium- to long-term development and show certain effects

In Kassala state, when development cooperation had not been implemented much even after the conflict, various basic needs were high and prompt response was required. The mainstream of support from the international community was emergency and humanitarian assistance that responds to urgent needs, focusing on assistance for refugees and internally displaced persons. Development projects to strengthen the capacity of government agencies, which becomes the basis of medium- to long-term economic development, was limited. Under such circumstances, it can be said that the project contributed to building the basis towards the medium- to long-term development by simultaneously targeting multiple sectors that were in high demand and would

be the basis of development, and by gaining actual experience to implement development projects by relevant government agencies. In addition, particularly by implementing multiple sectors in the same pilot areas (activities done in the water supply, health and agriculture clusters at WEH in this project), the local community recognized that the development projects in various sectors had started, which played a useful role from the viewpoint of peacebuilding in making them feel the dividend of peace. Furthermore, there was an increase in awareness and trust in Japan's assistance. In fact, it has led to an increase in the presence and reputation of Japan and JICA not only for the state government and other donors, but also for citizens of Kassala. The input of human resources and equipment were so large that each cluster was comparable to one technical cooperation project, and the efforts and procedural cost were high. However, while it was practically difficult to adopt five technical cooperation projects at the same time in one region, the implementation of project targeting multiple sectors was effective in laying the foundation for development and leaving visible effects.

Attachment Table Achievement of Outputs (at the time of project completion)

	Output	Actual	Level of Achvt
Planning	1. DPD's capacity to manage, monitor, evaluate and sustain development projects is strengthened, through implementation of the multi-sectoral K-TOP.	By the project completion ①643,910 SDG were allocated as annual amount of local component budget for 4 clusters by DPD (400,000SDG/year) , ②17 cases of collaboration among 5 clusters (10 cases), ③ 3 cases of trouble-shooting implemented through monitoring (3 cases), ④Implemented 4 cases of impact survey (4 cases), ⑤Presented guidance on institutionalization of M&E system (Making recommendation on institutionalization of M&E).	◎
	2. DPD's organizational culture to improve its work environment and work process with bottom-up initiatives is developed, through introduction of Kaizen approach.	By the project completion, ①Fostered 6 DPD staff who can train on Kaizen (6 trainers), ②Developed training material on Kaizen (as planned), ③6 cases were identified as impacts of Kaizen (5 cases), ④Conducted 11 courses of seminars and workshops on Kaizen (8 courses)	◎
Water Supply	1. O & M and financial capacity of SWC for urban water supply is strengthened.	By the project completion, ① Revised water distribution network map more than once a month (Once a month), ② Conducted 376 rehabilitation works a month on average based on technical manual on operation and maintenance of water distribution (40 works per month), ③Achieved water fee collection rate of 81% on average of east and west offices of SWC (80%), ④Held Kaizen meeting 2.8 times per month on average (Once a month), ⑤Recommendation letter on tariff revision was submitted to Kassala State Government and it approved (Submission of recommendation letter)	◎
	2. A financial management and O & M model for rural water supply facilities in the pilot areas is established.	By the project completion, ① Conducted 97 new or rehabilitation works of rural water yards (12 works), ② Monthly reported on incomes/expenses and cash reserve of pilot project areas (Once a month), ③Implemented training for rural well operators by SWC more than once a month (once a month), ④Recommendation letter on financial management and O&M model for rural water supply facilities were developed and submitted to the Director-General. (Develop a recommendation letter)	◎
	3. SWC's capacity of water resources development for rural water supply is strengthened.	By the project completion, ①In total, 36 water resource surveys were implemented by SWC (5 times).	◎
Agriculture and Livelihood	1. Extension officers and other technical staffs are able to utilize technologies/knowledge for verifying profitability of horticulture crops in "Horticulture Zone (HZ)."	By the project completion, ①3 out of 4 extension officers and technical staff who acquired skills and knowledge for dissemination on "Cultivation techniques," "Risk Management" and "Marketing activities" obtained 3 point or more in the CUDBAS score (3 point or more for 3 officers out of 4), ② 10 kinds of training materials for extension officers and extension materials for farmers were developed (5 kinds), ③ 4 kinds of activities such as collaborative purchase and direct sale by farmers were conducted (5 kinds).	◎
	2. Extension officers and other technical staffs are able to utilize technologies/knowledge for introducing new cash crops in "Flood Irrigation Zone (FIZ)."	By the project completion, ①3 out of 4 extension officers and technical staff who acquired skills and knowledge for dissemination on "Farm budget analysis," "Finance" and "Extension in FIZ" obtained 3 point or more in the CUDBAS score (3 point or more for 3 officers out of 4), ②10 kinds of training materials for extension officers and extension materials for farmers were developed (3 kinds), ③ Two groups of farmers' associations were formed which adapted new methods	◎

	Output	Actual	Level of Achvt
		with new variety of crops (two groups).	
	3. Extension officers and other technical staffs are able to utilize technologies/knowledge for stabilizing production of staple food crop in "Traditional Rain Fed Zone (TRZ)".	By the project completion, ①3 out of 3 extension officers and technical staff who acquired skills and knowledge for dissemination on "Basics on water harvesting," "Application of water catchment techniques in the field" and "Extension in TRZ" obtained 3 point or more in the CUDBAS score (3 point or more for 2 officers out of 3), ②5 kinds of training materials for extension officers and extension materials for farmers were developed (4 kinds), ③The number of farmers who adopted and started water harvesting methods increased from 30 in 2012, to 123 in 2013, and 165 in 2014. (increase year by year).	◎
	4. Extension officers and other technical staffs are able to utilize technologies/knowledge for providing agricultural mechanization services in "Mechanized Rain Fed Zone (MRZ)".	By the project completion, ①Extension officers and technical staff who acquired skills and knowledge for dissemination on "Appropriate combination of agricultural machineries," "Operation & Maintenance of agricultural machineries" and "Extension in MRZ" obtained 3 point or more on average in the CUDBAS score (3 point or more for 3 officers out of 4), ②4 kinds of training materials for extension officers and extension materials for farmers were developed (4 kinds), ③From 2012 to 2013, the number of households that provided machinery rental services in Abuda and El Karda villages increased from 96 to 198 and from 37 to 367 respectively. The production of crops by mechanization increased from 170 kg to 250 kg (about 1.4 times) in Abuda village and from 80 kg to 250 kg (about 3 times) in El Karda village (appropriate operation and management of machinery and increase in crop revenue).	◎
	5. Extension officers and other technical staffs are able to utilize technologies/knowledge for creating sustainable rural development activities for extension offices in selected zones.	By the project completion, ①Extension officers and technical staff who acquired skills and knowledge for dissemination on "Sustainable system for extension," "Mobilization of women's group" and "Finance & marketing" obtained 2.9 to 3 point in the CUDBAS score (3 point or more for 3 officers out of 4), ②6 kinds of training materials for extension officers and extension materials for farmers were developed (4 kinds), ③Developed a K-TOP Fund and five training courses were implemented using the fund. (Increase number of training course by own budget)	◎
	6. Institutional support of SMoA for extension service is strengthen.	①5-year extension plan was formulated to work on the SMoA as a whole. (formulation of 5-year extension plan according to pilot activities), ②Budget meeting and technical coordination meeting transformed into budget committee. The committee meetings were held twenty times. (12 times/year (2013) meeting regarding budget and techniques in SMoA are held.)	◎
Health	1. The capacity of Village Midwives (VMWs) in communities is improved.	By the project completion, ①89% of VMWs who have taking in-service training passed the post-test (70%), ②14 kinds of new training materials were developed for improvement of in-service training (6 kinds), ③11 facilitators fostered for VMW in-service training (12 facilitators), ④VHWs who have received supportive supervision (SS) from HV in pilot localities became 181% in Girba locality and 203% in WEH locality (80% each locality).	◎
	2. The system to receive maternal and neonatal emergency patients in pilot localities is prepared.	By the project completion, ①75% of participants who could complete the EmOC training (80%), ②26 kinds of quick reference cards for operation of medical equipment were developed (20 kinds), ③In total, 83 health carders received training on medical equipment (60 health carders). However, the expected Reproductive Health (RH) services could not be provided in WEH PH by the time of project completion.	△
	3. Capacity to support VMWs is strengthened.	By the project completion, ①Percentage of large and small mistakes in RH data collection and aggregation became 0%	○

	Output	Actual	Level of Achvt
		each (5% each), ② 9 VMWs were employed by the government in each of the two pilot project localities (20 in Girba locality and 4 in WEH locality). The state government recognized the importance of VMWs and increased the incentive for non-employed VMWs by 10 times to improve their working environment.	
Vocational Training	1. Quality training program responding to local needs is implemented.	①Curriculum of Agricultural machinery course was formulated and opened the course in December 2012 (Open the Agricultural machinery course by September 2013), ②36 short-term courses (25 courses in total) for women, PC and incumbents at companies were implemented. However, regarding ①, the necessary equipment could not be sufficiently prepared on the KVTC, and the Agricultural machinery course was implemented as a short-term course instead of the initially envisioned long-term course.	○
	2. Performance of KVTC staff is highly improved.	By the project completion, ①A total of 115 KVTC staff members participated in the training program (a total of 100 participants), ②More than 30 kinds of training materials and job sheets were developed (10 kinds), ③KVTC staff members who participated in TOT self- evaluated with an average of 4.22 out of 5 levels. (3.5 or more)	◎
	3. Training facilities and equipment are improved.	By the project completion, ①Food processing building and drawing/PC building were newly constructed (as planned) and existing facilities were improved. ②Necessary equipment for training courses were installed, but a tractor rented from SMoA had to be returned. ③ 179 students were registered in long-term courses (180 students) and ④ Satisfaction rate of users of the improved KVTC was 4.59 out of 5 levels (More than 4).	○
	4. Effective management system is established.	①KVTC Strategic Plan was developed in August 2012 (by December 2012), and Strategic Plan Implementation Committee was formulated and the meeting was held weekly, ②4 kinds of school management guideline were developed (school management guidelines are developed), ③Format of asset inventory and staff profile were developed and updated (database on staff profile, asset inventory are prepared and updated), ④KVTC staff meeting is held every Sundays (hold periodically), ⑤87% of Strategic Plan is achieved (more than 85%)	◎
	5. Necessary amount of budget is secured for managing KVTC.	By the project completion, ①Annual report and annual budget report were formulated (Annual budget report is prepared), ② Budgetary plan for 2014 was formulated and approved by the State Ministry of Finance. (preparation of budgetary plan for budget request)	◎
	6. Partnership between KVTC and its stakeholders (SCVTA, K-SCVTA, industrial sector, union/cooperatives, donor/NGO, educational institutions, etc.) is improved.	By the project completion, ①11 collaborative activities were implemented with the relevant organizations (more than 7 activities). In addition, the project activities were publicized by newsletter and PR video.	◎

Source: Project Completion Report, Terminal Evaluation Report, Interview results with implementation agencies and implementing consultants.

() is the target value.

Level of Achievement: ◎: Achieved, ○: Largely Achieved, △: Partially Achieved, ×: Not Achieved