

## **PROJECT IMPLEMENTATION PLAN**

### **CHAPTER 1 OUTLINE OF THE PROJECT**

#### **1.1 Background of the Project**

The socio-economic development of Egypt has been greatly dependent on the development of its agricultural sector. In order to achieve better food security and contribute more to the economic development of the country whose population is growing at a rate of more than two percent, the development of agriculture, especially horizontal expansion of farm land, is particularly important. Because, 99 percent of population concentrate in the Delta area and along Nile river area. There are no room more expansion of farm land in these area.

The Nile river is the main source of irrigation water. Given limited water resources, the MWRI is making every endeavor to increase the rate of growth in agriculture through the improvement of water use in the existing irrigation systems and effective recycling of water usage.

The expansion of the El Shikh Gaber El Sabah Canal lower reach of the Suez Canal siphon is urged to make the Nile water available for use in North Sinai. Under the situation, the Government of Egypt (GOE) gives high priority to reclamation and cultivation of 400,000 feddans in the northern part of Sinai with broad objectives of ensuring food security for rapidly growing population and generation of rural employment.

In line with the policies of the national plan, the North Sinai Integrated Rural Development Project has proposed to develop the new land of 135,000 feddans as a part of the development plan for agriculture. Development plans will be implemented in an integrated manners so as to establish new rural community in North Sinai. This development plan has also proposed to implement the settlement plan with construction of social infrastructure, and to develop small scale industries related to agriculture which will provide opportunities for the private sector to contribute employment.

Through series of discussion meetings and official requests from the GOE, NSDO has been finally decided to implement project with two stage development approaches, such as stage I area covers 85,000 feddans under the geographic elevation of below 90m and stage II area of 50,000 feddans between 90m and 110m elevation, respectively. Development policy of the overall project implementation, however, was changed to involve private sectors for project implementation and post project management in the stage II area instead of stage I area which will be implemented by the government initiatives.

## 1.2 Staged Development Plan

### 1.2.1 General

Through careful study and discussions within NSDO officials concerned, NSDO was decided final conclusion at the meeting held on June 5<sup>th</sup>, 1999 that the government policy of the stage I development area is mainly to allocate the land approximately 67,500 feddans out of total 135,000 feddans to the small farmers, graduates and small investors as well as 17,500 feddans for large investors. Remainder of 50,000 feddans for large investors was determined as stage II development area. Major reasons for this modification are financial constraints and policy formulation of appropriate privatization schemes for stage II development. Project development plan was illustrated in the Figure 1.2-1.

### 1.2.2 Land Use Plan

NSDO judged that the land with 12,200 feddans envisaged by the El Arish Governorate was included into the gross irrigation development area of NSDO project. Therefore, "gross irrigation area" was inevitably increased to 147,200 feddans from 135,000 feddans.

GOE , however, has a policy that the maximum gross irrigation area of the El Sir & El Kawareer project is fixed 135,000 feddans, so incremental gross irrigation area was reserved in the second stage development area. New land use plans are tabulated in the Table 1.2-1

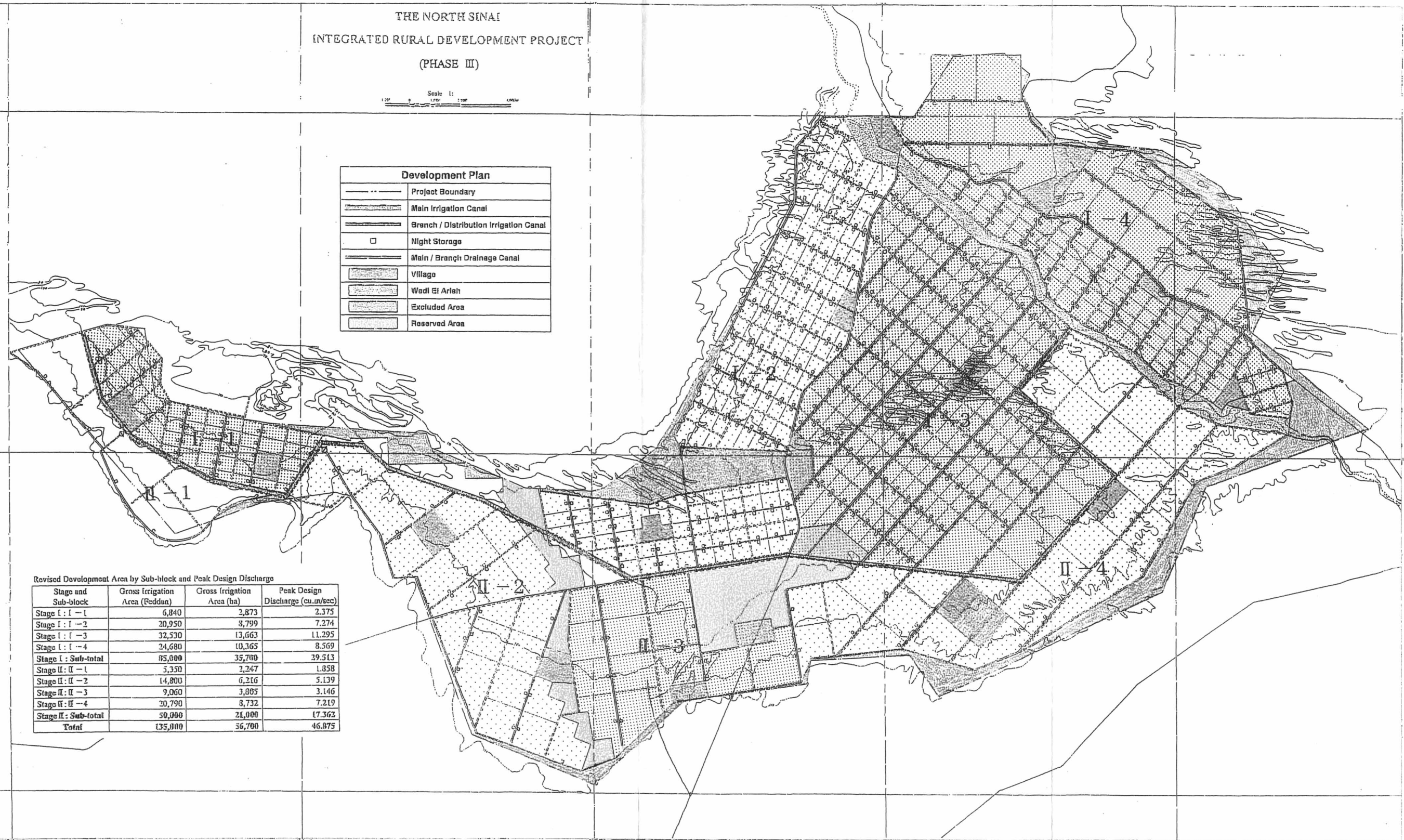
**Table 1.2-1 Land Use Plan (Unit : feddans)**

| Land Category            | F/S original   | Revised plan   | Difference |
|--------------------------|----------------|----------------|------------|
| (1)Gross project area    | 153,900        | 153,900        | 0          |
| (2)Excluded area         | 18,900         | 6,700          | 12,200     |
| (3)Reserved area         | 0              | 12,200         | 12,200     |
| (4)Gross irrigation area |                | <b>135,000</b> |            |
| -Stage I                 | <b>135,000</b> | <b>85,000</b>  | <b>0</b>   |
| -Stage II                |                | <b>50,000</b>  |            |
| (5)Public land occupied  | 24,000         | 24,000         | 0          |
| (6)Net irrigation area   | 111,000        | 111,000        | 0          |

THE NORTH SINAI  
INTEGRATED RURAL DEVELOPMENT PROJECT  
(PHASE III)

Scale 1: 1000

| Development Plan |  |
|------------------|--|
|                  | Project Boundary                       |
|                  | Main Irrigation Canal                  |
|                  | Branch / Distribution Irrigation Canal |
|                  | Night Storage                          |
|                  | Main / Branch Drainage Canal           |
|                  | Village                                |
|                  | Wadi El Arah                           |
|                  | Excluded Area                          |
|                  | Reserved Area                          |



Revised Development Area by Sub-block and Peak Design Discharge

| Stage and Sub-block  | Gross Irrigation Area (Feddou) | Gross Irrigation Area (ha) | Peak Design Discharge (cu.m/sec) |
|----------------------|--------------------------------|----------------------------|----------------------------------|
| Stage I : I - 1      | 6,840                          | 2,873                      | 2.375                            |
| Stage I : I - 2      | 20,950                         | 8,799                      | 7.274                            |
| Stage I : I - 3      | 32,530                         | 13,663                     | 11.295                           |
| Stage I : I - 4      | 24,680                         | 10,365                     | 8.569                            |
| Stage I : Sub-total  | 85,000                         | 35,700                     | 29.513                           |
| Stage II : II - 1    | 5,350                          | 2,247                      | 1.858                            |
| Stage II : II - 2    | 14,800                         | 6,216                      | 5.139                            |
| Stage II : II - 3    | 9,060                          | 3,805                      | 3.146                            |
| Stage II : II - 4    | 20,790                         | 8,732                      | 7.219                            |
| Stage II : Sub-total | 50,000                         | 21,000                     | 17.362                           |
| <b>Total</b>         | <b>135,000</b>                 | <b>56,700</b>              | <b>46.875</b>                    |

Figure 1.2-1 Project Development Plan

Therefore, gross irrigation area, including public land occupied by canals, roads and public facilities within beneficial area, of stage I and stage II are 85,000 feddans and 50,000 feddans, respectively.

### 1.2.3 Water Requirement and Water Distribution Plan

Water users of the project are agriculture (irrigation) and industrial sector. NSDO determined that irrigation water projection shall be followed the proposed land use plan for respective development stages but industrial water is divided into around 50% for each stages. Monthly base water demand projection, therefore, can be tabulated in the table 1.2-2.

**Table 1.2-2 Water Demand Projection**

| Month          | Stage I<br>Irrigation | Stage I<br>Industry | Stage I<br>Total | Stage II<br>Irrigation | Stage II<br>Industry | Stage II<br>Total | Grand<br>Total |
|----------------|-----------------------|---------------------|------------------|------------------------|----------------------|-------------------|----------------|
| Jan.           | 10.74                 | 2.96                | 13.70            | 6.32                   | 2.82                 | 9.14              | 22.84          |
| Feb.           | 12.69                 | 2.96                | 15.65            | 7.46                   | 2.82                 | 10.28             | 25.93          |
| Mar.           | 14.40                 | 2.96                | 17.36            | 8.47                   | 2.82                 | 11.29             | 28.65          |
| Apr.           | 12.42                 | 2.96                | 15.38            | 7.30                   | 2.82                 | 10.12             | 25.50          |
| May            | 11.95                 | 2.96                | 14.91            | 7.03                   | 2.82                 | 9.85              | 24.76          |
| Jun.           | 20.00                 | 2.96                | 22.96            | 11.76                  | 2.82                 | 14.58             | 37.54          |
| <b>Jul.</b>    | <b>29.52</b>          | <b>2.96</b>         | <b>32.48</b>     | <b>17.36</b>           | <b>2.82</b>          | <b>20.18</b>      | <b>52.66</b>   |
| Aug.           | 24.63                 | 2.96                | 27.59            | 14.49                  | 2.82                 | 17.31             | 44.90          |
| Sep.           | 12.42                 | 2.96                | 15.38            | 7.30                   | 2.82                 | 10.12             | 25.50          |
| Oct.           | 5.61                  | 2.96                | 8.57             | 3.30                   | 2.82                 | 6.12              | 14.69          |
| Nov.           | 5.13                  | 2.96                | 8.09             | 3.02                   | 2.82                 | 5.84              | 13.93          |
| Dec.           | 8.79                  | 2.96                | 11.75            | 5.17                   | 2.82                 | 7.99              | 19.74          |
| <b>Average</b> | <b>14.02</b>          | <b>2.96</b>         | <b>16.98</b>     | <b>8.25</b>            | <b>2.82</b>          | <b>11.07</b>      | <b>28.05</b>   |

Source: JICA F/S report 1997.

Design discharges of respective stages were decided 32.48 cu.m/sec for stage I and 20.18 cum./sec for stage II based on allocation of the gross irrigation development area and appropriate distribution of industrial water.

### **1.3 Stage I Project Facilities**

Project facilities in the stage I is summarized as follows ;

#### **(1) Conveyance canal**

- No.1 open canal : 7.80 km with design discharge of 52.66 cu.m/sec
- No.1 box culvert : 7.50 km with design discharge of 52.66 cu.m/sec
- No.2 open canal : 6.67 km with design discharge of 52.66 cu.m/sec
- No.1 pipeline: 9.35 km with three rows diameter 2,400mm of steel pipe, design discharge of 32.48 cu.m/sec
- No.3 open canal : 13.94 km with design discharge of 52.66 cu.m/sec
- Appurtenant facilities : Emergency spillway and 6 bridges

#### **(2) El Salaam No.7 pump station**

- Main pumps: 4 units including 1 unit standby with design discharge 10.827 cu.m/sec/unit and total head 99.6 m
- Main motor: 4 units including 1unit standby with output 13,000 kw and No. of pole 16 P
- Pump suction sump with screens and gantry crane
- Pump room and building :with 2,100 sq.m reinforced concrete
- Appurtenant facilities : 6 units one-way surge tank , 100 ton overhead crane, header pipe and, supersonic flow meter and various kind of valves

#### **(3) Access road**

- No.1 Access road : 1,000 m long and effective width 13 m
- No.2 Access road : 2,800 m long and effective width 13 m
- No.3 Access road : 5,060 m long and effective width 13 m

#### **(4) Main substation**

- 4 units with 25MVA main transformer
- 1,920 sq.m building including administration office

## CHAPTER 2 OVERALL PROJECT COST

### 2.1 Cost of Conveyance Canal and El Salaam No.7 Pumping Station

The construction costs of conveyance canals, El Salaam No.7 pumping station and appurtenant structures in stage I project are tabulated as following table. Because, conveyance canal cost in the Stage 1 and 3 shall be allocated to 61.6% (32.48/52.66) for stage 1 and 38.4% (20.18/52.66) for stage 2 by the respective design discharge proportion. Table 2.1-1 indicates cost of conveyance canal between KM86.50 and KM 132.50, El Salaam No.7 pumping station, three routes of access roads, main substation and appurtenant structures. Details of the cost refers to Volume VIII Cost Estimate Report.

| Tender package       | Stage 1        | Stage 2        | Total(1,000LE)   |
|----------------------|----------------|----------------|------------------|
| 1. Cost of Package 1 | 225,726        | 140,712        | 366,438          |
| 2. Cost of Package 2 | 506,822        | -              | 506,822          |
| 3. Cost of Package 3 | 58,385         | 36,396         | 94,781           |
| 4. Cost of Package 4 | 41,340         | -              | 41,340           |
| <b>Total</b>         | <b>832,273</b> | <b>177,108</b> | <b>1,009,381</b> |

### 2.2 Cost of Infrastructures in El Sir & El Kawareer Area

Main irrigation & drainage facilities and on-farm development costs in the El Sir & El Kawareer beneficial area are summarized in the Table 2.2-1.

**Table 2.2-1 Summary of the Development Cost**

| Description/Stage              | Stage I ( LE 1,000) |
|--------------------------------|---------------------|
| 1.Main irrigation and drainage | -I-1 area: 73,845   |
|                                | -I-2 area: 162,658  |
|                                | -I-3 area: 186,041  |
|                                | -I-4 area: 139,930  |
|                                | -Sub-total: 562,474 |
| 2.On-farm development          | -I-1 area: 35,295   |
|                                | -I-2 area: 102,550  |
|                                | -I-3 area: 169,318  |
|                                | -I-4 area: 125,393  |
|                                | -Sub-total: 432,556 |
| 3.Total cost                   | -I-1 area: 109,140  |
|                                | -I-2 area: 265,208  |
|                                | -I-3 area: 355,359  |
|                                | -I-4 area: 265,323  |
|                                | -Sub-total: 995,030 |

Source : NSDO, Kantara office 1999

### 2.3 Overall Project Construction Cost

Project construction costs for Stage 1, therefore, are tabulated as follows ;

|                               | (Unit : 1,000 LE) |
|-------------------------------|-------------------|
| <u>Category</u>               | <u>Amount</u>     |
| 1. Conveyance canal system    | 832,273           |
| 2. Main irrigation system     | 562,474           |
| 3. On-farm development system | 432,556           |
| <b>Total</b>                  | <b>1,827,303</b>  |