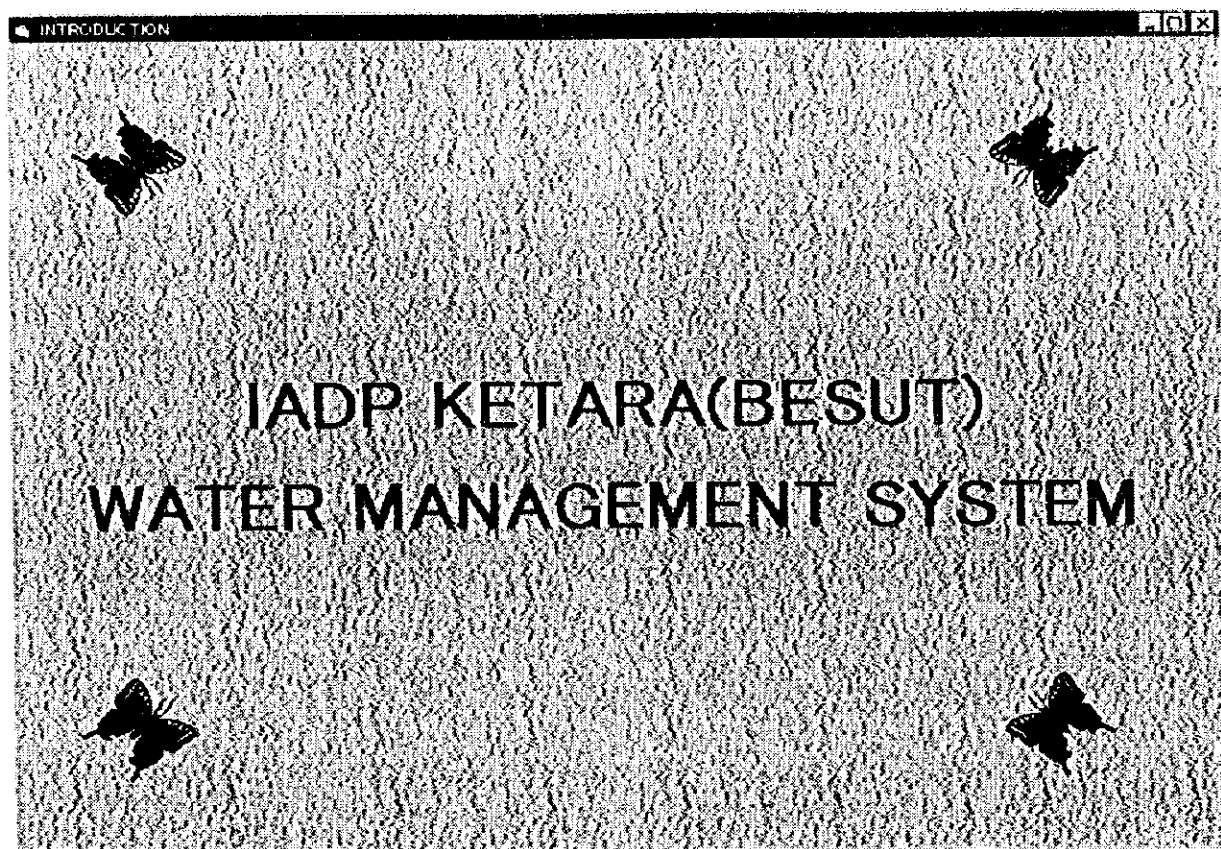


**ATTACHMENT-1**  
**OPERATION MANUAL OF**  
**THE IRRIGATION WATER**  
**MANAGEMENT SYSTEM**

## Start Menu (Form 1)

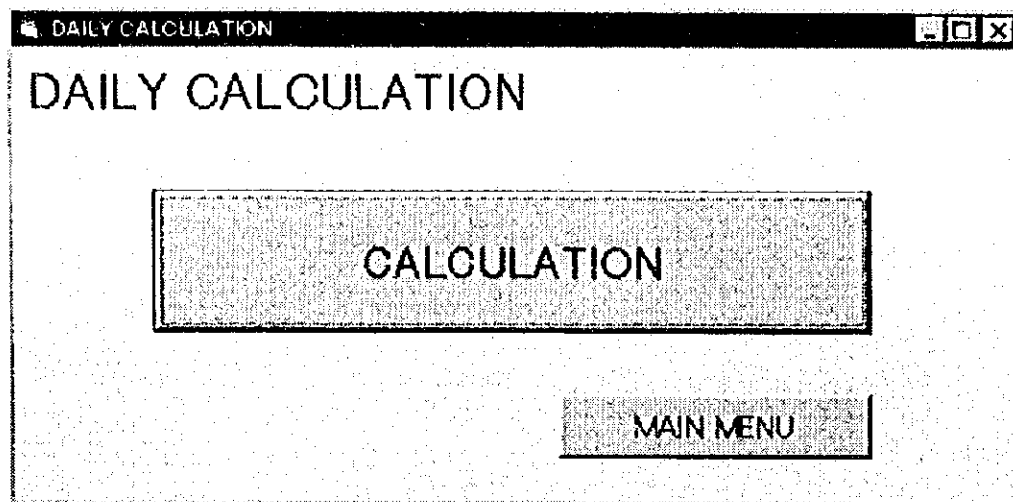


**INTRODUCTION MESSAGE**

(about 5 sec)

Go to Main Menu. (-> Form 4)

## WR Calculation (Form 2)



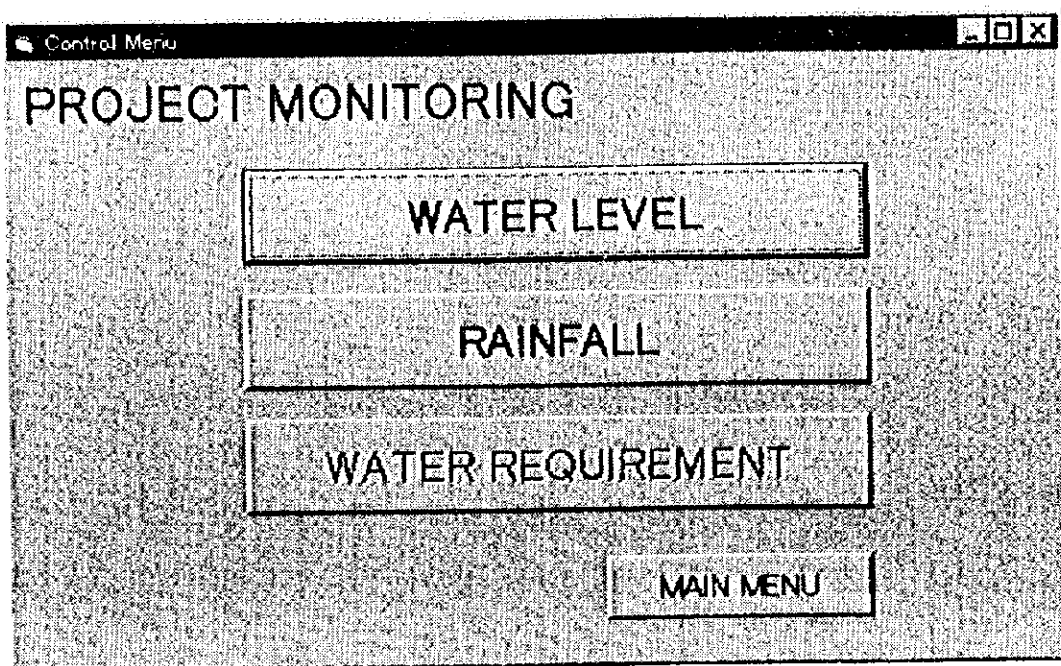
“CALCULATION” click

You can get a Calculated Water Requirement.  
(→ Form 6)

“MAIN MENU” click

You can go back Main Menu.(→ Form 4)

## Project Monitoring (Form3)



A- This is the "PROJECT MONITORING" menu screen.

There are 4 option buttons.

1-WATER LEVEL-for watching 'WATER LEVEL MONITORING' of all area. (-> Form9)

2-RAINFALL-for watching 'RAINFALL' of all area. (-> Form 7)

3- for future function (for example WR)

4-MAIN MENU-go back to main menu screen. (-> Form 4)

B- How to use this option:

Choose and 'click' your object title.

## Main Menu (Form 4)

MAIN MENU

**BESUT GRANARY AREA  
WATER MANAGEMENT SYSTEM**

DAILY OPERATION

PROJECT MONITORING

SCHEDULE and KP DATA

CLOSE

97/11/28 11:17:55

A- This is the "MAIN MENU" of this system.

There are 4 option buttons.

1-DAILY OPERATION-*for Daily Irrigation System Operation.*

(-> Form 5)

2-PROJECT MONITORING-*for trend watching*

(-> Form 3)

3-SCHEDULE and KP DATA-*for entering agricultural schedule and each local KP data.*

(-> Form10)

4-CLOSE-*Exit program.*

B- How to use this option:

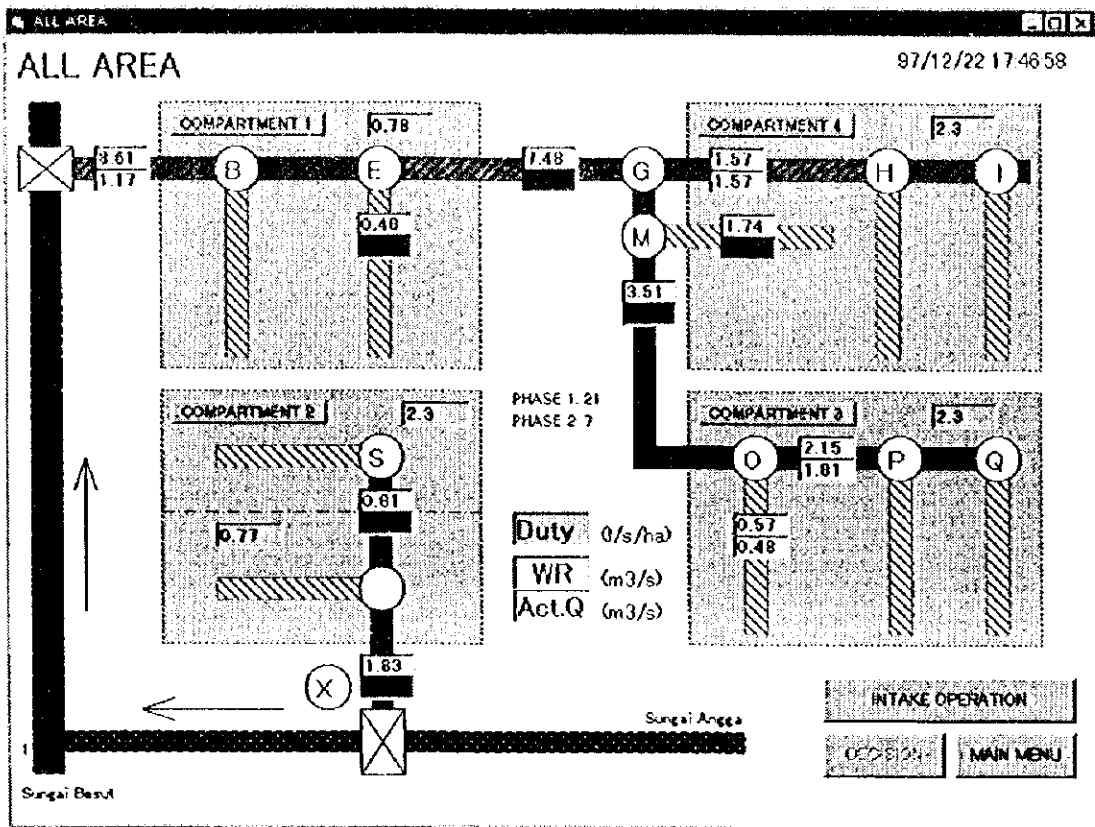
Choose and 'click' your object title.

# Meteorological Data Entry (Form 5)

The screenshot shows a software window titled 'ETo DATA'. Inside, there is a section for 'METEOROLOGICAL DATA' with radio buttons for months from Jan to Dec. Below this are input fields for Tm (mean Temperature) in °C, RH (Relative Humidity) in %, WS (Wind Speed) in m/sec, and SS (SunShine Hours) in hr/day. Each field has a 'Default' button. To the right, there is a 'MANUAL' button and a display for 'ETo (Potential Evapotranspiration)' showing '4.2 mm/day'. At the bottom right, there are 'RETRY' and 'OK' buttons.

- 1-This screen has automatic calculation for ETo.
- 2-Target month is marked automatically.  
(Sample is marked “December”)
- 3-If you enter each meteorological data(Tm,RH,WS,SS) then the ‘MANUAL’ button is usable.  
By pressing the ‘MANUAL’ button,the ETo is calculated.  
If you don’t enter each meteorological data, average ETo at Kuala Terenggnu will be used. In this case, just press “OK” to proceed next step.
- 4-If you enter “OK”, you can go to next screen(Daily Calculation). (-> Form 2)
- 5-If you enter “RETRY”, you can go back first step of this screen.

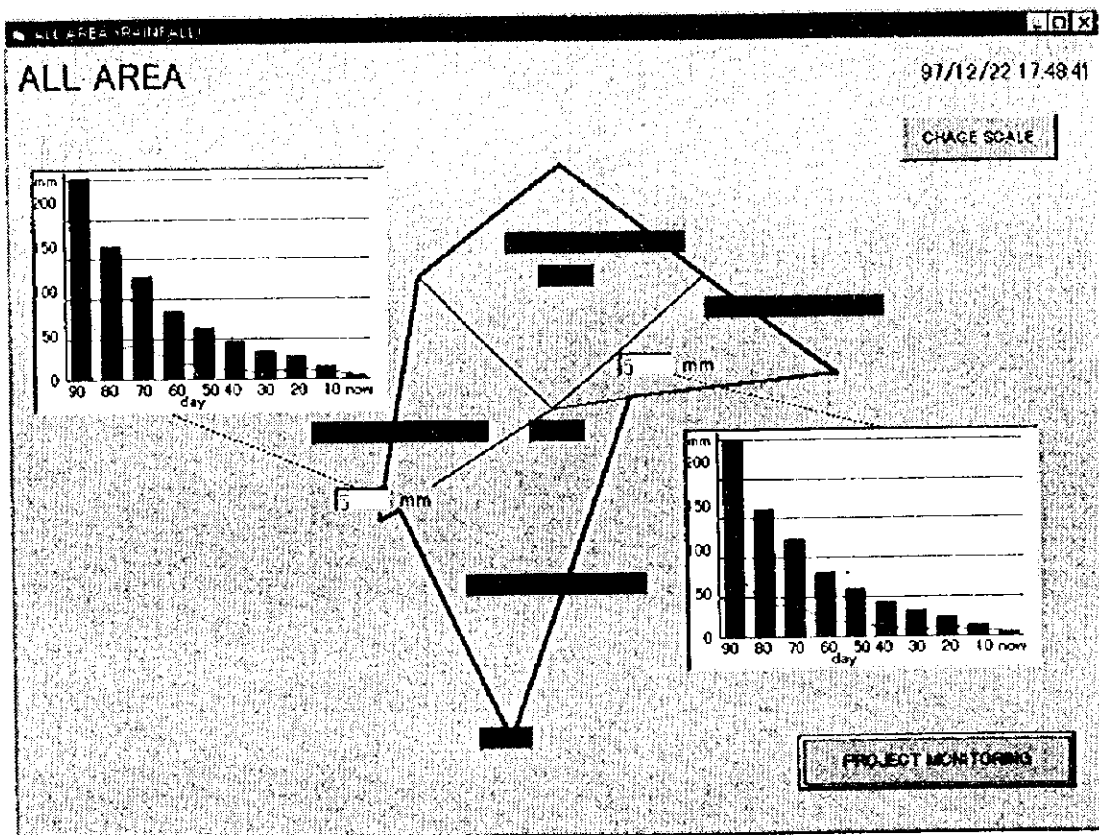
## Result Display All Area (Form 6)



- 1-This screen has 3 main readings, i.e.,
  - Irrigation Duty in Black color
  - Water Requirement(WR) in Red color
  - Actual Discharge(Act.Q) in Blue Color
- 2-If you need the details of each compartment, just click the "COMPARTMENT" title. (-> Form 15-18)
- 3-If click 'INTAKE OPERATION', the Intake Operation screen will be displayed. (-> Form 11)
- 4-If click 'DECISION', the Gate Operation screen will be displayed. (-> Form 8)
- 5-If click 'MAIN MENU', it will go back to Main Menu. (-> Form 4)

(Note) PHASE Information shows the irrigation days from starting day of presaturation.

# Rainfall Check (10days) (Form 7)

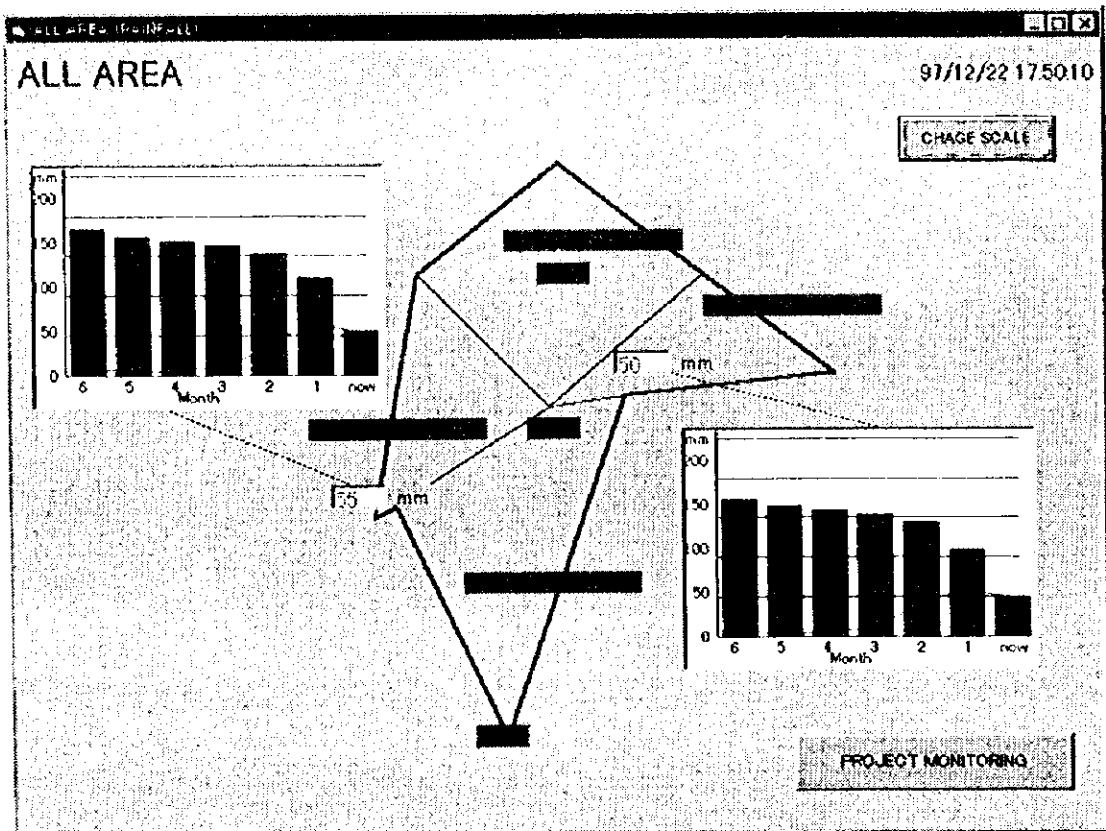


- This is the ALL AREA Rainfall Check(10 days) display screen.
- 1-If click 'CHANGE SCALE' button, will display the ALL AREA Rainfall Check(monthly) will be displayed. (-> Form 72)
  - 2-If click 'PROJECT MONITORING' button, it will go back to PROJECT MONITORING menu screen. (-> Form 3)

(Note) Bar graph means accumulation of rainfall.  
Red line graph means each 10 days rainfall.



# Rainfall Check (monthly) (Form 72)



This is the ALL AREA Rainfall Check(monthly) display screen.

1-If click 'CHANGE SCALE' button, will display the ALL AREA Rainfall Check(10 days) will be displayed. (-> Form 7)

2-If click 'PROJECT MONITORING' button, it will go back to PROJECT MONITORING menu screen. (-> Form 3)

(Note) Bar graph means accumulation of rainfall.

Red line graph means monthly rainfall.

# Gate Operation (Form 8)

	PRESENT			TARGET	
	WL(Us)	WL(Ds)	Gate Level	Q	Gate Level
BESUT INTAKE			1   0.4	1   0.5	
	13.9	13	2   0.4	8.02	2   0.5
			3   0.4		3   0.5
POINT G	11.95	11.6	1	1.17	0.42
	(m)	(m)	(m)	(m <sup>3</sup> /sec)	(m)

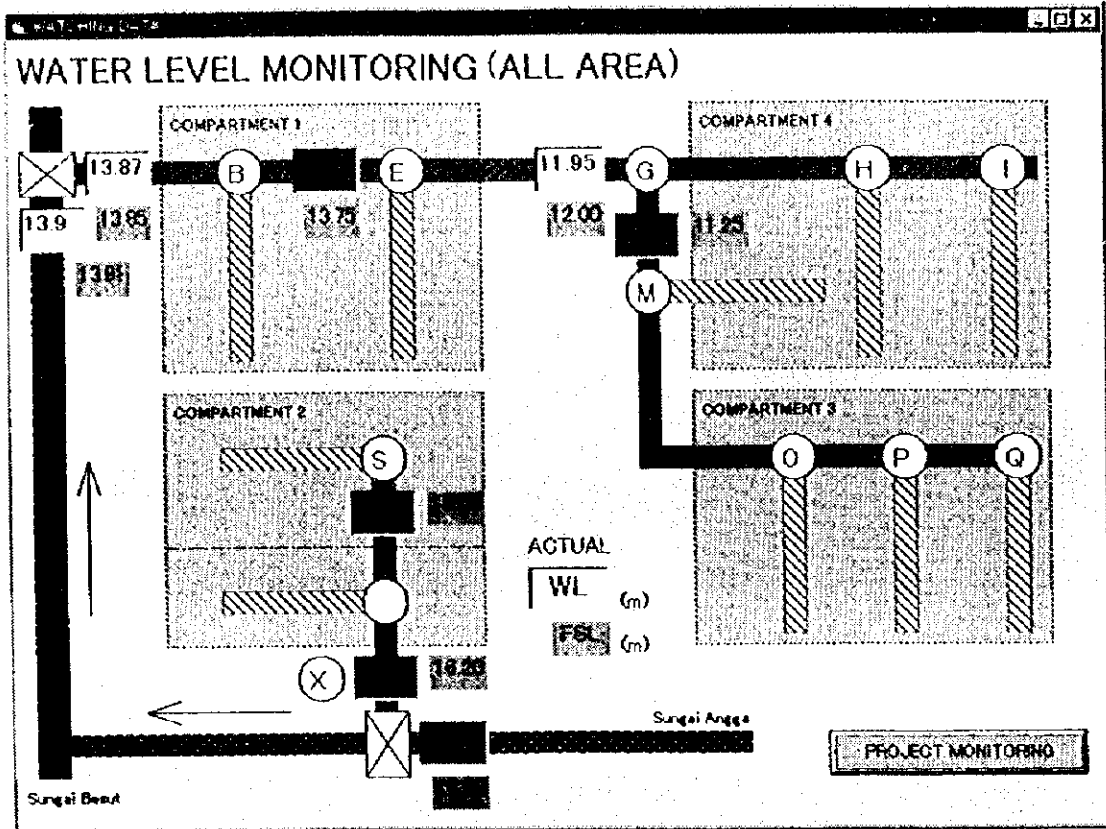
This is a 'GATE OPERATION' display screen.

This display represents the calculated TARGET(Q and Gate level) at Besut intake and Point G.

1-If press 'GATE CONTROL' button, it will send gate opening level to the SCADA system and go to 'ALL AREA' screen.  
(-> Form 6)

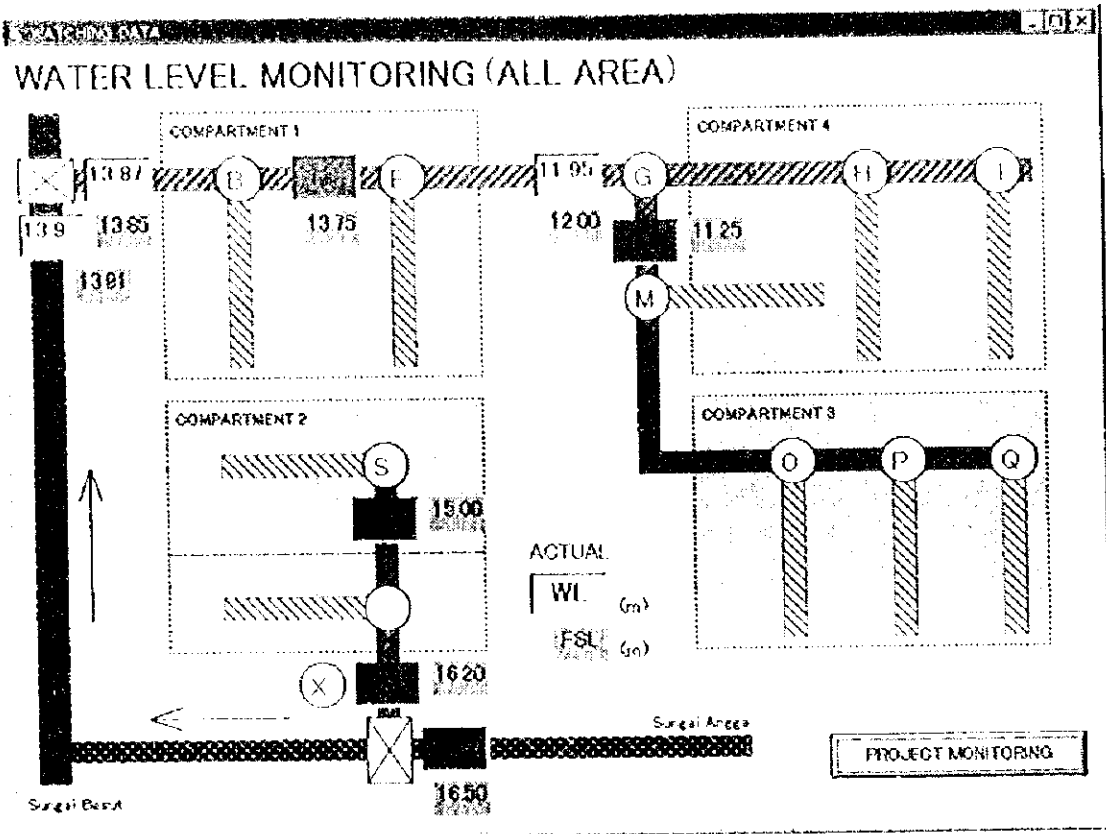
2-If press 'UNDO' button, it will go to 'ALL AREA' screen.  
(-> Form 6)

# Water Level Monitoring (Form 9)



This is a 'Water Level Monitoring' display screen.  
Click 'PROJECT MONITORING' button to go back to Project Monitoring menu screen. (-> Form 3)

# Water Level Monitoring (Form 9)



This is a 'Water Level Monitoring' display screen.  
 Click 'PROJECT MONITORING' button to go back to Project Monitoring menu screen. (-> Form 3)

# Schedule & KP Data Entry (Form 10)

KP SCHEDULE DATA

## KUMPULAN PETANI SCHEDULE

PHASE      START      ROTATION

PHASE   DD   MM   YYYY   ROTATION   PHASE OK

PHASE1    97/11/01 -> 98/04/21    7    INTENSITY

PHASE2    97/11/14 -> 98/05/04    7    100

KP

KP1    KP2    KP3    KP4    KP5    KP6    KP7    KP8    KP9    KP10

KP11    KP12    KP13    KP14    KP15    KP16    KP17    KP18    KP19    KP20

KP21    KP22    KP23    KP24    KP25    KP26    KP27    KP28    KP29    KP30

KP NO      PHASE      RAINFALL      AREA

KP 1      PHASE1      R1      408.1      KP OK

KP      PHASE      START/END      ROTATION/RAINFALL/AREA

KP 1	PHASE1	97/11/01 -> 98/04/21	7 R1	408.1	ENTER
KP 2	PHASE1	97/11/01 -> 98/04/21	7 R1	155.5	
KP 3	PHASE1	97/11/01 -> 98/04/21	7 R1	144.2	
KP 4	PHASE1	97/11/01 -> 98/04/21	7 R1	68.7	
KP 5	PHASE1	97/11/01 -> 98/04/21	7 R1	99.2	
KP 6	PHASE1	97/11/01 -> 98/04/21	7 R1	78.7	

DETAILS

This is a 'Schedule & KP Data Entry' display screen.

You can check and update the Schedule and KP data.

1-Check the phase,data(DD),month(MM),year(YYYY) and

Rotation, then push 'PHASE OK' button.

2-Select the intensity text box.

3-KP can be selected by pressing the 'option button', then press 'KP OK' button.

4-Press 'DETAIL' button for Detail KP Data Entry display if data entered already have to be changed. (-> Form 12)

5-Press 'ENTER' if not necessary for pressing 'DETAIL'

button and it will go to the Main Menu display. (-> Form 4)

# Schedule & KP Data Entry (Form 10)

**KP SCHEDULE DATA** [Close]

## KUMPULAN PETANI SCHEDULE

PHASE START ROTATION

PHASE1 DD MM YYYY ROTATION PHASE OK

PHASE1 97/11/01 -> 98/04/21 7 INTENSITY  
 PHASE2 97/11/14 -> 98/05/04 7 100

KP

KP1  KP2  KP3  KP4  KP5  KP6  KP7  KP8  KP9  KP10  
 KP11  KP12  KP13  KP14  KP15  KP16  KP17  KP18  KP19  KP20  
 KP21  KP22  KP23  KP24  KP25  KP26  KP27  KP28  KP29  KP30

KP NO PHASE RAINFALL AREA

P 1 PHASE1 R1 408.1 KP OK

KP	PHASE	START/END	ROTATION/RAINFALL/AREA
KP 1	PHASE1	97/11/01 -> 98/04/21	7 R1 408.1
KP 2	PHASE1	97/11/01 -> 98/04/21	7 R1 155.5
KP 3	PHASE1	97/11/01 -> 98/04/21	7 R1 144.2
KP 4	PHASE1	97/11/01 -> 98/04/21	7 R1 68.7
KP 5	PHASE1	97/11/01 -> 98/04/21	7 R1 99.2
KP 6	PHASE1	97/11/01 -> 98/04/21	7 R1 78.7

ENTER

DETAILS

This is a 'Schedule & KP Data Entry' display screen.

You can check and update the Schedule and KP data.

1-Check the phase,data(DD),month(MM),year(YYYY) and

Rotation, then push 'PHASE OK' button.

2-Select the intensity text box.

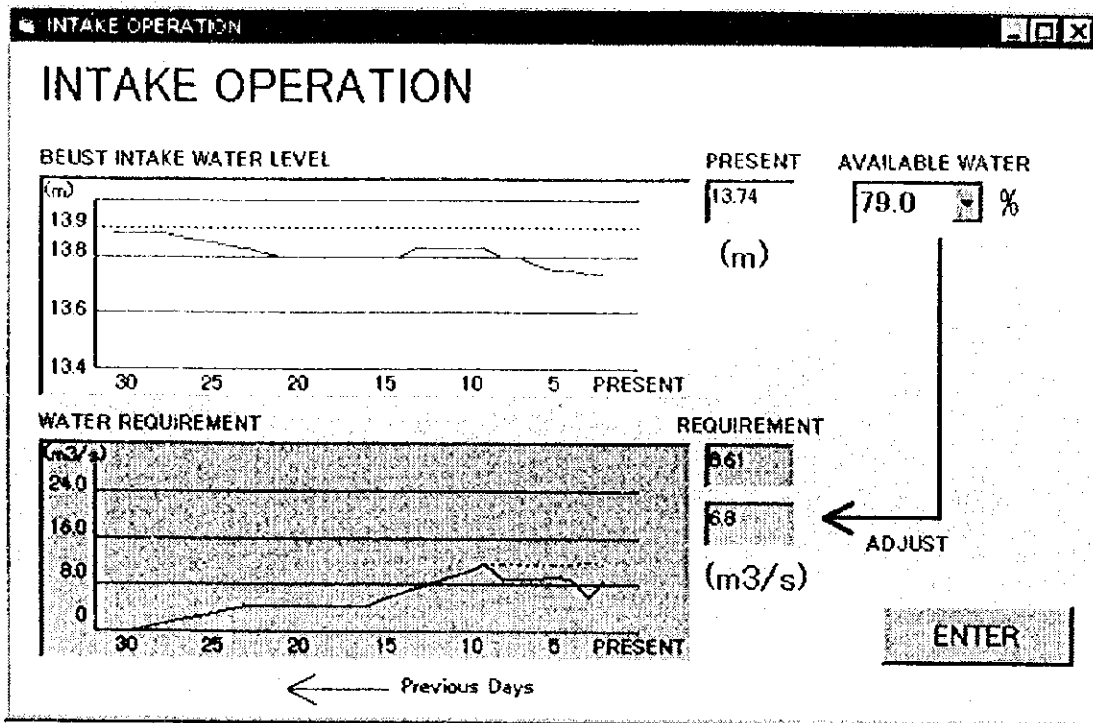
3-KP can be selected by pressing the 'option button', then press 'KP OK' button.

4-Press 'DETAIL' button for Detail KP Data Entry display if data entered already have to be changed. (-> Form 12)

5-Press 'ENTER' if not necessary for pressing 'DETAIL'

button and it will go to the Main Menu display. (-> Form 4)

# Intake Operation (Form 11)



This is a 'INTAKE OPERATION' display screen.

1-This screen contents of

- a) 3Text Box indication(PRESENT and REQUIREMENT)
- b) 1 List Box selection(AVAILABLE WATER)

Indication Box(PRESENT of requirement)

- i ) Present-Indicate the present water level in (m) at the intake.
- ii ) Requirement(blue)-Indicate the water requirement(Q)
- iii) Requirement(red)-This text will indicate the adjusted available water.

List Box(AVAILABLE WATER)

This text is to select the percentage(%) for available water.

2-If press the 'ENTER' button, it will go to the 'WATER BALANCE' screen (-> Form 14)

(Note) The red line of BESUT INTAKE graph means water level, the black dotted line means FSL.

The black line of WATER REQUIREMENT graph means calculated data(100%) , the red dotted line means available value.

# Detail KP Data Entry (Form 12)

**KP DETAILS**

KP

KP1  
 KP2  
 KP3  
 KP4  
 KP5  
 KP6  
 KP7  
 KP8  
 KP9  
 KP10  
 KP10  
 KP12  
 KP13  
 KP14  
 KP15  
 KP16  
 KP17  
 KP18  
 KP19  
 KP20  
 KP21  
 KP22  
 KP23  
 KP24  
 KP25  
 KP26  
 KP27  
 KP28  
 KP29  
 KP30

KP NO	NAME	PL	LP	Ec	Ea	MEMO1	MEMO2
KP 1	TLK	3	0	0.8	0.6	0	100

KP

KP NO	NAME	PL	LP	Ec	Ea	MEMO1	MEMO2
KP 1	TLK	3	0	0.8	0.6	0	100
KP 2	TLA	3	0	0.8	0.6	0	100
KP 3	TN/GL	3	0	0.8	0.6	0	100
KP 4	GK	3	0	0.8	0.6	0	100
KP 5	TKD	3	0	0.8	0.6	0	100
KP 6	TKK	3	0	0.8	0.6	0	100
KP 7	TPR	3	0	0.8	0.6	0	100
KP 8	TPP	3	0	0.8	0.6	0	100
KP 9	TPB	3	0	0.8	0.6	0	100
KP 10	TAA	3	0	0.8	0.6	0	100
KP 11	SM	3	0	0.8	0.6	0	100
KP 12	RS	3	0	0.8	0.6	0	100

CANCEL

ENTER

This is a 'Detail KP Data Entry' display screen.

You can check and update the detail KP data.

- 1-KP can be selected by pressing the 'option button', then press 'KP' button.
- 2-Press 'CANCEL' to go back to Schedule of KP Data Entry display. (-> Form 10)
- 3-Press 'ENTER' all data be enterd and it will go to the Main Menu display. (-> Form 4)

(Note) Name: KP native name

PL: Percolation Rate

LP: Land Preparation(0 for nomal supply period)

Ec: Conveyance Efficiency

Ea: Application Efficiency

MEMO1: Future function(reserve)

MEMO2: Future function(reserve)



# Water Balance (Form 14)

The screenshot shows a software window titled "WATER BALANCE". Inside, there are four panels representing different compartments:

- COMPARTMENT 1:** Contains two input fields with "00", a "PRIORITY" button, and a "text" button with the value "80".
- COMPARTMENT 2:** Contains two input fields with "033", a "text" button with "100.0", and another "text" button with "100".
- COMPARTMENT 3:** Contains two input fields with "026" and "033", and a "text" button with "80". An arrow points from this compartment towards the right.
- COMPARTMENT 4:** Contains two input fields with "026" and "032", and a "text" button with "80". An arrow points from this compartment towards the left.

At the bottom of the window, there are two buttons: "UNDO" and "DECISION". Below these buttons is a section with labels "Target", "Duty", and "I/sec/ha", followed by a "BALANCE" label and a "%" symbol.

This is a 'WATER BALANCE' display screen.

Water balance is decided to entry any compartment percentage.

## COMPARTMENT 1

1-This Compartment has selection buttons i.e. priority 'option button' and 'text' button.(percentage range)

## COMPARTMENT 4

1-This Compartment has selection buttons i.e. priority 'option button' and 'text' button.(percentage range)

COMPARTMENT 3 is linked with COMPARTMENT 4.

## COMPARTMENT 2

1-This Compartment has only 'text' button.(percentage range)

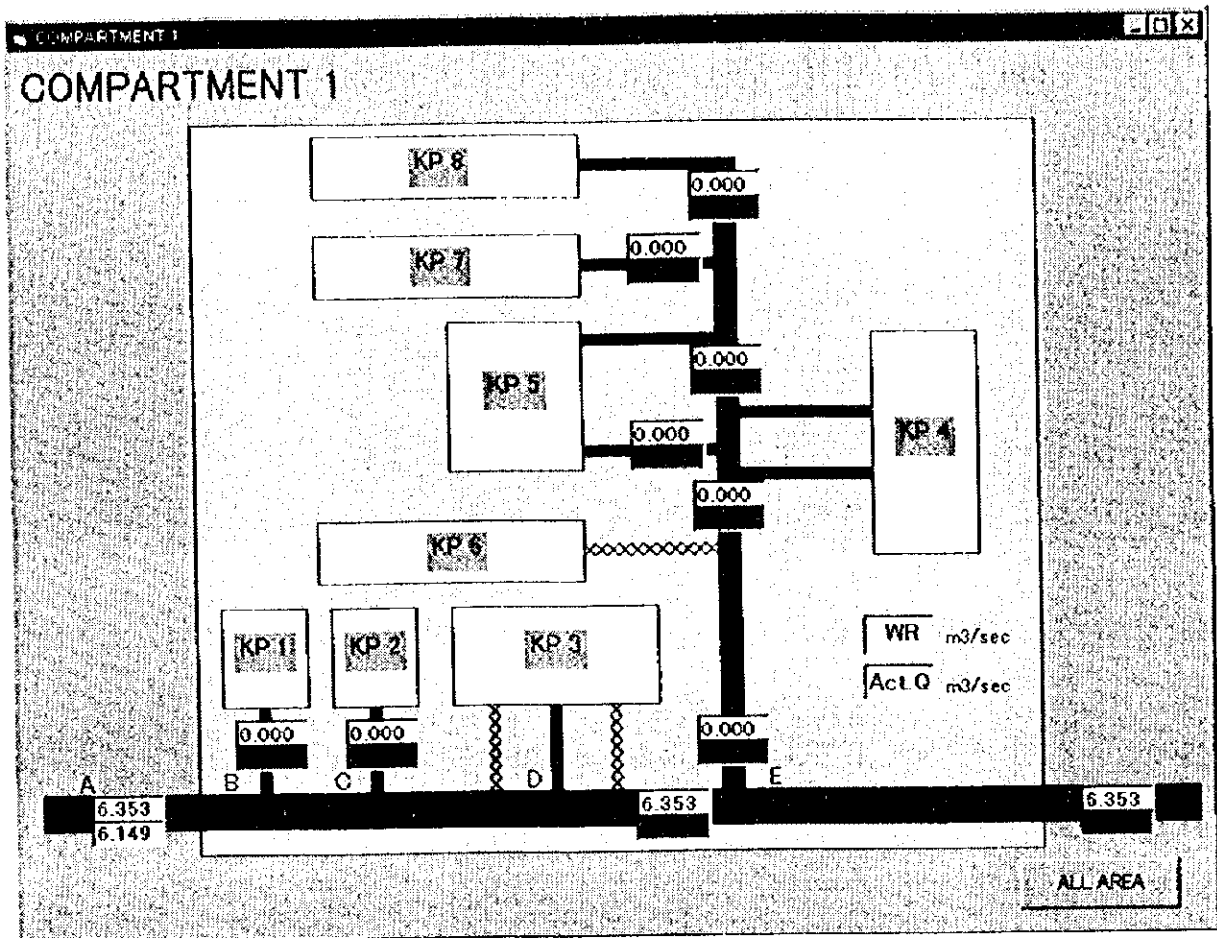
Press 'UNDO' button, it will go back to the ALL AREA screen.

(-> Form 6)

Press 'DECISION' button, it will go back to the ALL AREA screen for proceeding the next step of 'Gate Control'.

(-> Form 6)

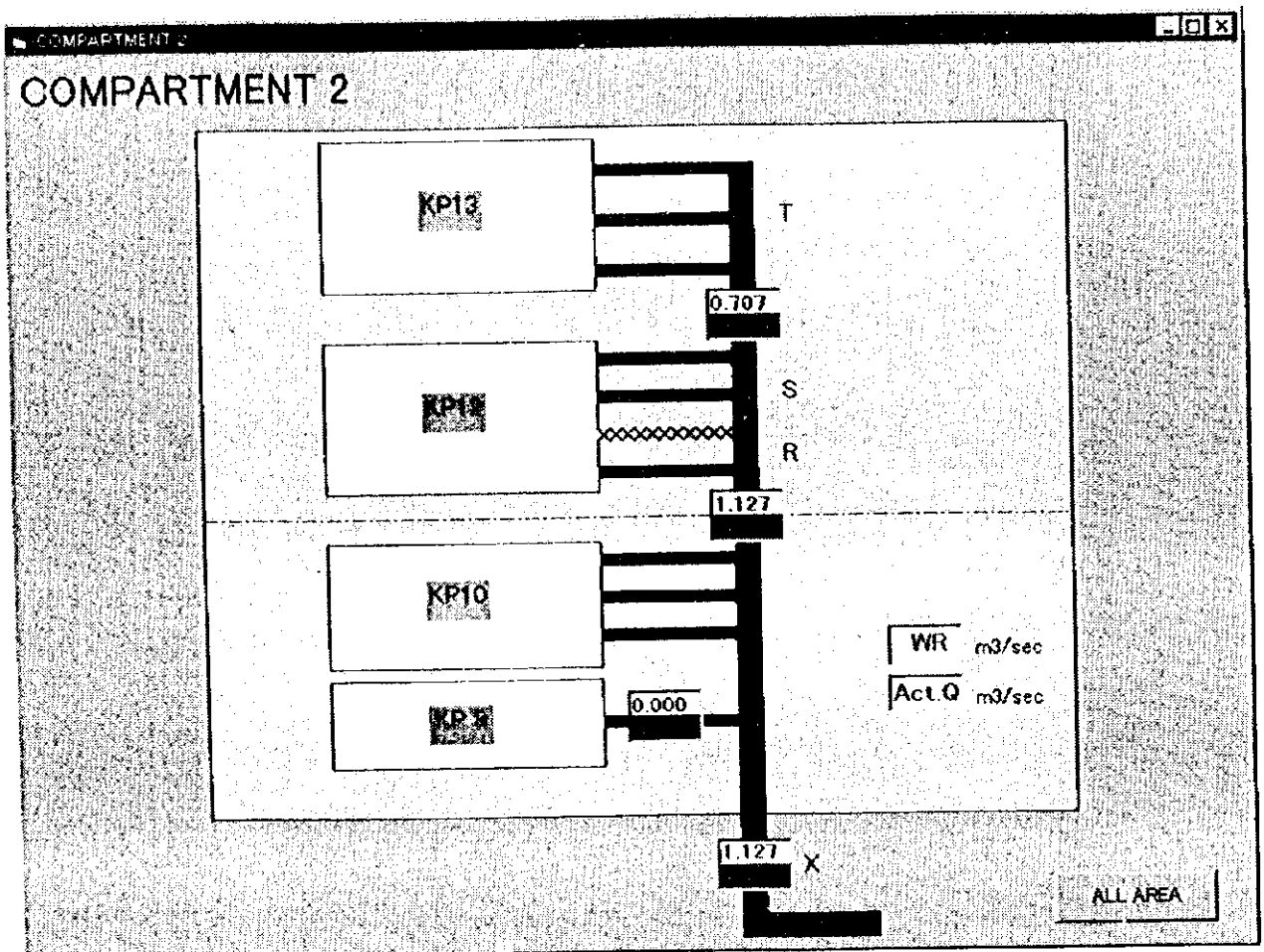
# Result Display Each Area (Compartment 1) (Form 15)



- 1-This Compartment 1 screen has 2 main readings.
  - Water Requirement(WR) in Red color.
  - Actual Discharge(Act.Q) in blue color.
- 2-If click 'ALL AREA' button,it will go back to the ALL AREA display screen. (-> Form 6)

(Note) Light blue line show a few small canals for supplying water to the KP.

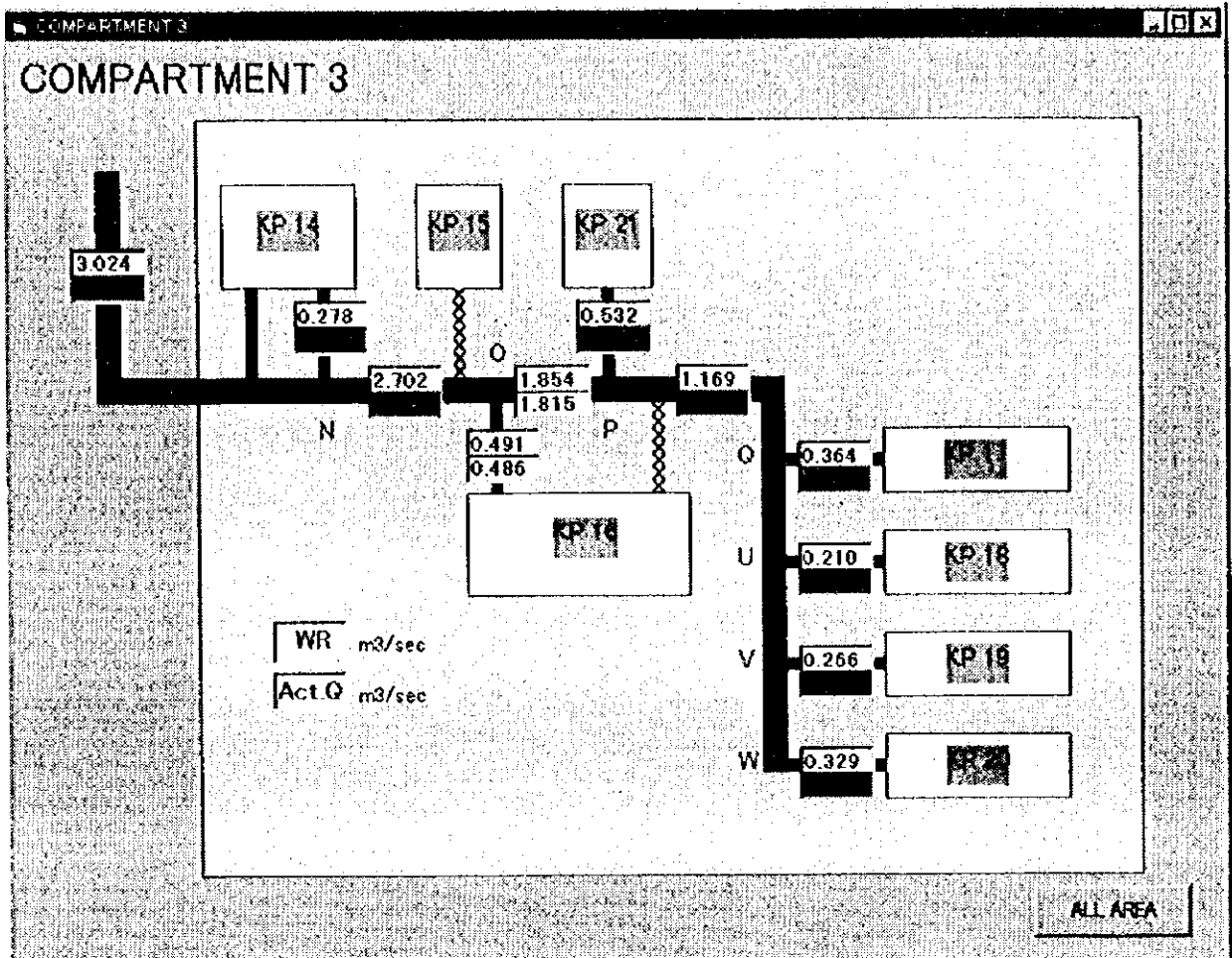
# Result Display Each Area (Compartment2) (Form 16)



- 1-This Compartment 2 screen has 2 main readings,
  - Water Requirement(WR) in Red color.
  - Actual Discharge(Act.Q) in blue color.
- 2-If click 'ALL AREA' button,it will go back to the ALL AREA display screen. (-> Form 6)

(Note) Light blue line show a few small canals for supplying water to the KP.

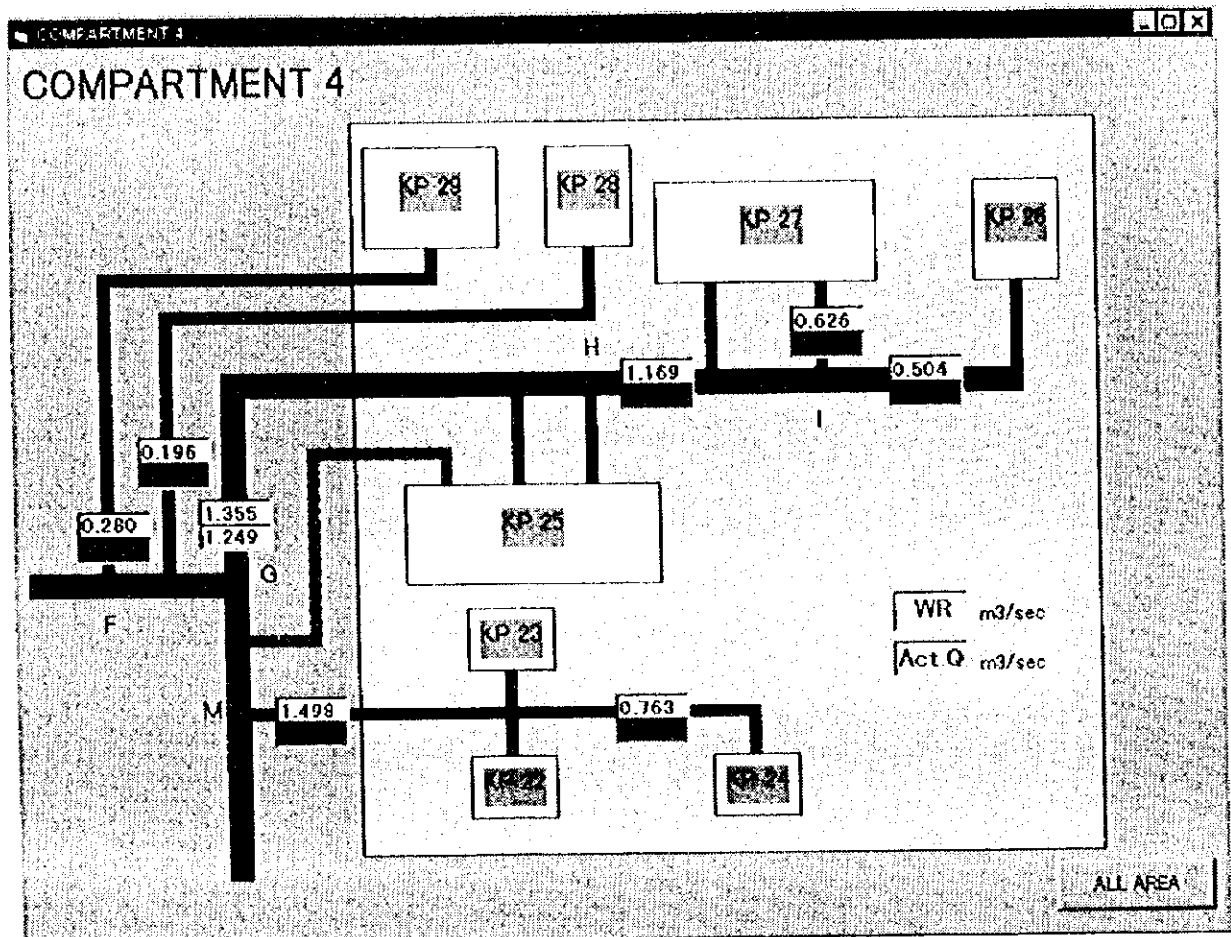
# Result Display Each Area (Compartment3) (Form 17)



- 1-This Compartment 3 screen has 2 main readings,
  - Water Requirement(WR) in Red color.
  - Actual Discharge(Act.Q) in blue color.
- 2-If click 'ALL AREA' button,it will go back to the ALL AREA display screen. (-> Form 6)

(Note) Light blue line show a few small canals for supplying water to the KP.

## Result Display Each Area (Compartment4) (Form 18)



- 1-This Compartment 4 screen has 2 main readings,
  - Water Requirement(WR) in Red color.
  - Actual Discharge(Act.Q) in blue color.
- 2-If click 'ALL AREA' button,it will go back to the ALL AREA display screen. (-> Form 6)

(Note) Light blue line show a few small canals for supplying water to the KP.

# Manual Operation

**MANUAL OPERATION**

*PRESENT*

	WL(U <sub>s</sub> )	WL(D <sub>s</sub> )	Gate Level	(m)
BESUT INTAKE	<input type="text"/>	<input type="text"/>	<input type="text"/>	
POINT G	<input type="text"/>	<input type="text"/>	<input type="text"/>	
POINT O	<input type="text"/>	<input type="text"/>	<input type="text" value="██████████"/>	
Railfall station	<input type="text"/>	<input type="text"/>	<input type="text" value="██████████"/>	

This is a 'MANUAL OPERATION' display screen.

This screen display that the SCADA system is not ready.  
(inspection and other)

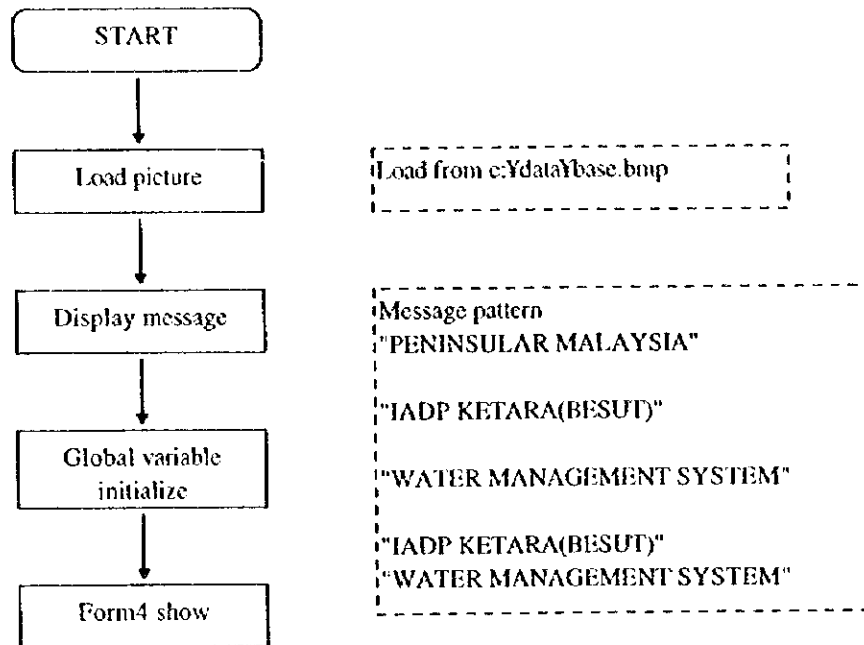
You can enter observation data each blank.

Press 'ENTER' all data be entered and it will go to the  
Calculation display.

**ATTACHMENT-2**  
**FLOW CHART OF**  
**THE IRRIGATION WATER**  
**MANAGEMENT SYSTEM**

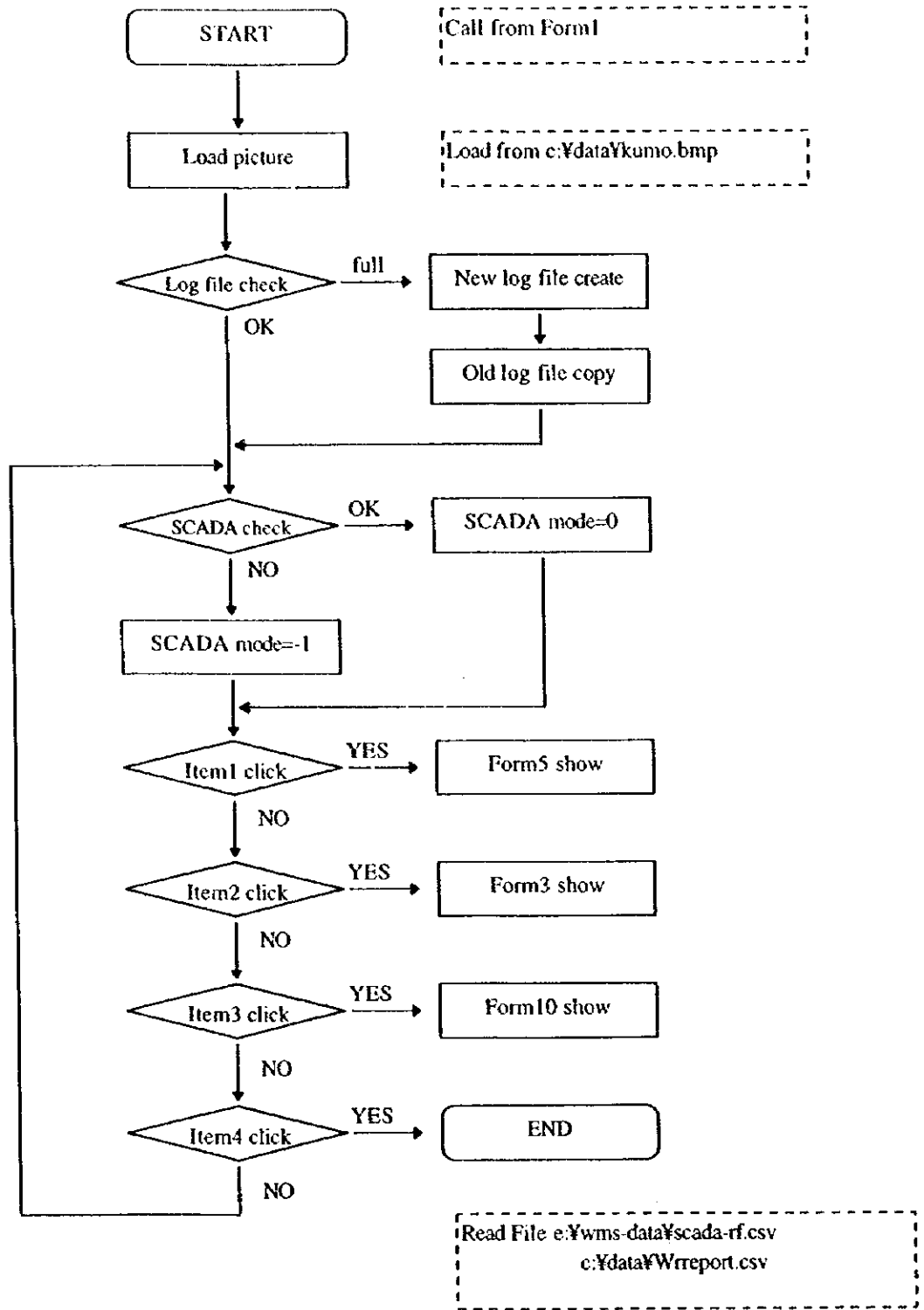
# Flow chart (Function)

*Form1 Introduction menu*

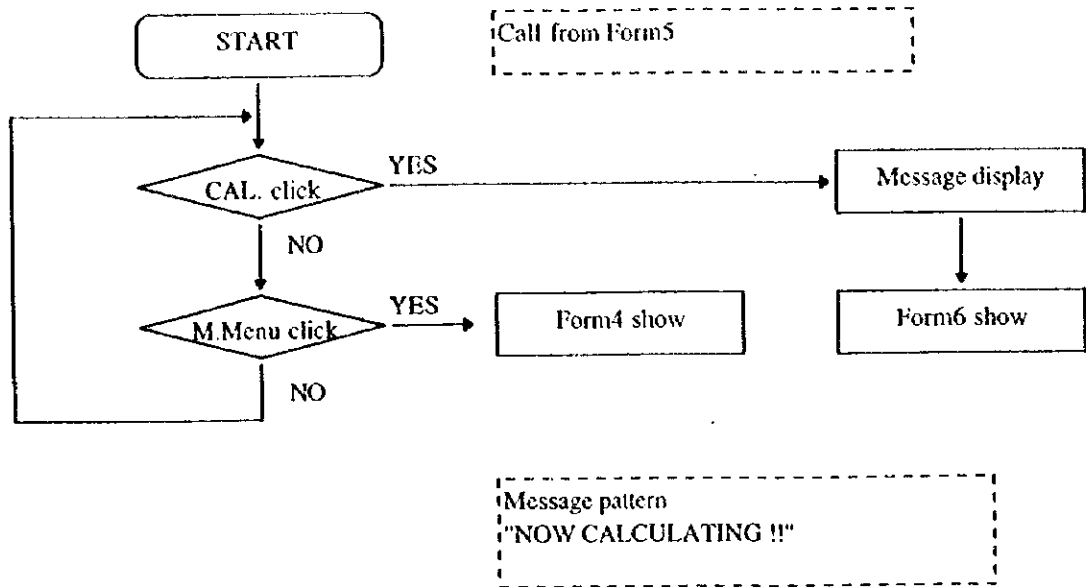




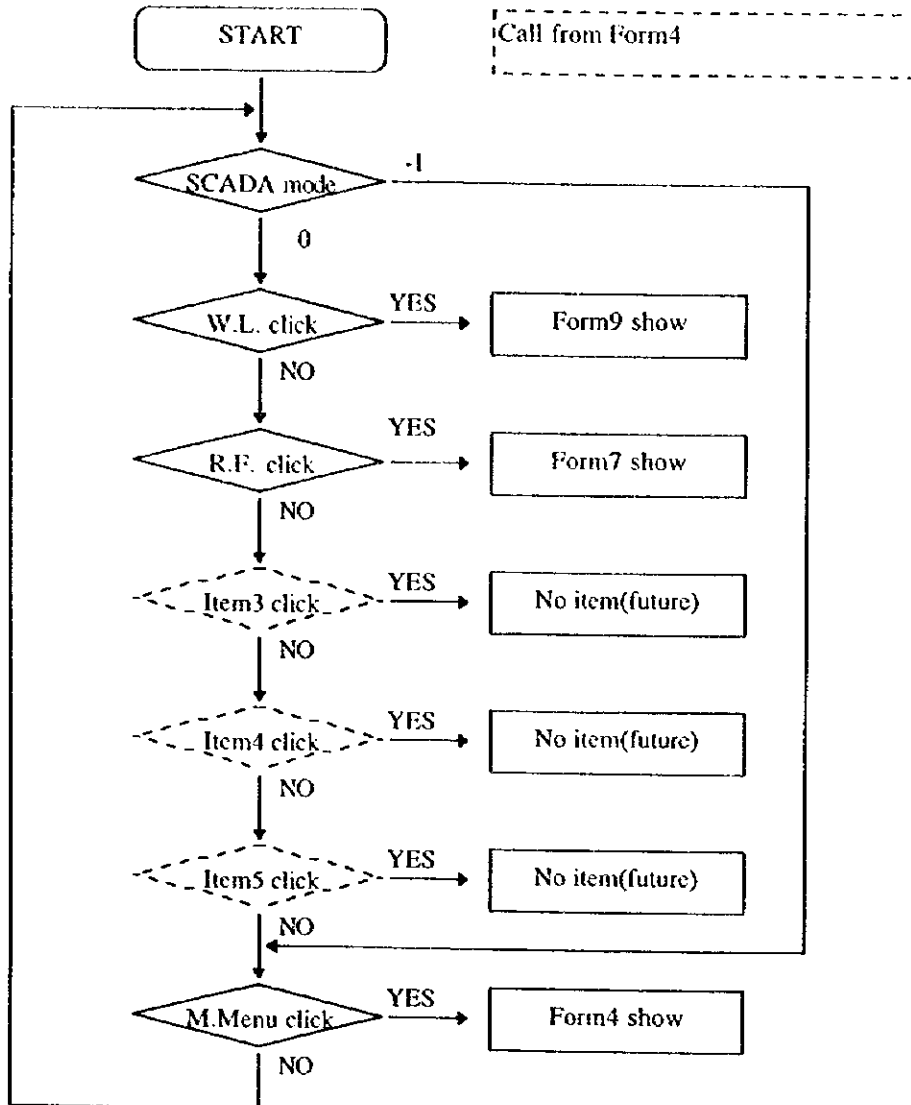
Form4 Main menu



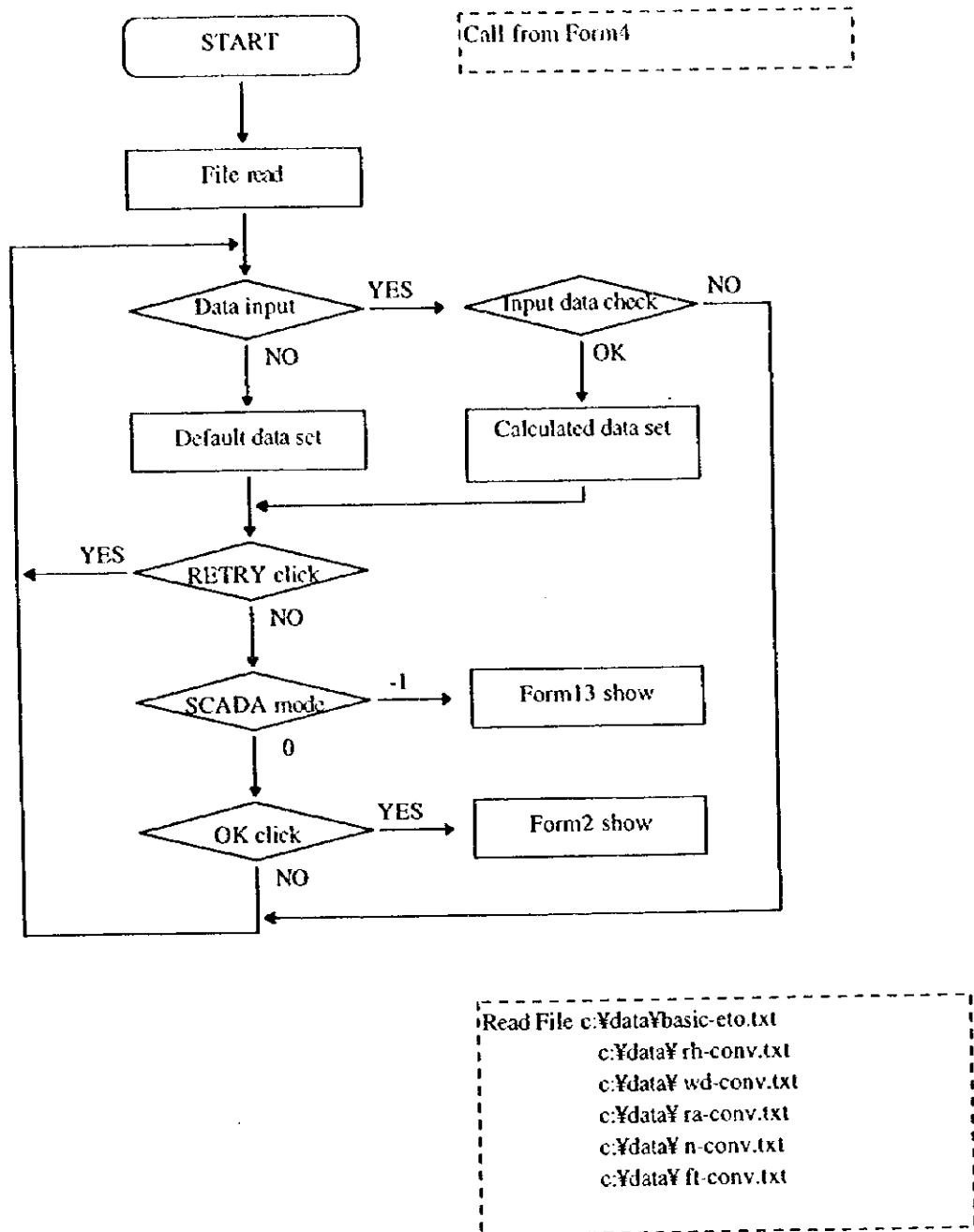
Form2 WR calculation



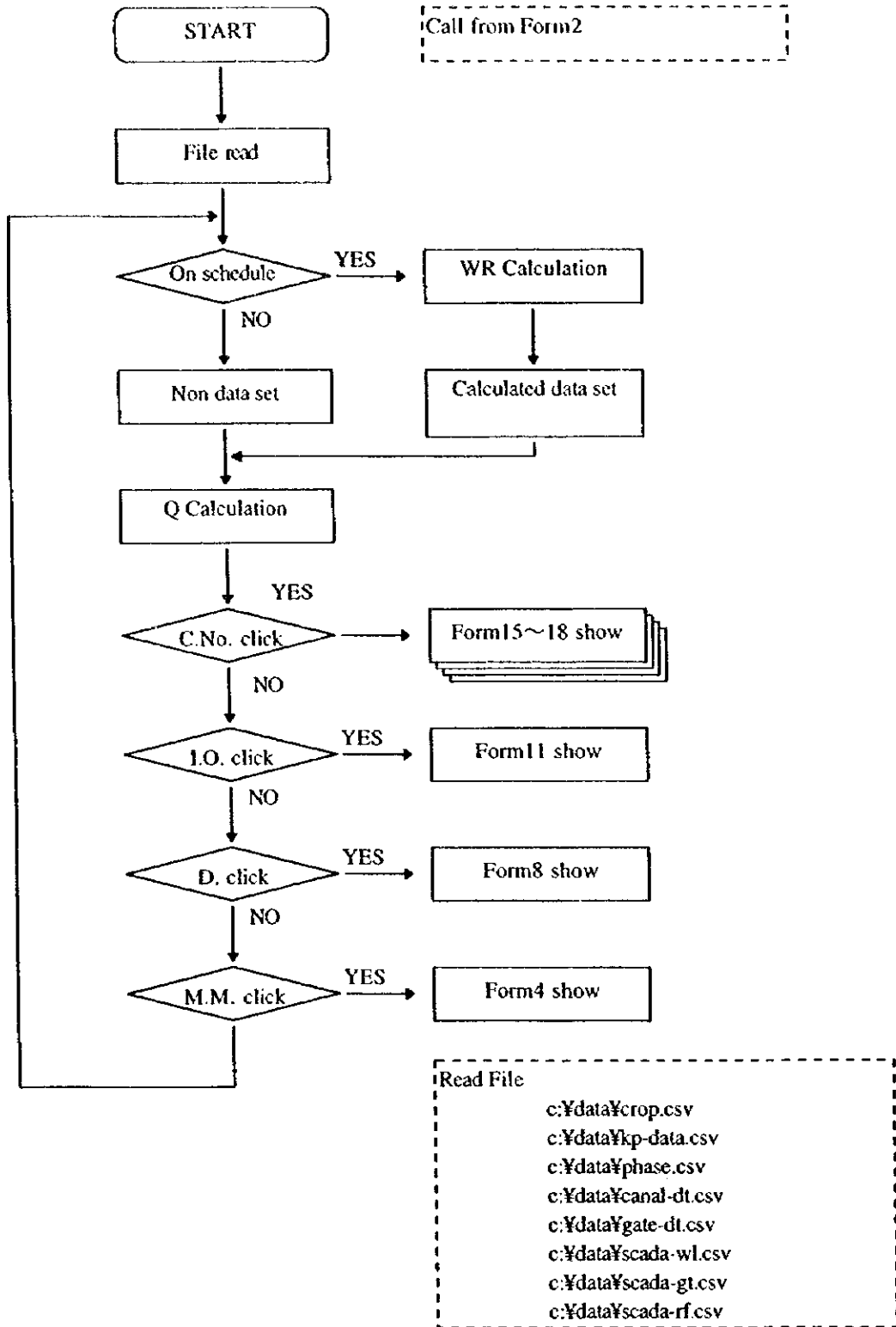
Form3 Item choice menu



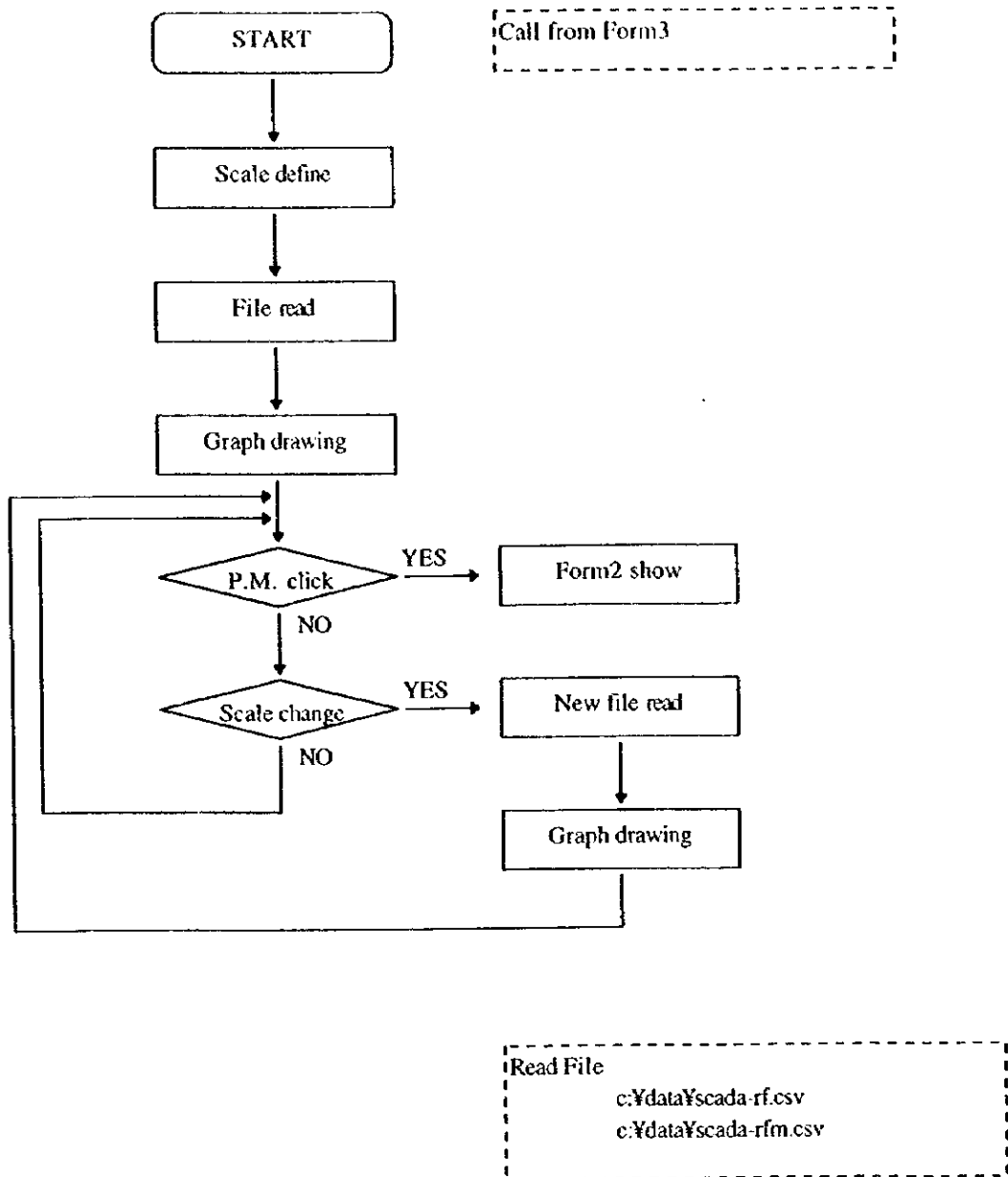
Form5 Meteorological data



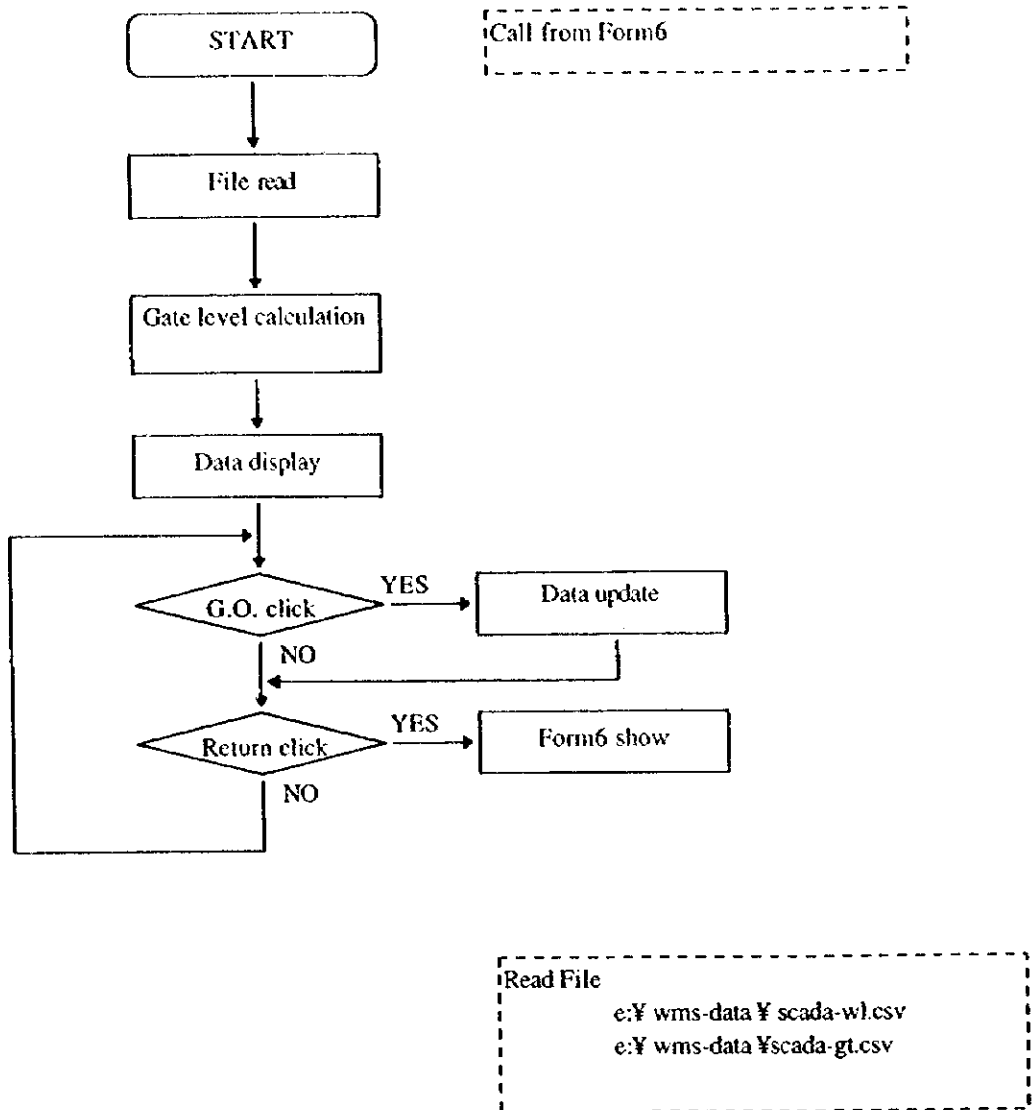
Form6 Irrigation diagram



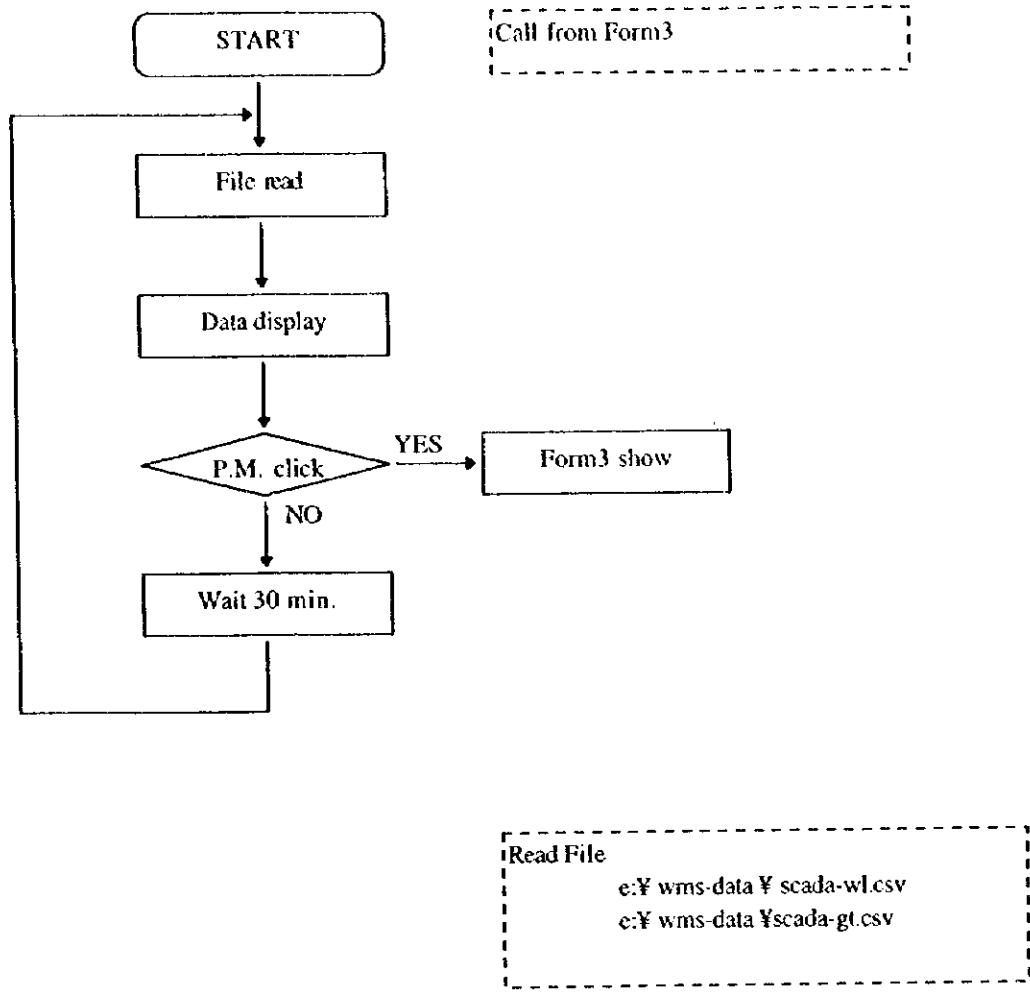
Form7 Rainfall data display



Form8 Gate operation

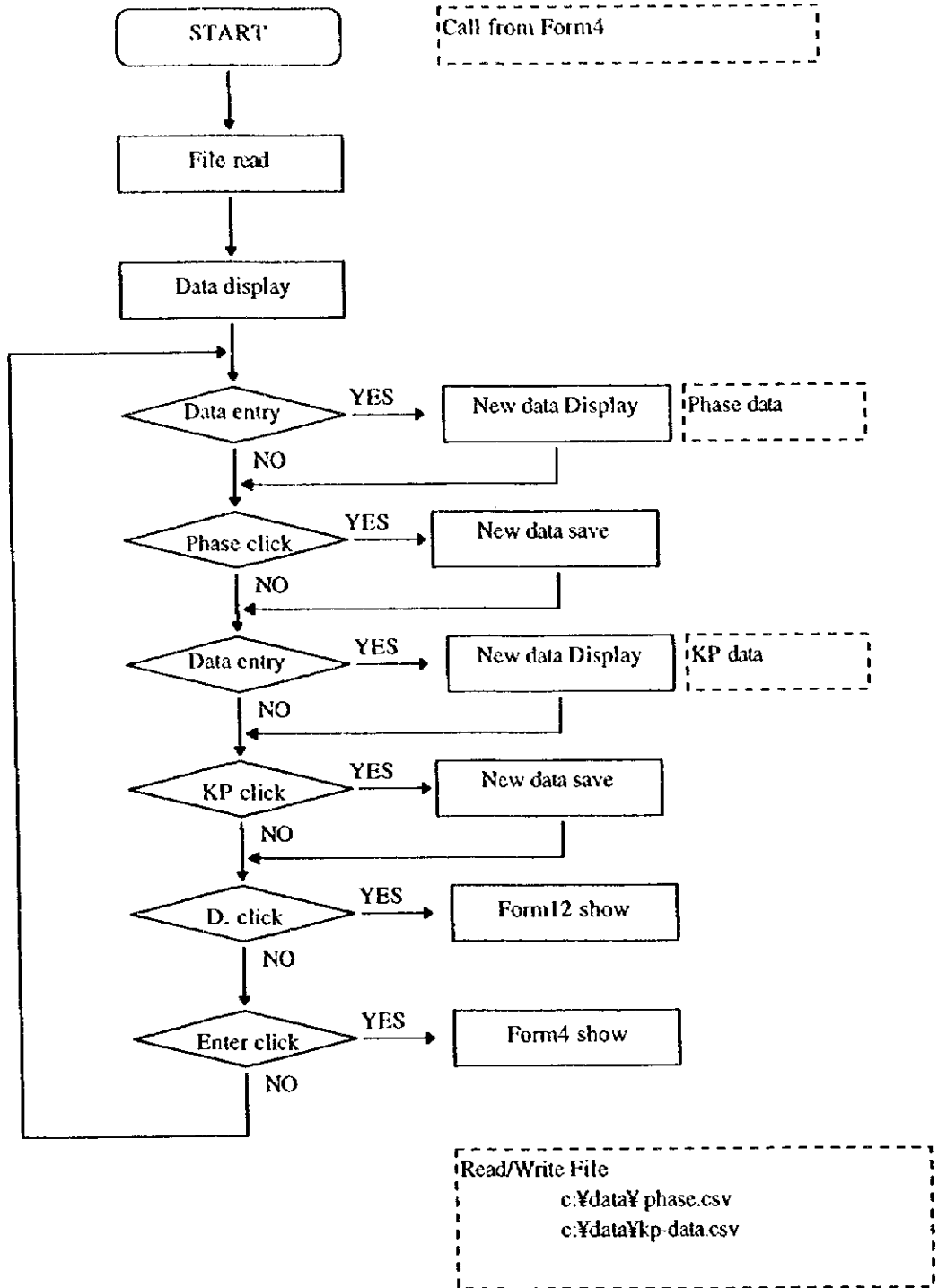


Form9 Data watching

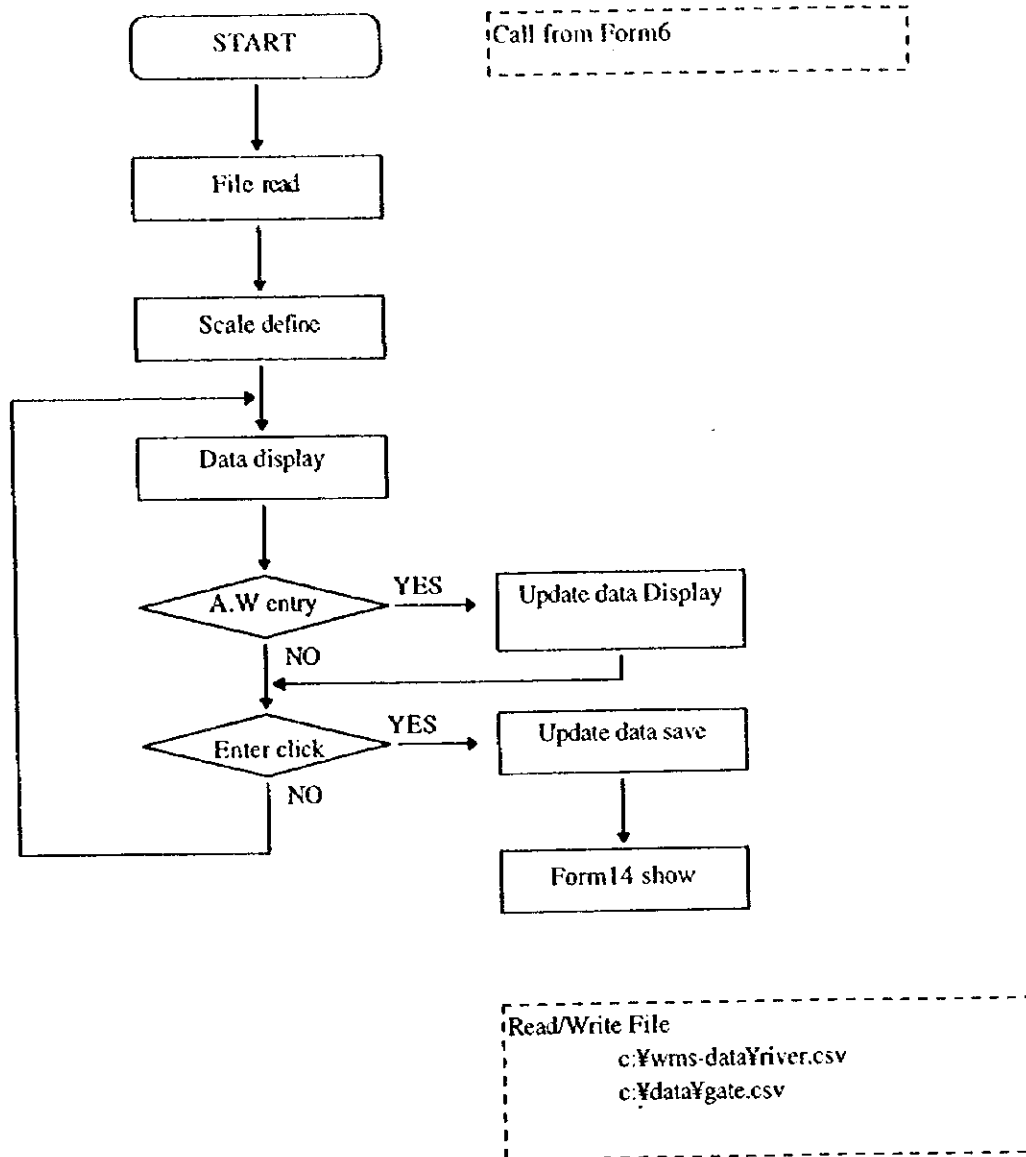




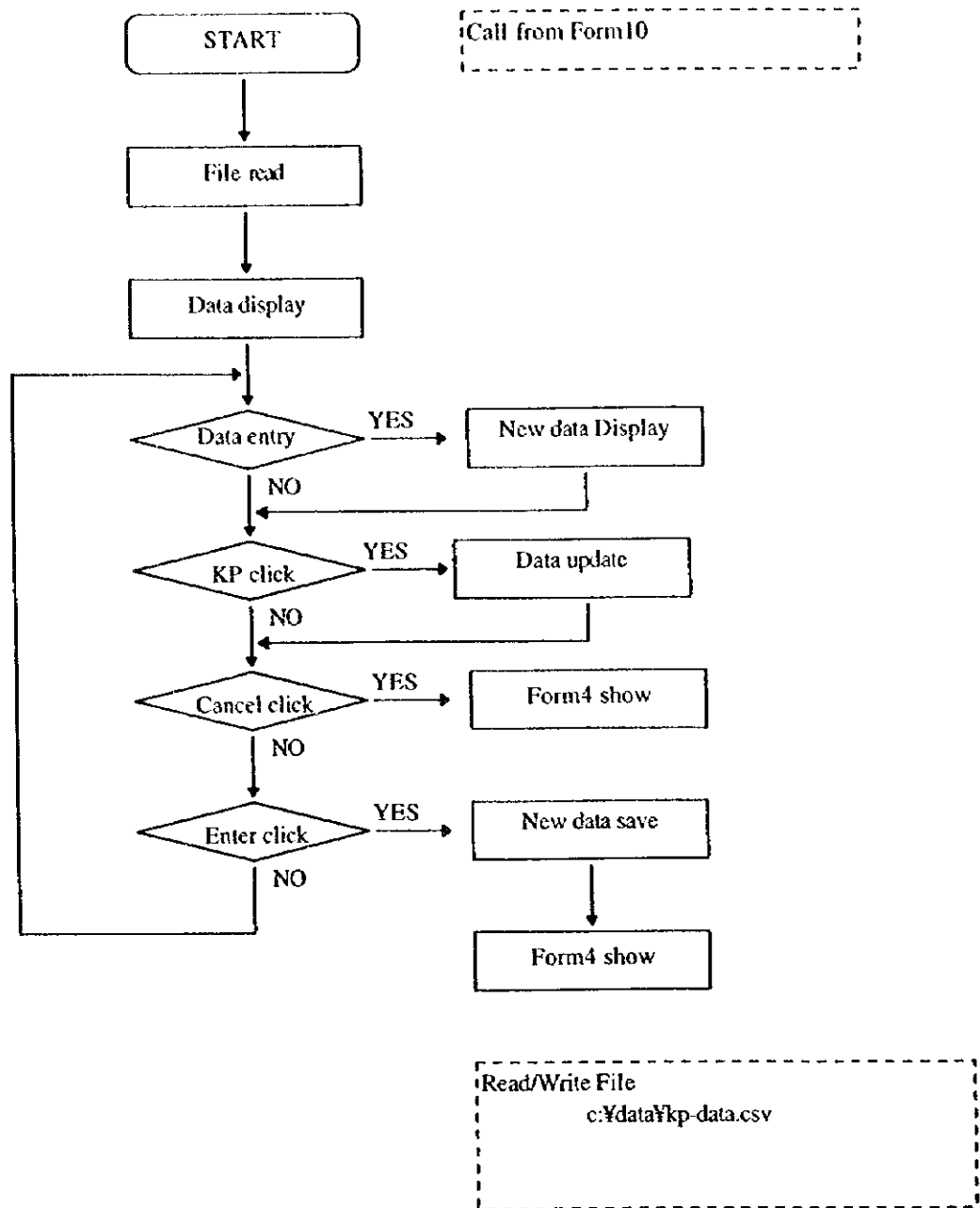
*Form10 Phase and KP schedule data*



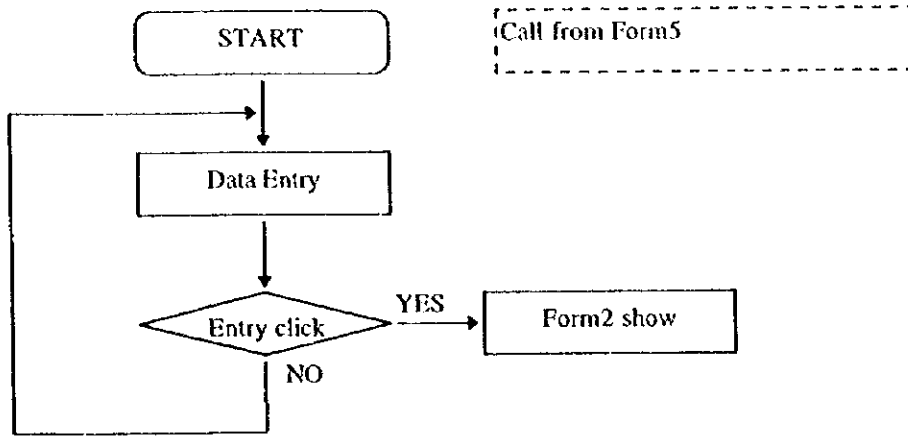
Form11 Intake operation



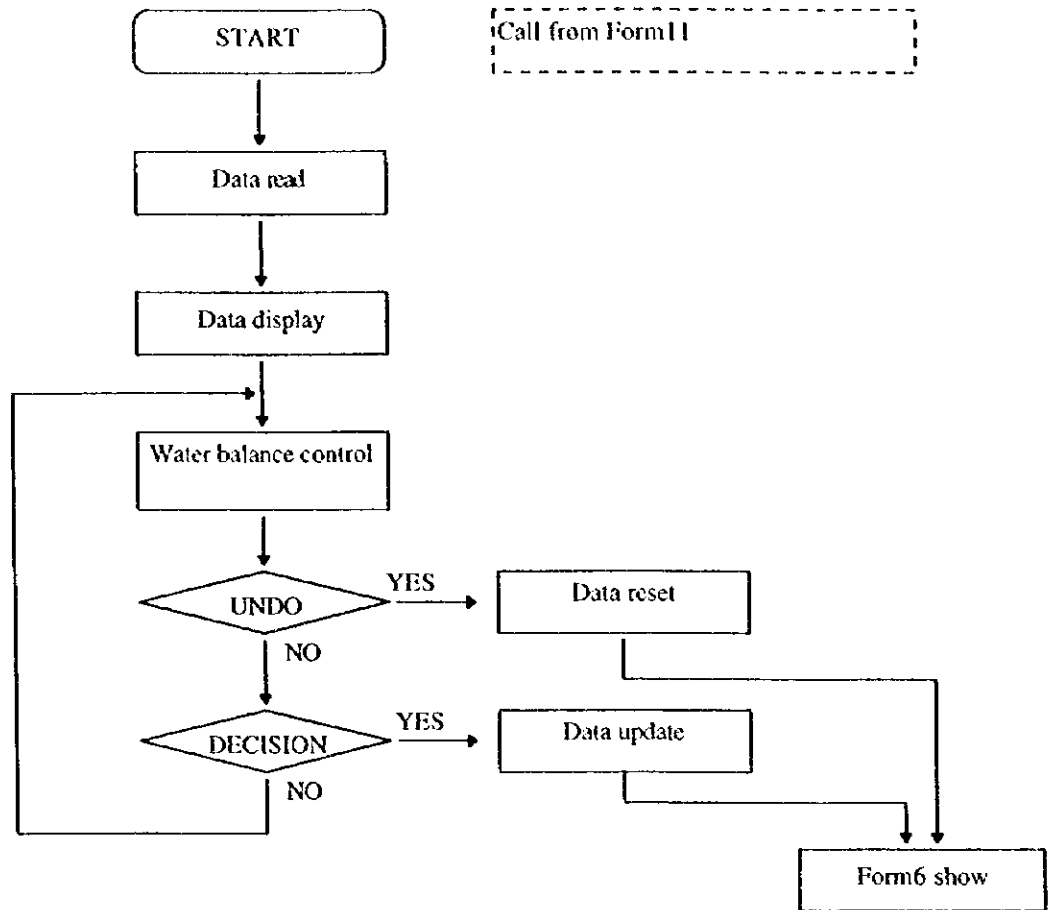
Form12 Detail KP data



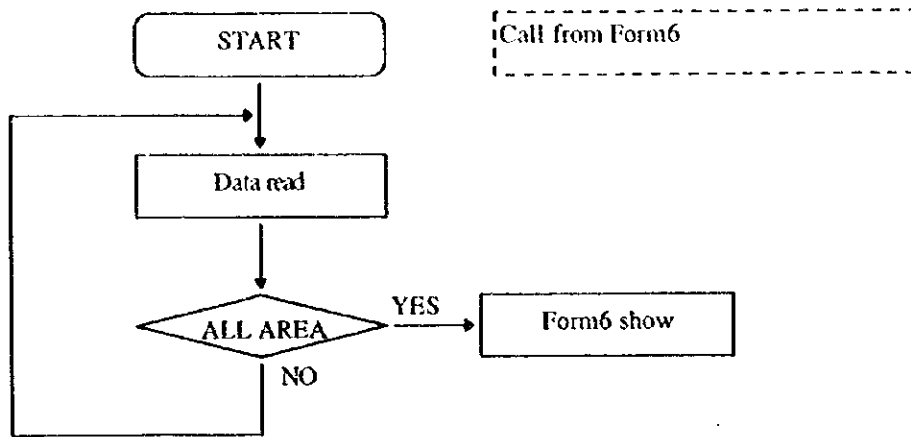
*Form13 Manual Operation( for the SCADA system is suspended )*



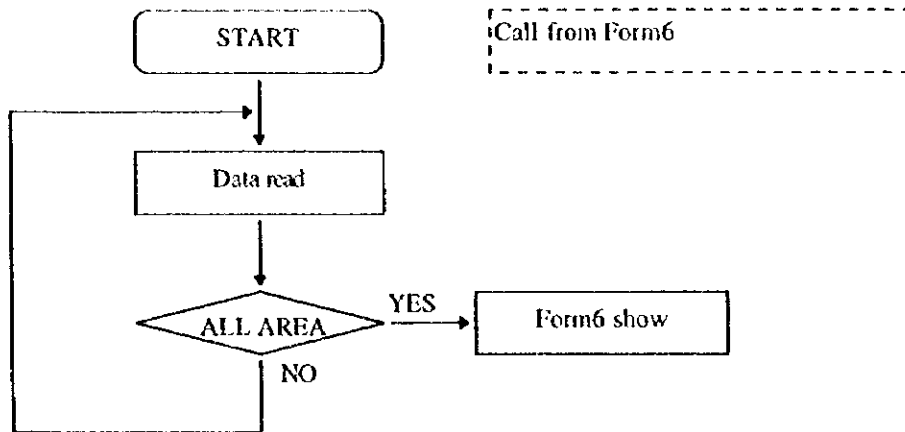
Form14 Water balance data



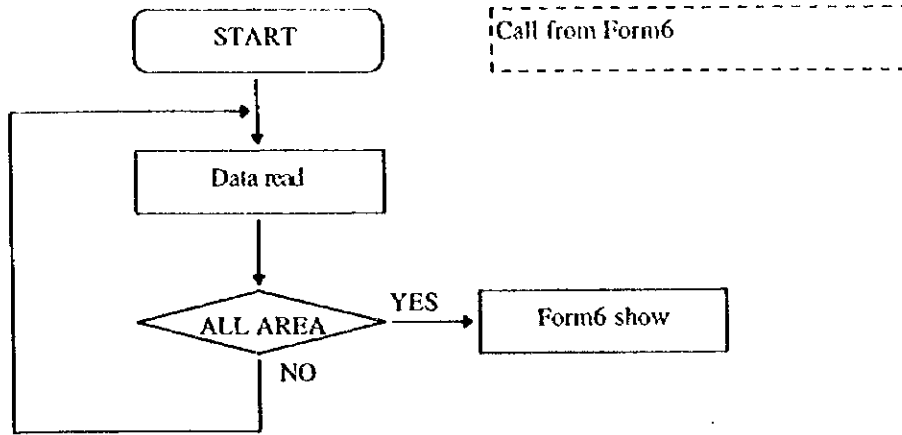
*Form15 WR detail(Compartment I)*



*Form16 WR detail(Compartment 2)*

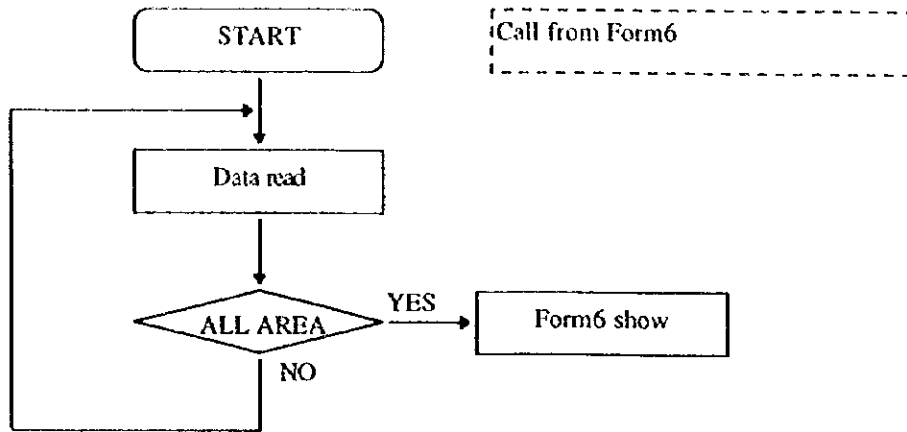


Form17 WR detail(Compartment 3)





*Form18 WR detail(Compartment 4)*



*Reporting function (New function)*

