

**MINUTES OF DISCUSSIONS
BETWEEN JAPAN INTERNATIONAL COOPERATION AGENCY AND
AUTHORITIES CONCERNED OF THE REPUBLIC OF THE SUDAN
ON PREPARATORY SURVEY ON
“PROJECT FOR UPGRADING FOOD PRODUCTION INFRASTRUCTURE
IN SUDAN”**

With reference to Minutes of Discussions signed on 26th July 2011 between Ministry of Agriculture of the Government of the Republic of Sudan and Japan International Cooperation Agency (hereinafter referred to as "JICA"), the Second Phase of the Preparatory Survey (hereinafter referred to as "the Second Study") on "Project for Upgrading Food Production Infrastructure in Sudan" (hereinafter referred to as "the Project") has been carried out, and its second field survey will be completed on 17th of September 2011.

Based on the request of the Government of the Republic of Sudan, three irrigation schemes in River Nile State and Kilo 14 pump station at New Halfa irrigation scheme in Kassala State are targeted for the second field survey of the Second Study. Accordingly, JICA study team is preparing a basic design of the Project in the targeted irrigation schemes. Details of the basic design will be elaborated in the draft final report, which will be prepared by JICA by January 2012.

JICA and Sudanese authorities concerned exchanged views and had series of discussions with respect to the Project based on the result of the Second field survey. As a result of the discussions, the two parties agreed on the matters referred to in the documents attached hereto.

Khartoum, 15th September 2011

Mr. Hiroshi SUZUKI

Team Leader,
Second Study Team,
Japan International Cooperation
Agency

Mr. Mohamed Hassan Jubara

The Undersecretary,
Ministry of Agriculture,
The Republic of Sudan

Mr. Adam Abbakar Bashir

The Undersecretary,
Ministry of Irrigation and Water
Resources,
The Republic of Sudan

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Witnessed by

Mr. Elgaili Mohamed El Bashir

The Undersecretary,
Ministry of International Cooperation,
The Republic of Sudan

I. OUTLINE OF THE SECOND STUDY

The outline of the Second Study is described in **Annex-1**.

II. OUTLINE OF THE PROPOSED PROJECT

(1) Project Title

Reflecting the secession of the Republic of South Sudan on 9th of July 2011, both sides agreed to modify the Project title as below:

<Original Project title>

“Project for Upgrading Food Production Infrastructure in Northern Sudan”

<Modified Project title>

“Project for Upgrading Food Production Infrastructure in Sudan”

(2) Objectives of the Project

1) Overall Goal

- Increased crop production in Sudan contributes to enhancement of food security and poverty alleviation of the Republic of Sudan.

2) Project Purpose

- Irrigation infrastructure is upgraded to increase agricultural production in the Republic of Sudan.
- A model of improved irrigation infrastructure is introduced in the Republic of Sudan.

(3) Proposed Project sites

Project sites are proposed based on the request of the Government of the Republic of Sudan as well as on the result of the first field survey, and targeted for the second field survey as below:

1. Aliab Irrigation Scheme (River Nile State)
2. Kitiab Irrigation Scheme (River Nile State)
3. Kadabas Irrigation Scheme (River Nile State)
4. Kilo14 pump station in New Halfa Irrigation Scheme (Kassala State)

(4) Responsible Agencies and Implementing Agencies of the Project

On 7th of September 2011, key stakeholders of the Project including Ministry of Agriculture, Ministry of Irrigation and Water Resources, Ministry of Finance and National Economy, Ministry of International Cooperation, New Halfa Agricultural Corporation, and JICA study team as well as JICA Sudan office had a discussion to clarify the responsibilities of each Line Ministry for the Project implementation.

As a result of the discussion, above-mentioned key stakeholders agreed on the matters as below:

1) Irrigation schemes in River Nile State

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(Kitiab Scheme, Aliab Scheme and Kadabas Scheme)

<Responsible agencies>

- **Ministry of Agriculture** of the Republic of Sudan, in collaboration with **Ministry of Irrigation and Water Resources** of the Republic of Sudan

<Implementing agencies>

- **Ministry of Agriculture, Irrigation and Animal Resources of River Nile State** in collaboration with **National Wheat Production Project** of the Republic of Sudan

2) New Halfa Irrigation scheme (Kilo14 Pump Station)

<Responsible agencies>

- **Ministry of Irrigation and Water Resources** of the Republic of Sudan, in collaboration with **Ministry of Agriculture** of the Republic of Sudan

<Implementing agencies>

- **Ministry of Irrigation and Water Resources** of the Republic of Sudan, in collaboration with **New Halfa Agricultural Corporation**

(5) Outline of the proposed plan of the Project

While the basic design of the Project will be finalized by the time of reporting of a draft final report from Japanese side to Sudanese side in January 2012, at this stage, an outline of the Project is proposed as below:

Name of Irrigation scheme	Outline of the Project Plan		Remarks
	Irrigated area (1fd ÷ 0.42ha)	Equipment	
Aliab (River Nile State)	5,250fd/ 2,205ha	◆ 2 units of electrified irrigation pump	Refer to Note-1
Kitiab (River Nile State)	5,700fd/ 2,394ha	◆ 2 units of electrified irrigation pump	Refer to Note-1
Kadabas (River Nile State)	4,800fd/ 2,016ha	◆ 4 units of electrified irrigation pump	—
Kilo14 pump station New Halfa Irrigation Scheme (Kassala State)	31,000fd/ 13,000ha	◆ 3 units of electrified irrigation pump	—
Total area	46,750fd/ 19,615ha	—	

Note-1: In Aliab scheme and Kitiaab scheme, there are 2 units of new irrigation pump respectively, which were supplied by Sudanese side (through National Wheat Production Project). In addition to these pump units, Japanese side will provide 2 units of irrigation pump to each of the two schemes, making the total number four (4) units respectively. Accordingly, Japanese side will construct a pump station which accommodates four (4) units of pump in each of the two schemes.

Note-2: Irrigation canals shall be rehabilitated by Sudanese side, aiming at upgraded pump station to be effective.

Note-3: Environmental Impact Assessment (EIA) has been already conducted by Sudanese side.

General Plans of the selected four (4) irrigation schemes are described in **Annex-2**.

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Soft components will be planned to strengthen scheme organization in management, Operation & Maintenance, water management, along with strengthening of farmers' capability and agricultural extension. Detail described in **Annex-3**.

III. RESPONSIBILITIES FOR UNDERTAKINGS BY BOTH GOVERNMENTS

Authorities of both Sudanese side and Japanese side agreed to take responsibilities of the project as described in **Annex-3, Annex-4**.

IV. SCHEDULE FROM NOW ONWARD

Both sides agreed on the schedule from now onward as below:

(1) Preparation of Final Report by JICA

- JICA will prepare a draft final report of the Second Study (in English), and will dispatch a mission to explain it to Sudanese authorities in January, 2012.
- All of the EIA Report submitted to Federal Ministry of Environment, Forestry and Physical Planning (FMOEFPD) on 11th August 2011 shall be approved by the time of the mission of final report.

(2) Completion of the Second Study

- The above-mentioned draft final report will be examined by Sudanese side, and JICA will complete the final report upon the confirmation of the contents of the report by the Sudanese authorities. The completed report will be sent to Sudanese authorities by the end of February 2012 through JICA Sudan office.

(3) Tentative schedule of the Project Implementation

- Tentative schedule of the Project implementation is described in **Annex-5**.

ANNEX-1 Outline of the Second Study

ANNEX-2 General Plans of the selected irrigation schemes

ANNEX-3 Proposed obligation of both Governments

ANNEX-4 Undertakings of the selected irrigation schemes

ANNEX-5 Tentative schedule of the Project implementation

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Outline of the Second Study on “Project for Upgrading Food Production Infrastructure in Sudan”

I. BACKGROUND

Accounting for 31.6% of GDP and 50% of the working population in Sudan, agricultural sector is one of the key sectors for Sudan's national economy. On the other hand, high population growth (2.8%) and large number of food insecure population (7.5 million people, namely, 20% of the population in the country) are contributing to increase in national food requirement. Thus, ensuring food security has been one of the key challenges in Sudan.

In 2008, “The Executive Programme for the Implementation of Agricultural Revival” was introduced by the Government of Sudan to revitalize agriculture sector. The key areas of the Programme include development and modernization of agricultural system, rehabilitation of irrigation schemes, and increasing areas planted with crops.

At the same time, 4th Conference of Tokyo International Conference on African Development (TICAD IV) was held in May 2008, where Yokohama Action Plan was declared “promotion of development, rehabilitation and maintenance of water resources management infrastructure aiming at expanding the irrigation area”. Through this conference, the Government of Japan pledged its commitment to provide support to expand irrigation area in Africa.

In this context, the First Phase of the Preparatory Survey (hereinafter referred to as “the First Study”) on the Project was designed by the Government of Japan to study present situation of irrigation infrastructures in Sudan to assess possibilities of its cooperation to the Government of Sudan on agricultural development, in alignment with TICAD IV initiative.

In the First Study, the present situations of irrigation schemes in Northern State, River Nile State and Kassala State were studied, and based on this, Japanese side suggested that Northern State and River Nile State have priorities due to urgency for rehabilitation. On the other hand, Sudanese authorities requested to Japanese side that River Nile State shall be targeted for the Project. Minutes of Discussions was signed on 30th August 2010 by JICA and Ministry of Agriculture of the Republic of the Sudan (hereinafter referred to as “MOA”), to agree on the above-mentioned priorities.

In October 2010, an official request document from the Government of Sudan was received by the Government of Japan with Note Verbale Ref No.MFA/Asian/6/B/7/JICA, which requested rehabilitation of 6 irrigation schemes in River Nile State. In accordance with this request, the Government of Japan decided to carry out the Second Phase of the Preparatory Study (“the Second Study”).

II. OUTLINE OF THE SECOND STUDY

The Second Study is designed to be conducted in three phases – 1) the first field survey and 2) the second field survey, and 3) a mission for final report. A team of irrigation engineers and specialists of concerned fields (hereinafter referred to as “the Team”) has been dispatched by JICA for the Second Study. The first field survey was carried out from 22nd April to 18th June 2011, with following objectives:

- 1) To conduct an **inventory survey** on the proposed 6 irrigation schemes in River Nile State as well as New Halfa irrigation scheme in Kassala State.
- 2) To **appraise and evaluate viability** of each above-mentioned irrigation scheme for selecting as a project site (Viability as Japan's Grant Aid Project as well as viability with respect to social, environmental and technical points of view).
- 3) To prioritize irrigation schemes to be targeted for the second field survey.

Based on the result of the first field survey, Japanese side had discussions among Japanese authorities to prioritize the proposed sites for the second field survey.

The second field survey has been started on 22nd of July 2011, and will be continued until 17th of September 2011 with following objectives:

- 1) To prepare an outline of **basic design** for the selected irrigation schemes and **estimate the approximate cost** of the Project.
- 2) To clarify **undertakings by Sudanese side and Japanese side**.
- 3) To conduct Initial Environmental Examination.

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III. IRRIGATION SCHEMES SELECTED FOR BASIC DESIGN

At the inception of the second field survey, JICA explained to Sudanese authorities on the irrigation schemes which could be targeted for the second field survey as below:

1. Aliab Irrigation Scheme (River Nile State)
2. Kitiab Irrigation Scheme (River Nile State)
3. Kadabas Irrigation Scheme (River Nile State)
4. Kilo14 pump station in New Halfa Irrigation Scheme (Kassala State)

The above-mentioned selection was made according to the criteria of Japanese side such as technical and economical viabilities, based on the result of the first field survey.

IV. COMPOSITION OF THE SECOND STUDY TEAM

	Name	Position / Expertise	Affiliation
JICA Team			
1	Mr. Hiroshi SUZUKI	Team Leader / Executive Technical Advisor to the Director General, Rural Development Dept.,	JICA
2	Mr. Hiroyuki MORI	Resident Representative, JICA Sudan office	JICA
3	Mr. Shinjiro AMAMEISHI	Director, Rural Development Dept.,	JICA
4	Mr. Kensuke OSHIMA	Programme Officer, Rural Development Dept.,	JICA
5	Ms. Yuka KITAMATSU	Programme Officer, Africa Dept.,	JICA
6	Ms. Sachi YAMADA	Project formulation advisor, JICA Sudan office	JICA
Technical Team			
7	Mr. Tatsuhiko MORI	Chief Consultant/Irrigation Facility Planner	SANYU Consultants Inc.
8	Mr. Toshinori KUDO	Irrigation Equipment Engineer	SANYU Consultants Inc.
9	Mr. Motohisa WAKATSUKI	Irrigation Facility Engineer/Natural Conditions (Topographic survey, Geological survey)	SANYU Consultants Inc.
10	Mr. Kazuma AKIYOSHI	Natural Conditions (Meteorological)	SANYU Consultants Inc.
11	Mr. Kensuke IRIYA	Agriculture/Organization Management	SANYU Consultants Inc.
12	Mr. Hideki ISHIKAWA	Environment and Social Consideration	SANYU Consultants Inc.
13	Mr. Asaharu NAGAHARA	Procurement/ Cost Estimation / Construction Planning	SANYU Consultants Inc.
14	Mr. Yoji SAWADA	Coordinator/ Irrigation Equipment Assistant Engineer	SANYU Consultants Inc.

End of Document

ANNEX-2

ANNEX- 2 (1) General Plan of the Selected Irrigation Schemes in River Nile State

	Schematic Drawings	Canal Dimensions
Aliab		Main Canal Length L= 14.9(km) Minor Canal Length L= 32.9(km) Irrigation Area : 2,205 (ha) 5,250 (Fed) Irrigation Block Area : ① 823.7 (ha) ② 653.5 (ha) ③ 727.8 (ha) 1,733 (fed)
Kitab		Main Canal Length L= 13.8(km) Minor Canal Length L= 9.8(km) Irrigation Area : 2,394 (ha) 5,700 (Fed) Irrigation Block Area : ① 671.6 (ha) ② 1,250.0 (ha) ③ 472.4 (ha) 1,599 (fed) 2,976 (fed) 1,125 (fed)
Kadabas		Main Canal Length L= (km) Minor Canal Length L= (km) Irrigation Area : 2,016 (ha) 4,800 (Fed) Irrigation Block Area : ① 174.3 (ha), 415 (fed) ② 133.9 (ha), 319 (fed) ③ 179.8 (ha), 428 (fed) ④ 37.5 (ha), 89 (fed) ⑤ 369.6 (ha), 880 (fed) ⑥ 88.8 (ha), 211 (fed) ⑦ 650.3 (ha), 1,548 (fed) ⑧ 381.8 (ha), 909 (fed)

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ANNEX-3

1. Proposed Obligation of the Government of Japan and Sudan

The following demarcation of undertakings by both governments is proposed for the implementation of the grant aid Project.

Demarcation of Work Items to be implemented by each Government (Tentative)

Schemes	To be covered by GOJ Grant	To be covered by GOS
Aliab irrigation Scheme	<ul style="list-style-type: none"> • Construction of Pump Station • Procurement and Installation of two(2) units of Pump and Incidental Equipment • Procurement and Installation of Piping for four(4) units • Procurement and Installation of Control Panel for two(2) units • Cabling for Electric Incoming from Transformer to Control Panel • Construction of Connecting Canal from Discharge Basin to Existing Irrigation Canal • Dispatch of four (4) Japanese experts to strengthen schemes: scheme management, O&M, water management, agriculture/extension. Four (4) Japanese experts will cover the targeted four (4) schemes. 	<ul style="list-style-type: none"> • To secure and clear the land for Construction of Pump Station including removal of warehouses and trees • Provision of temporary yard for construction • Installation of Transformer with 1,500KVA including foundation works and Electric Incoming Works from High Voltage Transmission Line to Transformer • Provision of spare parts stockyard • Rehabilitation of Irrigation Canal • Assignment of four (4) staff to work with Japanese Experts to strengthen schemes: scheme management, O&M, water management, agriculture/extension. Four (4) staff will cover the targeted four (4) schemes.
Kitiab Irrigation Scheme	<ul style="list-style-type: none"> • Construction of Pump Station • Procurement and Installation of two(2) units of Pump and Incidental Equipment • Procurement and Installation of Piping for four(4) units • Procurement and Installation of Control Panel for two(2) units • Cabling for Electric Incoming from Transformer to Control Panel • Construction of Connecting Canal from Discharge Basin to Existing Irrigation Canal • Implementation of Soft Components by the four experts as described in the above Aliab scheme. 	<ul style="list-style-type: none"> • To secure and clear the land for Construction of Pump Station including removal of storehouses, lodgings, oil tanks and trees • Provision of temporary yard for construction • Installation of Transformer with 1,500KVA including foundation works and Electric Incoming Works from High Voltage Transmission Line to Transformer • Provision of spare parts stockyard • Rehabilitation of Irrigation Canal • Four (4) staff to work with Japanese Experts to strengthen schemes as described in above Aliab scheme.
Kadabas Irrigation Scheme	<ul style="list-style-type: none"> • Construction of Pump Station • Procurement and Installation of four (4) units of Pump and Incidental Equipment • Procurement and Installation of Piping for four(4) units • Procurement and Installation of Control Panel for four (4) units • Installation of Transformer with 1,500 KVA including foundation works and Cabling for Electric Incoming from Transformer to Control Panel • Construction of Connecting Canal from Discharge Basin to Existing Irrigation Canal • Implementation of Soft Component by the four experts as described in the above Aliab scheme. 	<ul style="list-style-type: none"> • To secure and clear the land for Construction of Pump Station • Provision of temporary yard for construction • Electric Incoming Works from High Voltage Transmission Line to Transformer • Provision of spare parts stockyard • Rehabilitation of Irrigation Canal (Main and Minor) and construction of Abu Ashreen and Abu Shitta canals • Four (4) staff to work with Japanese Experts to strengthen schemes as described in above Aliab scheme.
K14 Pump	<ul style="list-style-type: none"> • Procurement of three (3) units of Pump and Motor, Control Panel and Transformer with 	<ul style="list-style-type: none"> • Removal of existing pump, motor and control panels

ANNEX-3

Station In NHAC	2,500 KVA • Dispatch the Engineer to assist installation and Test operation of Pumps and Control Panels • Implementation of Soft Component by the four experts as described in the above Aliab scheme.	• Disembarkation, custom clearance at Port Sudan, inland transportation, unloading and storage of Equipment • Installation of Pumps and control panels • Installation of Transformer including construction of its foundation • Provision of temporary water supply during pump replacement works • Four (4) staff to work with Japanese Experts to strengthen schemes as described in above Aliab scheme.
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Schematic drawings indicating proposed undertakings of both sides are also attached as **ANNEX- 4**.

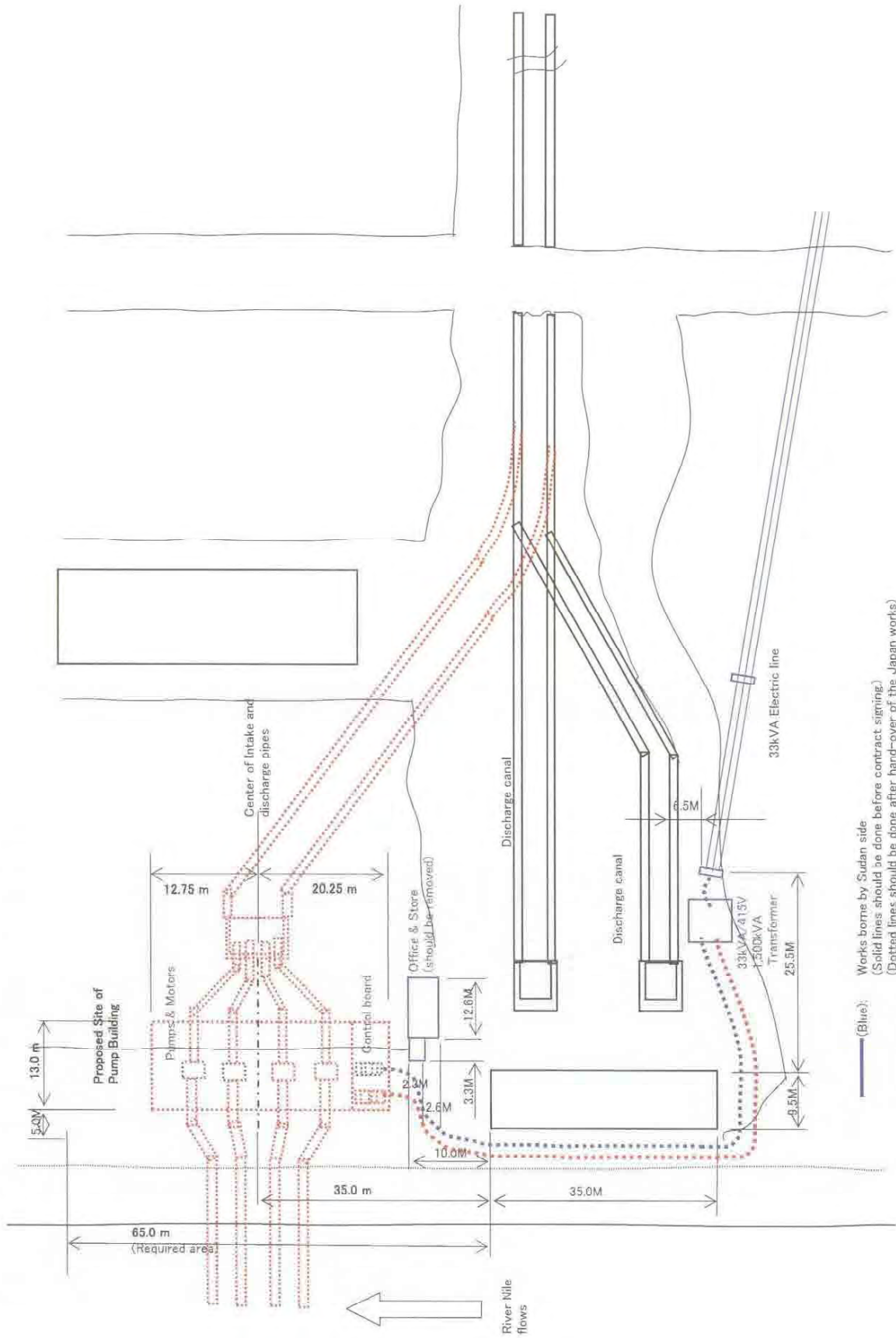
In addition to the above items to be borne by the government of Sudan in implementation of the grant aid project, some work items to be undertaken by the government of Sudan are listed as the followings:

- Installation of entrance gate and fence regarding safety of the pump station
- Payment of commission and A/P handling charges to a Bank in Japan based on Banking Arrangement
- Exemption of custom duty on the imported equipment/materials at the port of unloading and assistance in custom clearance
- To bear the cost of custom duty on goods and services, and
- To bear all other costs not included in the Japanese side such as Value Added Taxes (VAT).
Details will be clarified in the Draft Final Report by January 2012.

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ANNEX-4 (1) Undertakings of Aliab Pump Station

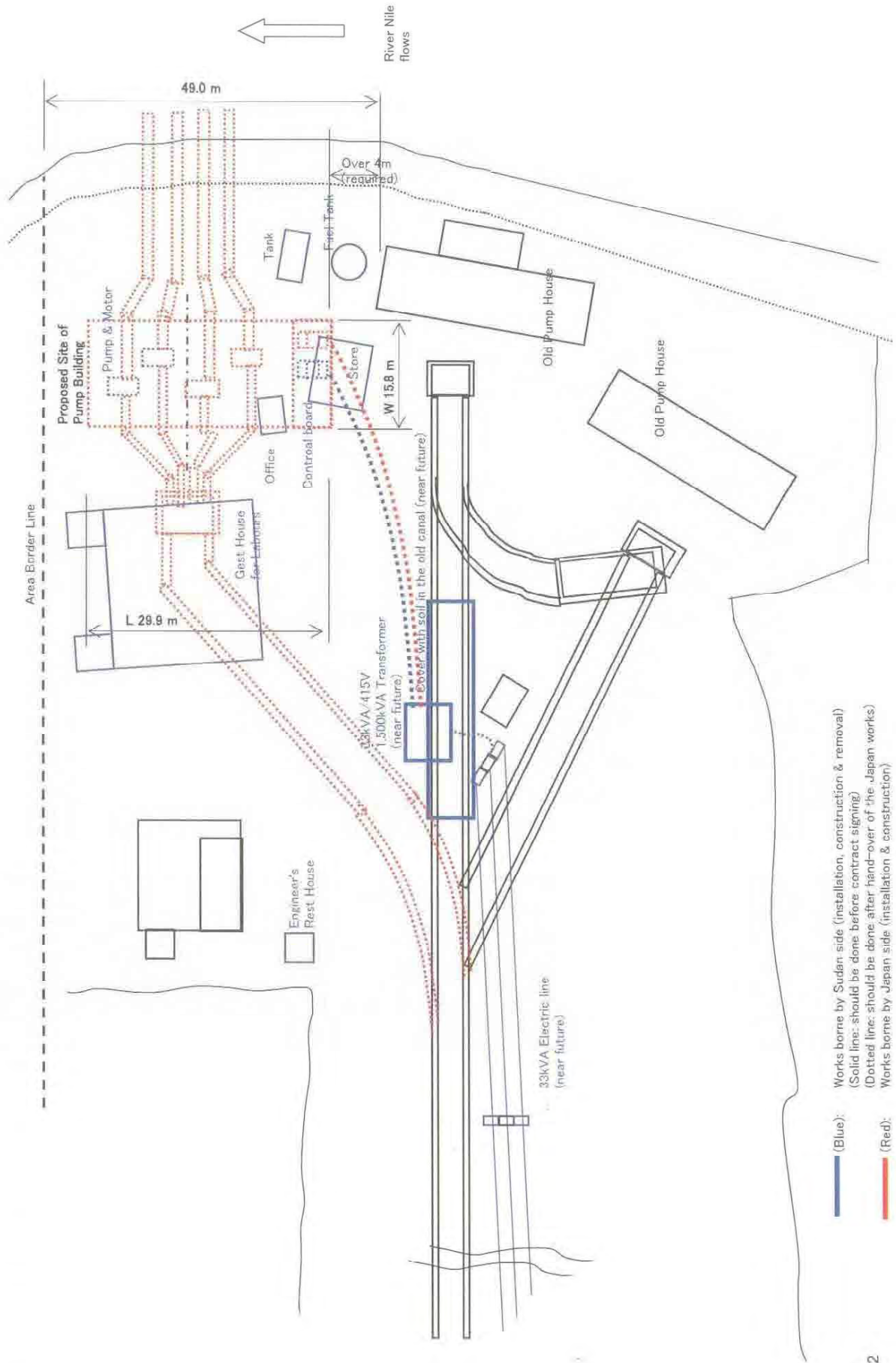


(Blue): Works borne by Sudan side
 (Solid lines should be done before contract signing.)
 (Dotted lines should be done after hand-over of the Japan works)
 (Red): Works borne by Japan side

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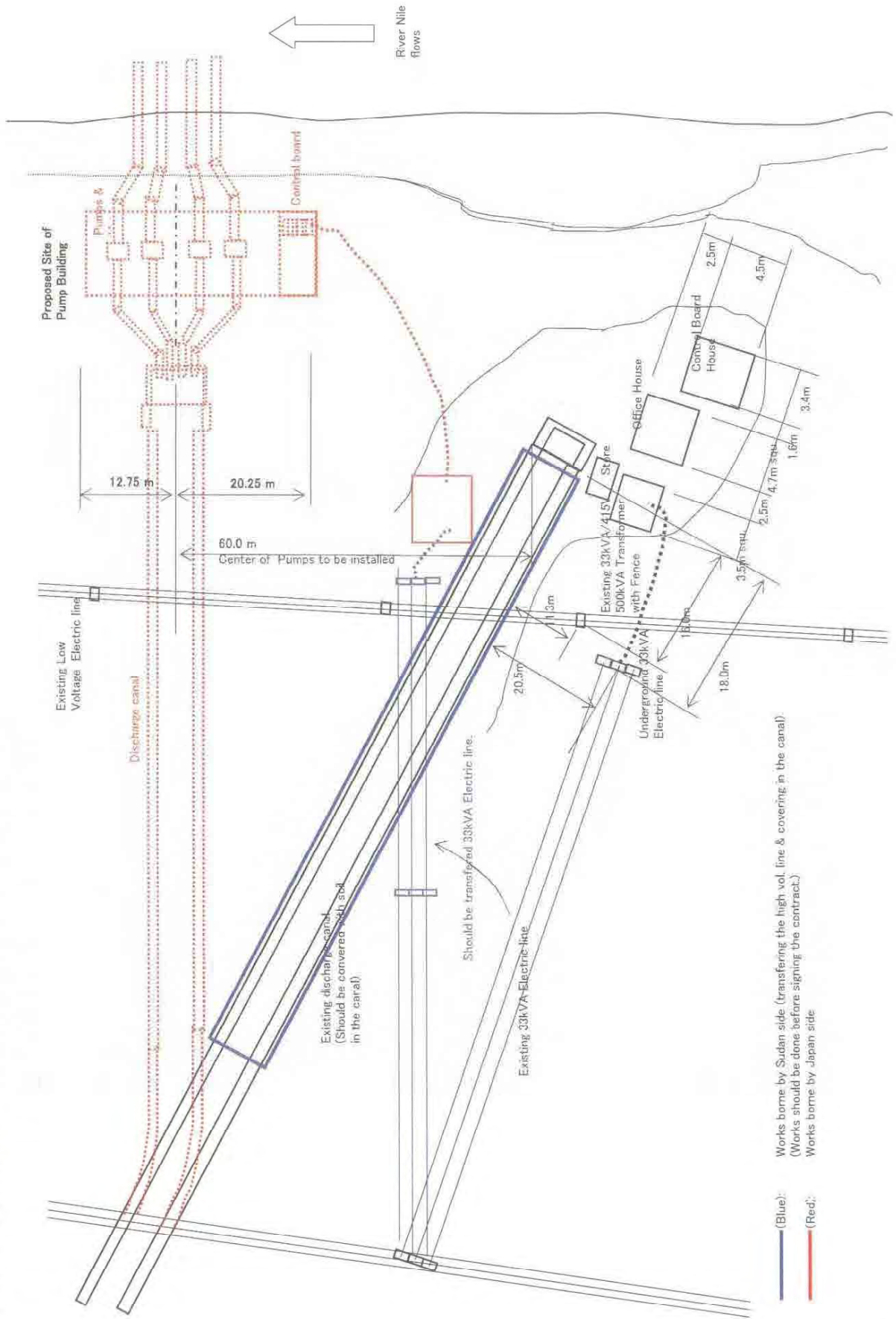
ANNEX-4 (2) Undertakings of Kitiab Pump Station



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ANNEX-4 (3) Undertakings of Kadabas Pump Station

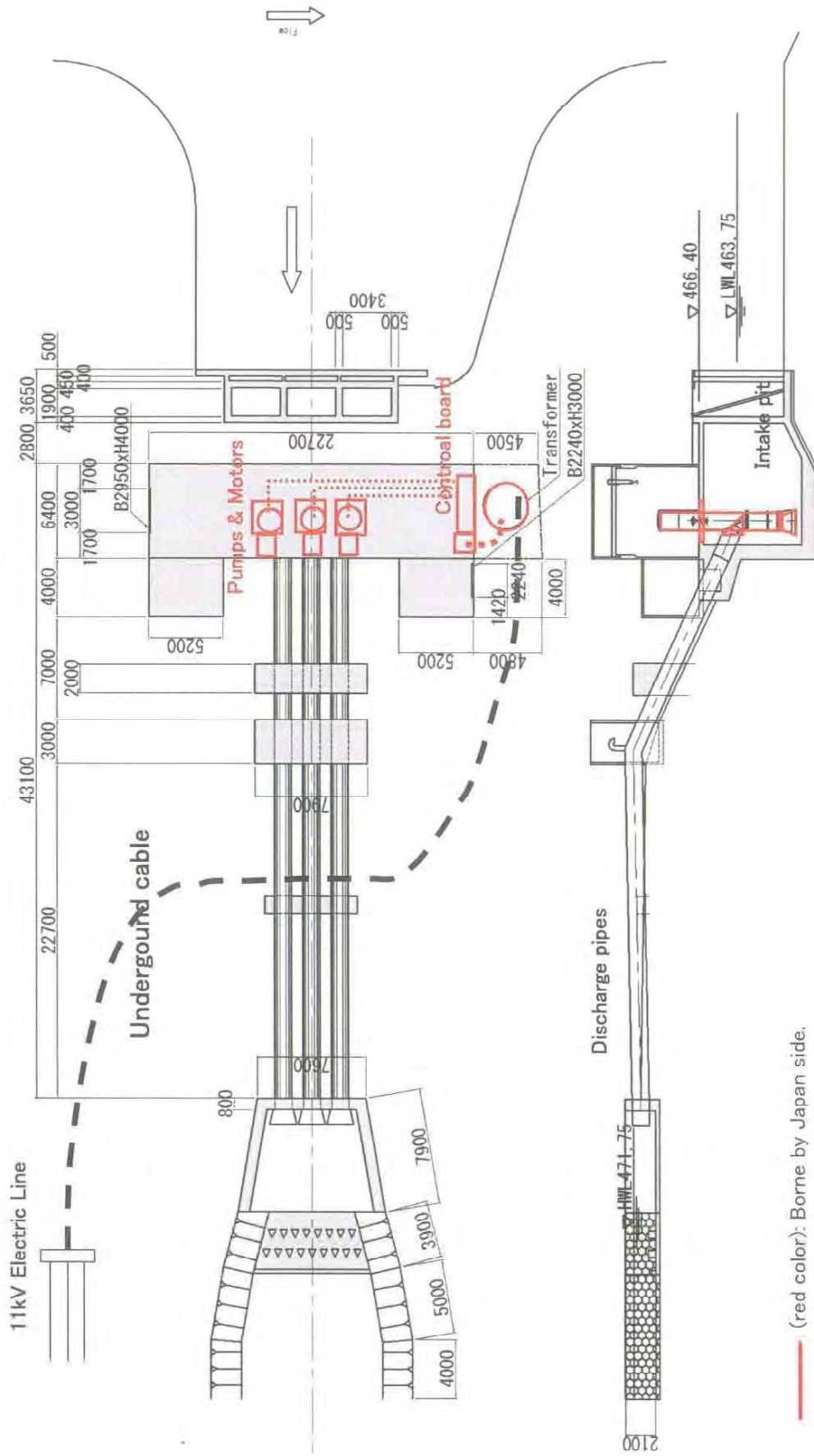


(Blue): Works borne by Sudan side (transferring the high vol. line & covering in the canal)
 (Works should be done before signing the contract.)
 (Red): Works borne by Japan side

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ANNEX-4 (4) Undertakings of K14 Pump Station



(red color): Borne by Japan side.

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**MINUTES OF DISCUSSIONS
BETWEEN JAPAN INTERNATIONAL COOPERATION AGENCY AND
AUTHORITIES CONCERNED OF THE REPUBLIC OF THE SUDAN
ON PREPARATORY SURVEY ON
“PROJECT FOR UPGRADING FOOD PRODUCTION INFRASTRUCTURE
IN SUDAN”
(CONSULTATION ON DRAFT FINAL REPORT)**

With reference to Minutes of Discussions signed on 15th of September 2011 between Ministry of Agriculture of the Government of the Republic of Sudan (hereinafter referred to as “GoS”), Ministry of Irrigation and Water Resources of GoS and Japan International Cooperation Agency (hereinafter referred to as “JICA”), JICA prepared a draft final report of the Second Phase of the Preparatory Study (hereinafter referred to as “the Second Study”) on “Project for Upgrading Food Production Infrastructure in Sudan” (hereinafter referred to as “the Project”).

JICA dispatched a “Draft final report explanation team” headed by Mr. Hiroshi Suzuki, Executive Technical Advisor to the Director General, JICA Rural Development Department, (hereinafter referred to as “the Team”), to the Republic of Sudan during the period of 8th – 17th of February 2012, to consult with GoS about the contents of the draft final report.

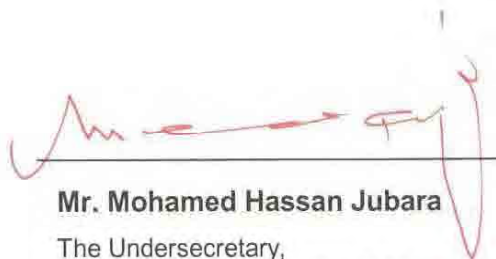
The Team and the officials concerned of GoS held a series of discussions with respect to the draft final report and both parties agreed on the matters referred to the attached documents.

Khartoum, 16th February 2012



Mr. Hiroshi SUZUKI

Team Leader,
Draft Final Report Explanation Team,
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Mr. Mohamed Hassan Jubara

The Undersecretary,
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Mr. Elgaili Mohamed El Bashir

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1 CONFIRMATION OF THE DRAFT FINAL REPORT

Sudanese side examined the draft final report of the Second Study of the Project and confirmed its contents, and agreed on "the obligation of the recipient country", which are mentioned in Chapter 3 of the draft final report.

2 REVISION OF TARGET PROJECT SITES BASED ON THE COST ESTIMATION

JICA worked on the cost estimation of the Project during the period of October 2011 to January 2012, and it is found that the estimated project cost exceeds the budget of Japanese side which was provisionally allocated to the Project.

In order to fit the scope of the Project in the size of allocated budget of Japanese side, both parties agreed to select three (3) irrigation schemes out of the previously proposed four (4) irrigation schemes. As a result of discussion, both parties agreed on the final target sites for the Project as below:

- 1) Aliab Irrigation Scheme (River Nile State)
- 2) Kitiab Irrigation Scheme (River Nile State)
- 3) Kilo14 pump station in New Halfa Irrigation Scheme (Kassala State)

Furthermore, it is also agreed that pump number in Ariab and Kitiab schemes to be provided by Japanese side will be increased from each two(2) units to four(4) units.

In addition, it is recommended by Japanese side that existing each two(2) units of motor pump in Aliab and Kitiab schemes shall be transferred to Kadabas scheme by Sudanese side to contribute to its agricultural development.

3 PROVISION OF CONTINGENCIES IN THE ESTIMATED COST

The Team explained to Sudanese side that the estimated cost for the Project described in **ANNEX-1** includes the contingency. The contingency would cover an additional cost which may arise due to natural disaster, unexpected natural conditions, etc.

The Government of Japan will appraise the final cost estimation including the contingency, which will be described in the Exchange of Notes (E/N).

4 CONFIDENTIALITY ON SPECIFICATION AND THE ESTIMATED COST

4.1 Detailed Specifications of the Facilities and Equipment

Both sides confirmed that all information related to the Project including detailed drawings and specifications of the facilities and equipment and other technical information shall not be released to any outside parties before the signing of all the contracts for the Project.

4.2 Project Cost Estimation

Both sides agreed that the Project cost estimation shall never be duplicated or released to any outside parties before signing of all the contracts for the Project. Sudanese side understood that the estimated cost described in **ANNEX-1** is provisional and subject to change.

5 OBLIGATION OF THE BOTH GOVERNMENTS FOR THE PROJECT

Both parties agreed on their obligation for the project implementation as described in **ANNEX-2**.

Estimated cost for operation and maintenance (O&M cost) for the target irrigation schemes is described in **ANNEX-3**. Sudanese side confirmed the O&M cost as securable by itself, and agreed to guide water management committees in the target irrigation schemes, aiming at securing the O&M cost through appropriate mechanism of water users' fee collection.

6 TIME FRAME OF THE PROJECT

Both parties agreed on tentative schedule towards the project implementation as described below:

May 2012	Cabinet Approval by Japanese Government
Jun 2012	Exchange of Notes and Grant Agreement between two Governments
Jul 2012 – Jan 2013	Detailed Designing
Feb 2013 – May 2013	Tendering Process for Contractor and Supplier
May 2013	Commencement of Works
Oct 2015	Completion of Works

Both parties also agreed on the provisional time frame for the project implementation as described in **ANNEX-4**.

7 REVISION TO RESPONSIBLE AGENCIES AND IMPLEMENTING AGENCIES

Reflecting the reconstitution of the Cabinet in GoS in December 2011, both sides agreed to modify the responsible and implementing agencies of the Project as below:

[After modification]

1) Irrigation schemes in River Nile State (Aliab Scheme and Kitiab Scheme)

<Responsible agency>

- **Ministry of Agriculture and Irrigation** of the Republic of Sudan

<Implementing agencies>

- **National Wheat Production Project** of the Republic of Sudan in collaboration with **Ministry of Agriculture, Irrigation and Forestry of River Nile State**

2) New Halfa Irrigation scheme (Kilo14 Pump Station)

<Responsible agency>

- **Ministry of Agriculture and Irrigation** of the Republic of Sudan

<Implementing agencies>

- **Ministry of Agriculture and Irrigation** of the Republic of Sudan, in collaboration with **New Halfa Agricultural Corporation**

8 COMPLETION OF THE SECOND STUDY

JICA will complete the final report reflecting the result of discussions and consultation between the Team and the Sudanese authorities. The completed report will be sent to Sudanese side by the end of March 2012 through JICA Sudan office.

ANNEX-1 Project Cost Estimation

ANNEX-2 Obligation of the Government of Japan and Sudan

ANNEX-3 Operation and Maintenance Cost for Rehabilitated Irrigation Schemes

ANNEX-4 Tentative schedule of the Project implementation

ANNEX-1

Project Cost Estimation

(1) Project Cost borne by the Japanese Side

(2) Project Cost borne by the Sudanese Side

The project cost borne by Sudanese side is estimated to be 2,036,000SDG approximately. The table below shows the contents of the project cost.

Project Cost Borne by the Sudanese Side

Category	Amount (SDG)
1.Land preparation for 2 schemes in RNS	76,000
2.Custom clearance in-land transportation of pump equipment and materials in Kassala state	148,000
3.Removal of existing pumps in Kassala state	99,000
4.Installation of supplied equipment in Kassala state	329,000
5.Improvemet of main canal for 2 schemes in RNS	1,354,000
6.Commission for Banking Arrangement and A/P	30,000
Total	2,036,000

(3) Condition of Estimation

- 1) Date of estimation base September, 2011
- 2) Exchange rate 1 US\$=81.57JPY (Average of the past 6 months)
 1 SDG=30.44JPY (Average of the past 6 months)



ANNEX-2 Obligation and Schedule of the Government of Japan and Sudan (Tentative)

Annex-2.1 Demarcation of Work Items to be implemented by each Government

Schemes	To be covered by the Government of Japan (GOJ) Grant	To be covered by the Government of Sudan (GOS)
Aliab irrigation Scheme	<ul style="list-style-type: none"> • Construction of Pump Station • Procurement and Installation of four(4) units of Pump and Incidental Equipment • Procurement and Installation of Piping for four(4) units • Procurement and Installation of Control Panel for four(4) units • Cabling for Electric Incoming from Transformer to Control Panel • Construction of Connecting Canal from Discharge Basin to Existing Irrigation Canal • Dispatch of two (2) Japanese experts for Implementation of Soft Components (Technical assistance) at three (3) schemes (in common with Kitiab in RNS and K14 in Kassala state). 	<ul style="list-style-type: none"> • To secure and clear the land for Construction of Pump Station including installation of the equipment and materials, and removal of warehouses and trees • Provision of temporary yard for construction • Installation of Transformer with 1,500KVA including foundation works and Electric Incoming Works from High Voltage Transmission Line to Transformer • Provision of spare parts stockyard • Rehabilitation of Irrigation Canal • Assignment of three(3) staff from MoAIF, RNS to work with Japanese experts for Implementation of Soft Components at two(2) schemes in RNS (in common with Kitiab).
Kitiab Irrigation Scheme	<ul style="list-style-type: none"> • Construction of Pump Station • Procurement and Installation of four (4) units of Pump and Incidental Equipment • Procurement and Installation of Piping for four(4) units • Procurement and Installation of Control Panel for four (4) units • Cabling for Electric Incoming from Transformer to Control Panel • Construction of Connecting Canal from Discharge Basin to Existing Irrigation Canal • Implementation of Soft Component 	<ul style="list-style-type: none"> • To secure and clear the land for Construction of Pump Station including installation of the equipment and materials. • Provision of temporary yard for construction • Installation of Transformer with 1,500KVA including foundation works and Electric Incoming Works from High Voltage Transmission Line to Transformer • Provision of spare parts stockyard • Rehabilitation of Irrigation Canal • Assignment of three(3) staff from MoAIF, RNS to work with Japanese experts for Implementation of Soft Components at two(2) schemes in RNS (in common with Aliab).
K14 Pump Station In NHAC	<ul style="list-style-type: none"> • Procurement of three (3) units of Pump and Motor, Control Panel and Transformer with 3,000 KVA • Dispatch the Engineer to assist installation and Test operation of Pumps and Control Panels • Implementation of Soft Component 	<ul style="list-style-type: none"> • Removal of existing pump, motor and control panels • Disembarkation, custom clearance at Port Sudan, inland transportation, unloading and storage of Equipment • Installation of Pumps and control panels • Installation of Transformer including construction of its foundation • Provision of temporary water supply during pump replacement works • Assignment of three(3) staff from NHAC to work with Japanese experts for Implementation of Soft Components at K14 scheme.

In addition to the items in the above table, the following procedures are also required to be taken by the Government of Sudan for implementation of the Project

(1) General

- 1) To bear the necessary commission for the bank based on the Banking Arrangement and to issue the Authorization to Pay (A/P).
- 2) To obtain all necessary customs clearances and ensure prompt execution of unloading of the materials and equipment to be brought into for use of the project.
- 3) To exempt Japanese nationals from custom duties, internal taxes and other fiscal levies that would be imposed in Sudan with respect to the supply of materials, equipment and services or to bear the same.
- 4) To allow Japanese nationals who offer services for the project entrance into Sudan and stay therein for the performance of their works
- 5) To operate and maintain the facilities and equipment provided under the Grant Aid properly and effectively, and to inform the Japanese side of the conditions of operation and maintenance of the facilities and equipment upon request.
- 6) To bear all the expenses other than those to be incurred by the Grant Aid, necessary for the implementation, operation and maintenance of the project (VAT etc.).
- 7) To give due environmental and social consideration in the implementation of the project.
- 8) To provide electrical and other facilities for project implementation and operation if needed.

(2) Obligations to be undertaken prior to and during the implementation of the project

- 1) To secure permissions for construction and building works from the authorities concerned for those works to be implemented on the river banks along the Nile River.
- 2) To secure permissions from the scheme's authority for project related vehicles for using existing roads in the schemes.
- 3) To provide required land lots for disposal of excavated materials (Spoil bank) as well as for obtaining embankment materials for re-filling (Borrow pit) within 5 km distance from each of pump station site. Further, to complete necessary procedures for securing royalty for taking earth materials.
 - a) To secure permissions from the authorities concerned on the land lots for spoil bank and borrow pit.
 - b) To explain about the project for the resident people of each scheme and to secure people's understanding and consent on the project implementation works.
- 4) Monitoring results of environmental impacts by the Project shall be reported to JICA regularly during implementation.

Annex-2.2 Obligations and Schedule of the Government of Sudan (Tentative)

A.D.	Year 2012											Year 2013											Year 2014											Year 2015													
	Month	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10	11	12	1	2	3	4	5	6	7	8	9	10
Contract for Construction & Schedule		(Consultant Contract)											(Construction Contract)											(Construction of Aliab Pump Station)											(Construction of Kitlab Pump Station)												
Implementation Schedule by Japan	Manufacturing																																														
	Ocean and Inland transportation																																														
	Preparation, temporary works																																														
	Pump building works (Aliab, Kitlab)																																														
	Electrical line works																																														
	Suction & discharge piping works																																														
	Pump electrical works																																														
	Discharge pit and canal works																																														
	Pump installation, test run																																														
	Inspection & commissioning																																														
Cleanup and completion works																																															
K14 (New Halfa Pump Station)																																															
Soft component																																															
Obligations of the Government of Sudan																																															
General	To bear the necessary commission for the bank based on the Banking Arrangement and to issue the Authorization to Pay (A/P)	(For Consultant Contract)											(For Construction Contract)																																		
	To secure permissions for construction and building works from the authorities concerned											▼																																		
	To secure permissions from the scheme's authority for project related vehicles for using existing roads in the schemes											▼																																		
	To secure and clear the land for construction of Pump Station											▼																																		
	Provision of temporary yard for construction											▼																																		
	Installation of Transformer with 1,500KVA including foundation works and Electric Incoming Works from High Voltage Transmission Line to Transformer											▼																																		
	Provision of Spare Parts Storage																						▼																							
	Rehabilitation of Irrigation Canal																						▼																							
	To provide land lots for disposal of excavated materials as well as for obtaining embankment materials, to secure royalty for earth materials											▼																																		
	To explain about the project for the resident people of the scheme and to secure people's understanding and consent on the project implementation works											▼																																		
Aliab	Assignment of three(3) staff from MoAARI, RNS for Implementation of Soft Components at two(2) schemes in RNS																																		-----												
	To secure and clear the land for construction of Pump Station																						▼																							
	Provision of temporary yard for construction																						▼																							
	Installation of Transformer with 1,500KVA including foundation works and Electric Incoming Works from High Voltage Transmission Line to Transformer																						▼																							
	Provision of Spare Parts Storage																																	▼												
	Rehabilitation of Irrigation Canal																						▼																							
	To provide land lots for disposal of excavated materials as well as for obtaining embankment materials, to secure royalty for earth materials																						▼																							
	To explain about the project for the resident people of the scheme and to secure people's understanding and consent on the project implementation works																						▼																							
	Assignment of three(3) staff from MoAARI, RNS for Implementation of Soft Components at two(2) schemes in RNS																																		-----												
	Assignment of three(3) staff from MoAARI, RNS for Implementation of Soft Components at two(2) schemes in RNS																																		-----												
Kitlab	To secure and clear the land for construction of Pump Station																						▼																							
	Provision of temporary yard for construction																						▼																							
	Installation of Transformer with 1,500KVA including foundation works and Electric Incoming Works from High Voltage Transmission Line to Transformer																						▼																							
	Provision of Spare Parts Storage																																	▼												
	Rehabilitation of Irrigation Canal																						▼																							
NH-K14	To provide land lots for disposal of excavated materials as well as for obtaining embankment materials, to secure royalty for earth materials																						▼																							
	To explain about the project for the resident people of the scheme and to secure people's understanding and consent on the project implementation works																						▼																							
	Assignment of three(3) staff from MoAARI, RNS for Implementation of Soft Components at two(2) schemes in RNS																																		-----												
	Disembarkation, custom clearance at Port Sudan, inland transportation, unloading and storage of Equipment																																		-----												
	Removal of existing pump, motor and control panels and installation of pumps, control panels and transformer including construction of its foundation																																		-----												
Provision of temporary water supply during pump replacement works																																		-----													
Assignment of three(3) staff from NHAC to work with Japanese experts for Implementation of Soft Components at K14 scheme																																		-----													

ANNEX-3

Annual Maintenance and Operation Cost for Rehabilitated Irrigation Schemes

(Tentative Estimation)

Item		Scheme	Aliab	Kitiab	K14	Remarks
		Irrigation Area (feddan)	5,250	5,700	31,000	
1. Electricity Cost	Plan	Annual operation hour (hour/year)	13,577	16,884	5,950	Electric rate = 0.16 SDG/KWH, Rate of operation= estimated 80%
		Motor capacity (kW)	170	160	480	
		Electricity cost (SDG/year)	565,890	802,997	846,745	
	Records	Annual fuel oil cost (SDG/yer)	1,225,000	1,330,000	-	
	Difference	(Electricity cost - Fuel oil cost) (SDG/year)	-659,110	-527,003	0	
2. Spare Parts and Consumables Costs	Plan	Equipment cost (1,000) (except pipes and valves)	421,724	416,526	419,081	Though, 2 units are supplied by Sudan side, the costs are estimated for 4 units.
		Equipment cost (SDG) (except pipes and valves)	13,854,271	13,683,509	13,767,444	
	Estimated	Required annual spare parts cost (SDG/year)	138,543	136,835	137,674	equipment cost × 1%/year
3. Planned Staff Cost	Existing	Existing Staff in Scheme	36	33	100	Average salary = 26,400 (SDG/year/person) based on Aliab data; 980,000SDG/37persons/yr
		Existing Staff in Pump Station	13	21	11	
	Plan	Staff in Pump Station	11	11	11	
	Difference	Staff difference in Pump Station	-2	-10	0	
		Cost difference (SDG/year)	-52,800	-264,000	0	
Annual records, Planned O&M Cost and Difference (SDG/Year)	Records	Records of Total O&M Cost	1,553,500	1,700,000	7,750,000	
	Plan	Difference of fuel or electricity consumption cost	-659,110	-527,003	0	
		Required annual spare parts cost	138,543	136,835	137,674	
		Difference of staff cost	-52,800	-264,000	0	
		Difference of cost, sub-total	-37,346	-534,575	137,674	
		Total annual O&M cost	1,516,154	1,165,425	7,887,674	
	O&M cost per feddan	289	204	254		

