5．短期調査ミニッツ

MINUTES OF UNDERSTANDING ON JAPANESE TECHNICAL COOPERATION FOR THE WATER MANAGEMENT IMPROVEMENT PROJECT IN THE NILE DELTA

The Supplementary Study Team (hereinafter referred to as "the Team"), organized by the Japan International Cooperation Agency (hereinafter referred to as "JICA") and headed by Mr. Shigeo KARIMATA, visited the Arab Republic of Egypt from August 30 to September 23, 1999 for the purpose of collecting detailed information in order to formulate the framework of the Water Management Improvement Project in the Nile Delta (hereinafter referred to as "the Project").

During its stay in the Arab Republic of Egypt, the Team had a series of discussions and conducted field surveys with the authorities concerned of the Government of the Arab Republic of Egypt.

As a result of the discussions, both sides reached a common understanding in the Joint Meeting.

Both sides have agreed to report to their respective Governments the matters referred in the document attached hereto.

Cairo, September 22, 1999

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ATTACHED DOCUMENT

1. Supplementary Study Team

1-1. Objective

The Team was dispatched by JICA to discuss the framework of the Project and to conduct study to collect detailed information in order to formulate the framework of the Project.

For clarifying the framework of the Project, the study main purposes were;

(1) To confirm the consensus of the Project concept through farmer's participation;
(2) To formulate a tentative Project Design Matrix (hereinafter referred to as "PDM") and the framework of the Project considering the result of the workshops;
(3) To study the possibility of collaboration in the Project with other related organizations; and
(4) To clarify the implementation and administrative issues surrounding the Project.

1-2. Participants of the Joint Meeting

The participants of the Joint Meeting are shown in ANNEX I.

1-3. Schedule

The Team stayed in the Arab Republic of Egypt from August 30 to September 23, 1999. The detailed schedule of the Team's activities is shown in ANNEX II.

2. PCM Workshop

2-1. Purpose

In order to confirm the background and necessity of the Project and also to formulate the framework of the Project, a series of workshop were conducted based on the rules and standardized procedure of the Project Cycle Management (hereinafter referred to as "PCM") method. This time, three separate workshop sessions were held. (See ANNEX III-1 for the schedule)

(1) First PCM workshop was held mainly for the purpose of identifying water related problems farmers are facing.
(2) Second workshop was held for the purpose of identifying the objectives, which hint the approaches for the Project, utilizing the result of the first workshop.
(3) Third workshop was held for the purpose of formulating the framework of the Project.

2-2. Summary of results

During the above mentioned workshop period very active discussion was held by all the participants and comprehensive analysis was undertaken. Among participants, satisfaction of the farmers was particularly strong and it shows the high future potentiality of their participation in the Project. Finally, PDM, the framework of the Project, was formulated utilizing the result of objectives analysis and the result of Preliminary Study of the Project.

2-3. Details of the results

(1) Characteristic of the project area: Prior to various kinds of analysis, the situation of the project area was confirmed. (See ANNEX III-2)

(2) Participation Analysis: This analysis was undertaken mainly in the first workshop and reviewed in the second workshop. The categorization of stakeholders in terms of their roles in the Project is summarized as follows. (See ANNEX III-3 for the background)

- Beneficiary: farmers
- Implementers
  1) IIS Headquarters in Cairo
  2) Central Delta Directorate for Improvement in Tanta
  3) IIS Inspectorate in Kafr El Sheikh
  4) Biyala Inspectorate, MPWWR (drainage authority, survey authority)
  5) Biyala Irrigation Engineering District, MPWWR
  6) farmers
  7) JICA experts
- Decision(Policy) Maker: MPWWR
- Financial Supporters: MPWWR and JICA
- Cooperating Agency: Biyala Office of the Ministry of Agriculture and Land Reclamation (MALR)
- Negatively Affected Parties: Not clearly identified. It was agreed to minimize the negative effect of project to anybody by all the workshop participants.

(3) Problem Analysis: This analysis was undertaken mainly in the first workshop. Problems of water which the farmers, who are the beneficiaries of the Project, are facing in the project area were analyzed. After several hours of discussion, a comprehensive problem tree including around 40 problem cards was completed with the following core (central) problem.

"Insufficient arrival of water to canal and Meska tails in mid-April to July"

With regard to this core problem, seven direct causes were identified and four direct results. The ultimate problem was also identified as "Insufficient net income for farmers". (See ANNEX III-4.)

(4) Objectives Analysis: This analysis was undertaken in the second workshop, fully utilizing the problem tree. Consequently, an objectives tree including around 50 cards was formulated. The core objective was identified as "Sufficient water arrives at canal and Meska tails in Mid-April to July." Five objectives directly leading to the core objective (direct means) and three direct results (ends) were confirmed. (See ANNEX III-5.)

(5) Formulation of Project Design Matrix (PDM): This work was undertaken in the third workshop. PDM was formulated based on the objectives tree and also the "outline of the Project" which was agreed between two countries in the Preliminary Study of the Project.

Project purpose was identified as " The improved methods for the efficient and effective implementation of the IIP based on the full scale farmers' participation are verified by the success of the Project, which alleviates the shortage of water at tail ends and leads to the increase of crop productivity in Bahr El Nour.".

Because this project is expected to be a pilot project for the improvement of existing Irrigation Improvement Project, the factor of dissemination of the project achievement is mentioned in the overall goal and also the aspect of organization of farmers are stressed in outputs, based on the result of Preliminary Study. (See ANNEX III-6.)

3. Framework of Technical Cooperation for the Project

As a result of the workshops and discussions with the Team and the authorities concerned of the Government of the Arab Republic of Egypt, the following was confirmed:

3-1. Project Title

The Water Management Improvement Project in the Nile Delta

3-2. Overall goal

The improved methods for the efficient and effective implementation of the Irrigation Improvement Project (hereinafter referred to as "the IIP") are disseminated in the Nile Delta, accompanied by the increase of agricultural productivity and the farmers' net income.

3-3. Project purpose

The improved methods for the efficient and effective implementation of the IIP based on the full scale farmers' participation are verified by the success of the Project, which alleviates the shortage of water at tail ends and leads to the increase of crop productivity in Bahr El Nour.

3-4. Expected output of the Project

(1) Water Management Plan is formulated with farmers' participation.
(2) Land Use Plan is formulated with farmers' participation.
(3) Operation and Maintenance (hereinafter referred to as "O&M") Plan for irrigation facilities is formulated.
(4) Farmers' water management organizations are established in three levels (*) in accordance with the improvement of irrigation system in each canal.
(5) Appropriate water use at the on-farm level is realized.
(6) Irrigation facilities are improved with farmers' participation.
(7) Farmers participate in the water management system within the delivery canal.

* Note: Levels of i) Federation of Water Users' Association (hereinafter referred to as "WUF"), ii) Water Users' Association (hereinafter referred to as "WUA") and iii) Water Users' Group (hereinafter referred to as "WUG"). (when the scale of a Water Users' Association is too big.)

3-5. Activities of the Project

(1) Formulation of Water Management Plan
1-1) To study existing irrigation and drainage system in the project area
1-2) To study existing water management (including water quality) in the project area
1-3) To formulate monitoring system of water quantity and quality
1-4) To formulate Water Management Plan
1-5) To modify Water Management Plan, making the use of improved irrigation facilities
1-6) To train governmental staff and farmers on Water Management Plan

(2) Formulation of Land Use Plan
2-1) To study present condition of land use
2-2) To conduct survey of land use demands of farmers
2-3) To carry out marketing and household research
2-4) To conduct soil survey and its analysis
2-5) To investigate less water consumptive upland crops and vegetables

2-6) To formulate Land Use Plan
2-7) To train governmental staff and farmers on Land Use Plan

(3) Formulation of O&M Plan for irrigation facilities
3-1) To study existing O&M for irrigation facilities
3-2) To formulate O&M Plan
3-3) To modify O&M Plan, making the use of improved irrigation facilities
3-4) To train governmental staff and farmers on O&M Plan

(4) Farmers' water management organization
4-1) To study on social background of the project area through Participatory Planning methodology
4-2) To discuss the purpose and content of the Project with the selected interim leaders of farmers and the relevant government officials
4-3) To submit request of improvement of irrigation facilities from farmers in the project area with the agreement of more than 2/3 farmers
4-4) To plan design in detail and implement construction work under mutual negotiation between the farmers and the government
4-5) To establish a formal WUF and several WUAs as legal entities in the project area
4-6) To train governmental staff and farmers on farmers' water management organization

(5) Appropriate water use at the on-farm level
5-1) To study on the amount of water consumption of each upland crop
5-2) To formulate the method on on-farm water management
5-3) To make irrigation calendar
5-4) To draw up the manual of field water management
5-5) To train governmental staff and farmers on water use at the on-farm level

(6) Improvement of irrigation facilities
6-1) To examine existing irrigation facilities
6-2) To formulate Improvement Plan on irrigation facilities in the project area
6-3) To formulate Design and Construction Guideline for the improvement of facilities
6-4) To train governmental staff and farmers on improvement of irrigation facilities

(7) Farmers' participation in water management system

7-1) To train governmental staff and farmers, in particular, key persons of the WUF, WUA and WUG in respect of rational water use and modernized farming etc

7-2) To bring up WUF by continuous supporting systems (such as subsidy for O&M etc)

(8) General Project Management

8-1) To complete project management organization and to formulate annual work plan of the Project

8-2) To conduct monitoring and evaluation of the project activities and results regularly

3-6. Project area

The Project will be conducted in the Bahr El Nour command area located in the Biyala area.

3-7. Project offices

The project offices will be prepared in Tanta and Cairo.

(1) One of the project office will be prepared in the Central Delta Directorate for Improvement in Tanta.

(2) Another project office will be prepared in the Irrigation Improvement Sector (hereinafter referred to as "IIS"), Cairo.

3-8. Term of Cooperation

The duration of technical cooperation for the Project under this document will be five (5) years.

4. Measures to be taken by the Japanese Side

4-1. Dispatch of Experts

Both long-term and short-term experts will be dispatched to provide technical assistance for Egyptian counterpart personnel in the implementation of the Project as follows.

(1) Long-term experts: several persons/year such as Chief Adviser, Coordinator and Experts in the fields of a) Water Management (including Irrigation Facility), b) Water Users' Association and c) Agronomy.

(2) Short-term experts will be dispatched according to necessity.

4-2. Training of Egyptian Counterpart Personnel in Japan

Each year, a certain number of counterpart personnel related to the Project will be trained in Japan.

4-3. Provision of Equipment

Equipment necessary for the technical transfer will be provided.

5. Measures to be taken by the Egyptian Side

5-1. Assignment of Counterpart Personnel and Administrative Staff

(1) Appropriate (*) counterpart personnel for each Japanese expert will be assigned in Tanta and Cairo project offices.

1) The counterpart personnel in Tanta office are involved in daily project activities with Japanese experts.

2) The counterpart personnel in Cairo office participate in the project in terms of:

a) Support and consultation to the Japanese experts;

b) Supervision of IIS staff in Tanta office; and

c) Dissemination of the project information.

* Including capability of English communication

(2) In addition to above, the necessary number of administrative and technical staff members to support the activities of the Project will be assigned.

(3) The list of counterpart personnel is shown in ANNEX IV.

5-2. Budget Allocation

Egyptian side will allocate following budget.

(1) Construction, operation and maintenance of irrigation facilities in the project area

(2) Personnel expenses of counterpart personnel (including their official travel expense) and administrative staff of the Project

(3) Operating expenses necessary for the implementation of the Project such as utilities

5-3. Land and Facilities

Land, buildings and facilities including the project offices necessary for the implementation of the Project will be provided.

5-4. Facilities of training

The necessary facility for training of engineers and farmers will be prepared.

5-5. Custom clearance

Custom clearance of equipment provided by Japan will be done smoothly.

6. Administration of the Project

(1) The Chairman of the Irrigation Department (hereinafter referred to as "ID"), Ministry of Public Works and Water Resources (hereinafter referred to as "MPWWR"), as Project Director, will bear responsibility for supervising the implementation and administration of the Project.

(2) The Head of the IIS, MPWWR, as Project Manager, will bear responsibility for the managerial and technical matters of the Project.

(3) The Undersecretary of the IIP for the Delta, MPWWR, as Deputy Project Manager, will bear direct responsibility for the managerial and technical matters of the Project in consultation with the Project Manager.

(4) The Senior Engineer (General Director of the Central Delta Directorate for Improvement in Tanta), MPWWR, as Project Site Manager, will bear responsibility for implementing the project activities at the site office.

(5) The Japanese Chief Adviser will provide necessary recommendations and advice to the Project Director, Project Manager, Deputy Project Manager and Project Site Manager on technical and administrative matters concerning the implementation of the Project.

(6) The Japanese coordinator will provide necessary support to the Japanese Chief Adviser and undertake other necessary administrative work.

7. Tentative Schedule of Implementation

The draft of Tentative Schedule of Implementation is shown in ANNEX V.

8. Technical Cooperation Program

The draft of technical cooperation program of the Project is shown in ANNEX VI.

9. Project Organization

The organization chart of the Project is shown in ANNEX VII.

10. Committees

For the effective and successful implementation of technical cooperation for the Project, the Joint Steering Committee and the Joint Site Coordinating Committee will be established.

10-1. The Joint Steering Committee

The Joint Steering Committee will meet at least once a year and whenever the necessity arises.

10-1-1. Function

(1) To formulate the annual work plan of the Project in line with the Tentative Schedule of Implementation formed under the framework of the Record of Discussions, which will be signed prior to the beginning of the Project.

(2) To review the overall progress of the Project as well as the achievement of the annual work plan.

(3) To review and exchange views on major issues arising from or in connection with the Project and to take corrective actions, if necessary.

10-1-2. Composition

(1) Chairperson:

The Chairman of the Irrigation Department (Project Director)

(2) Egyptian side members:

a) Head of the Irrigation Improvement Sector (Project Manager)

b) Head of the Irrigation Sector

c) Undersecretary for Lower Egypt (Deputy Project Manager)

d) General Director of Irrigation Advisory Service, IIS, MPWWR

e) General Director of the Central Delta Directorate for Improvement (Project Site Manager)

f) Representative of Egyptian Public Authority for Drainage Project

g) Representative of National Water Research Center

h) Representative of other Ministries and Agencies will be added according to necessity

(4) Japanese side members:

a) Chief Adviser

b) Coordinator

c) Other Japanese experts

d) Representative of the JICA Egypt Office
e) Concerned personnel to be dispatched by JICA, if necessary

Note: If a member(s) of the Joint Steering Committee described above cannot attend the meeting, a representative(s) can attend the meeting in place of the member(s).
Official(s) of the Embassy of Japan can attend the Joint Steering Committee as observer(s).

10-2. The Joint Site Coordinating Committee

The Joint Site Coordinating Committee will meet once every three months and whenever the necessity arises.

10-2-1. Function

(1) To formulate the detailed work plan of the activities of the Project in line with annual work plan.
(2) To review the overall progress of the activities of the Project.
(3) To discuss major issues arising from or in connection with activities of the Project and to take corrective actions, if necessary.

10-2-2. Composition

(1) Chairperson:
Undersecretary for Lower Egypt (Project Deputy Manager)
(2) Vice chairperson:
General Director of the Central Delta Directorate for Improvement (Project Site Manager)
(3) Egyptian side members:
a) General Director of the Kafr El Sheikh ID Directorate
b) Inspector of Biyala irrigation Inspectorate
c) Engineer of Biyala irrigation District
d) Other member of Egyptian counterpart personnel in Tanta and Cairo
(4) Japanese side members:
a) Chief Adviser
b) Coordinator
c) Other Japanese experts
d) Representative of the JICA Egypt Office
e) Concerned personnel to be dispatched by JICA, if necessary

Note: If a member(s) of the Joint Site Coordinating Committee described above cannot attend the meeting, a representative(s) can attend the meeting in place of the member(s).
Representatives of Biyala office and Kafr El Sheikh office of Ministry of Agriculture and Land Reclamation are also expected to attend the meeting.

11. Other Issues

(1) Above mentioned matters are subject to change based on further study.
(2) The Egyptian side requested that Japanese side dispatch a legal expert of farmers organization.
(3) The Japanese side requested that five (5) rooms for Japanese experts are prepared in the project office in Tanta.
(4) The Japanese side requested that a certain meeting space is prepared within Biyala Inspectorate.

ANNEX I. List of Participants of the Joint Meeting
ANNEX II. Detailed Schedule of the Team's Activities
ANNEX III-1. Schedule and participants of workshop
ANNEX III-2. Characteristic of the Project Area
ANNEX III-3. Participation Analysis
ANNEX III-4. Problem Tree
ANNEX III-5. Objectives Tree
ANNEX III-6. Tentative Project Design Matrix for the Project
ANNEX IV. List of Counterpart Personnel
ANNEX V. The draft of Tentative Schedule of Implementation
ANNEX VI. The draft of Technical Cooperation Program
ANNEX VII. Organization chart of the Project

ANNEX I. List of Participants of the Joint Meeting

1. Japanese side

TECHNICAL PERSONNEL	Leader / Irrigation
NAME	Shigeo KARIMATA
OCCUPATION	Director, Office of Overseas Land Improvement Cooperation, Design Division, Construction Department, Agricultural Structure Improvement Bureau, MAFF

TECHNICAL PERSONNEL	Water Users' Association
NAME	Toru MASE
OCCUPATION	Professor, Agricultural Engineering Department, Faculty of Agriculture, Akita Prefectural University

TECHNICAL PERSONNEL	Water Management
NAME	Manabu KASHIWABARA
OCCUPATION	Chief, Land Improvement and Consolidation Section, Land Consolidation Division, Construction Department, Kanto Region Agricultural Administration Bureau, MAFF

TECHNICAL PERSONNEL	Farming
NAME	Hisashi URAYAMA
OCCUPATION	Instructor, Vegetable Section, Tsukuba Office, Japan International Cooperation Center

TECHNICAL PERSONNEL	Participatory Planning
NAME	Ryujiro SASAO
OCCUPATION	Senior Analyst, Consulting Department ,IC Net Limited

TECHNICAL PERSONNEL	Technical Cooperation
NAME	Kento TOYAMA
OCCUPATION	Staff, Agricultural Technical Cooperation Division, Agricultural Development Cooperation Department, JICA

2. Egyptian side

NAME	Eng. Ramsis Bakhoum
OCCUPATION	Head of Irrigation Improvement Sector, Ministry of Public Works and Water Resources

NAME	Eng. Essam Barakat
OCCUPATION	General Director, Irrigation Advisory Service, IIS, MPWWR

NAME	Eng. Abdalla Doma
OCCUPATION	Engineer, Irrigation Advisory Service, IIS, MPWWR

ANNEX II. Detailed Schedule of the Team's Activities

	Date	Activity	Remarks
1	Aug 30 (Mon)	Team member in the field of Participatory Planning Narita → Cairo	
2	Aug 31 (Tue)	Courtesy Call to the JICA Egypt Office.	
3	Sep 1 (Wed)	Courtesy Call to the MPWWR. Courtesy Call to the IIS Office.	
4	Sep 2 (Thu)	Preparation for the Opening Workshop	
5	Sep 3 (Fri)	Preparation for the Opening Workshop	
6	Sep 4 (Sat)	Leave for Tanta. Meeting at the Irrigation Improvement Department.	
7	Sep 5 (Sun)	Site Survey Confirmation of Participants and Place.	Participatory Planning
		Team member in the field of Water Users' Association, Water Management, Farming, Technical Cooperation Narita → Cairo	Other members
8	Sep 6 (Mon)	Preparation for Workshop and Meeting with Middle Delta Irrigation Improvement Department.	Participatory Planning
		Courtesy Call to the MPWWR and the IIS. Courtesy Call to the JICA Egypt Office and Embassy of Japan	Other members
9	Sep 7 (Tue)	Courtesy Call to the Governor of Kafr El Sheikh and the Middle Delta Irrigation Improvement Department.	
10	Sep 8 (Wed)	Workshop 1 (Participation Analysis / Problem Analysis)	
11	Sep 9 (Thu)	Workshop 1 (Participation Analysis / Problem Analysis)	
12	Sep 10 (Fri)	Internal Preparation	
13	Sep 11 (Sat)	Preparation for Workshop 2. Survey local Agriculture Department.	
14	Sep 12 (Sun)	Workshop 2 (Problem Analysis / Objective Analysis)	
15	Sep 13 (Mon)	Workshop 2 (Problem Analysis / Objective Analysis)	
16	Sep 14 (Tue)	Workshop 3 (PDM and the framework of the Project)	
17	Sep 15 (Wed)	Workshop 3 (PDM and the framework of the Project)	Other members
		Team member in the field of Leader / Irrigation Narita → Cairo	Leader / Irrigation
18	Sep 16 (Thu)	Courtesy Call to the IIS. Courtesy Call to the JICA Egypt Office Internal Meeting	
19	Sep 17 (Fri)	Internal Preparation	Other members
		Team member in the field of Water Users' Association, Water Management Cairo → Narita	Water Users' Association Water Management
20	Sep 18 (Sat)	Interview with IIS agronomist	
21	Sep 19 (Sun)	The Joint Meeting on the PDM and the framework of the Project	

	Date	Activity	Remarks
22	Sep 20 (Mon)	The Joint Meeting on the PDM and the framework of the Project	
23	Sep 21 (Tue)	The Joint Meeting on the PDM and the framework of the Project PCM lecture on moderators' skill, monitoring and evaluation	
24	Sep 22 (Wed)	Signing of M/M. Reporting to the JICA Egypt Office and Embassy of Japan	
25	Sep 23 (Thu)	Depart from Cairo.	
26	Sep 24 (Fri)	Arrive at Narita.	

ANNEX Ⅲ-1. Schedule and participants of workshop

1) First workshop

a. Schedule : September 8 and 9

b. Participants: Total number of participants was approximate 30 including the following personnel.

(1) Total 8 farmers consisting of 4 from the upper side of the delivery canal in the project area and 4 from lower side (including one representatives of an agricultural cooperative)

(2) 15 governmental staff such as the staff of Biyala district, IIS/IAS Tanta and Headquarters

(3) 5 Japanese experts (Supplementary Study Team members)

(4) 1 interpreter (English/Arabic) from JICA Cairo office and 2 card translators (governmental staff)

2) Second workshop

a. Schedule: September 12 and 13

b. Participants: Total number was around 20 including the following personnel.

(1) 2 farmers who represent the farmers in the project area

(2) 4 staff of IIS/IAS Tanta and Headquarters

(3) 8 staff of Biyala Inspectorate and Water District Office, MPWWR

(4) 1 staff of Biyala Office of the Ministry of Agriculture and Land Development

(5) 5 Japanese experts

(6) 1 interpreter (English/Arabic) from JICA Cairo office and 1 card translator (governmental staff)

3) Third workshop

a. Schedule: September 14 and 15

b. Participants: The participants are as follows.

1) Several staff of IIS/IAS Tanta and Headquarters

2) 5 Japanese experts

3) 1 interpreter (English/Arabic) from JICA Cairo office

ANNEX Ⅲ-2. Characteristic of the Project Area

1.Location: Bahr El Nour C.A., Biyala Town (Local Unit), Biyala District, Kafr El Sheikh Governorate

2.Population (registration base)

- North: 1165 households
- South: 1230 households
- Average space of owned land: 1.9 – 2.2 FD

3. Space: 4,000 FD

4. Water use

4-1. Basic fact

- Number of Delivery Canal, Sub-canal and Meska: 1,3 and 38
- Average number of households per Meska: 96 (Note: the average figure of entire JICA's Development Study Area)
- Average number of Marwa per Meska: 17 (Note: the average figure of entire JICA's Development Study Area)
- Rotational System: 4 days on 6 days off

4-2. Management

- IIP: not implemented yet
- System of irrigation of Meska: individual
- Decision making of water management of Meska: individual

4-3. Organization

- Saqia Rings: not present because of the mechanization of Saqia
- Water Users Group: not yet organized but there are some collective activities
- Water Users Association: not yet organized

5. Community

- Aila: rather weak but still influential

6. Major crops

- Winter: wheat, broardbeen & beans, berseem and sugar beat
- Summer: rice, watermelon, cotton and corn

7. Average income from agriculture: 1500 – 2000 LE per FD

8. Major issues raised by farmers

- Low prices of agricultural products and high prices of agricultural material
- Constant water shortage
- Conflict on water use
- Shortage of public support such as extension services

ANNEX Ⅲ-3. Participation Analysis (List of Stakeholders)

- Farmers and their groups
  - Number of households (registration base)
    North (Lower side of delivery canal): 1165 households
    South (Upper side of delivery canal): 1230 households
  - Number of households (actual base)
    Large scale farmers: 12 households
    Small scale farmers: 1104 households
  - Shaykh al balad (Semi - Governmental Officer in Balad):not present
  - Omda (Semi - Governmental Officer in Balad):not present
  - Aila: rather weak but still influential
  - Saqia Rings: not present because of the mechanization of Saqia
  - Water Users' Group: not yet organized but there are some collective activities.
  - Water Users' Association: not yet organized

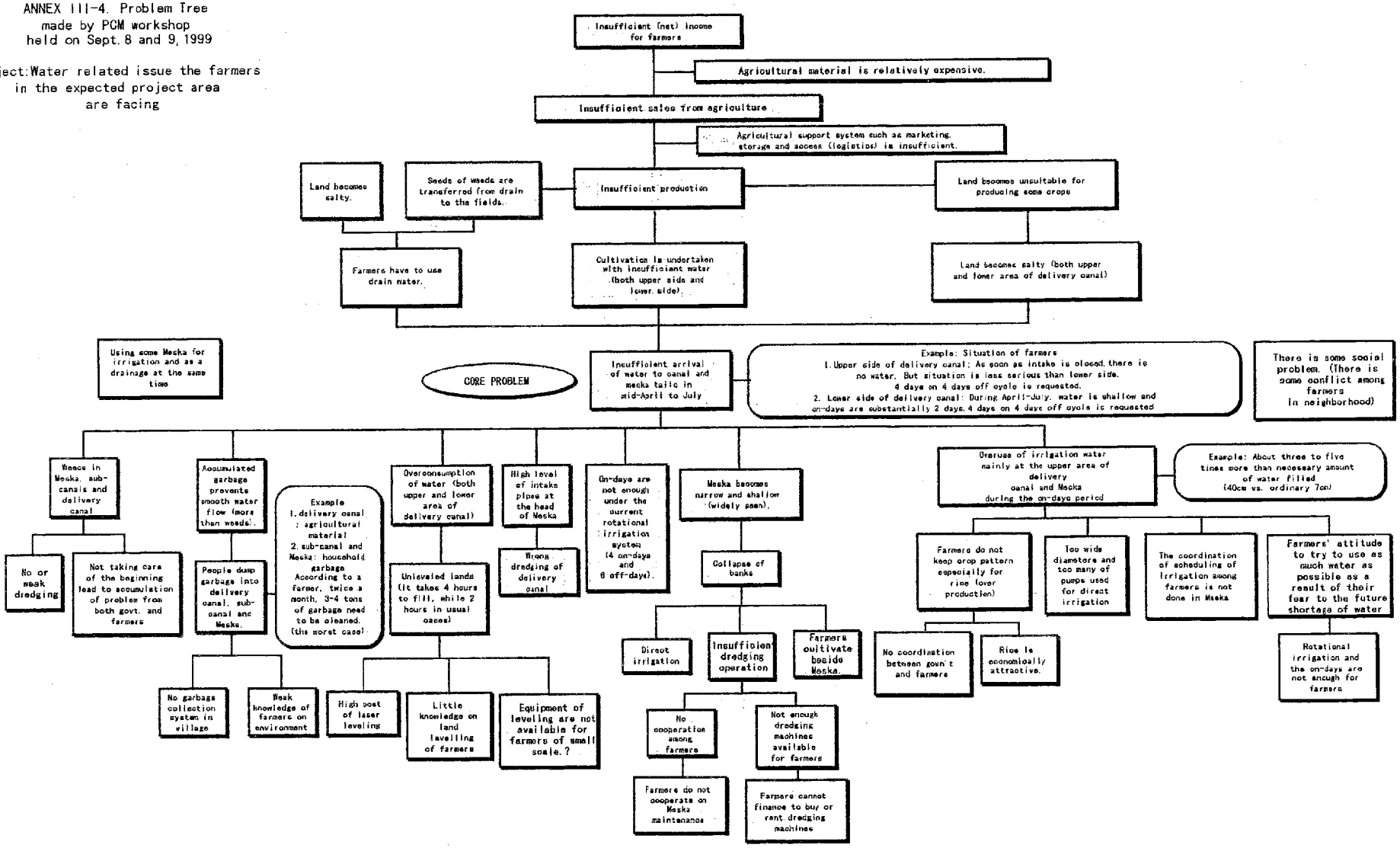
- Governmental organization and function
  1. Kafr El Sheikh Governorate: Coordinator of other local governmental offices
  2. Biyala District: Local unit of Governorate (execution level)
  3. Biyala Inspectrate, Ministry of Public Works and Water Resources (MPWWR): Executive agency of MPWWR in charge of water distribution and maintenance of water facilities of delivery canal. It belongs to the irrigation department of Kafr El Sheikh
  4. Biyala Irrigation Engineering District, MPWWR: Execution of the above mentioned work in 3.
  5. Biyala Office of the Ministry of Agriculture and Land Reclamation (MALR) including extension services:
     1) Giving advice to farmers on seeds, fertilizer, insect diseases and the method of irrigation
     2) Coordination with irrigation department for solving farmers' problems and advising on water needs according to crop pattern
  6. Central Delta Directorate for Improvement in Tanta: Improvement of the irrigation system in the Old land (not yet in the project area).
  7. IIS Inspectorate in Kafr El Sheikh: IIS work of more execution level in Kafr El Sheikh
  8. Agricultural Cooperative Directorate in Kafr El Sheikh (under MALR): Supervision of Agricultural Cooperative Department in each district (total 25)
  9. Agricultural Cooperative Department in Biyala: Supervision of Agricultural Cooperative Unit
  10. Agricultural Cooperative Unit: Coordination of rotation, crop pattern and

water needs

11. Bank for Development and Agricultural Credit in Kafr El Sheikh and Biyala
12. Village bank in each village in Biyala district (total 6)
    1) To finance for the purchase of agricultural material, services and for the investment to farmers
    2) To receive deposit from farmers

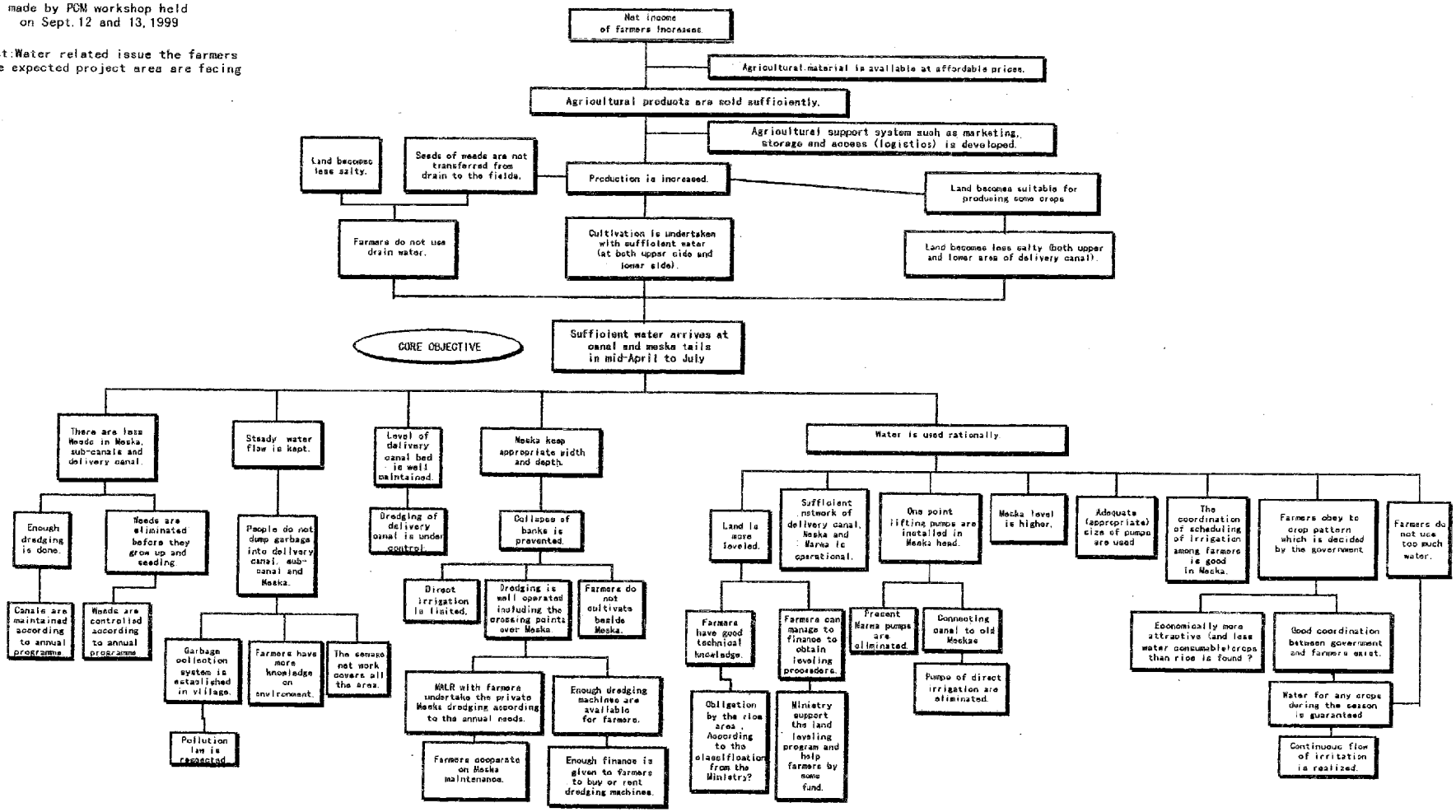
ANNEX III-4. Problem Tree
made by PCM workshop
held on Sept. 8 and 9, 1999

Subject: Water related issue the farmers in the expected project area are facing



ANNEX III-5. Objectives Tree
made by PCM workshop held
on Sept. 12 and 13, 1999

Subject: Water related issue the farmers in the expected project area are facing



ANNEX Ⅲ-6. Tentative Project Design Matrix (PDM) for the Water Management Improvement Project in the Nile Delta (1/5)

1. Project period: 5 years 2. Method of PDM formulation: A series of PCM workshop held between September 8 – 15, 1999 by the participation of Egyptian farmers and governmental staff and Japanese Supplementary Study Team 3. Implementing agency: the Ministry of Public Works and Water Resources 4. Project area: 4,000 FD of Bahr El Nour C.A. 5. Target group: Farmers

Narrative Summary	Verifiable Indicators	Means of Verification	Important Assumptions
Overall Goal The improved methods for the efficient and effective implementation of the IIP are disseminated in the Nile Delta, accompanied by the increase of agricultural productivity and the farmers' net income.	In several years after the end of the Project (a certain year will be specified later) in a certain districts of Bahr Tera, 1. New water management approaches are disseminated. 2. Water resources are effectively used (e.g., Waste spillage decreases) 3. Strong and sustainable WUAs are operational in Bahr El Nour and other areas. 4. Indicators of agricultural productivity increase. 5. Improvement of the farmers' living condition	1.Survey conducted by MPWWR 2.Survey conducted by MPWWR 3.Survey conducted by MPWWR 4.Statistics of MALR 5.Survey conducted by MPWWR	General economic conditions in Egypt do not deteriorate.
Project Purpose The improved methods for the efficient and effective implementation of the IIP based on the full scale farmers' participation are verified by the success of the Project, which alleviates the shortage of water at tail ends and leads to the increase of crop productivity in Bahr El Nour.	By the end of the project period, 1. Irrigation efficiency increases substantially in Bahr El Nour. 2. Fair water distribution between upper and lower reach of the delivery canal is realized. 3. Appropriate manuals and guidelines of the improved methods of IIP are formulated as follows. 1) Manual describing the field water management 2) Design and construction guideline for the improvement of irrigation facilities 3) Textbooks of rational water use and modernized farming for leaders of farmers 4. Crop productivity per unit of water of (e.g., ton/M^3) increases substantially in Bahr El Nour. 5. Crop productivity per unit of land of (e.g., ton/FD) increases substantially in Bahr El Nour.	1.Statistics of MPWWR or survey conducted by the Project 2-1. Daily record of water levels at the District Engineering Office 2-2. Less complaint record held by Local Irrigation Department (Kafr El Sheikh) 3. Manuals, guidelines and textbooks 4. Statistics of MALR or survey conducted by the Project 5. Statistics of MALR or survey conducted by the Project	1. MPWWR supports the dissemination of new approaches. 2. Situation of distribution, storage, prices and market of crops does not deteriorate.

PDM (2/5)

Outputs 1. Water Management Plan is formulated with farmers' participation. 2. Land Use Plan is formulated with farmers' participation. 3. Operation and Maintenance (O&M) Plan for irrigation facilities is formulated. 4. Farmers' water management organizations are established in three levels* in accordance with the improvement of irrigation system in each canal. 5. Appropriate water use at the on-farm level is realized. 6. Irrigation facilities are improved with farmers' participation. 7. Farmers participate in the water management system within the delivery canal. *Note: Levels of i)Federation of Water Users' Association, ii) Water Users' Association and iii) Water Users' Group (when the scale of a WUA is too big.)	By the end of the project period, 1. Appropriate Water Management Plan is formulated. 2. Appropriate Land Use Plan is formulated. 3. Appropriate O&M Plan is formulated. 4. Several WUAs and the Federation of WUAs are established. 5. Measured application efficiency increased. 6. Conveyance efficiency is increased after the improvement. 7-1. Financial management is properly undertaken at the WUAs. 7-2. Conferences within WUAs and of the WUF are held regularly. 7-3. Water management is properly undertaken in terms of irrigation scheduling and execution.	1. Water Management Plan (record of the Project) 2. Land Use Plan (record of the Project) 3. O&M Plan (record of the Project) 4. Documents of the regulation (for WUA at moment) 5. Record of the Project 6. Record of the Project 7-1. Financial record of the WUAs 7-2. Activity records of WUAs and WUF 7-3. Survey conducted by the Project	Egyptian counterpart personnel remain in the sector related to water management or agriculture.

PDM (3/5)

Activities	Inputs	
Field 1. Formulation of Water Management Plan 1-1. To study existing irrigation and drainage system in the project area 1-2. To study existing water management (including water quality) in the project area 1-3. To formulate monitoring system of water quantity and quality 1-4. To formulate Water Management Plan 1-5. To modify Water Management Plan, making the use of improved irrigation facilities 1-6. To train governmental staff and farmers on Water Management Plan Field 2. Formulation of Land Use Plan 2-1. To study present condition of land use 2-2. To conduct survey of land use demands of farmers 2-3. To carry out marketing and household research 2-4. To conduct soil survey and its analysis 2-5. To investigate less water consumptive upland crops and vegetables 2-6. To formulate Land Use Plan 2-7. To train governmental staff and farmers on Land Use Plan Field 3. Formulation of O&M Plan for irrigation facilities 3-1. To study existing O&M for irrigation facilities 3-2. To formulate O&M Plan 3-3. To modify O&M Plan, making the use of improved irrigation facilities 3-4. To train governmental staff and farmers on O&M Plan	Japanese side: 1. Dispatch of experts: 1) Long-term experts: several persons/year such as Chief Adviser, Project Coordinator and Experts in the fields of a) Water Management (including Irrigation Facility), b) Water Users' Association and c) Agronomy 2) Short-term experts will be sent according to necessity. 2. Training of a certain number of Egyptian counterpart personnel in Japan 3. Provision of equipment Egyptian side: 1. Assignment of counterpart personnel in the fields of a) Water Management, b) Water Users' Association and c) Agronomy and necessary administrative staff 2. Budget allocation 1) Construction, operation and maintenance of irrigation facilities in the project area 2) Personnel expenses of counterpart personnel and administrative staff of the Project (including their official travel expenses) 3) Operating expenses necessary for the implementation of the Project such as utilities 3. Provision of land, buildings and facilities such as project offices and related facilities, expert's room and so on.	Equipment supplied from Japan for technical guidance and other activities is cleared at custom smoothly. Preconditions 1. Farmers are cooperative to the Project. 2. Necessary support is given to the Project from both governments.

PDM (4/5)

Activities Field 4. Farmers' water management organization 4-1. To study on social background of the project area through PP methodology 4-2. To discuss the purpose and content of the Project with the selected interim leaders of farmers and the relevant government officials 4-3. To submit request of improvement of irrigation facilities from farmers in the project area with the agreement of more than 2/3 farmers 4-4. To plan design in detail and implement construction work of IIP under mutual negotiation between the farmers and the government 4-5. To establish a formal WUF and several WUAs as legal entities in the project area 4-6. To train governmental staff and farmers on farmers' water management organization Field 5. Appropriate water use at the on-farm level 5-1. To study on the amount of water consumption of each upland crop 5-2. To formulate the method on on-farm water management 5-3. To make irrigation calendar 5-4. To draw up the manual of field water management 5-5. To train governmental staff and farmers on water use at the on-farm level Field 6. Improvement of irrigation facilities 6-1. To examine existing irrigation facilities 6-2. To formulate Improvement Plan on irrigation facilities in the project area 6-3. To formulate Design and Construction Guideline for the improvement of facilities 6-4. To train governmental staff and farmers on improvement of irrigation facilities		

PDM (5/5)

Activities Field 7. Farmers' participation in water management system 7-1. To train governmental staff and formers, in particular, key persons of the WUF, WUA and WUG in respect of rational water use and modernized farming etc 7-2. To bring up WUF by continuous supporting systems (such as subsidy for O&M etc.) Field 8. General Project Management 8-1. To complete project management organization and to formulate annual work plan of the Project 8-2. To conduct monitoring and evaluation of the project activities and results regularly		

ANNEX IV. List of Counterpart Personnel

	Site counterpart in Tanta	Headquarter counterpart in Cairo	Remarks
Chief Advisor Coordinator	1. General Director of the Central Delta Directorate for Improvement (Tanta)	1. Chairman of Irrigation Department, MPWWR 2. Head of Irrigation Improvement Sector, MPWWR 3. Undersecretary for Lower Egypt, IIS, MPWWR	
Water Management (including Irrigation Facility)	1. Engineer in Irrigation Advisory Service, the Central Delta Directorate for Improvement (Tanta) 2. Engineer in Biyala Irrigation Engineering District (Biyala)	1. Director in Technical Office, IIS, MPWWR 2. Engineer in Technical Office, IIS, MPWWR	
Water Users' Association	1. Director in Irrigation Advisory Service, the Central Delta Directorate for Improvement (Tanta)	1. General Director in Irrigation Advisory Service, IIS, MPWWR 2. Engineer in Irrigation Advisory Service, IIS, MPWWR	
Agronomy	1. Agronomist in Irrigation Advisory Service, the Central Delta Directorate for Improvement (Kafr El Sheikh) 2. Agronomist in Irrigation Advisory Service, the Central Delta Directorate for Improvement (Kafr El Sheikh)	1. Agronomist in Plan and Feasibility, IIS, MPWWR 2. Agronomist in Plan and Feasibility, IIS, MPWWR	

ANNEX III-6

ナイルデルタ水資源改善計画暫定プロジェクト・デザイン・マトリクス（PDM）1/4

1. プロジェクト期間：5年 2. PDM の作成方法：9月8日_２０日までに開催されたPCM ワークショップ（農民、エジプト政府スタッフおよび日本側短期調査団員が参加）およびミニッツ協議により作成された。3.実施機関：公共事業水資源省 4. プロジェクト対象地：Bahr El Nour 地区 5. ターゲットグループ：農民

Narrative Summary （プロジェクトの要約）	Verifiable Indicators （指標）	Means of Verification （指標の入手手段）	Important Assumptions （外部条件）
Overall Goal（上位目標） 効率的かつ効果的に IIP 事業を実施するための改善手法がナイルデルタで普及され、それにともなって農業の生産性や農家の実質所得が向上する。	プロジェクト終了後数年後に（追って具体的に明示される予定）Bahr Tera 地域の一定の地区で、 1．新たな水管理の手法が普及される。 2．水資源が効果的に利用される。（例：無効放 流の減少） 3．Bahr El Nour その他の地区においてしっか りしたWUA が持続的に機能する。 4．農業生産性が向上する。 5．農民の生活状態が向上する。	1．公共事業水資源省によるサーベイ 2．上記と同 3．上記と同 4．農業土地開発省の統計 5．公共事業水資源省によるサーベイ	エジプト国における経済状況が悪化しない。
Project Purpose 水路の末端の水不足を緩和し作物の生産性向上をもたらす、Bahr El Nour での当該プロジェクトの成功により、効率的かつ効果的に IIP 事業を実施するための改善手法が実証される。	プロジェクト期間の終了時点で、 1．Bahr El Nour において灌漑効率が実質的に向上する。 2．デリバリーキャナルの上下流間で公平な水の供給がなされる。 3．以下のような IIP の改善手法の適当なマニュアルやガイドラインが作成される。 1）圃場での水管理のマニュアル 2）灌漑施設の改善のための設計・建設ガイドライン 3）農民のリーダー向けの合理的な水利用および最新の農業に関する教科書 4．Bahr El Nour において単位水量あたりの穀物生産性（例：キロ/立方米）が実質的に向上する。 5．Bahr El Nour において土地の単位面積あたりの穀物生産性（例：キロ/FD）が実質的に向上する。	1. 公共事業水資源省の統計またはプロジェクトにより実施されるサーベイ 2-1. 地区のエンジニアリング事務所の水位記録 2-2. 地方の灌漑部局（カフェルシェイク）に寄せられる苦情・不満記録の減少 3．マニュアル、ガイドライン、教科書 4．農業土地開発省の統計またはプロジェクトにより実施されるサーベイ 5．農業土地開発省の統計またはプロジェクトにより実施されるサーベイ	1．公共事業水資源省が新たな手法の普及を支援する。 2．穀物の流通・貯蔵・価格・市場の状況が悪化しない。

ナイルデルタ水資源改善計画暫定プロジェクト・デザイン・マトリクス（PDM）2/4

Narrative Summary （プロジェクトの要約）	Verifiable Indicators （指標）	Means of Verification （指標の入手手段）	Important Assumptions （外部条件）
Output（成果）	プロジェクト期間の終了時までに、		
1．水管理計画が農民の参加により作成される。	1．適切な水管理計画が作成される。	1．水管理計画（プロジェクト記録）	エジプト側のカウンターパートが水管理や農業に関連した部署にとどまる。
2．土地利用計画が農民の参加により作成される。	2．適切な土地利用計画が作成される。	2．土地利用計画（プロジェクト記録）	
3．灌漑施設の維持管理計画が作成される。	3．適切な維持管理計画が作成される。	3．維持管理計画（プロジェクト記録）	
4．デリバリーキャナルにおける灌漑システムの改善に伴い、農民の水利組織が3段階＊で設立される。 ＊註：1) Federation of Water Users' Association, 2) Water Users' Association (WUA), 3) Water Users' Group （Association の規模が大きすぎる時に結成されるもの）の3段階	4．いくつかのWUAとFederation of Water Users' Association (WUF)が設立される。	4．設立文書（現在は、WUAのみ）	
5．圃場レベルでの適正な水管理が実現される。	5．計測された水適用効率が向上する。	5．プロジェクト記録	
6．灌漑施設が、農民参加により改善される。	6．施設改善後に搬送効率が向上する。	6．プロジェクト記録	
7．農民がデリバリーキャナル内での水管理システムに参加する。	7-1. WUA内部での財務管理が適切になされる。 7-2. WUF の会議、WUA内部の会議が定期的に行われる。 7-3. 灌漑計画やその実行面で、水管理が適切に行われている。	7-1. WUAの財務記録 7-2. WUF・WUAの活動記録 7-3. プロジェクトにより実施されるサーベイ	

ナイルデルタ水資源改善計画暫定プロジェクト・デザイン・マトリクス（PDM）3/4

Activities（活動）	Inputs（投入）	Important Assumptions(外部条件)
分野１．水管理計画の作成 1-1. プロジェクトエリア内の灌漑施設・排水システムの現況調査を行う 1-2. プロジェクトエリア内の水管理システム（水質も含む）の現況調査を行う 1-3. 水質・水量のモニタリング・システムを構築する 1-4. 水管理計画を作成する 1-5. 改善された灌漑施設を使って、水管理計画を改善する 1-6. 政府職員や農民に対して水管理計画についての研修を行う 分野２．土地利用計画の作成 2-1. 土地利用の現況を調査する 2-2. 農民の土地利用ニーズについてサーベイを行う 2-3. マーケティング調査・農家調査を実施する 2-4. 土壌の調査と分析を行う 2-5. 水少消費畑作物について調査する 2-6. 土地利用計画を作成する 2-7. 政府職員や農民に対して土地利用計画についての研修を行う 分野３．灌漑施設維持管理計画の作成 3-1. 灌漑施設の現況を調査する 3-2. 維持管理計画を作成する 3-3. 改善された灌漑施設を使って、維持管理計画を改善する 3-4. 政府職員や農民に対して維持管理計画についての研修を行う	日本側 １．専門家の派遣 １）長期専門家：年間数名の派遣、具体的には、チーフアドバイザー、業務調整員、a) 水管理（灌漑施設を含む）、b) 水利組合、c) 営農の各専門家 ２）短期専門家は、必要に応じて派遣される。 ２．日本におけるエジプト側カウンターパートの研修 ３．機材の供与 エジプト側 １．a) 水管理（灌漑施設を含む）、b) 水利組合、c) 営農の各分野におけるカウンターパートと必要な事務管理スタッフの配置 ２．予算の確保 １）プロジェクトエリアにおける灌漑施設の建設や維持管理の費用 ２）カウンターパートと事務管理スタッフの人件費（公務旅費を含む） ３）電気・水道・電話等のプロジェクトの運営費用 ３．プロジェクト事務所、プロジェクト関連施設、専門家の事務所等、土地・建物・施設の供与	技術指導などのために日本から供与される機材が円滑に通関する。

ナイルデルタ水資源改善計画暫定プロジェクト・デザイン・マトリクス（PDM）4/4

Activities（活動） 分野４．水管理のための農民組織 4-1. PP手法を用いてプロジェクトエリアの社会状況を調査する 4-2. 選ばれた農民の暫定リーダーと政府職員とでプロジェクトの目的と内容について議論する 4-3. プロジェクトエリア内の３分の２以上の農民の同意に基づき、農民が灌漑施設改善の申請を行う 4-4. 農民と政府との交渉により、IIPの詳細計画と建設計画を作成する 4-5. プロジェクトエリアでWUFとWUA（複数）を法人として設立する 4-6. 政府職員や農民に対して水管理組織についての研修を行う 分野５．圃場レベルでの適切な水利用 5-1. 各々の畑作物の水消費量を調査する 5-2. 圃場の水管理方法を確立する 5-3. 灌漑カレンダーを作成する 5-4. 圃場水管理マニュアルを作成する 5-5. 政府職員や農民に対して圃場での水管理についての研修を行う 分野６．灌漑施設の改善 6-1. 灌漑施設の現況調査を行う 6-2. プロジェクトエリア内の灌漑施設に関する改善計画を作成する 6-3. 施設の改善のための設計・建設ガイドラインを作成する 6-4. 政府職員や農民に対して灌漑施設の改善についての研修を行う 分野７．農民の水管理への参加 7-1. 合理的な水利用や最新の農法について政府職員と農民、特にWUF・WUA・WUGの指導者に研修を行う 7-2. 継続的な支援システム（維持管理に対する補助金等）によりWUFを発展させる 分野８．プロジェクトの全般的な管理 8-1. プロジェクト管理組織を整備し、プロジェクトの年次計画を作成する 8-2. 定期的にプロジェクト活動や結果についてのモニタリングや評価を行う		Preconditions（前提条件） 1．農民がプロジェクトに協力的である。 2．両国政府からプロジェクトの実施に必要な支援が得られる。

ANNEX V. The draft of Tentative Schedule of Implementation (1/2)

Activities \ Year	1st	2nd	3rd	4th	5th
1) Formulation of Water Management Plan					
1-1) To study existing irrigation and drainage system in the project area					
1-2) To study existing water management (including water quality) in the project area					
1-3) To formulate monitoring system of water quantity and quality					
1-4) To formulate Water Management Plan					
1-5) To modify Water Management Plan, making the use of improved irrigation facilities					
1-6) To train governmental staff and farmers on Water Management Plan					
2) Formulation of Land Use Plan					
2-1) To study present condition of land use					
2-2) To conduct survey of land use demands of farmers					
2-3) To carry out marketing and household research					
2-4) To conduct soil survey and its analysis					
2-5) To investigate less water consumptive upland crops and vegetables					
2-6) To formulate Land Use Plan					
2-7) To train governmental staff and farmers on Land Use Plan					
3) Formulation of O&M Plan for irrigation facilities					
3-1) To study existing O&M for irrigation facilities					
3-2) To formulate tentative O&M Plan					
3-3) To modify O&M Plan, making the use of improved irrigation facilities					
3-4) To train governmental staff and farmers on O&M Plan					
4) Farmers' water management organization					
4-1) To study on social background of the project area through Participatory Planning methodology					
4-2) To discuss the purpose and content of the Project with the selected interim leaders of farmers and the relevant government officials					
4-3) To submit request of improvement of irrigation facilities from farmers in the project area with the agreement of more than 2/3 farmers					

ANNEX V. The draft of Tentative Schedule of Implementation (2/2)

Activities \ Year	1st	2nd	3rd	4th	5th
4-4) To plan design in detail and implement construction work of IIP under mutual negotiation between the farmers and the government					
4-5) To establish a formal WUF and several WUAs as legal entities in the project area					
4-6) To train governmental staff and farmers on Farmers' water management organization					
5) Appropriate water use at the on-farm level					
5-1) To study on the amount of water consumption of each upland crop					
5-2) To formulate the method on on-farm water management					
5-3) To make irrigation calendar					
5-4) To draw up the manual of field water management					
5-5) To train governmental staff and farmers on water use at the on-farm level					
6) Improvement of irrigation facilities					
6-1) To examine existing irrigation facilities					
6-2) To formulate Improvement Plan on irrigation facilities in the project area					
6-3) To formulate Design and Construction Guideline for the improvement of facilities					
6-4) To train governmental staff and farmers on improvement of irrigation facilities					
7) Farmers' participation in water management system					
7-1) To train governmental staff and farmers, in particular, key persons of the WUF, WUA and WUG in respect of rational water use and modernized farming etc					
7-2) To bring up WUF by continuous supporting systems (such as subsidy for O/M etc)					
8) General Project Management					
8-1) To complete project management organization and to formulate annual work plan of the project					
8-2) To conduct monitoring and evaluation of the project activities and results regularly					

ANNEX VI. The draft of Technical Cooperation Program

Activities \ Year	1st	2nd	3rd	4th	5th
I. Japanese Side					
1. Dispatch of Japanese Experts					
(1) Dispatch of Long-term Experts					
1) Chief Adviser					
2) Coordinator					
3) Water Management (including Irrigation Facility)					
4) Water Users' Association					
5) Agronomy					
(2) Dispatch of Short-term Expert(s)	When necessity arises				
2. Provision of Equipment and Training Materials					
3. Training of Egyptian Counterpart Personnel in Japan					
4. Dispatch of Survey Team	When necessity arises				
II. Egyptian Side					
1. Assignment of Egyptian Personnel					
(1) Project Director					
(2) Project Manager					
(3) Deputy Project Manager					
(4) Project Site Manager					
(5) Counterpart Personnel in the Fields of:					
1) Water Management (including Irrigation Facility)					
2) Water Users' Association					
3) Agronomy					
(5) Administrative Staff					
(6) Drivers					
(7) Other Necessary Support Personnel					
2. Budget allocation					
(1) Construction, operation and maintenance of irrigation facilities in the project area					
(2) Personnel expenses of counterpart personnel and administrative staff of the Project (including their official travel expenses)					
(3) Operating expenses necessary for the implementation of the Project such as utilities					
3. Provision of the project offices and Other Necessary Facilities					

ANNEX VII. Organization chart of the Project