

***DATA BOOK 2.***  
***INVENTORY OF RIVER STRUCTURES***

**THE STUDY  
ON  
INTEGRATED FLOOD MANAGEMENT FOR NYANDO RIVER BASIN**

**INVENTORY OF RIVER STRUCTURES**

**TABLE OF CONTENTS**

	<b>Page</b>
1-1	FORMAT OF QUESTIONNAIRE FOR RIVER STRUCTURES SURVEY .....DB2-1
1-2	LOCATION MAP OF RIVER STRUCTURES .....DB2-3
1-3	INVENTORY OF RIVER STRUCTURES.....DB2-4
1.3.1	Dyke .....DB2-4
1.3.2	Bridge.....DB2-13
1.3.3	Irrigation Structures .....DB2-27

## 1-1 FORMAT OF QUESTIONNAIRE FOR RIVER STRUCTURES SURVEY

FORMAT OF INTERVIEW SURVEY

NYANDO RIVER BASIN

Name of Interviewer: \_\_\_\_\_

### QUESTIONNAIRE FOR RIVER STRUCTURE SURVEY IN NYANDO RIVER BASIN

1. **Place of Structure** : Location \_\_\_\_\_  
Sub location \_\_\_\_\_  
Village \_\_\_\_\_

2. **Date** : August \_\_\_\_, 2006

3. **Name of Respondent** : \_\_\_\_\_

4. **In charge (position)**: \_\_\_\_\_

#### 5. QUESTIONNAIRE

Q1. What is name of structure/facility?

\_\_\_\_\_

Q2. What is purpose of this structure?

- a. flood control and drainage      b. irrigation      c. sediment control  
d. bank protection works      e. transportation  
f. others (\_\_\_\_\_)

Q3. What is construction year and construction cost?

- a. construction year (\_\_\_\_\_)  
b. construction cost (Kshs \_\_\_\_\_)

Q4. Who is administrator in charge of operation and maintenance?

- a. administrative agency (\_\_\_\_\_)  
c. annual operation and maintenance cost (Kshs \_\_\_\_\_)  
d. staff number (\_\_\_\_\_)

Q5. How about working condition?

- a. good      b. bad (quite frequently accident)      c. damaged and no functioned

Q6. What was action taken for the above damaged and no functioned?

- a. repaired (by \_\_\_\_\_ cost in Ksha \_\_\_\_\_)
- b. abandoned
- c. others ( \_\_\_\_\_ )

Q7. Do you have drawing or pamphlet showing outline of this structure

- a. yes ( please get copy)
- b. no

Q8. In case no drawing in the above question, please ask the following dimensions.

a) in case of weir

- a. width:        m
- b. height:        m
- c. length:        m

b) in case of dike

- a. top width:    m
- b. height:        m
- c. length:        m

c) in case of bridge

- a. width:        m
- b. total bridge length:        m

c. pier structure: (select c1.culvert type c2. pier type )

d) in case of intake facilities

- a. intake volume:    m<sup>3</sup>/sec
- b. by pump:
- c. gravity intake

e) in case of sediment control facilities

- a. width:        m
- b. height:        m
- c. average width:    m

f) in case for others among above, please specify names of structure and major dimensions of the structure.

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Q10. Please take picture of structure and put picture no. (        )




1-3 INVENTORY OF RIVER STRUCTURES

No.	Structure Name	River	Location	Purpose	In charge	Height (m)	Width(m)	Length (m)	Construction Year	Construction Cost (K.Shs)	Work Condition	Landuse along the dyke	Remarks	
1	Dike	Nyando	Apondo	Flood control and drainage Pictures	MWI	2	3	370	1985		Fair	Adjacent to Farmland	No Compaction	
														
2	Dike	Nyando F.B.D'S	Ahero	Flood control and drainage Pictures	MWI	2	8	5980	2000	20000000	Good	Settlements Farms/Schools	Well compacted and shaped	
														

1-3-1 (1/9) Inventory of Dyke






No.	Structure Name	River	Location	Purpose	In charge	Height (m)	Width(m)	Length (m)	Construction Year	Construction Cost (K.Sh.)	Work Condition	Landuse along the dyke	Remarks
3	Dike	Nyamado R.B U.S	Ahero	Flood control and drainage	MWI	1.4	4	687	2000		Fair	Settlement/Farms	No proper shape& no Compaction
				Pictures									
4	Dike	Nyamado L.B D'S	Ahero	Flood control and drainage	MWI	3	4	7000	1985		Fair	Settlement near dyke farms	No proper shape and no Compaction
				Pictures									

1-3-1 (2/9) Inventory of Dyke







No.	Structure Name	River	Location	Purpose	In charge	Height (m)	Width(m)	Length (m)	Construction Year	Construction Cost (K.Shs)	Work Condition	Landuse along the dyke	Remarks
5	Dike Location map	Awachi Kamo U/S	Nyakach	Flood control and drainage Pictures	MWI	1.4	1.2	2000	2004	1400000	Poor	Seriments Farms Schools	Not Compacted and too many gaps in
													
													
6	Dike Location map	Awachi Kamo D/S	Nyakach	Flood control and drainage Pictures	MWI	1.4	1.6	3000	2004	2000000	Poor	Seriments Farms Schools	No proper shape and no compaction
													
													

1-3-1 (3/9) Inventory of Dyke









No.	Structure Name	River	Location	Purpose	In charge	Height (m)	Width(m)	Length (m)	Construction Year	Construction Cost (K.Shs)	Work Condition	Landuse along the dyke	Remarks
7	Dike Location map	Nyamasa R/B	C Kotwa	Flood control and drainage Pictures	Constituency	2	1.8	3000	2006		Fair	Farms	No proper shape and no Compaction
													
8	Dike Location map	Nyamasa R/B	C Kotwa	Flood control and drainage Pictures	MWI	0.5	1	1300			Fair	Settlements	Illegal activity on dike like building or
													







1-3-1 (4/9) Inventory of Dyke

No.	Structure Name	River	Location	Purpose	In charge	Height (m)	Width(m)	Length (m)	Construction Year	Construction Cost (K.Shs)	Work Condition	Landuse along the dyke	Remarks
9	Dike Location map	Nyamassara L/B	C. Kolwa	Flood control and drainage Pictures	MWTI	0.6	1.4	900			Fair	Settlements	Illegal activity on dike like building or
													
10	Dike Location map	Nyamassara R/B	C. Kolwa	Flood control and drainage Pictures	Constituency	1.8	3	20	2006		Fair	Settlements	No proper shape and no Compaction
													







1-3-1 (5/9) Inventory of Dyke

No.	Structure Name	River	Location	Purpose	In charge	Height (m)	Width(m)	Length (m)	Construction Year	Construction Cost (K. Sh.)	Work Condition	Land use along the dyke	Remarks
11	Dike	Mirra R.B	Ombeyi	Flood control and drainage Pictures	MWI	1.2	2	840	2006		Fair	Settlement/School/Farms	Not properly shaped and not compacted
													
12	Dike	Ombeyi	Kanyangayi	Flood control and Irrigation Pictures	CBO	1.2	3	300	1992		Fair	Farms	Dike eroded and destroyed in some
													

1-3-1 (6/9) Inventory of Dyke

No.	Structure Name	River	Location	Purpose	In charge	Height (m)	Width(m)	Length (m)	Construction Year	Construction Cost (K.Shs)	Work. Condition	Landuse along the dyke	Remarks	
13	Dike Location map	Ombeyi	Kanyuala	Flood control and Irrigation Pictures	CBO	0.3	2	100	1992		Fair	Farms	Dike eroded and destroyed in some	
														
14	Dike Location map	Ombeyi	E. Kochiang	Flood control and Irrigation Pictures	CBO	1	3	5350	1992		Fair	Farms	Dike eroded and destroyed in some	
														



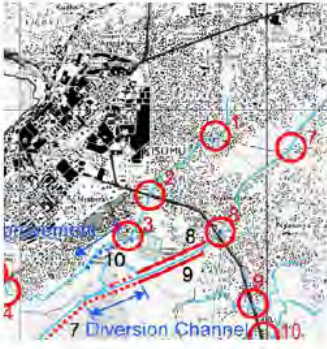

1-3-1 (7/9) Inventory of Dyke

No.	Structure Name	River	Location	Purpose	In charge	Height (m)	Width(m)	Length (m)	Construction Year	Construction Cost (K.Shs)	Work Condition	Landuse along the dyke	Remarks	
15	Location map	Nyasidhor, L.B	Nswidhi	Flood control and drainage Pictures	MWI	0.7	1	120	2004		Fair		No proper shape and no compaction	
														
16	Location map	Lumdo R.B	E. Kolwa	Flood control and drainage Pictures	CBO	0.5	1	1400	2002		Poor	Settlements/Farms	Uneven dike surface and very low dike	
														






1-3-1 (8/9) Inventory of Dyke

No.	Structure Name	River	Location	Purpose	In charge	Height (m)	Width (m)	Length (m)	Construction Year	Construction Cost (K.Shs)	Work Condition	Landuse along the dyke	Remarks
17	Dyke	Lusendo L/B	E Kohwa	Flood control and drainage	CBO	0.5	1	1400	2002		Poor	Settlements Farms	Uneven dike surface and very low dike
17 Location map													
													
													

1-3-1 (9/9) Inventory of Dyke







No.	1	Structure Name	Bridge II				
Type of Substructure	Pier	In Charge	MWI	Construction Year	1986	Working Condition	good
Purpose	Transportation			Location Map			
Location	C.Kolwa						
River	Auji						
Dimension	Length	8					
	Width(m)	3					
Notes	Footbridge used by pedestrians and 2 wheeled vehicles. Girder partially damaged. Need rehabilitation.						
Photos							
No.	2	Structure Name	Bridge				
Type of Substructure	Box Culvert	In Charge	MRPW	Construction Year		Working Condition	good
Purpose	Transportation			Location Map			
Location	Kolwa West						
River	Auji						
Dimension	Length	8					
	Width(m)	12					
Notes	The river is seriously silted and infested with weeds. Raw sewage is also discharged into the channel. Needs rehabilitation						
Photos							

1-3-2 (1/14) Inventory of Bridge







No.	3	Structure Name	Auji BridgeI				
Type of Substructure	pier	In Charge	MRPW	Construction Year	1984	Working Condition	good
Purpose	Transportation		Location Map 				
Location	Kolwa West						
River	Auji						
Dimension	Length	8	Notes The channel is seriously sedimented and also has infestation of weeds downstream of the trunk road. Raw sewage water is discharged into the channel. Need rehabilitation.				
	Width(m)	3					
Photos 							
No.	4	Structure Name	Wigwa BridgeII				
Type of Substructure	Pier	In Charge	MRPW	Construction Year	1984	Working Condition	good
Purpose	Transportation		Location Map 				
Location	Kasagam						
River	Auji						
Dimension	Length	13.2	Notes River full of sediment and infested with weeds. Should be dredged. Needs rehabilitation.				
	Width(m)	3					
Photos  							

1-3-2 (2/14) Inventory of Bridge



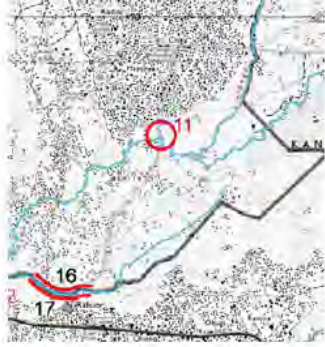



No.	5	Structure Name	Wigwa Bridge I				
Type of Substructure	pier	In Charge	MRPW	Construction Year	2004	Working Condition	good
Purpose	Transportation			Location Map			
Location	Kasagam						
River	Auji						
Dimension	Length	21					
	Width(m)	8					
Notes	Bridge recently renovated and in good condition.						
Photos							
							
No.	6	Structure Name	Kibos Bridge				
Type of Substructure	Pier	In Charge	MRPW	Construction Year	1983	Working Condition	good
Purpose	Transportation/Bank Protection Works			Location Map			
Location	Kajulu						
River	Nyamasaria						
Dimension	Length	26.5					
	Width(m)	9					
River Condition							
Photos							
							

1-3-2 (3/14) Inventory of Bridge

No.	7	Structure Name	Robert Ouko Bridge				
Type of Substructure		In Charge		Construction Year		Working Condition	Good
Purpose	Transportation			Location Map			
Location	Central Kolwa						
River	Nyamasaria						
Dimension	Length	42					
	Width(m)	10.2					
Notes	River banks adjacent to the abutments both upstream and downstream reinforced using gabions. Water harvested for domestic use.						
Photos							
							
No.	8	Structure Name	Nyamasaria Bridge				
Type of Substructure	Pier	In Charge	MRPW	Construction Year		Working Condition	good
Purpose	Transportation/Bank Protection Works			Location Map			
Location	C.Kolwa						
River	Nyamasaria						
Dimension	Length	24					
	Width(m)	12					
Notes	Bridge adequate. Girder is partially damaged and needs to be repaired. Water harvested for domestic use both pstream and downstream. Sand is harvested just downstream of the bridge. Girder needs rehabilitation.						
Photos							
							

1-3-2 (4/14) Inventory of Bridge

No.	9	Structure Name	Obuso Bridge				
Type of Substructure	Pier	In Charge	MRPW	Construction Year		Working Condition	good
Purpose	Transportation			Location Map			
Location	Nyalunya						
River	Obuso						
Dimension	Length	19.4					
	Width(m)	11.4					
Notes							
<b>Photos</b>							
No.	10	Structure Name	Bridge				
Type of Substructure	Pier	In Charge	MRPW	Construction Year		Working Condition	good
Purpose	Transportation/Flood Control			Location Map			
Location	Nyamware						
River	Luando						
Dimension	Length	20					
	Width(m)	12					
Notes							
<b>Photos</b>							

No.	11	Structure Name	Bridge				
Type of Substructure	pier	In Charge	MRPW	Construction Year	1983	Working Condition	good
Purpose	Transportation		Location Map				
Location	Buoye						
River	Mayenya						
Dimension	Length	6					
	Width(m)	4.6					
Notes							
Photo							
							
No.	12	Structure Name	Luando Riv. Bridge				
Type of Substructure		In Charge		Construction Year		Working Condition	
Purpose	Transportation/Flood Control		Location Map				
Location	Akado						
River	Luando						
Dimension	Length	20					
	Width(m)	12					
Notes	Bridge girder damaged. Needs Rehabilitation.						
Photos							
							





1-3-2 (6/14) Inventory of Bridge

No.	13	Structure Name	Bridge				
Type of Substructure		In Charge		Construction Year		Working Condition	
Purpose	Transportation/Flood Control			Location Map			
Location	Akado						
River	Luando						
Dimension	Length						
	Width(m)						
Notes							
Photos							







  

No.	14	Structure Name	Bridge				
Type of Substructure	Cuivert	In Charge	MRPW	Construction Year	1970	Working Condition	good
Purpose	Transportation			Location Map			
Location	Kobura						
River	Ombeyi						
Dimension	Length	5					
	Width(m)	4					
Notes							
Photos							

1-3-2 (7/14) Inventory of Bridge

No.	15	Structure Name	Oroba Bridge				
Type of Substructure	Pier	In Charge	MRPW	Construction Year		Working Condition	bad
Purpose	Transportation		Location Map				
Location	N.E Kano						
River	Oroba						
Dimension	Length	12.6					
	Width(m)	5.2					
River Condition							
Photos							
No.	16	Structure Name	Ombeyi Bridge				
Type of Substructure	Pier	In Charge	MRPW	Construction Year	1965	Working Condition	good
Purpose	Transportation/Flood Control		Location Map				
Location	Ombeyi						
River	Oroba						
Dimension	Length	9					
	Width(m)	4					
Notes							
Photos							
							

1-3-2 (8/14) Inventory of Bridge

No.	17	Structure Name	Kigoche Bridge II				
Type of Substructure	pier	In Charge	MRPW	Construction Year		Working Condition	good
Purpose	Transportation/Flood Control			Location Map			
Location	Ombeyi						
River	Miriu						
Dimension	Length	9					
	Width(m)	7					
Notes							
Photos							
							
No.	18	Structure Name	Kigoche Bridge I				
Type of Substructure	pier	In Charge	MRPW	Construction Year	1991	Working Condition	good
Purpose	Transportation/Flood Control			Location Map			
Location	Ombeyi						
River	Miriu						
Dimension	Length	9					
	Width(m)	7					
Notes	The channel is full of weeds. It needs to be dredged. The bridge needs Rehabilitation						
Photos							
							

1-3-2 (9/14) Inventory of Bridge

No.	19	Structure Name	Bridge				
Type of Substructure	Pier	In Charge	MRPW	Construction Year		Working Condition	good
Purpose	Transportation		Location Map				
Location	Kobura						
River	Miriu						
Dimension	Length	12					
	Width(m)	8					
Notes							
Photos							
No.	20	Structure Name	Miriu Bridge				
Type of Substructure	pier	In Charge	MRPW	Construction Year		Working Condition	bad
Purpose	Transportation/Flood Control		Location Map				
Location	S.W.Kano						
River	Miriu						
Dimension	Length	4					
	Width(m)	7					
Notes	Cracked abutment and settlement of foundation Needs Rehabilitation.						
Photos							



No.	21	Structure Name	Ahero Bridge				
Type of Substructure	Pier	In Charge	MRPW	Construction Year	1962	Working Condition	good
Purpose	Transportation			Location Map			
Location	Ahero						
River	Nyando						
Dimension	Length	73					
	Width(m)	12					
Notes							



Photos







No.	22	Structure Name	Nyalbiego Bridge				
Type of Substructure	Culvert	In Charge	MRPW	Construction Year	1961	Working Condition	bad
Purpose	Transportation/Bank Protection Works			Location Map			
Location	Wawidhi						
River	Nyalbiego						
Dimension	Length	65					
	Width(m)	11					
Notes	Some of the culverts destroyed traffic loading. Needs rehabilitaton						



Photos



No.	23	Structure Name	Nyaidho				
Type of Substructure	Pier	In Charge	MRPW	Construction Year		Working Condition	Bad
Purpose	Transportation/Bank Protection Works			Location Map			
Location	Wawidhi						
River	Nyalbiego						
Dimension	Length	20					
	Width(m)	12					
Notes	Seasonal river.Silted and experiences sedimentation.Blackspot is located on the bridge.Bridge needs to be raised because its very low.Needs Rehabilitation.						
Photos							
							
No.	24	Structure Name	Awach Bridge				
Type of Substructure	Culvert	In Charge	MRPW	Construction Year	1961	Working Condition	bad
Purpose	Transportation/Flood Control			Location Map			
Location	Kimira						
River	Awach Kano						
Dimension	Length	17					
	Width(m)	11					
Notes	Bridge constructed very low such that when it rains the road surface is flooded.It should be raised higher. Serious siltation and sedimentation.Water is abstracted for irrigation just downstream of the bridge. Rehabilitation needed.						
Photos							
							

1-3-2 (12/14) Inventory of Bridge

No.	25	Structure Name	Urudi Bridge				
Type of Substructure	Pier	In Charge	MRPW	Construction Year	1988	Working Condition	good
Purpose	Transportation/Bank Protection Works			Location Map			
Location	Urudi						
River	Awaso						
Dimension	Length	13					
	Width(m)	18					
Notes							
Photos							
No.	26	Structure Name	Asawo Bridge				
Type of Substructure	Pier	In Charge	MRPW	Construction Year	1980	Working Condition	good
Purpose	Transportation/Flood Control			Location Map			
Location	Awaso						
River	Awaso						
Dimension	Length	15					
	Width(m)	5					
Notes							
Photos							
							

No.	27	Structure Name	Pap Bridge				
Type of Substructure	Pier	In Charge	MRPW	Construction Year	1988	Working Condition	good
Purpose	Transportation/Flood Control			Location Map			
Location	Pap Onditi						
River	Ochuoga						
Dimension	Length	18					
	Width(m)	15					
Notes							
Photos							
No.	28	Structure Name	Nyalunya Bridge				
Type of Substructure	Pier	In Charge	MRPW	Construction Year	1986	Working Condition	bad
Purpose	Transportation/Flood Control			Location Map			
Location	Nyalunya						
River	Nyalunya						
Dimension	Length	15					
	Width(m)	10					
Notes							
Photos							

No.	Structure Name	River	Location	Purpose	In Charge	Height (m)	Width (m)	Length (m)	Intake Vol m <sup>3</sup> /hr	Construction Year	Construction Cost(K.sh)	Working Condition	Annual O&M Cost
I-1-1	Horse Shoe Weir	Nyando	Ombeyi	Irrigation	NIB	2.5	0.3	20		1968		Good	8600000
I-1-2	Pumping Stn	Nyando	Ombeyi	Irrigation	NIB				1464	1968	41000000	Good	2000000
I-1-3	Flume	Nyando	Ombeyi	Irrigation	NIB					1968		Good	50000
I-1-4	Distribution Box	Nyando	Ombeyi	Irrigation	NIB	3	2.5	3		1968		Good	3500000
I-1-5	Offtakes/Gates	Nyando	Ombeyi	Irrigation	NIB	0.6				1968		Good	
I-1-6	Irrigation Canal	Nyando	Ombeyi	Irrigation	NIB				6120	1968		Good	
I-2	Irrigation Canal	Oroba	Ombeyi	Irrigation & Drainage	CBO	0.6	1	16		1988		Good	
I-3	Intake Gates	Ombeyi	Ombeyi	Irrigation	Rice Scheme Comm	0.6	30	45		1988	5000000	Bad	
I-4-1	Weir	Nyando	Ahero	Irrigation	MWI	2.75			80	1991	25000000	Good	
I-4-2	Intake	Nyando	Ahero	Irrigation	CBO				Gravity	1992		Poor	400000
I-5-1	Liwala Intake	Awach Kano	N Nyakach	Irrigation	MOA					1982		Damaged	
I-5-2	Offtakes/Gates	Awach Kano	Gem Rae	Irrigation	Rice Scheme Comm	2	1			2006		Good	25000
I-5-3	Irrigation Canal	Awach Kano	Gem Rae	Irrigation	Rice Scheme Comm	2	1					Good	700000
I-6-1	Intake Canal	L Victoria	Kawino	Irrigation	NIB					1972		Good	
I-6-2	Pumping Stn Inlet	L Victoria	N Kawino	Irrigation	NIB					1975		Damaged	
I-6-3	Pumping Stn Outlet	L Victoria	N Kawino	Irrigation	NIB					1975		Good	



I-4-1



I-4-2



I-1-2



I-1-1



I-6-3



I-1-2



I-6-1

1-3-3 Inventory of Irrigation Structures

***DATA BOOK 3.***  
***FORMULATION OF PILOT PROJECT***

## FORMULATION OF PILOT PROJECT

### TABLE OF CONTENTS

Formulation of Pilot Project .....	DB3-1
1. Concept of Pilot Project.....	DB3-1
2. Structural Measures .....	DB3-2
3. Non-Structure Measures .....	DB3-16
4. Finalisation of Pilot Projects.....	DB3-31

#### List of Tables

Table 2.1	Review Result of Structure Measure .....	DB3-2
Table 2.2	Selected Structural Measures in Pilot Project.....	DB3-4
Table 2.3	Maintenance Work Items for Constructed Facilities .....	DB3-14
Table 2.4	Capacity Development Plan for O&M of Structure Measures.....	DB3-15
Table 3.1	Non-Structure Measures proposed by Communities .....	DB3-16
Table 3.2	Sub-Locations and Villages for Establishment of CFMO .....	DB3-17
Table 3.3	Description of Community-Driven Flood Management.....	DB3-18
Table 3.4	Description of Capacity Development for Flood Disaster Management .....	DB3-18
Table 3.5	Syllabus of Education of Disaster Prevention (draft).....	DB3-22
Table 3.6	Actions for Community Flood Hazard Map in the Pilot Project.....	DB3-24
Table 3.7	Evacuation Condition in Each Community .....	DB3-25
Table 3.8	Proposed Development Approach in Each Community .....	DB3-29
Table 4.1	Dropped Out Components from the Pilot Project.....	DB3-31

#### List of Figures

Figure 1.1	Community Driven Flood Management.....	DB3-1
Figure 2.1	Damaged Riverbank in Nyamasaria River (Downstream View).....	DB3-4
Figure 2.2	Outline of Restoration of Damaged Riverbank at Odesso.....	DB3-5
Figure 2.3	Standard Section of Desiltation (view from upstream) at Odesso.....	DB3-6
Figure 2.4	Existing Condition of Proposed Project at Kokwaro.....	DB3-7
Figure 2.5	Outline of Evacuation Centre and Raising of Local Road at	

	Kokwaro (view towards hall) .....	DB3-8
Figure 2.6	Existing Condition of Proposed Project at Kasiru.....	DB3-9
Figure 2.7	Outline of Raised Local Road at Kasiru (view towards another village).....	DB3-10
Figure 2.8	Damaged Dyke in Nynado River (Magina Sub Location) .....	DB3-10
Figure 2.9	Outline of Dyke to be newly constructed at Magina Sub Location.....	DB3-11
Figure 2.10	Ramp for Cattle for Water Drinking in Bararget River (Chil Chila location).....	DB3-12
Figure 2.11	Improvement of Existing Riverbank and Ramp in Siwot and Kamiwa Villages.....	DB3-13
Figure 3.1	Community Warning Pole.....	DB3-19
Figure 3.2	Preparation of Community Flood Hazard Map .....	DB3-23
Figure 3.3	Community Hazard Map Prepared by Community .....	DB3-24
Figure 3.4	Evacuation Way during Flood .....	DB3-25
Figure 3.5	Photos of Bararget River in Chil Chila Location.....	DB3-27
Figure 3.6	Community Development Approach in Flood Management.....	DB3-29



## FORMULATION OF PILOT PROJECT

### 1. Concept of Pilot Project

Currently, there are several types of flood control or disaster management bodies at grass-root level. These are typically implementing small-scale structural measures such as de-silting of drainages/ canals, developing water pans, improving rural roads and so on, while some are being trained in flood management by Kenya Red Cross. However, these measures have limitations to prevent flood damage and protect human life and properties and there is no well-organised flood management organisation at community level. In addition, most of these measures have been driven by external organizations, and accordingly it seems that the self-will of communities is still not enough to continue the activities or maintain the structures after the completion of external assistance.

With the above background, it is of necessity that community driven flood management organisations be established to mainly deal with both small-scale structural measures and non-structural measures. It is emphasized that the activities should be community-driven. Therefore, the activities related to mutual help between external organizations and community for flood management should be done by community initiative, and external organizations should focus on creation of awareness of flood disaster mitigation measures. On the other hand, the external organizations can assist activities related to self help for flood management through capacity development of community driven flood management organisations.

	Structural Measures	Non-structural Measures
<b>Mitigation/ Preparedness</b>	<u>High cost</u> <ul style="list-style-type: none"> <li>• Flood control dam</li> <li>• River improvement</li> <li>• Dyke construction</li> </ul> <u>Low cost</u> <ul style="list-style-type: none"> <li>• Rehabilitation of dyke and riverbank</li> <li>• Desilting existing drainage</li> </ul>	<ul style="list-style-type: none"> <li>• Establishment of community organisation for flood management</li> <li>• Training of flood management to community</li> <li>• Education for flood preparedness</li> <li>• Strengthening of coordinative structure with other communities and organizations</li> </ul>
<b>Response</b>	<u>High cost</u> <ul style="list-style-type: none"> <li>• Weather forecast system</li> <li>• Telemetering network</li> <li>• Drainage pump</li> </ul> <u>Low cost</u> <ul style="list-style-type: none"> <li>• Improvement of evacuation centres</li> <li>• Community road raising</li> </ul>	<ul style="list-style-type: none"> <li>• Arrangement of evacuation framework</li> <li>• Flood waning and dissemination</li> <li>• Flood hazard map</li> <li>• Evacuation drill</li> <li>• Emergency stock</li> </ul>
	<b>MUTUAL HELP (Government and Community)</b>	<b>SELF HELP (Community's initiative)</b>

**Figure 1.1 Community Driven Food Management**

## 2. Structural Measures

### (1) Review of Structural Measures Proposed by Communities

Various structural measures have been proposed in the CAPs as noted in sub-chapter 6.5. Structural measures proposed in the CAPs were reviewed through the following viewpoints in order to select structure measures in the pilot project.

- 1) High effectiveness and less negative impact by intoxication of structural measures is expected (high benefit per cost).
- 2) Construction materials for structure and facilities are easily obtained in Kisumu and surrounding areas.
- 3) High technical standard for construction method and heavy equipment are not required.
- 4) Maintenance of the constructed structures and facilities is easily made by communities.
- 5) In case damaged, restoration is easily carried out by communities with support of related agencies.

The review results of proposed structural measures are summarized in Table 2.1.

**Table 2.1 Review Result of Structure Measure**

Issues in CAP	Structures Proposed in CAP	Review Result
<b>Odesso Village, Kasule Sub-Location</b>		
1) Flood	1. De-Silting rivers	×: Large scale works are required and high cost is expected
	2. Opening blocked culverts	×: Effectiveness is locally limited
	3. Construction of new culverts.	×: Effectiveness is locally limited
	4. Dredging of blocked canals	○: High benefit per cost t is expected No impact to surrounding area is expected since the canal is jointed with Odesso river
	5. Reconstruction of Nyamasaria bridge	×: Large scale works and high cost are expected ○: High need for restoration of damaged riverbank is observed. Main road to village will be eroded in case no restoration. Positive impact to surrounding area is high.
	6. Construction of dykes	×: Large scale works and high cost are expected
2) Poor roads	1. Repair of roads	×: Large scale works and high cost are expected
<b>Kokwaro village, Central Bwanda Sub-Location</b>		
1. Flooding	1. Widening of water ways	×: Large scale works and high cost are expected
	2. Building dykes along river Miriu	×: Large scale works and high cost are expected
	3. Opening old canals and digging new ones	×: Effectiveness is locally limited

Issues in CAP	Structures Proposed in CAP	Review Result
	4. Construction of roads and installing culverts	○: Safe evacuation road is strongly requested. High benefit per cost t is expected
	5. Improvement / Establishment of the evacuation centre - Borehole construction - Improved sanitation	○: Safe evacuation centre is strongly requested. High benefit per cost t is expected. ×: Underground water is salty. Roof catchment will be applied in evacuation centre. ○: As attachment to the evacuation centre will be considered.
2. Lack of bridges	1. Construction of permanent bridges	×: Large scale works and high cost are expected
<b>Kasiru village, Kore Sub-Location</b>		
1. Flooding	1. Dredging (river and canal)	×: Large scale works and high cost are expected
	2. Dyking along Miriu	×: Large scale works and high cost are expected
	3. Opening up blocked canals	×: Effectiveness is locally limited Negative impact to other area is expected
	4. Opening up new canals	×: Effectiveness is locally limited Negative impact to other area is expected
	5. Widening river channels (Miriu river)	×: Effectiveness is locally limited Large scale works and high cost are expected
2. Lack of roads and bridges	1. Road construction	○: Safe evacuation road is strongly requested. High benefit per cost t is expected
	2. Construction of bridges	×: Large scale works and high cost are expected
3. Lack of clean water	1. Water trough construction	
	2. Construction of boreholes	○: Safe drinking water is strongly requested. High benefit per cost t is expected
<b>Kochiewo village, Magina Sub-Location</b>		
1. Flooding	1. Widening of River Nyando	×: Large scale works and high cost are expected
	2. Opening blocked canals	×: Large scale works and high cost are expected Negative impact to other area is expected
	3. Construction and improvement of dykes	○: Construction of dyke is strongly requested by communities. Restoration of damaged dyke is done by NMCPC as planned. New dyke construction is taken up.
2. Poor roads	1. Construction of culverts	×: Effectiveness is locally limited.
	2. Improvement of roads	×: Large scale works and high cost are expected
3. Lack of bridges	1. Construction of permanent bridge	×: Large scale works and high cost are expected

Data source: Reviews made by JICA Study Team

Remark: ○: Candidate structures to be taken up, X: Structures not to be taken up

## (2) Structural Measures Proposed by JICA Study Team

Based on the above review results, the following construction method are proposed as reasonable structural measures for community based flood management in the pilot project.

**Table 2.2 Selected Structural Measures in Pilot Project**

Sub location/Village	Selected Structural Measures	Construction Method
Kasule/Odesso	<ol style="list-style-type: none"> <li>1. Restoration of damaged riverbank (37 m long)</li> <li>2. Desiltation of drainage canal (830 m long)</li> </ol>	<ol style="list-style-type: none"> <li>1. By gabion mattress</li> <li>2. By desiltation</li> </ol>
Central Bwanda/Kokwaro	<ol style="list-style-type: none"> <li>1. Construction of one evacuation centre</li> <li>2. Raising of local road as evacuation road leading to the above centre (600 m long)</li> </ol>	<ol style="list-style-type: none"> <li>1. Required land is donated by resident</li> <li>2. Raising existing road</li> </ol>
Kore/Kasiru	<ol style="list-style-type: none"> <li>1. Construction of 2 wells and construction of 1 storage house in the existing evacuation centre</li> <li>2. Raising of local road as evacuation road leading to the above centre (400 m long)</li> </ol>	<ol style="list-style-type: none"> <li>1. By drilling as borehole in the existing evacuation centre</li> <li>2. Raising existing road</li> </ol>
Magina/Kochiewo	<ol style="list-style-type: none"> <li>1. Construction of new dyke (100m long)</li> </ol>	<ol style="list-style-type: none"> <li>1. By earth dyke</li> </ol>
Bararget/Chil-Chila	<ol style="list-style-type: none"> <li>1. Riverbank protection (17 m long)</li> <li>2. Improvement of existing ramp to low water channel of Bararget river (4m wide)</li> </ol>	<ol style="list-style-type: none"> <li>1. By wooden and gabion mattress</li> <li>2. By grading ground surface</li> </ol>

Data source: JICA Study Team

### Odesso Village

The most urgent matter in this area is rehabilitation of damaged riverbank caused by erosion on the left bank at just downstream of the Nyamasaria bridge. Eroded riverbank is taken up as an urgent measure in order to protect the existing Nyamasaria bridge on the national A1 road. The main road to Odesso village may suffer if further erosion is continued. The total length of restoration is around 37 m. One silted drainage canal is located the village towards the Odesso river. The following photos show present conditions at proposed site.



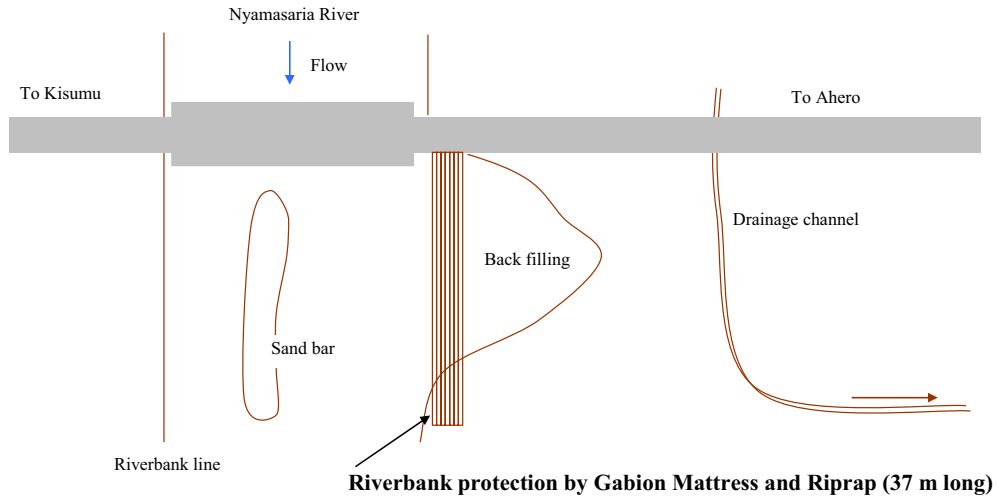
Eroded Riverbank in Nyamasaria River



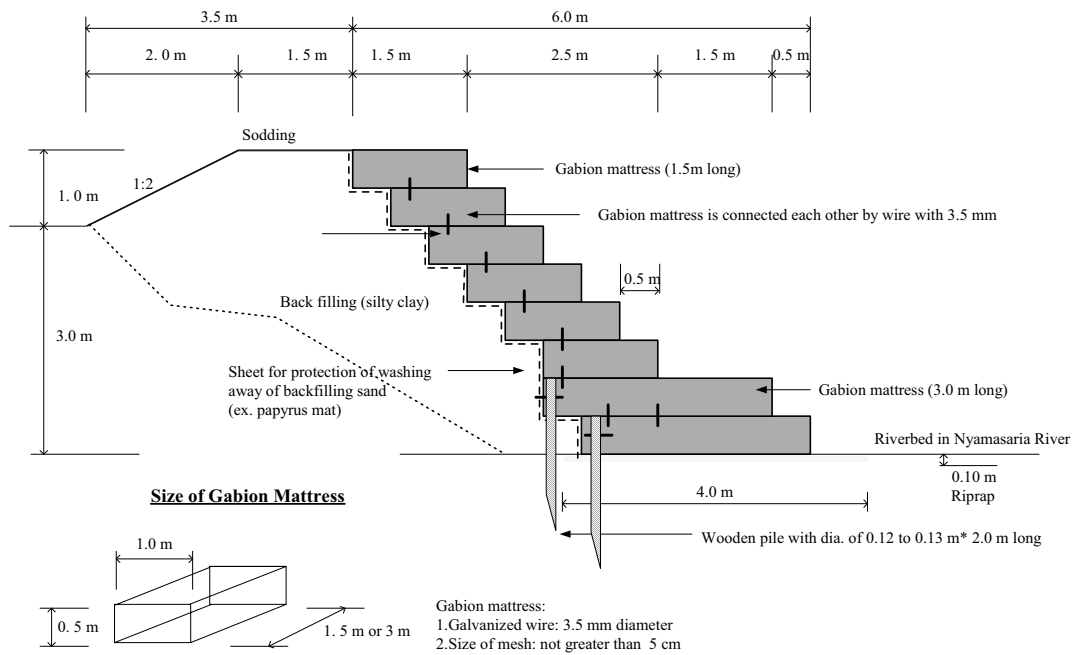
Local Drainage Canal at Odesso

**Figure 2.1 Damaged Riverbank in Nyamasaria River (Downstream View)**

Figure 2.2 shows an image of restoration of damaged riverbank in the Nyamasaria river at Odesso. The gabion mattress will be applied considering availability of stone materials nearby site and easy repairing works in the future.



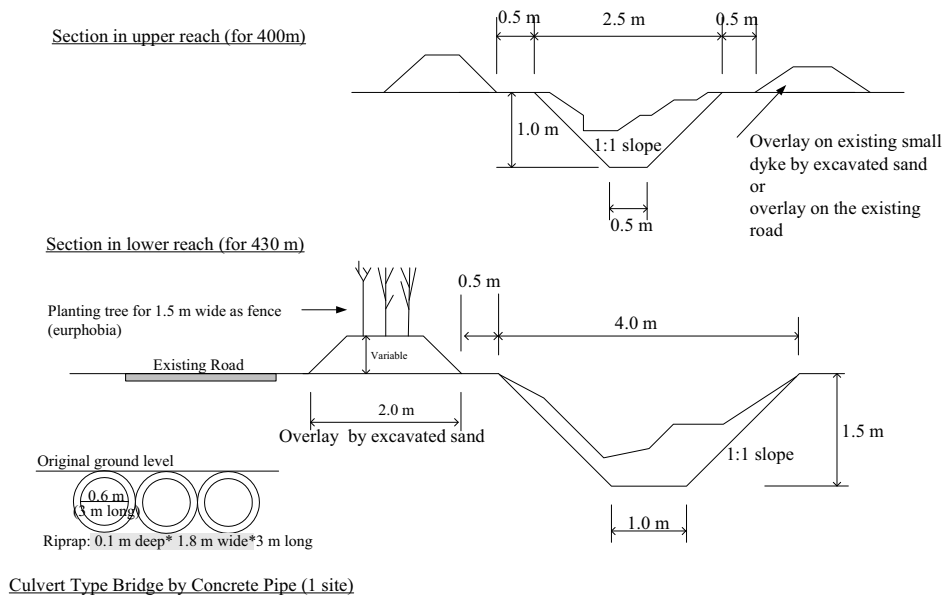
**Image of Restoration Works**



**Standard Section (view from upstream)**

**Figure 2.2 Outline of Restoration of Damaged Riverbank at Odesso**

One drainage canal is located in the village. However, the canal bed has been silted up and the present drainage capacity is negligibly small. The length of desiltation is around 830 m. As shown in Figure 2.3, the drainage condition in the area will be improved by the disiltation.



**Figure 2.3 Standard Section of Desiltation (view from upstream) at Odesso**

### Kokwaro Village

In Kokwaro village, construction of evacuation centre is strongly requested and accordingly is taken up as a structural measure. The land is donated by community people and the evacuation centre with toilet and roof water harvest system will be constructed.

The existing local road connected to the proposed evacuation centre is always submerged during flood season. In order to conduct evacuation activities in the village effectively, raising local road is taken up in combination with construction of evacuation centre. According to interviews to residents, average inundation depth along the road is around 50 cm. Accordingly, the local road should be raised by 1 m height including an additional height of 50 cm for around 600 m long.

The following pictures show proposed site for community hall as evacuation centre to be constructed and local road leading to the said centre to be raised.



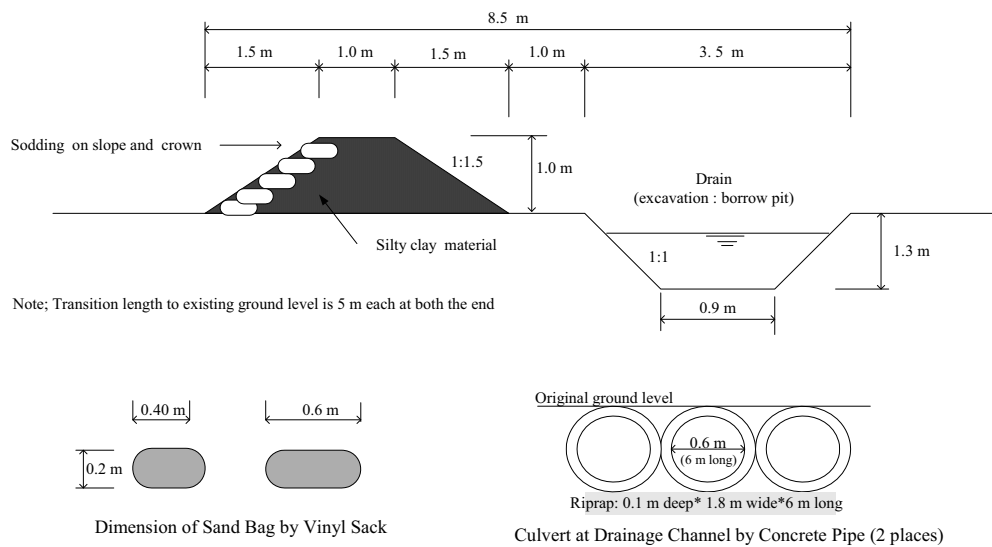
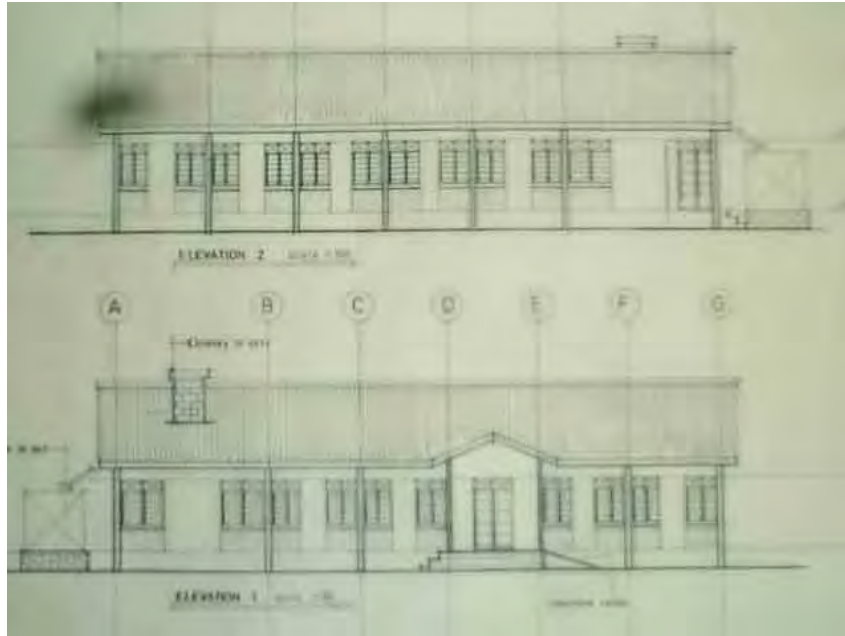
Proposed Site of Evacuation Centre



Local Road to be Raised

**Figure 2.4 Existing Condition of Proposed Project at Kokwaro**

Figure 2.5 shows outline of evacuation centre and raising local road. Miriu river is running at the left side of local road towards proposed evacuation centre. Therefore, left slope of the road will be protected by sand bag protecting from erosion by overflowing river water.



**Figure 2.5 Outline of Evacuation Centre and Raising of Local Road at Kokwaro (view towards hall) Kasiru Village**

This village is located in the frequent inundation area on the right bank of the Miriu river. The village of Kasiru is divided into 2 areas (A and B) by paddy field and swamp. During flooding, residents in north area (A) utilize the existing two evacuation centres located in the south area (B). However, the existing road between A and B has been submerged during flood season.

In order to secure a safe evacuation road between A and B, the existing local road will be raised for around 400 m long. The raised height should be 1 m including additional height of 50 cm considering same condition as Kokwaro village. According to interviews with village, 14 m



wide area along proposed route is available, although required width is around 8.5 m only.

Further, it is reported that there is no access to safe water in the existing evacuation centre (church) and therefore most of refugee suffered from drinking water in the evacuation centre. In addition, there is no toilet in the existing evacuation centre. In this regard, one boreholes equipped with hand pump and toilet should be constructed in the compound of evacuation centre. According to the geo-hydrological survey result, the depth of borehole will be 50-70 m. The foundation of hand pump should be raised.

The following Figure 2.6 shows present condition at Kasiru village.



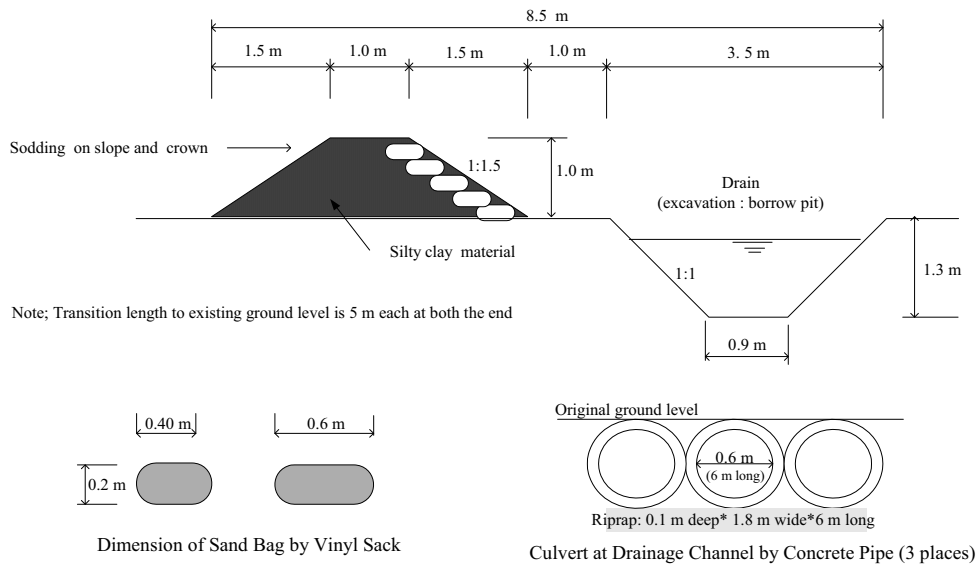
Proposed Site for Construction of Borehole



Proposed Route of Raising Road to Isolated Area (A)

**Figure 2.6 Existing Condition of Proposed Project at Kasiru**

Figure 2.7 shows outline of raising local road. The proposed area for road has been frequently attacked by overflowing river water from Oroba river. Therefore, the slope of Oroba river side should be protected by sand bag as same as Kokwaro village.



**Figure 2.7 Outline of Raised Local Road at Kasiru (view towards another village)**

(4) Kochiewo Village

This village is located near the right bank of the lower Nyando river. Due to the current floods occurred in the late December 2006 and in the early January 2007, the existing dyke foundation constructed by NWCPC was partially washed away for 100 m long as shown in Figure 2.8.

The rehabilitation of damaged dyke will be carry out under NWCPC. In succession to this rehabilitation, second stage works (construction of the top of dyke on the foundation) will be carried out for around 2 km long.



Damaged Dyke on Right Bank



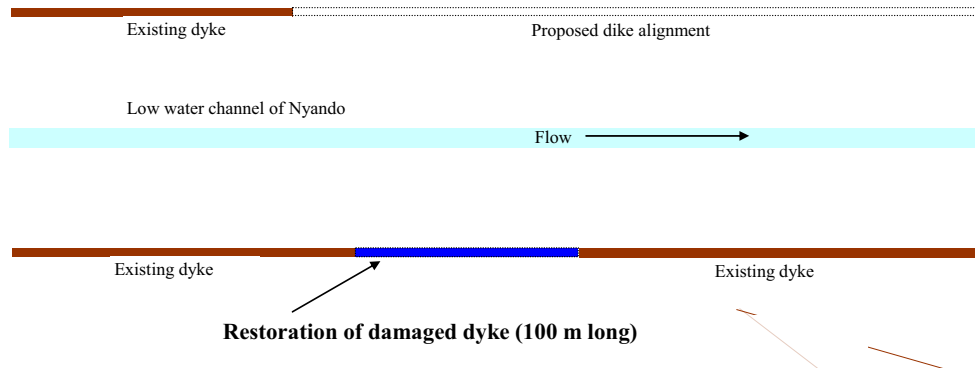
Sand Bag used in Emergency Works

**Figure 2.8 Damaged Dyke in Nynado River (Magina Sub Location)**

In this area, further construction of new dyke has been strongly requested. From such a

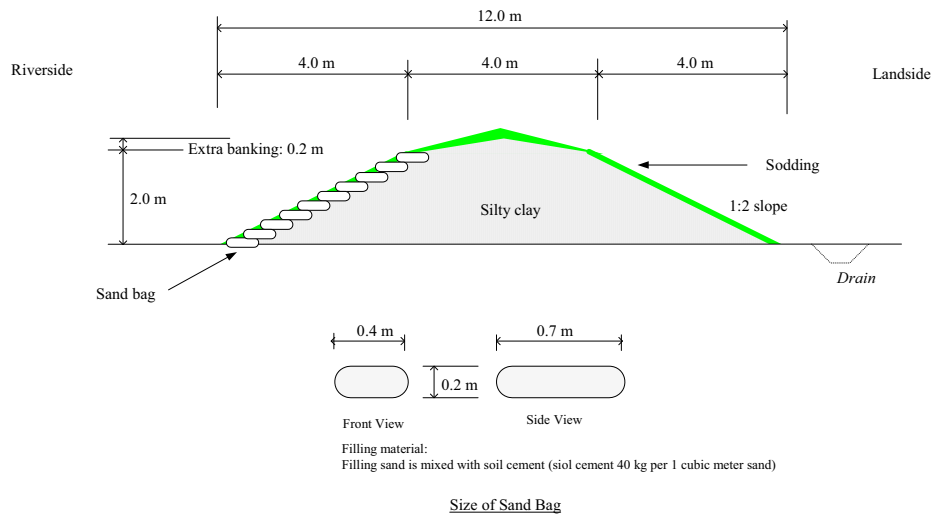
viewpoint, construction of new dyke is taken up as pilot project in this area. Through discussion with NWCPC in May 2007, site for pilot project was finalized.

Figure 2.9 shows outline of construction of new dyke in Nyando river at Magina Sub Location. In order to strengthen dyke slope in the riverside, slope protection by using sand bag will be applied in combination with sodding.



**Location Sketch of Dyke to be Constructed**

**Dike Section to be Constructed at Magina Sub-Location (for 100m long)**



**Dyke Section (view from upstream)**

**Figure 2.9 Outline of Dyke to be newly constructed at Magina Sub Location**

### Siwot and Kamiwa Villages

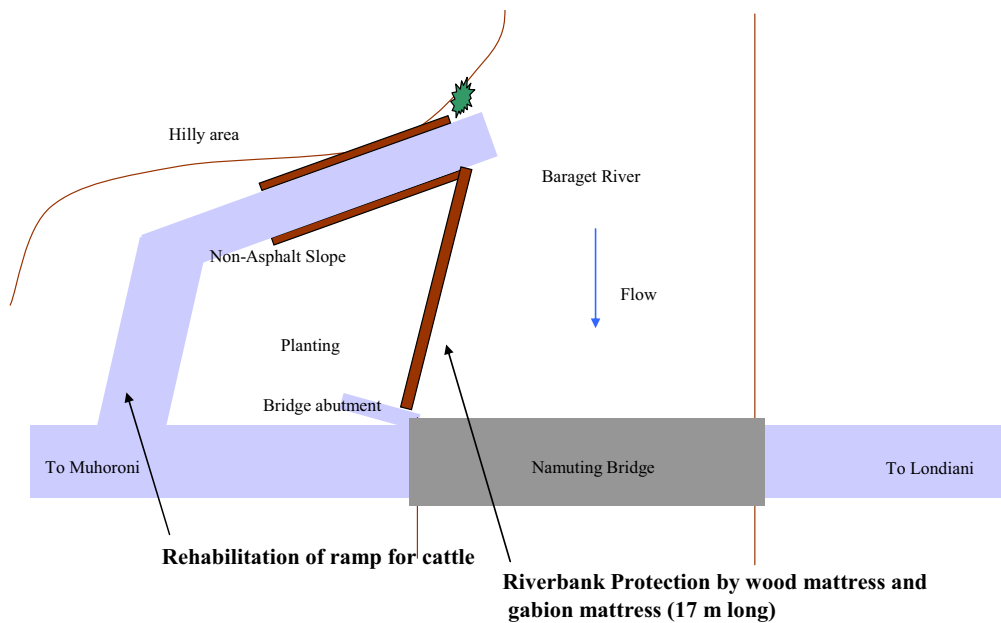
These villages are located in the Bararget river in the middle Nyando river basin. The proposed site is located at just upstream of bridge crossing national road between Muhoroni and Londiani. The site is fully utilized as ramp for water drinking of cattle in the village. Due to such cattle activities, right riverbank on the Bararget river has been seriously eroded and as a result, destruction of bridge will be made in future as shown in Figure2.10.



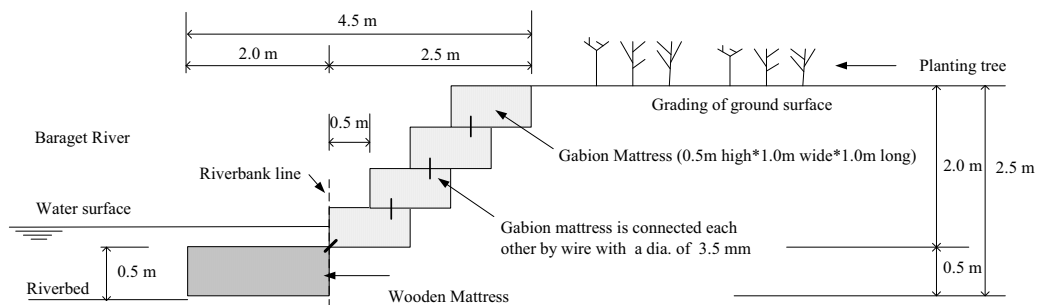
**Figure 2.10 Ramp for Cattle for Water Drinking in Bararget River (Chil Chila location)**

In the above background, protection of riverbank including ramp was proposed. The proposed site is around 17 m long. It is expected that this improvement work to control riverbank erosion will be applied to other sites along the river channels in the middle and upper basin.

Figure 2.11 shows outline of riverbank protection in Bararget river in Siwot and Kamiwa Villages. The gabion mattress is applied to proposed riverbank protection works considering availability of stone material around site and easy repairing works in the future.



**Image of Protection Works**



**Standard Section (view from upstream)**

**Figure 2.11 Improvement of Existing Riverbank and Ramp in Siwot and Kamiwa Villages**

**(3) Capacity Development for O&M of Structures**

After construction of such structures and facilities, operation and maintenance (O&M) works will be started by related agencies or communities. The maintenance works are generally divided into the following 4 stages in the maintenance cycle for the structures.

- Ordinary time (periodical inspection and maintenance works, if necessary, at least once in 2 months)
- Pre- flood (repair works, if needed)
- During flood (flood fighting team will monitor the structure)
- Post- flood (repair works, if needed, then return to maintenance in ordinary time)

The inspection in ordinary time is most important to maintain function of the structure as well as to find necessary improvement for the damage. The inspection will be made by visual observation at site.

Major iactivities in the respective times for river and related works are outlined in Table 2.3.

**Table 2.3 Maintenance Work Items for Constructed Facilities**

Time of Inspection/Repair Works	Dyke	Riverbank Protection Works	Drainage Canal	Raised Road
Ordinary Time (Periodical once in 2 months)	<ul style="list-style-type: none"> <li>- Erosion or leakage point of dyke body (incl. mole hole)</li> <li>- Condition of inspection road (installed on top of dyke)</li> <li>- Condition of ditch constructed along dyke</li> <li>- Cut of grass (turf) on the dyke slope and digging of weed</li> <li>- Condition of distance post</li> <li>- Illegal activity (dumping of garbage, construction materials, construction of structures, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>- Condition of foot protection (scouring)</li> <li>- Condition of gabion net and stone</li> <li>- Condition of small dyke and cut of grass</li> <li>- Illegal activity (dumping of garbage, construction materials, construction of structures, sand harvesting in front of structure, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>- Condition of canal (erosion, slope failure)</li> <li>- Condition of planting trees</li> <li>- Sitation in concrete culvert as bridge</li> <li>- Illegal activity (dumping of garbage, construction materials, construction of structures, etc.)</li> </ul>	<ul style="list-style-type: none"> <li>- Condition of road (slope failure, erosion)</li> <li>- Siltation in culvert as bridge</li> <li>- Condition of drain canal along road</li> <li>- Illegal activity (removal of sand bag, dumping of garbage into culvert and canal, etc.)</li> </ul>
Pre-flooding (common for all case)	<ul style="list-style-type: none"> <li>- Emergent repair of damaged structures and abnormal riverbank scouring</li> <li>- Removal of obstacle in channel and canal</li> <li>- Stock of required materials (sand bag, sheet, shovel, etc.)</li> <li>- Stand by of community flood fighting team</li> </ul>			
During flooding (common for all case)	<ul style="list-style-type: none"> <li>- Activity as flood fighting (Emergency countermeasures)</li> <li>- Evacuation activities</li> </ul>			
Post-flooding (common for all case)	<ul style="list-style-type: none"> <li>- Damage survey</li> <li>- Preparation of damage report</li> <li>- Repair/remedial works for the above</li> </ul>			

Data source: JICA Study Team

For the above activities, ordinary inspection, maintenance works, and repair work for small damage should be conducted by the related communities. If nay large damage is confirmed, repair or replacement work should be carried out by related agencies such as NWPC, Ministry of Public Works, etc. Therefore, related communities should be deeply involved in the inspection activity. On the other hand, community evacuation centre and well are operated by communities in their daily life. Such operation and maintenance for the hall and well should be done by the communities.

Table 2.4 presents outline of capacity development plan for O&M of structures and facilities to be constructed under the pilot project.

**Table 2.4 Capacity Development Plan for O&M of Structure Measures**

Structures / Facilities	Target Community	Means of O&M Training	Collaborator for O&M
Rehabilitated Dyke / Riverbank	Odesso / Magina	Training on inspection, damage assessment, reporting through proper channel of communication	NWCPC / WRMA
Rehabilitated drainage channel	Odesso	Participating in construction work, means of obtaining tools and materials for O&M	NWCPC / MoPW
Raised Road	Kokwaro / Kasiru	Participating in construction work, means of obtaining tools and materials for O&M	MoPW
evacuation centre	Kokwaro	Training on basic knowledge of evacuation centre and necessary equipment for emergency case	Local Administration
Well	Kasiru	Training on Pump operation Security	WSB / WRMA

### 3. Non-Structure Measures

#### (1) Review of Non-Structure Measures Proposed by Communities

The following non-structure measures were proposed by the five communities during the exercise of Community Survey conducted by the Study Team.

**Table 3.1 Non-Structure Measures proposed by Communities**

Community	Proposal for Non-Structural Measures	Assessment by the Study Team
Odesso	<ul style="list-style-type: none"> <li>- Training on Disaster Awareness</li> <li>- Training on Food Security</li> <li>- Training on Livestock &amp; Animal Husbandry</li> <li>- Training Community Health Workers</li> <li>- Training on Rural Entrepreneurship and Development</li> </ul>	<ul style="list-style-type: none"> <li>- Local people proposed disaster management training as non-structure measures in the CAP.</li> <li>- The communal work as community has problem, since there are many new comers. The O&amp;M on drainage should be carefully considered.</li> </ul>
Kokwaro	<ul style="list-style-type: none"> <li>- Training on disaster preparedness and management</li> <li>- Training on Swimming techniques</li> <li>- Training on making dyke and drainage system</li> </ul>	<ul style="list-style-type: none"> <li>- Evacuation system should be mainly considered in the pilot project.</li> <li>- Establishment of new evacuation centre using land donated by local people can be selected as pilot project, since high project impact for the west area will be expected. In addition to construction of new evacuation centre, improvement of evacuation road should be considered.</li> <li>- Local people proposed disaster management training as non-structure measures in the CAP.</li> <li>- Shortage of feed and fuel wood should be considered in the pilot project, and, as a result, the project sustainability will be improved.</li> </ul>
Kasiru	<ul style="list-style-type: none"> <li>- Forming disaster management committee</li> <li>- Training the community on disaster preparedness</li> <li>- Training the community on disaster management</li> <li>- Training on river bank stabilization</li> <li>- Improvement of evacuation centres</li> <li>- Training on food and fodder conservation</li> </ul>	<ul style="list-style-type: none"> <li>- Evacuation system should be mainly considered in the pilot project.</li> <li>- Local people proposed disaster management training as non-structure measures in the CAP.</li> <li>- Needs on improvement of health and sanitation condition are high. Those needs should be considered to increase project sustainability.</li> </ul>
Kochiewo	<ul style="list-style-type: none"> <li>- Training on evacuation preparedness</li> <li>- Training on food conservation</li> <li>- Training on dyke maintenance and fodder conservation</li> </ul>	<ul style="list-style-type: none"> <li>- Local people proposed disaster management training, technical training on maintenance of dike, agriculture technology to avoid flood and drought damage to the crops as non-structure measures in the CAP.</li> </ul>
Siwot and Kamiwa Villages	<ul style="list-style-type: none"> <li>- Training on animal and crop husbandry and soil fertility improvement</li> <li>- Formation of marketing federations</li> <li>- Formation of village bank</li> <li>- Training on water harvesting techniques</li> <li>- Roof harvesting of rain water (Training of artisans on water tank construction)</li> <li>- Training on Agro forestry</li> <li>- Training on alternative sources of energy and energy saving devices</li> <li>- Training on drainage management</li> <li>- Training on Primary Health Care and construction of toilets</li> </ul>	<ul style="list-style-type: none"> <li>- Various proposals on capacity development were proposed by the communities. Considering present issues relating to soil erosion, soil fertility improvement, agro-forestry will be taken as one of component in the pilot project.</li> </ul>

Source: Result of Community Survey, JICA Study Team 2007.



It is observed in every target village that there are greater needs for training of disaster (flood) management and needs for establishment of community based disaster (flood) management organisation, which is missing at the village level. Therefore, it is understood that the two items of training of flood management and establishment of a sort of community based flood management organisation be common components among the target villages, forming a part of non-structure measures in the Pilot Project, while the other needs are classified as selective components by the target villages as discussed later.

(2) Proposed Non-Structure Measures

It is widely understood that not only structural measures but also non-structural measures shall be considered as an important approach for flood management. Especially, enhancement of people’s awareness on flood and provision of training on proper flood management is indispensable to the community based flood management.

1) Community-Driven Flood Management Organisations

In order to formulate the core body of flood management in the target communities, it is proposed to establish Community Based Flood Management Organisations (CFMO) in the respective villages as shown table below:

**Table 3.2 Sub-Locations and Villages for Establishment of CFMO**

Sub-Location	Village	Organisation
1. Kasule Sub-location	Odesso Village	CFMO
2. Central Bwanda Sub-location	Kokwaro Village	CFMO
3. Kore Sub-location	Kasiru Village	CFMO
4. Magina Sub-location	Kochiewo Village	CFMO
5. Chil Chila Location	Siwot and Kamiwa Villages	Possibly Groups for community development

The objectives of the organisation are as follows:

- (a) To improve the livelihood of the target community through provision of appropriate disaster management, in particular flood management taking into consideration of the protection of human and physical resources of the community.
- (b) As a pilot community, to demonstrate and disseminate the CFMO experience and performance to adjacent communities for the furtherance or attainment of the pilot project implemented under the Study on Integrated Flood Management for Nyando River Basin.

The major work items for establishment and development of the CFMO are shown below:

**Table 3.3 Description of Community-Driven Flood Management**

Component	Descriptions
Establishment & Development of CFMO or other	<ul style="list-style-type: none"> <li>- Holding public meetings for sensitisation of necessity of CFMO in 4 communities</li> <li>- Establishment of CFMO in 4 communities with facilitation and consultation with these villages.</li> <li>- Grouping the villages as appropriated for composition of the CFMO</li> <li>- Preparation and finalisation of the bylaw of the CFMO with facilitation and consultation with these villages.</li> <li>- Registration of the CFMO as Self-Help Group to the District Department of Social Services.</li> <li>- Organisational training to achieve smooth, self-dependent and sustainable operation of the organisation including facilitation of holding meetings, resolutions, preparation of emergency communication network, accounting / auditing methods, and etc.</li> <li>- For the site in the middle catchment, a sort of river water users group will be formulated and the similar exercises as the above will be provided.</li> </ul>
Training of O&M	<ul style="list-style-type: none"> <li>- Training for O&amp;M of small-scale flood mitigation facilities availed by the Pilot Project, including dyke, drainage channel, evacuation centre, borehole, latrine, signboard of flood hazard map, flood warning siren and etc (2-3days training per community)</li> <li>- Training for utilisation of flood hazard map (confirmation of: hazard areas, vulnerable evacuees, mode of contact within community, evacuation route, posting flood hazard map)</li> </ul>

2) Capacity Development for Flood Disaster Management

The training of capacity development for flood disaster management will be provided to the established CFMO and the selected community residents. The training has three components: 1) Community Flood Management Component, 2) Community Flood Management Manual Component, 3) Implementation of Evacuation Drill as shown in the table below:

**Table 3.4 Description of Capacity Development for Flood Disaster Management**

Component	Descriptions
Community Flood Management Training	<ul style="list-style-type: none"> <li>- Implementing Flood Management Training for the established CFMOs and the selected residents in 4 villages (50 trainees / village, 3-4 days training / village) and topics to be covered are shown below:</li> <li>- Training and dissemination of disaster (flood) knowledge (concept of disaster cycle (Preparedness / Response / Rehabilitation), introduction of knowledge on structural measures that can be possible by community (elevated house, raising evacuation route, clearing drainage channel and etc.), knowledge of useful / necessary equipment in evacuation centre</li> <li>- Emergency communication and key issues of evacuation (important notice in evacuation, confirmation of evacuation route leading to evacuation centre, evacuation guiding, utilization of emergency communication network, instruction of how to live in evacuation centre, how to coordinate and communicate with Disaster Management Committee [Sub-chief, Chief, District Officer and others] in emergency)</li> <li>- Training on rescue and first aid (rescue activities, resuscitation skill, injury first aid)</li> </ul>
Community Flood Management Manual	<ul style="list-style-type: none"> <li>- Formulation of Community Flood Management Manual in 4 villages according to the disaster cycle (preparedness / mitigation, emergency response, and rehabilitation / reconstruction)</li> <li>- Content of Community Flood Management Manual shall include:</li> <li>- Preparedness: confirmation of evacuation centre and routes, emergency communication network,</li> <li>- Emergency Response: confirmation of operation procedure of emergency siren and communication network, coordination procedure with disaster management committee, roll call of evacuees,</li> <li>- Rehabilitation: how to assess flood damages, procedure of preparation of rehabilitation plan, procedure of relief goods request, procedure of cooperation request for rehabilitation, contact list for rehabilitation.</li> </ul>

Component	Descriptions
Implementation of Evacuation Drill	<ul style="list-style-type: none"> <li>- Implementing evacuation drill using the warning siren and emergency communication network (the siren will be installed by JICA Study Team)</li> <li>- Feedback meeting after the drill by participants pointing out problems in evacuation process</li> <li>- Involving 300 residents / village in 4 villages</li> <li>- One day exercise in 4 villages</li> </ul>

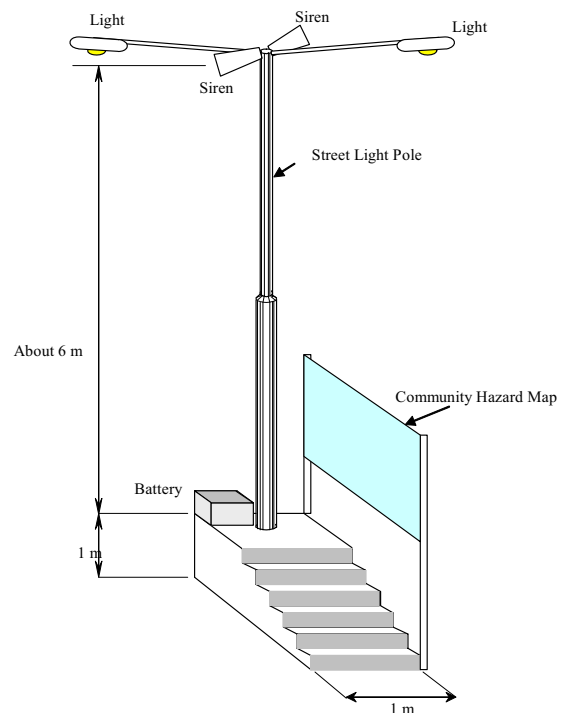
### 3) Warning Systems

All parties involved in the process of flood mitigation must understand the necessity of communication and learn how to express themselves in such a way that their input can be inter-linked with the input of others. It is clear that the receiver and not the sender of a message should determine its format. In mobilisation more than in any other aspect of flood management, it is essential to check that the message is received, understood and accepted. Seven principles apply when communicating public information on flooding:

- confidence in the source must be built
- message must be confirming, not contradicting
- simplicity is required in phrasing the message
- repetition and consistency of warnings builds trust
- content of message must be relevant to the receiver's value system
- media that are respected by the audience should be used
- audience's habits, degree of literacy and knowledge should be taken into account

Above all, wireless communication systems (mobile phone) are preferable because there is no telephone and electricity systems in the nominated communities, since sophisticated and high- technology means of communication may not always be effective to reach the targeted people during flood. In the pilot project, the warning system with siren is proposed as part of non-structural measure in the community. The system consists of street lighting pole, sirens and battery which are available in the city of Kisumu. The configuration of the warning system is illustrated in Figure 3.1.

As soon as the member of community-based flood preparedness organization receives the flood warning message from the Disaster



**Figure 3.1 Community Warning Pole**

Management Committee, the member turn on to blow the warning sirens which broke the silence of the night.

A signboard of community hazard map is attached to the warning sirens as reference of evacuation activities.

#### 4) Dissemination System

Dissemination system for emergency information / response / request is one of the key elements in flood management. The current practice of disseminating those information are not well organised and there is a miscommunication within the community residents and among the community, existing disaster management organisation, and local administration, which provide emergency relief materials. The observed problems, which seem to considerably hinder the dissemination of information, are as follows:

- (i) Disaster Management Committee (DMC) does not consult community
- (ii) DMC is composed of those who do not understand their work
- (iii) Relief aid does not reach the community on time due to poor road conditions
- (iv) Lack of adequate training on disaster management
- (v) Biased distribution of relief aid within the community due to misunderstanding

In the current practice, the village elders are linked to sub-chief and chief of the respective administrations and receive emergency information from DMC members outside or inside of the community. Most community residents receive flood information from the village elders for their next action. Once the community based flood management organisation is formed and trained within the community regarding the flood management issues, it will be necessary to conduct tie-up training with the DMC at overall levels (sub-location, location, and district level) in disseminating emergency information using warning sirens, assessing / reporting flood damage, and requesting relief aid for unbiased distribution. Such training will be provided in such way that evacuation drill will be implemented and flood management manual for flood preparedness, response, and rehabilitation will be prepared.

#### 5) Education of Disaster Prevention

##### Overview

It is understood that the awareness enhancement will be more effective if it is given to both adult people and children. The JICA study team, therefore, proposed the education of disaster

prevention focusing on the flood as a component of non-structural measure for flood management and plans to implement it at the pilot project site.

Children living in the flood prone area have suffered from flood since their birth. Education for disaster prevention will give them comprehensive knowledge of flood and also strengthen their awareness of flood prevention, mitigation and preparedness, so that they cope with flood. Also, contents of this programme are expected to be transferred to their family members; it is reported in Japan that more than 60% of families of school pupils heard the contents of education of disaster prevention from pupils.

The purposes of the education for disaster prevention in elementary school are to:

- (i) enhance pupil's knowledge and understanding about flood
- (ii) increase pupil's awareness on disaster preparedness
- (iii) give onsite training of disaster prevention, and,
- (iv) expect these knowledge and awareness be shared among pupil's family members.

### Components

Component 1: Enhancement of pupil's knowledge and understanding of pupils on flood

In this component, basic understanding of natural condition and flood are taught; including river system of the basin, cause of flood and flood damages nearby. For enhancement of understanding of flood, it is effective to teach them a part of science and geography.

Component 2: Increase pupil's awareness on preparedness

For increase pupil's awareness on preparedness, several practices are applied in teaching syllabus adding to lectures. It is expected that pupils feel the flood mitigation and preparedness as applicable to them.

Component 3: Onsite training and planning

This component is expected to make pupil ready to prepare the flood disasters. Also, transfer of learned matters from pupils to their family members is expected.

The subjects of each component are shown in the Table.

### Target School for Implementation

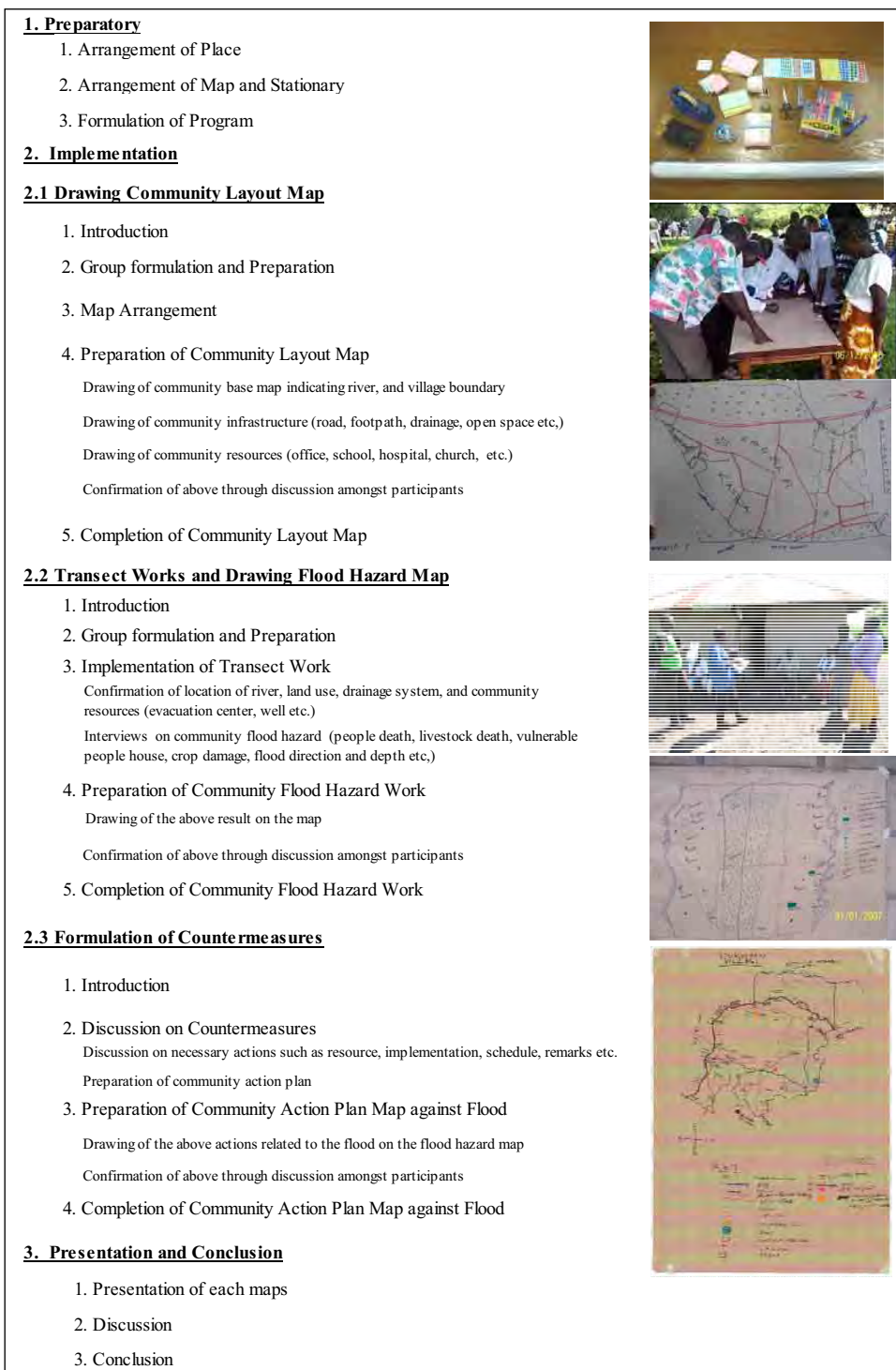
Primary schools in and around Kokwaro village

**Table 3.5 Syllabus of Education of Disaster Prevention (draft)**

Component	Unit	Subject	Teaching tool/ method
Enhancement of pupil's knowledge and understanding on flood	1.	Explanation of floods and flood damages (To turn pupil's attention to floods)	Photos of flood Lecture
		2. What damages do the pupils suffer from floods?	To demand pupil's answer
		3. Why flood occurs? 1 Natural conditions that cause floods (upper catchments, rainfall ...)	Lecture using textbook
		4. Where does the flood water come from in the Nyando River Basin?	Ask pupil's experience and opinions
		5. Why flood occurs? 2 Geographical explanation of Nyando River Physical river condition that causes floods	Lecture using textbook
		6. What the government/ local authorities/ NGOs do take measures to the floods?	Lecture using textbook
Increase pupil's awareness on preparedness	2.	8. What did pupil's family do when the flood of December 2006?	Ask pupils about the concrete action taken at the floods
		9. What damage did they suffer from the flood December 2006?	Ask pupils about the concrete action taken at the floods
		10. What did they do when the flood hit them?	Ask pupils about the concrete action taken at the floods
	3-1	11. Let's make a community hazard map based on that experience! From where water came, where they evacuated, etc..., using DIG <For upperclassmen>	Textbook Stationary for DIG
	3-2	12. Interview to village elders about flood History of flood disaster, coping experience, traditional warning system... <For middle classmen>	Textbook
Onsite training and planning	4.	13. Evacuation drill Evacuation from house to evacuation centre or from school to evacuation centre	
		14. What is the problem of evacuation in this community?	Textbook Ask pupil's answers
Onsite training and planning	5.	15. Presentation of community hazard map, result of interview and mitigation/prepare plan in the joint class (or at the sub-location level)	
		16. To explain the hazard map and plan to their homestead members	Home assignment
Finalization of the class	6.	17. Reporting	Textbook

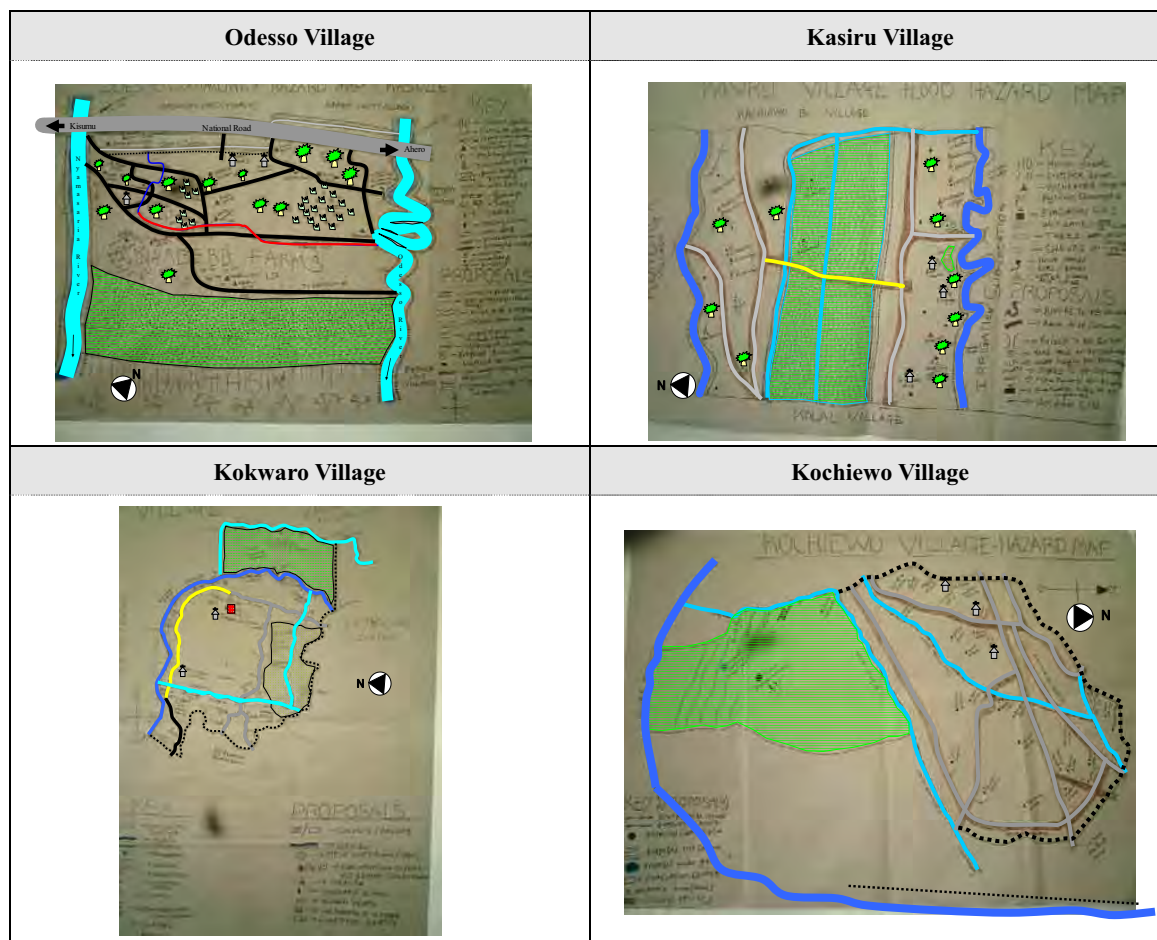
## 6) Flood Hazard Mapping

In the community survey carried out in December 2006 and January 2007, the community hazard map was prepared in each community. The following procedure was applied for preparation of community hazard map.



**Figure 3.2 Preparation of Community Flood Hazard Map**

Based on the above procedure, the following communality hazard maps were prepared.



**Figure 3.3 Community Hazard Map Prepared by Community**

In the process of the preparation of the above map, the followings are identified as issues and those should be improved through implementation of pilot projects.

**Table 3.6 Actions for Community Flood Hazard Map in the Pilot Project**

Issues Identified	Reasons	Action to be taken in the pilot project
No “non-structure measures” was indicated in the map.	Most people showed high concern to structure measures only.	Flood flow and depth should be considered in the workshop. Based on the flood analysis, self-help including maintenance of structure measures and evacuation should be discussed and illustrated on the map in the workshop.
Participants have no idea how to utilize community flood hazard map, although they wanted to put the map in the board to show the other local people.	Explanation on use of community flood hazard map is not enough, since the long time (6 days per community) has been required for preparation of base map.	In the workshop, effective use of community flood hazard map will be discussed. Especially, which information should be added and deleted for effective use at community level. After improvement of hazard map, the board with community flood hazard map will be established in the pilot project.



7) Evacuation System

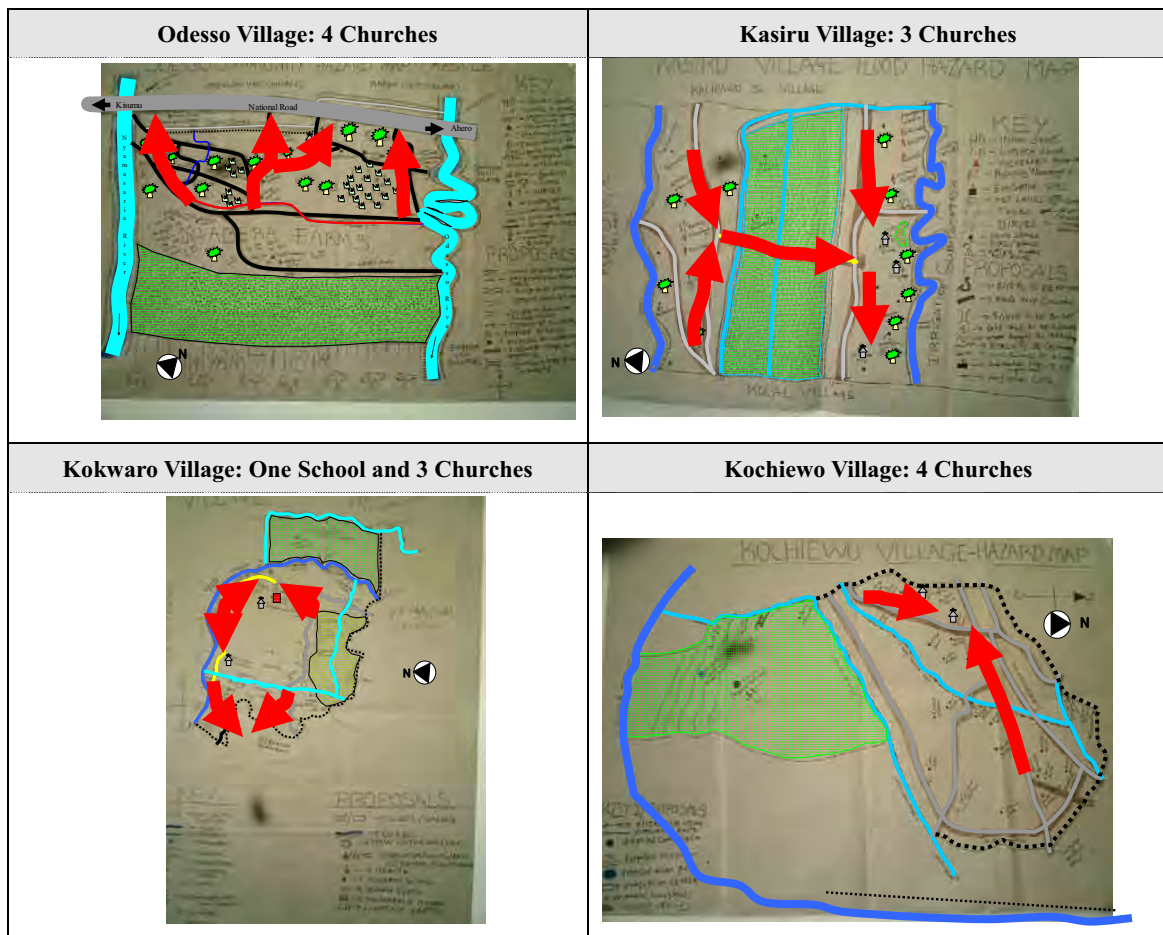
In the community survey carried out in December 2006 and January 2007, the following issues were identified in the present evacuation system.

**Table 3.7 Evacuation Condition in Each Community**

Village Name	Lead time for Evacuation	Major Evacuation Method	Time to evacuation in place	% of Stay in Evacuation Center
Odesso	5 hr	On foot	1.5 hr	25%
Kokwaro	8 hr	On foot	4.0 hr	39%
Kasiru	1 day	On foot	2.0 hr	35%
Kochiewo	3 hr	On foot	2.0 hr	27%

Village Name	Stay in Evacuation place	Availability of Food Aide	Availability of Medical Aide	Major Issue in Evacuation Center
Odesso	One week or more	55%	47 %	Space Shortage
Kokwaro	One week or more	65%	57%	Space Shortage
Kasiru	More than one week	43%	44%	Space Shortage
Kochiewo	More than one month	91%	86%	Space Shortage

Source: Result of community Survey, 2007, JICA Study Team



**Figure 3.4 Evacuation Way during Flood**

The above table and figure indicate major issues to be improved in each community. Considering major issues, the following actions are also proposed in the pilot project

- Odesso Village

The village is located along national road and the road elevation is higher than the village. Therefore, majority of local people evacuated out of the village due to good accessibility of village to the road. The major problem in evacuation is lead time to evacuation after receiving flood. Local people noted longer lead time is required in night time, since nobody found increase of water level. Those should be improved in the pilot project through installation of siren.

- Kokwaro Village

The swamp area occupy in one third area of the village. Most of village roads for evacuation are submerged during flood. Time to evacuation centre is 4 hours that is longest in 4 target villages. There are evacuation centres for the village, namely: one primary school for the east area (out of village) and one church for the west area. The space of the church is not enough to stay, although 40% of village people utilize the evacuation centres. Therefore, evacuation centre and evacuation route should be improved.

- Kasiru Village

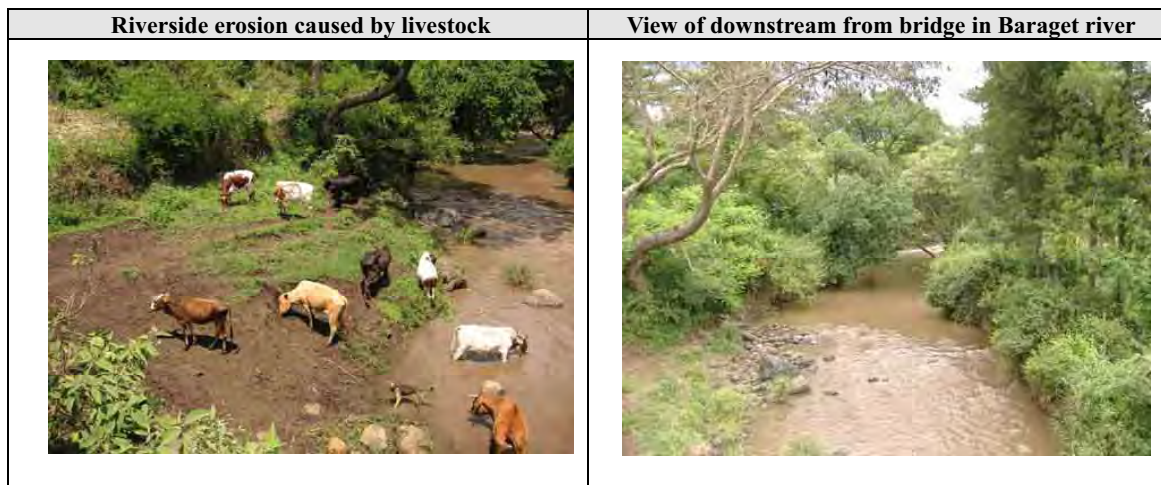
The village is divided into north and south parts, as the centre is intersected by paddy field. There are two churches as evacuation centres located in south parts. However, there are no toilet and water supply facilities attached in those churches. Local people, who live in the north part, evacuate on foot to the south part through paddy field. In addition, lead time to evacuate is one day that indicate longest in target villages. Therefore, evacuation centre, evacuation route and warning system should be improved.

- Kochiewo Village

Although the access to the village is limited, since the village is located in swamp area. There are evacuation centres for the village, namely: one primary school (out of village) and four churches. However, need of road improvement is not so high and only 27% of village people utilized evacuation centre. In addition, lead time to evacuation is only 3 hours and most of village people received emergency food or medical aide. Therefore, those advantages will be enhanced through evacuation drill.

8) Reduction of Soil Erosion

Chilchila location is located in the middle catchment of Nyando river basin. The location is previously a large-scale coffee growing area which has been subdivided when original settler farms were bought and subdivided into small holder settlements for maize, sugarcane production. Majority of the settlers are from Kericho District. Key issues in the location include massive deforestation in which exotic trees in former coffee plantations are clear-felled for timber while rangeland trees are cut for charcoal production. With population increase, cultivation and permanent settlements have been extended to steep hillsides which, coupled with free range grazing has triggered extensive sheet and gully erosion in the area. The worst affected are the communal livestock watering points along the Baraget river.



**Figure 3.5** Photos of Baraget River in Chil Chila Location

The Bararget river originates from the Tinderet hill mass and passes through steep coffee growing areas where soil protection is generally inadequate. The river waters at the twin bridge are characterized by heavy brown silt implying severe erosion in the catchment. Further pollution is contributed by effluent from coffee factories and polluted runoff (inadequacy of facilities for disposing human waste) all of which make the Bararget waters unfit for human use. In spite of this, majority of the local residents rely on this river to supply water for both domestic use and animal watering.

Considering the above situation, the followings will be considered in the pilot project in order to reduce soil erosion in the location.

- The location is located in middle catchment area of Nyando river basin. The pilot project to be implemented in the location will have high model effect, since the

location is located along national road and some erosion is confirmed as described above. Although the high needs against reduction of sedimentation to downstream are not expected, the model effect to other area in upper and middle catchment will be expected. In this regard, top-down approach will be applied in the pilot project.

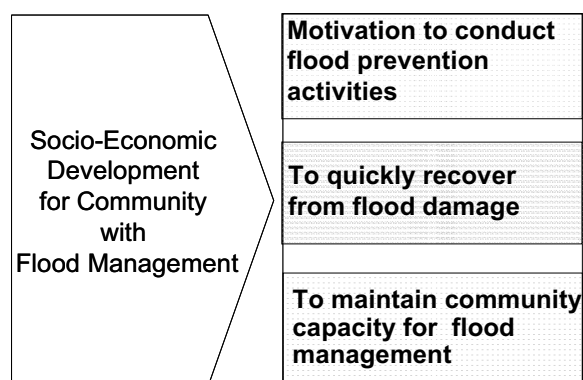
- Based on the CAP, capacity building for agro-forestation through introduction of community based nurseries will be considered This is strategic to re-establishing tree cover in an area suffering rapid deforestation through settlement upon sub-division of formerly large-scale farms. A possible entry point is to help schools start tree nurseries to supply local seedlings for planting in school compounds, markets and on farms. In addition, demonstration program on agro-forest at field level should be considered, since practical knowledge is important for local people.
- In addition to the above capacity building, training program on livestock management and soil conservation is also recommended, since high need on this matter was confirmed in CAP. River water use by livestock is one of the reasons on river side erosion. Reduction of land covers including grass and trees are observed, since livestock eat those covers without any proper management. Therefore, livestock management with proper soil conservation will be required in the location.

#### 9) Community Development Approach in Flood Management

In general, the communities affected by floods are economically and socially stunted compared to other communities due to such flood phenomenon. For example, those communities have common problems with poor access roads to town due to muddy conditions, limited economic activities during the rainy season, spread of malaria and contamination of domestic water due to poor drainage, etc. In this situation, the community development approach should be considered in the flood management from the following viewpoints.

- If those situations are improved, people will be motivated to conduct flood prevention activities. In addition to preparation of flood prevention activities, other measures to be developed by utilizing flood prevention measures or by-products of the prevention measures have to be considered as further development of communities. That approach will provide good incentives to the affected communities to maintain and improve flood prevention activities.
- One of the reasons on difficulties for recovery form flood damage is that economical and social situation of the communities are backward. Local people

need a lot of funds to repair their house, rehabilitate crop area, purchase new livestock etc after flood damage. Therefore, the socio-economic development will assist communities to recover from flood damage more quickly.



**Figure 3.6 Community Development Approach in Flood Management**

- Communities have to maintain or repair structure measures such as drainage, dike, evacuation center, or evacuation road after community-driven flood management project was done. It is difficult, however, to maintain those facilities, since communities can not create fund for maintenance or repair under the above economical and social conditions. Therefore, the socio-economic development will be helpful for the communities to create the maintenance fund for the facilities.

Through the community survey, the following needs for socio-economic development for the communities were indentated.

**Table 3.8 Proposed Development Approach in Each Community**

Name of Village	Issues Identified	Action to be taken in the pilot project
Odesso	There are many new comers who work in Kisumu city, since the village is located near Kisumu city. It is therefore pointed out difficulties of the communal works as village	The village has good access to urban area and there is moderate income diversification. Compared with other villages, there is less interest in community development, apart from flood management. Strengthening of flood management organization should be more emphasised.
Kokwaro	Training on fodder conservation was proposed in the CAP, since community have problem on shortage of fodder for cattle during flood. In addition, food security is important problem following flood problem in the CAP.	Training on agricultural techniques and storage technique of cattle feed, which tends to be shortage due to flood damage on crop, should be considered as component of pilot project. This approach will be help to effective use of new evacuation center under the pilot project.
Kasiru	People suffer water borne disease, since no access to safe water and poor sanitation conditions. Health issue is important problem following flood and road problems in the CAP.	Training on health and hygiene should be considered against water borne diseases as component of pilot project. This approach will be help to effective use of new wells and toilets under the pilot project.
Kochiewo	People noted they have fertile soils provided by flood. Using those soils, they want to increase crop yield. However, they have no knowledge on crop cultivation techniques, since no agricultural extension workers visit their communities. Food security is	Technical training on crop production should be considered for food security during flood and drought as component of pilot project. This approach will be help to increase capacity of quick recovery from flood damage.

Name of Village	Issues Identified	Action to be taken in the pilot project
	important issues following flood problem in the CAP	
Siwot and Kamiwa Villages	People proposed training on crop & animal husbandry and soil fertility improvement, since low income is most important issues in the community	Technical training on livestock management and soil conservation should be considered for income generation as component of pilot project. This approach will be help to increase financial capacity on maintenance of the facilities as well as to provide incentives.

The following will be considered in the development approach in the pilot project.

- The program should be designed on a site training basis for technical skills development and acquisition of knowledge, since the result of community survey indicates communities have difficulties to access to the extension service.
- The training should be carried out at site in the community in order to provide chance to more number of people. The result of community survey indicates that women are normally very busy from early morning till night. It is, therefore, expected that women can get more chance comparing to the training at town.
- The resource persons for the training should be recruited at local level as much as possible. Such persons know the local condition and, accordingly, they can provide more practical technical skills for the community. In addition, long term intervention from such persons will be expected.

#### 4. Finalisation of Pilot Projects

Based on the CAP formulated by the community and study made by JICA Study Team, various measures were formulated in the pilot project. However, some measures were finally dropped from the components of the pilot project due to: i) no or less impact to be impact during implementation period of pilot project, ii) no or less long-term sustainability, iii) technical difficulty base on past experience of JICA project. The following components were dropped out.

**Table 4.1 Dropped Out Components from the Pilot Project**

Component to be drooped out	Location	Reasons
1. Desilting existing drainage	Odesso Village	Long term sustainability is not expected, since communal work is not observed. As first step, training to organization should be made to create awareness of community initiative.
2. Installation of siren	Odesso, Kokwaro, Kasiru, Kochiewo Villages	More institutional approach for warning system and information Dissemination should be considered and developed through flood management training.
3. Community development approaches <ul style="list-style-type: none"> <li>✓ Training on agricultural techniques and storage technique of cattle feed</li> <li>✓ Training on health and hygiene</li> <li>✓ Technical training on crop production</li> <li>✓ Technical training on livestock management and soil conservation</li> </ul>	Kokwaro village, Kasiru village, Kochiewo village, Siwot and Kamiwa Villages	Quick impact is not expected during implementation of the pilot project. More long intervention will be required.
4. Agro-forestry demonstration	Siwot and Kamiwa Villages	Quick impact is not expected during implementation of the pilot project. More long intervention will be required.
5. Training on Flood Management	Siwot and Kamiwa Villages	The non-structural measures such as i) development of Community Based Flood Management Organization, ii) preparation of Community Flood Management Plan, and iii) implementation of Evacuation Training will not be implemented, since flood is not serious problem in this area

After examined the above aspects, the components of the pilot project in each village was finalized. Outline of the pilot projects are explained in following sub-chapters.

***DATA BOOK 4.***  
***PROJECT DESIGN MATRIX***  
***FOR PILOT PROJECTS***



## Project Design Matrix for Pilot Projects

Project Name: The Pilot Projects in the Study on Integrated Flood Management for Nyando River Basin  
 Duration: 2007(May) – 2008(Sep) Target Area: Five communities selected in the Study  
 Target Group: Community Driven Flood Management Organizations (CFMOs) to be established  
 Key Stakeholders: Community as project owner and beneficiaries, WRMA as project facilitator, local government (location/sub-location) as collaborator to community, and JICA Study Team as project supervisor  
 Date of Preparation: July 10, 2007  
 Date of Revision: July 10, 2008

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><b>Overall Goal</b>            Achieve long-term well-being for all in flood prone areas through expansion and sustainment of community driven flood management</p>	<ul style="list-style-type: none"> <li>- Opinions of participants in the final workshop about the Pilot Projects</li> </ul>	<ul style="list-style-type: none"> <li>-</li> <li>- Questionnaires to be completed in the final workshop</li> </ul>	
<p><b>Project Purpose</b>            1. Examine community-driven flood management with both mutual and self helps in terms of effectiveness            2. Improve flood management capacity through on-the-job training including site training and implementation of Pilot Projects</p>	<ul style="list-style-type: none"> <li>- Satisfaction of community people on effectiveness of Pilot Projects to protect against flooding</li> <li>- Evaluation on achievement of capacity development on flood management</li> </ul>	<ul style="list-style-type: none"> <li>-</li> <li>- Questionnaires to be completed by the members of the communities after floods</li> <li>-</li> <li>-</li> <li>- Mid-term and final monitoring report to be prepared by the Forum members and the Study Team</li> </ul>	
<p><b>Output 1</b>            Effective flood management structural measures are installed and functioning.</p>	<ul style="list-style-type: none"> <li>- Progress of construction</li> <li>- Damage to structures after flooding</li> <li>- Participation of community people</li> <li>- No of Users of facilities (wells, evacuation centers and roads)</li> </ul>	<ul style="list-style-type: none"> <li>-</li> <li>- Comparison between schedule and actual implementation of construction work</li> <li>- Surveys after floods</li> <li>- Record of participants in construction works</li> <li>- Records of numbers of users</li> </ul>	
<p><b>Output 2</b>            Community driven flood management organization is established and functioning.</p>	<ul style="list-style-type: none"> <li>- Completion of bylaws</li> <li>- Progress of fund creation compared to amounts specified in by-laws</li> <li>- No. of meetings compared to numbers specified in by-laws</li> </ul>	<ul style="list-style-type: none"> <li>-</li> <li>- Bylaws prepared</li> <li>- The organization's Account books</li> <li>- Meeting records</li> <li>-</li> </ul>	
<p><b>Output 3</b>            Flood Management measures are being operated at community level</p>	<ul style="list-style-type: none"> <li>- No. of participants in flood drills</li> <li>- Lead and evacuation times</li> <li>- Use of skills</li> </ul>	<ul style="list-style-type: none"> <li>-</li> <li>- Reports regarding evacuation drills</li> <li>- Community surveys on lead and evacuation times</li> <li>- Questionnaires to be completed by the communities before and after floods</li> </ul>	
<p><b>Output 4</b>            Effectiveness of education program on flood prevention is confirmed at the site level</p>	<ul style="list-style-type: none"> <li>- No. of participants in training program</li> <li>- Satisfaction of students and teachers</li> </ul>	<ul style="list-style-type: none"> <li>-</li> <li>- Reports regarding the education program</li> <li>- Questionnaires to be completed by the students and teachers</li> </ul>	

Activities	Inputs		Important Assumptions
	JICA Study Team	WRMA	
<p><b>Component 1:</b> <u>Structural Measure Development</u></p> <p>1.1 River bank protection in the Nyamasaria river (Length: 37m, Height of protection: 4m, Height of dike: 1m)</p> <p>1.2 Raising local road as evacuation route (length: 600 m), construction of new evacuation center (floor space: 180 m2) with roof water catchments, installation of a toilet</p> <p>1.3 Raising evacuation road (length: 400m), installation of a well at existing evacuation center (depth: minimum 50m) with a hand pump, installation of a toilet</p> <p>1.4 Rehabilitation of existing dike (length: 100m)</p> <p>1.5 River bank protection upstream of bridge in the Bararget river (length: 17 m: height: 2m) with ramp for cattle</p> <p>1.6 Training in O&amp;M for the above structures</p> <p><b>Component 2:</b> <u>Institutional Development of CFMO</u></p> <p>2.1 Community sensitization regarding the establishment of a Community Based Flood Management Organization</p> <p>2.2 Selection of organization members (Chairperson, Vice-Chairperson, Group Leaders, Secretary, the Auditor)</p> <p>2.3 Preparation of bylaws, and registration</p> <p>2.4 Training in organizational operation</p> <p>2.5 Monitoring and evaluation</p> <p><b>Component 3: Capacity Development on Flood Management</b></p> <p>3.1 Community flood management plan for disaster cycle</p> <p>3.2 Preparedness: confirmation of emergency communication network</p> <p>3.3 Response: confirmation of procedures for operation of emergency sirens and communication network, coordination procedures with disaster management committee, roll call of evacuees</p> <p>3.4 Rehabilitation: how to assess flood damages, procedures for preparation of rehabilitation plans, procedures for request for relief goods, procedures for request for cooperation in rehabilitation</p> <p>3.5 Production and installation of signboards for community flood hazard maps indicating evacuation routes and dangerous areas</p> <p>3.6 Implementation of evacuation training (drills)</p> <p><b>Component 4: Education Program on Floods</b></p> <p>4.1 Training teachers (Necessity of disaster management education, development of resident-participation type programs, teaching materials, training skill)</p> <p>4.2 Implementation of model class by the trained teacher</p>	<ul style="list-style-type: none"> <li>- Being a financier for the specified items including:</li> <li>✓ Construction of structural measures such as dykes, evacuation centers, evacuation routes, and boreholes,</li> <li>✓ Installation of non-structural measures such as sign boards</li> <li>✓ Formulation and operation training of CFMO</li> <li>✓ Training on Flood Management and preparation of Community Flood Management Manuals</li> <li>✓ Implementation of evacuation drills</li> <li>- Provide technical advice and training to the community and CFMO for O&amp;M of the facilities availed under the Pilot Project,</li> <li>- Provide capacity building on flood management to the community in collaboration with WRMA,</li> <li>- Supervise construction works concerning the Pilot Projects,</li> <li>- Implement training on community development activities,</li> <li>- Assist the communities with procedures for environmental impact assessment clearance for implementation of the Pilot Projects, and</li> <li>- Implement M&amp;E</li> </ul>	<ul style="list-style-type: none"> <li>- Being the overseer of the river structures availed under the Pilot Project,</li> <li>- Assist in conflict resolution related to the community affairs (i.e. land ownership, community land, and riparian areas) in implementation of the Pilot Projects,</li> <li>- Assist community mobilization in order for the community to cope with implementation of the Pilot Projects,</li> <li>- Assist community in the procedures for environmental impact assessment clearance of the Pilot Projects,</li> <li>- Assist community for appropriate O&amp;M of the assets / facilities / equipment availed under the Pilot Projects,</li> <li>- Responsible for facilitating implementation of the Pilot Projects,</li> <li>- Responsible for facilitating the community to establish CFMO and harmonize it with the existing appropriate River Water Users Association (WRUA) for proponents of the environmental impact assessment clearance process,</li> <li>- Responsible for coordinating with other related organizations,</li> <li>- Implement M&amp;E</li> </ul>	<ul style="list-style-type: none"> <li>- Abnormally large floods compared to average year have not occurred.</li> <li>- Shortage of budget allocated by JICA due to increase of material and labour price</li> </ul>

Project Name: The Pilot Projects on Odeso Community Flood Management  
Duration: 2007(May) – 2008(Sep)  
Target Area: Odeso village, Kasiru Sub-Location  
Target Group: Odeso Community Multipurpose Group  
Key Stakeholders: Community as project owner and beneficiaries, WRMA as project facilitator, local government (location/sub-location) as collaborator to community, and JICA Study Team as project supervisor  
Date of Preparation: July 10, 2007  
Date of Revision: July 10, 2008

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><b>Overall Goal</b>  Achieve long-term well-being for Odeso in flood prone areas</p>	<ul style="list-style-type: none"> <li>- Continuous activities of CFMO</li> </ul>	<ul style="list-style-type: none"> <li>- Interviews to CFMO members</li> </ul>	
<p><b>Project Purpose</b>  1. Examine community-driven flood management with both mutual and self helps in terms of effectiveness  2. Improve flood management capacity through on-the-job training including site training and implementation of pilot projects</p>	<ul style="list-style-type: none"> <li>- Satisfaction of community people on effectiveness of pilot projects to protect against flooding</li> <li>- Evaluation by Forum Members and JICA Study Team of achievement of capacity development on flood management</li> </ul>	<ul style="list-style-type: none"> <li>- Questionnaires to be completed by the members of the communities after floods</li> <li>- Mid-term and final evaluation report to be prepared by the Forum members and JICA Study Team</li> </ul>	
<p><b>Output 1</b>  River bank protection in the Nyamasaria river is installed and functioning.</p>	<ul style="list-style-type: none"> <li>- Progress of construction</li> <li>- Quality of work</li> <li>- Participation of community people</li> <li>- Damage after the construction</li> </ul>	<ul style="list-style-type: none"> <li>- Comparison between schedule and actual implementation of construction work</li> <li>- Supervision of work</li> <li>- Record of participants in construction works</li> <li>- Survey to the structure</li> </ul>	
<p><b>Output 2</b>  Odeso Community Multipurpose Group is established and functioning.</p>	<ul style="list-style-type: none"> <li>- No of trainees received</li> <li>- Satisfaction of trainees</li> <li>- Completion of bylaws</li> <li>- Progress of fund creation compared to amounts</li> <li>- No. of meetings compared to numbers specified in by-laws</li> <li>- Activities of CFMO after the project</li> </ul>	<ul style="list-style-type: none"> <li>- Training record</li> <li>- Questionnaire survey</li> <li>- Bylaws prepared</li> <li>- The organization's account books</li> <li>- Meeting records</li> <li>- Interviews to CFMO</li> </ul>	
<p><b>Output 3</b>  Flood Management measures are being operated at Odeso</p>	<ul style="list-style-type: none"> <li>- No of trainees received</li> <li>- Satisfaction of trainees received</li> <li>- Production of flood management manual</li> <li>- No. of participants in flood drills</li> <li>- Satisfaction of trainees received</li> <li>- No of signboard installed and maintained</li> <li>- Activities of CFMO related to the flood management</li> </ul>	<ul style="list-style-type: none"> <li>- Training record</li> <li>- Questionnaire survey</li> <li>- Flood management manual</li> <li>- Reports regarding evacuation drills</li> <li>- Questionnaires survey</li> <li>- Survey to signboards</li> <li>- Interviews to CFMO</li> </ul>	

Activities	Inputs		Important Assumptions
	JICA Study Team	WRMA	
<p><u>Component 1:</u> <u>Structural Measure Development</u></p> <p>1.1 River bank protection in the Nyamasaria river (Length: 37m, Height of protection: 4m, Height of dike: 1m)</p> <p>1.2 Training in O&amp;M for the structures</p> <p><u>Component 2:</u> <u>Institutional Development of CFMO</u></p> <p>2.1 Community sensitization regarding the establishment of a Community Based Flood Management Organization</p> <p>2.2 Selection of organization members (Chairperson, Vice-Chairperson, Group Leaders, Secretary, the Auditor)</p> <p>2.3 Preparation of bylaws, and registration</p> <p>2.4 Training in organizational operation</p> <p>2.5 Training in proposal preparation</p> <p><u>Component 3: Capacity Development on Flood Management</u></p> <p>3.1 Implementation of flood management training</p> <p>3.2 Production of flood management training manual</p> <p>3.3 Installation of flood hazard map and signboards</p> <p>3.4 Implementation of evacuation drills</p>	<ul style="list-style-type: none"> <li>- Being a financier for the specified items including: <ul style="list-style-type: none"> <li>✓ Construction of structural measures</li> <li>✓ Installation of non-structural measures such as sign boards</li> <li>✓ Formulation and operation training of CFMO</li> <li>✓ Training on Flood Management and preparation of Community Flood Management Manuals</li> <li>✓ Implementation of evacuation drills</li> </ul> </li> <li>- Provide technical advice and training to the community and CFMO for O&amp;M of the facilities availed under the pilot project,</li> <li>- Provide capacity building on flood management to the community in collaboration with WRMA,</li> <li>- Supervise construction works concerning the pilot projects,</li> <li>- Assist the communities with procedures for environmental impact assessment clearance for implementation of the pilot projects, and</li> <li>- Implement M&amp;E</li> </ul>	<ul style="list-style-type: none"> <li>- Being the overseer of the river structures availed under the pilot project,</li> <li>- Assist in conflict resolution related to the community affairs (i.e. land ownership, community land, and riparian areas) in implementation of the pilot projects,</li> <li>- Assist community mobilization in order for the community to cope with implementation of the pilot projects,</li> <li>- Assist community in the procedures for environmental impact assessment clearance of the pilot projects,</li> <li>- Assist community for appropriate O&amp;M of the assets / facilities / equipment availed under the pilot projects,</li> <li>- Responsible for facilitating implementation of the Pilot Projects,</li> <li>- Responsible for facilitating the community to establish CFMO and harmonize it with the existing appropriate River Water Users Association (WRUA) for proponents of the environmental impact assessment clearance process,</li> <li>- Responsible for coordinating with other related organizations,</li> <li>- Implement M&amp;E</li> </ul>	<ul style="list-style-type: none"> <li>- Abnormally large floods compared to average year have not occurred.</li> <li>- Shortage of budget allocated by JICA due to increase of material and labour price</li> <li>- Worse security condition in and around the site</li> </ul>

Project Name: The Pilot Projects on Kokwaro Community Flood Management  
Duration: 2007(May) – 2008(Sep)  
Target Area: Kokwaro Village, Central Bwanda Sub-Location  
Target Group: Kokwaro community development project  
Key Stakeholders: Community as project owner and beneficiaries, WRMA as project facilitator, local government (location/sub-location) as collaborator to community, and JICA Study Team as project supervisor  
Date of Preparation: July 10, 2007  
Date of Revision: July 10, 2008

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><b>Overall Goal</b> Achieve long-term well-being for Kokwaro in flood prone areas</p>	<ul style="list-style-type: none"> <li>- Continuous activities of CFMO</li> </ul>	<ul style="list-style-type: none"> <li>- Interviews to CFMO members</li> </ul>	
<p><b>Project Purpose</b> 1. Examine community-driven flood management with both mutual and self helps in terms of effectiveness 2. Improve flood management capacity through on-the-job training including site training and implementation of pilot projects</p>	<ul style="list-style-type: none"> <li>- Satisfaction of community people on effectiveness of pilot projects to protect against flooding</li> <li>- Evaluation by Forum Members and JICA Study Team of achievement of capacity development on flood management</li> </ul>	<ul style="list-style-type: none"> <li>- Questionnaires to be completed by the members of the communities after floods</li> <li>- Mid-term and final evaluation report to be prepared by the Forum members and JICA Study Team</li> </ul>	
<p><b>Output 1</b> Evacuation center with evacuation road is installed and functioning.</p>	<ul style="list-style-type: none"> <li>- Progress of construction</li> <li>- Quality of work</li> <li>- Participation of community people</li> <li>- Damage after the construction</li> <li>- Uses number</li> </ul>	<ul style="list-style-type: none"> <li>- Comparison between schedule and actual implementation of construction work</li> <li>- Supervision of work</li> <li>- Record of participants in construction works</li> <li>- Survey to the structure</li> <li>- Record of user number</li> </ul>	
<p><b>Output 2</b> Kokwaro Community Development Project is established and functioning.</p>	<ul style="list-style-type: none"> <li>- No of trainees received</li> <li>- Satisfaction of trainees</li> <li>- Completion of bylaws</li> <li>- Progress of fund creation compared to amounts</li> <li>- No. of meetings compared to numbers specified in by-laws</li> <li>- Activities of CFMO after the project</li> </ul>	<ul style="list-style-type: none"> <li>- Training record</li> <li>- Questionnaire survey</li> <li>- Bylaws prepared</li> <li>- The organization's account books</li> <li>- Meeting records</li> <li>- Interviews to CFMO</li> </ul>	
<p><b>Output 3</b> Flood Management measures are being operated at Kokwaro</p>	<ul style="list-style-type: none"> <li>- No of trainees received</li> <li>- Satisfaction of trainees received</li> <li>- Production of flood management manual</li> <li>- No. of participants in flood drills</li> <li>- Satisfaction of trainees received</li> <li>- No of signboard installed and maintained</li> <li>- Activities of CFMO related to the flood management</li> </ul>	<ul style="list-style-type: none"> <li>- Training record</li> <li>- Questionnaire survey</li> <li>- Flood management manual</li> <li>- Reports regarding evacuation drills</li> <li>- Questionnaires survey</li> <li>- Survey to signboards</li> <li>- Interviews to CFMO</li> </ul>	

Activities	Inputs		Important Assumptions
	JICA Study Team	WRMA	
<p><u>Component 1:</u> <u>Structural Measure Development</u></p> <p>1.1 Raising local road as evacuation route (length: 600 m), construction of new evacuation centre (floor space: 180 m2) with roof water catchments, installation of a toilet</p> <p>1.2 Training in O&amp;M for the structures</p> <p><u>Component 2:</u> <u>Institutional Development of CFMO</u></p> <p>2.1 Community sensitization regarding the establishment of a Community Based Flood Management Organization</p> <p>2.2 Selection of organization members (Chairperson, Vice-Chairperson, Group Leaders, Secretary, the Auditor)</p> <p>2.3 Preparation of bylaws, and registration</p> <p>2.4 Training in organizational operation</p> <p>2.5 Training in proposal preparation</p> <p><u>Component 3: Capacity Development on Flood Management</u></p> <p>3.1 Implementation of flood management training</p> <p>3.2 Production of flood management training manual</p> <p>3.3 Installation of flood hazard map and signboards</p> <p>3.4 Implementation of evacuation drills</p>	<ul style="list-style-type: none"> <li>- Being a financier for the specified items including: <ul style="list-style-type: none"> <li>✓ Construction of structural measures</li> <li>✓ Installation of non-structural measures such as sign boards</li> <li>✓ Formulation and operation training of CFMO</li> <li>✓ Training on Flood Management and preparation of Community Flood Management Manuals</li> <li>✓ Implementation of evacuation drills</li> </ul> </li> <li>- Provide technical advice and training to the community and CFMO for O&amp;M of the facilities availed under the pilot project,</li> <li>- Provide capacity building on flood management to the community in collaboration with WRMA,</li> <li>- Supervise construction works concerning the pilot projects,</li> <li>- Assist the communities with procedures for environmental impact assessment clearance for implementation of the pilot projects, and</li> <li>- Implement M&amp;E</li> </ul>	<ul style="list-style-type: none"> <li>- Being the overseer of the river structures availed under the pilot project,</li> <li>- Assist in conflict resolution related to the community affairs (i.e. land ownership, community land, and riparian areas) in implementation of the pilot projects,</li> <li>- Assist community mobilization in order for the community to cope with implementation of the pilot projects,</li> <li>- Assist community in the procedures for environmental impact assessment clearance of the pilot projects,</li> <li>- Assist community for appropriate O&amp;M of the assets / facilities / equipment availed under the pilot projects,</li> <li>- Responsible for facilitating implementation of the Pilot Projects,</li> <li>- Responsible for facilitating the community to establish CFMO and harmonize it with the existing appropriate River Water Users Association (WRUA) for proponents of the environmental impact assessment clearance process,</li> <li>- Responsible for coordinating with other related organizations,</li> <li>- Implement M&amp;E</li> </ul>	<ul style="list-style-type: none"> <li>- Abnormally large floods compared to average year have not occurred.</li> <li>- Shortage of budget allocated by JICA due to increase of material and labour price</li> <li>- Worse security condition in and around the site</li> </ul>

Project Name: The Pilot Projects on Kasiru Community Flood Management  
Duration: 2007(May) – 2008(Sep)  
Target Area: Kasiru Village, Kore Sub-Location  
Target Group: Kitauchi Yoko Kasiru IFM Self Help Group  
Key Stakeholders: Community as project owner and beneficiaries, WRMA as project facilitator, local government (location/sub-location) as collaborator to community, and JICA Study Team as project supervisor  
Date of Preparation: July 10, 2007  
Date of Revision: July 10, 2008

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><b>Overall Goal</b> Achieve long-term well-being for Kasiru in flood prone areas</p>	<ul style="list-style-type: none"> <li>- Continuous activities of CFMO</li> </ul>	<ul style="list-style-type: none"> <li>- Interviews to CFMO members</li> </ul>	
<p><b>Project Purpose</b> 1. Examine community-driven flood management with both mutual and self helps in terms of effectiveness 2. Improve flood management capacity through on-the-job training including site training and implementation of pilot projects</p>	<ul style="list-style-type: none"> <li>- Satisfaction of community people on effectiveness of pilot projects to protect against flooding</li> <li>- Evaluation by Forum Members and JICA Study Team of achievement of capacity development on flood management</li> </ul>	<ul style="list-style-type: none"> <li>- Questionnaires to be completed by the members of the communities after floods</li> <li>- Mid-term and final evaluation report to be prepared by the Forum members and JICA Study Team</li> </ul>	
<p><b>Output 1</b> Raising evacuation road, raised well and toilet at existing evacuation centre are installed and functioning.</p>	<ul style="list-style-type: none"> <li>- Progress of construction</li> <li>- Quality of work</li> <li>- Participation of community people</li> <li>- Damage after the construction</li> <li>- Uses number</li> </ul>	<ul style="list-style-type: none"> <li>- Comparison between schedule and actual implementation of construction work</li> <li>- Supervision of work</li> <li>- Record of participants in construction works</li> <li>- Survey to the structure</li> <li>- Record of user number</li> </ul>	
<p><b>Output 2</b> Kitauchi Yoko Kasiru IFM Self Help Group is established and functioning.</p>	<ul style="list-style-type: none"> <li>- No of trainees received</li> <li>- Satisfaction of trainees</li> <li>- Completion of bylaws</li> <li>- Progress of fund creation compared to amounts</li> <li>- No. of meetings compared to numbers specified in by-laws</li> <li>- Activities of CFMO after the project</li> </ul>	<ul style="list-style-type: none"> <li>- Training record</li> <li>- Questionnaire survey</li> <li>- Bylaws prepared</li> <li>- The organization's account books</li> <li>- Meeting records</li> <li>- Interviews to CFMO</li> </ul>	
<p><b>Output 3</b> Flood Management measures are being operated at Kasiru</p>	<ul style="list-style-type: none"> <li>- No of trainees received</li> <li>- Satisfaction of trainees received</li> <li>- Production of flood management manual</li> <li>- No. of participants in flood drills</li> <li>- Satisfaction of trainees received</li> <li>- No of signboard installed and maintained</li> <li>- Activities of CFMO related to the flood management</li> </ul>	<ul style="list-style-type: none"> <li>- Training record</li> <li>- Questionnaire survey</li> <li>- Flood management manual</li> <li>- Reports regarding evacuation drills</li> <li>- Questionnaires survey</li> <li>- Survey to signboards</li> <li>- Interviews to CFMO</li> </ul>	

Activities	Inputs		Important Assumptions
	JICA Study Team	WRMA	
<p><u>Component 1:</u> <u>Structural Measure Development</u></p> <p>1.1 Raising evacuation road (length: 400m), installation of a well at existing evacuation centre (depth: minimum 50m) with a hand pump, installation of a toilet</p> <p>1.2 Training in O&amp;M for the structures</p> <p><u>Component 2:</u> <u>Institutional Development of CFMO</u></p> <p>2.1 Community sensitization regarding the establishment of a Community Based Flood Management Organization</p> <p>2.2 Selection of organization members (Chairperson, Vice-Chairperson, Group Leaders, Secretary, the Auditor)</p> <p>2.3 Preparation of bylaws, and registration</p> <p>2.4 Training in organizational operation</p> <p>2.5 Training in proposal preparation</p> <p><u>Component 3: Capacity Development on Flood Management</u></p> <p>3.1 Implementation of flood management training</p> <p>3.2 Production of flood management training manual</p> <p>3.3 Installation of flood hazard map and signboards</p> <p>3.4 Implementation of evacuation drills</p>	<ul style="list-style-type: none"> <li>- Being a financier for the specified items including:</li> <li>✓ Construction of structural measures</li> <li>✓ Installation of non-structural measures such as sign boards</li> <li>✓ Formulation and operation training of CFMO</li> <li>✓ Training on Flood Management and preparation of Community Flood Management Manuals</li> <li>✓ Implementation of evacuation drills</li> <li>- Provide technical advice and training to the community and CFMO for O&amp;M of the facilities availed under the pilot project,</li> <li>- Provide capacity building on flood management to the community in collaboration with WRMA,</li> <li>- Supervise construction works concerning the pilot projects,</li> <li>- Assist the communities with procedures for environmental impact assessment clearance for implementation of the pilot projects, and</li> <li>- Implement M&amp;E</li> </ul>	<ul style="list-style-type: none"> <li>- Being the overseer of the river structures availed under the pilot project,</li> <li>- Assist in conflict resolution related to the community affairs (i.e. land ownership, community land, and riparian areas) in implementation of the pilot projects,</li> <li>- Assist community mobilization in order for the community to cope with implementation of the pilot projects,</li> <li>- Assist community in the procedures for environmental impact assessment clearance of the pilot projects,</li> <li>- Assist community for appropriate O&amp;M of the assets / facilities / equipment availed under the pilot projects,</li> <li>- Responsible for facilitating implementation of the Pilot Projects,</li> <li>- Responsible for facilitating the community to establish CFMO and harmonize it with the existing appropriate River Water Users Association (WRUA) for proponents of the environmental impact assessment clearance process,</li> <li>- Responsible for coordinating with other related organizations,</li> <li>- Implement M&amp;E</li> </ul>	<ul style="list-style-type: none"> <li>- Abnormally large floods compared to average year have not occurred.</li> <li>- Shortage of budget allocated by JICA due to increase of material and labour price</li> <li>- Worse security condition in and around the site</li> </ul>



Project Name: The Pilot Projects on Kogwedhi Community Flood Management  
Duration: 2007(May) – 2008(Sep)  
Target Area: Kochiewo Village, Magina Sub-Location  
Target Group: Kogwedhi Community Self Help Group consisting of Kochiewo, Kokul and Katieno villages  
Key Stakeholders: Community as project owner and beneficiaries, WRMA as project facilitator, local government (location/sub-location) as collaborator to community, and JICA Study Team as project supervisor  
Date of Preparation: July 10, 2007  
Date of Revision: July 10, 2008

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><b>Overall Goal</b> Achieve long-term well-being for Kochiewo in flood prone areas</p>	<ul style="list-style-type: none"> <li>- Continuous activities of CFMO</li> </ul>	<ul style="list-style-type: none"> <li>- Interviews to CFMO members</li> </ul>	
<p><b>Project Purpose</b> 1. Examine community-driven flood management with both mutual and self helps in terms of effectiveness 2. Improve flood management capacity through on-the-job training including site training and implementation of pilot projects</p>	<ul style="list-style-type: none"> <li>- Satisfaction of community people on effectiveness of pilot projects to protect against flooding</li> <li>- Evaluation by Forum Members and JICA Study Team of achievement of capacity development on flood management</li> </ul>	<ul style="list-style-type: none"> <li>- Questionnaires to be completed by the members of the communities after floods</li> <li>- Mid-term and final evaluation report to be prepared by the Forum members and JICA Study Team</li> </ul>	
<p><b>Output 1</b> Dyke is rehabilitated and functioning.</p>	<ul style="list-style-type: none"> <li>- Progress of construction</li> <li>- Quality of work</li> <li>- Participation of community people</li> <li>- Damage after the construction</li> </ul>	<ul style="list-style-type: none"> <li>- Comparison between schedule and actual implementation of construction work</li> <li>- Supervision of work</li> <li>- Record of participants in construction works</li> <li>- Survey to the structure</li> </ul>	
<p><b>Output 2</b> Kogwedhi Community Self Help Group is established and functioning.</p>	<ul style="list-style-type: none"> <li>- No of trainees received</li> <li>- Satisfaction of trainees</li> <li>- Completion of bylaws</li> <li>- Progress of fund creation compared to amounts</li> <li>- No. of meetings compared to numbers specified in by-laws</li> <li>- Activities of CFMO after the project</li> </ul>	<ul style="list-style-type: none"> <li>- Training record</li> <li>- Questionnaire survey</li> <li>- Bylaws prepared</li> <li>- The organization's account books</li> <li>- Meeting records</li> <li>- Interviews to CFMO</li> </ul>	
<p><b>Output 3</b> Flood Management measures are being operated at Kochiewo</p>	<ul style="list-style-type: none"> <li>- No of trainees received</li> <li>- Satisfaction of trainees received</li> <li>- Production of flood management manual</li> <li>- No. of participants in flood drills</li> <li>- Satisfaction of trainees received</li> <li>- No of signboard installed and maintained</li> <li>- Activities of CFMO related to the flood management</li> </ul>	<ul style="list-style-type: none"> <li>- Training record</li> <li>- Questionnaire survey</li> <li>- Flood management manual</li> <li>- Reports regarding evacuation drills</li> <li>- Questionnaires survey</li> <li>- Survey to signboards</li> <li>- Interviews to CFMO</li> </ul>	

Activities	Inputs		Important Assumptions
	JICA Study Team	WRMA	
<p><u>Component 1:</u> <u>Structural Measure Development</u> 1.1 Rehabilitation of existing dike (length: 100m) 1.2 Training in O&amp;M for the structures</p> <p><u>Component 2:</u> <u>Institutional Development of CFMO</u> 2.1 Community sensitization regarding the establishment of a Community Based Flood Management Organization 2.2 Selection of organization members (Chairperson, Vice-Chairperson, Group Leaders, Secretary, the Auditor) 2.3 Preparation of bylaws, and registration 2.4 Training in organizational operation 2.5 Training in proposal preparation</p> <p><u>Component 3: Capacity Development on Flood Management</u> 3.1 Implementation of flood management training 3.2 Production of flood management training manual 3.3 Installation of flood hazard map and signboards 3.4 Implementation of evacuation drills</p>	<ul style="list-style-type: none"> <li>- Being a financier for the specified items including:</li> <li>✓ Construction of structural measures</li> <li>✓ Installation of non-structural measures such as sign boards</li> <li>✓ Formulation and operation training of CFMO</li> <li>✓ Training on Flood Management and preparation of Community Flood Management Manuals</li> <li>✓ Implementation of evacuation drills</li> <li>- Provide technical advice and training to the community and CFMO for O&amp;M of the facilities availed under the pilot project,</li> <li>- Provide capacity building on flood management to the community in collaboration with WRMA,</li> <li>- Supervise construction works concerning the pilot projects,</li> <li>- Assist the communities with procedures for environmental impact assessment clearance for implementation of the pilot projects, and</li> <li>- Implement M&amp;E</li> </ul>	<ul style="list-style-type: none"> <li>- Being the overseer of the river structures availed under the pilot project,</li> <li>- Assist in conflict resolution related to the community affairs (i.e. land ownership, community land, and riparian areas) in implementation of the pilot projects,</li> <li>- Assist community mobilization in order for the community to cope with implementation of the pilot projects,</li> <li>- Assist community in the procedures for environmental impact assessment clearance of the pilot projects,</li> <li>- Assist community for appropriate O&amp;M of the assets / facilities / equipment availed under the pilot projects,</li> <li>- Responsible for facilitating implementation of the Pilot Projects,</li> <li>- Responsible for facilitating the community to establish CFMO and harmonize it with the existing appropriate River Water Users Association (WRUA) for proponents of the environmental impact assessment clearance process,</li> <li>- Responsible for coordinating with other related organizations,</li> <li>- Implement M&amp;E</li> </ul>	<ul style="list-style-type: none"> <li>- Abnormally large floods compared to average year have not occurred.</li> <li>- Shortage of budget allocated by JICA due to increase of material and labour price</li> <li>- Worse security condition in and around the site</li> </ul>

Project Name: The Pilot Projects on Chil Chila Community Flood Management  
Duration: 2007(May) – 2008(Sep)  
Target Area: Siwot and Kamiwa Villages, Chil Chila Location  
Target Group: Millennium Community Health Workers Group  
Key Stakeholders: Community as project owner and beneficiaries, WRMA as project facilitator, local government (location/sub-location) as collaborator to community, and JICA Study Team as project supervisor  
Date of Preparation: July 10, 2007  
Date of Revision: July 10, 2008

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<b>Overall Goal</b> Achieve long-term well-being for flood prone areas	- Evaluation by Forum Members and JICA Study Team of achievement of capacity development on flood management	- Mid-term and final evaluation report to be prepared by the Forum members and JICA Study Team	
<b>Project Purpose</b> 1. Examine community-driven flood management with both mutual and self helps in terms of effectiveness	- Satisfaction of community people on effectiveness of pilot project to protect eroded riverbank	- Interviews to CBO members	
<b>Output 1</b> River bank protection is constructed and functioning.	- Progress of construction - Quality of work - Participation of community people - Damage after the construction	- Comparison between schedule and actual implementation of construction work - Supervision of work - Record of participants in construction works - Survey to the structure	
<b>Output 2</b> Millennium Community Health Workers Group.	- Progress of fund creation compared to amounts - No. of meetings compared to numbers specified in by-laws - Activities of CBO after the project	- The organization's account books - Meeting records - Interviews to CBO	

Activities	Inputs		Important Assumptions
	JICA Study Team	WRMA	
<b>Component 1:</b> <u>Structural Measure Development</u> 1.1 River bank protection upstream of bridge in the Bararget river (length: 17 m: height: 2m) with ramp for cattle  <b>Component 2:</b> <u>Institutional Development of CFMO</u> 2.1 Training in proposal preparation	- Being a financier for the specified items including: ✓ Construction of structural measures - Supervise construction works concerning the pilot projects, - Assist the communities with procedures for environmental impact assessment clearance for implementation of the pilot projects, and - Implement M&E	- Being the overseer of the river structures availed under the pilot project, - Assist in conflict resolution related to the community affairs in the pilot project, community mobilization for the pilot projects, the procedures for the EIA on the pilot projects, appropriate O&M of the facilities availed under the pilot projects, - Responsible for facilitating implementation of the Pilot Projects, - Responsible for harmonize CBOt with the existing appropriate WRUA, - Responsible for coordinating with other related organizations, - Implement M&E	- Abnormally large floods compared to average year have not occurred. - Shortage of budget allocated by JICA due to increase of material and labour price - Worse security condition in and around the site

Project Name: The Pilot Project on Education Program for Integrated Flood Management  
 Duration: 2007(May) – 2008(Mar)  
 Target Area: Bwanda Primary School near Kokwaro village, Central Bwanda Sub-Location  
 Target Group: Students of Bwanda Primary School  
 Key Stakeholders: WRMA as project facilitator, local government (location/sub-location) as collaborator to community, and JICA Study Team as project supervisor  
 Date of Preparation: July 10, 2007  
 Date of Revision: July 10, 2008

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<b>Overall Goal</b> Achieve long-term well-being for all in flood prone areas through expansion and sustainment of community driven flood management	<ul style="list-style-type: none"> <li>- Opinions of participants in the final workshop about the pilot projects</li> </ul>	<ul style="list-style-type: none"> <li>- Questionnaires to be completed in the final workshop</li> </ul>	
<b>Project Purpose</b> 1. Examine community-driven flood management with both mutual and self helps in terms of effectiveness 2. Improve flood management capacity through on-the-job training including site training and implementation of pilot projects	<ul style="list-style-type: none"> <li>- Assessment result of flood management education programme</li> <li>- Evaluation by Forum Members of achievement of capacity development on flood management</li> </ul>	<ul style="list-style-type: none"> <li>- Assessment report of flood management education programme</li> <li>- Mid-term and final evaluation report to be prepared by the Forum members</li> </ul>	
<b>Output 1</b> Flood management textbook for primary school is developed	<ul style="list-style-type: none"> <li>- No. of teachers involved</li> <li>- Quality of text book</li> </ul>	<ul style="list-style-type: none"> <li>- Training record</li> <li>- Textbook</li> </ul>	
<b>Output 2</b> Flood management education is implemented at Bwanda Primary School I	<ul style="list-style-type: none"> <li>- No. of students received</li> <li>- Satisfaction of students and teachers</li> </ul>	<ul style="list-style-type: none"> <li>- Reports regarding the education program</li> <li>- Questionnaires to be completed by the students and teachers</li> </ul>	

Activities	Inputs		Important Assumptions
	JICA Study Team	WRMA	
<b>Component 4: Education Program on Floods</b> 4.1 Training teachers (Necessity of disaster management education, development of resident-participation type programs, teaching materials, training skill) 4.2 Implementation of model class by the trained teacher	<ul style="list-style-type: none"> <li>- Being a financier for the specified items including:               <ul style="list-style-type: none"> <li>✓ Implementation of training program</li> <li>- Provide technical advice</li> <li>- Supervise training work, and</li> <li>- Implement M&amp;E</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- Responsible for facilitating implementation of the Pilot Projects,</li> <li>- Responsible for coordinating with other related organizations,</li> <li>- Implement M&amp;E</li> </ul>	<ul style="list-style-type: none"> <li>- Shortage of budget allocated by JICA due to increase of material and labour price</li> <li>- Worse security condition in and around the site</li> </ul>

***DATA BOOK 5.***  
***EVALUATION RESULTS OF***  
***PILOT PROJECTS***

**THE STUDY  
ON  
INTEGRATED FLOOD MANAGEMENT FOR NYANDO RIVER BASIN**

**FINAL EVALUATION OF PILOT PROJECTS**

**TABLE OF CONTENTS**

	Page
5-1 EFFICIENCY .....	DB5-1
5-2 EFFECTIVENESS .....	DB5-7
5-3 IMPACTS .....	DB5-9
5-4 RELEVANCE .....	DB5-9
5-5 SUSTAINABILITY .....	DB5-10
5-5 PROJECT DESIGN MATRIX FOR EVALUATION .....	DB5-12

**Data Book 5 Detailed Final Evaluation Result of Pilot Projects (October, 2008)**

Item	Indicators to be Confirmed	Result of Evaluation	Monitoring Result of Forum Members
<b>5-1.Efficiency</b>			
1.1 Achievement of Outputs	<p>1.1.1 Structural Measures</p> <p>The structures are constructed and functional.</p> <p>1.1.1.1 River bank protection for the Nyamasaria River at Odesso (Length: 37m, Height of protection: 4m, Height of dike: 1m).</p> <p>1.1.1.2 Raising the level of local roads for evacuation route at Kokwaro (length: 600 m), construction of new evacuation center (floor space: 180 m<sup>2</sup>) with roof water catchments, installation of a toilet.</p> <p>1.1.1.3 Raising the level of evacuation roads at Kasiru (length: 400m), installation of a well at the existing evacuation center (depth: minimum 50m) with a hand pump, installation of toilets.</p> <p>1.1.1.4 Rehabilitation of existing dike (length: 100m) near Kochiewo.</p> <p>1.1.1.5 River bank protection upstream of bridge in the Bararget River (length: 17 m: height: 2m) with ramp for cattle in Chil Chila Locality.</p>	<p>1.1.1 Structural Measures</p> <p>1.1.1.1 Construction work on the riverbank protection for the Nyamasaria River commenced on July 18, 2007. Heavy rains caused the delays in the coffering work due to the frequent occurrence of small and medium scale floods. In addition, the borrow pit for sourcing backfill material was not arranged on time. As a result, the work was completed in July 30 2008, which was 4 months behind the original schedule, excluding the absence period of the JICA Study Team ( January - June 2007). No damage to the riverbank was observed as of October 2008.</p> <p>1.1.1.2 The work on raising the level of local roads at Kokwaro commenced on August 1, 2007. The work was delayed due to a shortage of community workers, which was in turn related to their farming activities, the general election, and delays in arrangement of a compactor. The work was completed in August 18 2008, which was 3 months behind the original schedule, excluding the absence period of the JICA Study Team (January - June 2007). The work on construction of the evacuation center and toilet at Kokwaro commenced on July 20, 2007. The work was delayed due to abnormally poor performance of the contractor. The work was completed at October 30 2008, which was 4 months behind the original schedule, excluding the absence period of the JICA Study Team (January - June 2007).</p> <p>1.1.1.3 The work on raising the level of local roads at Kasiru commenced on August 1, 2007. However, the preparatory work could not commence as schedule because the existing farmland encroached on the road reserve. Finally, land owners who had encroached on the road reserve agreed to move out of the road reserve in September. The work was completed in August 18 2008, which was 3 months behind the original schedule excluding, the absence period of the JICA Study Team (January - June 2007). The drilling work at Kasiru commenced on September 1, 2007. The work was completed in the November 1 2007, as scheduled. However, two issues were raised by the village residents after demobilization of the contractor: i) there was difficulty in drawing water into buckets from the pump tap; and ii) there was no appropriate drainage. The Study Team decided to install an additional slab for placing a bucket when water is being drawn, and a small drainage channel was added. Thereafter, the completed borehole was handed over to the community on November 14, 2007. The number of water well users is between 400-500 people an average, servicing 54 homes.</p> <p>1.1.1.4 The construction work on rehabilitation of the existing dike commenced on July 18, 2007. The excavation work at borrow pits could not be started due to inaccessibility of construction machinery to the pits caused by muddy conditions. As a result, the work was</p>	<p>1.1.1 Structural Measures</p> <p>1.1.1.1 Behind schedule by 9 months of river bank protection. Good: 75%, Fair: 25%, Poor:-</p> <p>1.1.1.2 Behind schedule by 9 months of evacuation centre and raised road. <u>Raised Road</u> Good: 50%, Fair: 50%, Poor:- <u>Evacuation centre</u> Good: 25%, Fair: 75%, Poor:-</p> <p>1.1.1.3 Raised road construction behind schedule by 9 months; Good: 50%, Fair: 40%, Poor:10% Well installation was completed on time. Good: 75%, Fair: 25%, Poor:-</p> <p>1.1.1.4 Almost on time. Good: 90%, Fair: 10%, Poor:-</p>

Item	Indicators to be Confirmed	Result of Evaluation	Monitoring Result of Forum Members
		<p>completed on December 15, 2007. This was 2.5 months behind the original schedule. No damage to either the dike and community was observed during the flood period (March - April 2008).</p> <p>1.1.1.5 The construction work on riverbank protection at Chil Chila locality commenced on July 18, 2007. The work was completed on October 15 2007, which was almost the same as the original schedule. No damage to the bank was observed during flood period (March - April 2008). However, according to the CBO, the iron mesh and planted trees were stolen by unidentified people in December, 2007.</p>	<p>1.1.1.5 On time Good: 90%, Fair: 10%, Poor:-</p>
	<p>1.1.2 Flood Management Capacity Building</p> <p>Community driven flood management organizations (CFMOs) are established and functioning.</p> <p>1.1.2.1 Establishment of CFMOs. 1.1.2.2 Training in organizational operation. 1.1.2.3 Present activities of CFMOs. 1.1.2.4 Training for structural measures O&amp;M.</p>	<p>1.1.2 Flood Management Capacity Building</p> <p>1.1.2.1 The CBOs at Odesso, Kokwaro, Kasiru and Kochiewo were established before commencement of the pilot project. Through training in organizational operation, the CBO understood the necessity for modification of the by-law that transformed them into a CFMO.</p> <p>1.1.2.2 The training in organizational operation was implemented between July - November 2008 as scheduled. The trainings covered: i) orientation; ii) by-law formulation; iii) conflict resolution, leadership and communication; iv) fund raising and proposal writing; and v) financial management. The number of participants was 25-30 persons per community. According to the M&amp;E survey result, the all the participants were satisfied with the training. However, the shortage of time for the training on proposal writing was also pointed out.</p> <p>1.1.2.3 Out of 4 communities, it was confirmed that CFMOs in Odesso, Kasiru and Kochiewo utilized the skills that they acquired from training. On the other hand, it was observed that the CFMO in Kokwaro had poorly used these skills. This is based on the observation that the account book was not maintained well and no meeting records had been prepared.</p> <p>1.1.2.4 The O&amp;M training for structural measures at Odesso, Kokwaro, Kasiru and Kochiewo was implemented in September and October 2008, as scheduled. The number of participants was 18-30 persons per community. According to the M&amp;E survey result, the communities were satisfied with the training. However, the training was implemented basically at meeting venues by showing diagrams and photographs to enhance the understanding of the participants. This was done because construction of the structural measures was generally hampered by delays.</p>	<p>1.1.2 Flood Management Capacity Building 1.1.2 On time Good 70%, Fair 30%, Poor -.</p>
	<p>1.1.3 Flood Management Measures</p> <p>Flood management measures are being operated at the community level.</p>	<p>1.1.3 Flood Management Measures</p> <p>1.1.3.1 The 3 days training in flood management at Odesso, Kokwaro, Kasiru and Kochiewo were implemented between September - October 2008, as scheduled. The training topics were: i) orientation; ii) concept of the disaster cycle; iii) action to be taken, based on the disaster cycle; iv) possible structural measures that could be constructed by the community; v) useful equipment for the evacuation center; vi) early warning; vii) coordination and</p>	<p>1.1.3 Flood Management Measures  1.1.3. On time: Good 80%,</p>



Item	Indicators to be Confirmed	Result of Evaluation	Monitoring Result of Forum Members
	1.1.3.1 Flood management training. 1.1.3.2 Preparation of a Community Flood Management Manual. 1.1.3.3 Production and installation of signboards. 1.1.3.4 Implementation of evacuation drills.	<p>communication; and viii) evacuation. The number of participants was 42-46 persons per community. According to the interview survey result, the communities were satisfied with the training.</p> <p>1.1.3.2 The 2 days trainings in the preparation of a flood management manual were implemented between September - October 2008, as scheduled. The draft manuals were prepared. The number of participants was 32-45 persons per community. According to the interview survey result, the communities were satisfied with the training. However, the final manuals are yet to be presented, since no finalization work was done after the post-election violence.</p> <p>1.1.3.3 As scheduled, one large flood hazard map and 10 evacuation signboards per community were produced and installed in October 2007 at Odesso, Kokwaro, Kasiru and Kochiewo. Some of the evacuation signboards were since damaged by livestock and are now kept in the house of a CFMO member. The signboard re-installation was done by the CFMO in September 2008.</p> <p>1.1.3.4 Evacuation drills at Odesso, Kokwaro, Kasiru and Kochiewo were implemented in October - November 2008, as scheduled. The number of participants was 80-610 persons per community. According to the interview survey result, the communities were satisfied with the evacuation drill. The activities of the Kokwaro evacuation drill were recorded and broadcast by the mass media (radio and TV and newspapers). However, in Kochiewo, the CBO complained about the poor pre-arrangement plan of the evacuation drill. Therefore, the Kenya Red Cross re-implemented the drill on August 27 2008. The number of participants was more than 100 persons</p>	Fair 20%, Poor -.
	1.1.4 Flood Education Programs  1.1.4.1 Training teachers 1.1.4.2 Textbook development by the trained teachers. 1.1.4.3 Implementation of education programs for pupils in Class 4, 5, 6 and 7 of Bwanda Primary School.	<p>1.1.4 Flood Education Programs</p> <p>1.1.4.1 Teachers' training in Disaster Management Education was implemented in August 2007, as scheduled. The participating teachers were 10 from Bwanda Primary School and 6 from the other 3 schools within in the 3 pilot communities. The major topics covered were flood disaster preparedness and flood mitigation. According to the M&amp;E survey result, the teachers were satisfied with the training.</p> <p>1.1.4.2 Textbook development was implemented in August 2007, as scheduled. The participating teachers were 1 from Bwanda Primary School, 1 from Bacho Primary School, 1 from Kogwedhi Primary School and 1 from Rae Kanyayika. According to the M&amp;E survey result, the teachers were satisfied with the activity.</p> <p>1.1.4.3 An education program was implemented for pupils in Class 4, 5, 6 and 7 of Bwanda Primary School in October and November 2008, as scheduled. According to the M&amp;E survey result, the teaches were satisfied with the education program. Most of pupils noted that they could understand the contents of the flood education program. The teacher suggested that the training program should be replicated in other schools in Nyando river basin. The pupils pointed out shortage of time of the program.</p>	1.1.4 Flood Education Programs  On timer Good 100%, Fair -, Poor -.

Item	Indicators to be Confirmed	Result of Evaluation	Monitoring Result of Forum Members
	1.1.5 Other  1.1.5.1 Formulation of Rules and Regulations for Riverbank Protection of Nyamasaria River.	1.1.5 Other  1.15.1 On November 8 2007, the CFMO held a meeting with 40 participants in Odesso village, where sand harvesting activities in Nyamasaria River were exacerbating riverbank erosion at the location of riverbank protection work being undertaken by the project. Community members agreed to form a committee to monitor the situation and ensure that rules that had been formed were adhered to. Four committee members, including one representative of the sand harvesting group, were elected to enforce the rules. The sand harvesting group agreed to harvest sand at least 10 m downstream of the riverbank protection structure.	1.1.5 Other  Not evaluated
1.2 Efficiency of inputs in terms of quality, quantity and timing	1.2.1 Contract Packages  1.2.1.1 Package 1 (River Structural Work)	1.2.1 Contract Packages  Wadich General Contractor was contracted to undertake Package 1 for: i) riverbank protection work at Odesso village; ii) rehabilitation of the earth dike near Kochiewo village; and iii) riverbank protection work in Chil Chila locality. Wadich General Contractor was the lowest bidder amongst three bidders. The contract amount of KShs 6,122,000 was within the budget estimated by the Study Team. The issues of Package 1 were: i) delay of the work progress, which was 4 months at maximum behind the original schedule; and ii) some conflict with two communities due to delayed payment of labor wages etc. The quality of the work was acceptable for a local contractor.	1.2.1 Contract Packages  1.2.1.1 Good 80%, Fair 20%, Poor -.
	1.2.1.2 Package 2 (Building Work)	Landmark General Work Ltd. was contracted to undertake Package 2 for: i) construction of evacuation center with toilet at Kokwaro village; and ii) construction of toilets in the existing evacuation center at Kasiru village. Landmark General Work Ltd. was the lowest bidder amongst three bidders. The contract amount of KShs 3,526,697 was slightly over the budget estimated by the Study Team. The issues of Package 2 were: i) very poor performance of the contractor; and ii) delay of the work progress, which was 4 months behind the original schedule. The quality of the work was not acceptable. Accordingly, instructions were issued from time to time to improve the work quality.	1.2.1.2 Good 25%, Fair 75%, Poor -. Due to poor performance/
	1.2.1.3 Package 3 (Drilling Work)	GADCO was contracted to undertake Package 3 for drilling work and installation of a flood resistant well. GADCO was the lowest bidder amongst three bidders. The contract amount of KShs 896,700 was within the budget estimated by the Study Team. No issues for Package 3 were identified. The quality of the work was acceptable for a local contractor.	1.2.1.3 Good 80%, Fair 20%, Poor -.
	1.2..1.4 Package 4 (Road Construction, Development of CFMOs, Installation of Signboards, and Model Disaster Management Education Program)	VIRED International was contracted to undertake Package 4 for: i) road level raising work at Kokwaro village and at Kasiru village; ii) establishment and development of CFMO, as well as O&M Training for structural measures at the target four communities; iii) production and installation of signboards at the target four communities; and iv) providing a model disaster management education program at Kokwaro village. VIRED International was the lowest bidder amongst three bidders. The contract amount of KShs 5,056,538 was within the budget estimated by the Study Team. The issues of Package 4 were: i) delay in arrangement of construction materials and compactors and, as a result, delay of the construction work that was 3 months behind the original schedule; ii) poor management	1.2.1.4 <u>Institutional Training</u> Good 70%, Fair 70%, Poor -. <u>Raised Road&amp; Sing Board</u> Good 50%, Fair 50%, Poor -.

Item	Indicators to be Confirmed	Result of Evaluation	Monitoring Result of Forum Members
		of the construction work; and iii) poor understanding of contract conditions, such as not submitting a letter for prior approval of changes in the work. The work quality of the training program was acceptable. However, the quality of the construction work was not acceptable. Accordingly, instructions were issued from time to time to improve the work quality.	<u>Education Program</u> Good 100%, Fair -, Poor -.
	1.2.1.5 Package 5 (Community flood management training and evacuation drills)	Kenya Red Cross Society was contracted to undertake Package 5 for: i) community flood management training; ii) preparation of a community flood management plan; and iii) holding evacuation drills at the target four communities. Kenya Red Cross Society was lowest bidder amongst three bidders. The contract amount of KShs 812,736 was within the budget estimated by the Study Team. The main issue of Package 5 was the delay in submission of the report and the report quality. The work quality of the training programs was acceptable. The arrangement and execution of the evacuation drills was not done properly in the initial stages. However, the evacuation drills were improved and reached an acceptable level in the last two communities.	1.2.1.5 Good 80%, Fair 20%, Poor -.
1.3 Support system for the project	1.3.1 Support from WRMA	1.3.1 Support from WRMA  WRMA assigned one full time counterpart who has coordinated the pilot projects with the local administration, WRMA, JICA Study Team and communities. He has also explained the role of the Water Resource Users Association (WRUA) to CFMOs, since WRMA can provide more support to the communities through a WRUA after the completion of the project. As a result, 4 CBOs have joined a WRUA and one CFMO (Kasiru) is still considering joining a WRUA. The WRMA counterpart was involved in all processes for the pilot projects. In addition, during the absence of the JICA Study Team, he monitored the pilot projects and settled issues at the community level. It was observed that involvement of other WRMA staffs was not sufficient, since most staff have their duties defined according to performance contracts and there are no extra staff in WRMA within the water reform section.	
	1.3.2 Support from the JICA Study Team	1.3.2 Support from the JICA Study Team  The JICA Study Team and WRMA explained the content and procedure of the pilot projects to the CBOs before commencement of each pilot project. All the CBOs agreed to the content and procedure of the pilot projects, which led to the timely signing of an MOU between local administrators, WRMA, the JICA Study Team, and CBO. The contracts with contractors for 5 contract packages were completed according to the implementation plan and payments were made according to the contracts. The JICA Study Team could not return to the project site during January - May 2008 due to security issues that characterized the pilot sites after the December 2007 elections. Accordingly, all the contracts were terminated and payments were finalized, based on the work that had been done by March 2008. This is the major reason for delays in the pilot projects. In addition, marauding youths are alleged to have vandalized the office of JICA Study Team during the post-election protests and most of the Study Team's documents were lost.  The main issues relating to the contracts were: i) over payment vis-à-vis work progress for Package 2	

Item	Indicators to be Confirmed	Result of Evaluation	Monitoring Result of Forum Members
		due to a shortage of initial funds that were requested by Landmark General Work Ltd; and ii) claims for work valuations were made by VIRED without any written request for prior approval.	
	1.3.3 Support from Other Concerned Organizations	1.3.3 Support from Other Concerned Organizations  Local administrators, such as sub-location and location administrations, were involved in the planning stage and in meetings during the implementation stage for consensus building between the community WRMA, and the JICA Study Team.	
1.4 Cooperation or co-ordination with other aid programs	1.4.1 Cooperation or Co-ordination with Other Projects	1.4.1 Cooperation or Co-ordination with Other Projects NWCPC extended the dike along the Nyando River in addition to the dike rehabilitated by the project. At Kasiru, NIB carried out an irrigation and drainage project. There were several discussions between JICA Study Team and NWCPC/NIB about the scope of work for these projects. As a result, the JICA Study Team's projects had a synergistic effect at both Kochiewo and Kasiru.	
	1.4.2 Cooperation and Co-ordination with International Organizations or NGOs	1.4.2 Cooperation and Co-ordination with International Organizations or NGOs  Coordination with international organizations or NGOs was generally not made, except for VIRED International and the Kenya Red Cross Society for contract work.	
1.5 Constraints on achievement of project outcomes	1.5.1 Odesso	1.5.1 Odesso In Package 1, some conflict occurred between the community and the contractor concerning delayed payments and the arrangement of a borrow pit. The contractor held the meeting with the community. In the first month of working, the CFMO did not get the agreed 10% of wages from laborers, because of a misunderstanding between the contractor, the CFMO and the laborers.	1.5.1 Odesso  Recommend: CBO approve payments to contractor; and the community be involved in recruiting the contractor.
	1.5.2 Kokwaro	1.5.2 Kokwaro Dissention of some community members arose when the constructed evacuation road led to flooding. Cuttings made by these community members damaged the road. Several meetings were held between WRMA, the JICA Study Team and the community. Now, CBO prepared a counterproposal for improvement of the situation.  The community complained about the delayed progress of the evacuation center construction. The community asked the JICA Study Team to replace the contractor that was constructing the evacuation center. In June 2008, the JICA Study Team issued a warning letter to Landmark, advising of the need to replace the contractor. Thereafter, Landmark made serious arrangements for obtaining the construction materials and raised the level of their construction work efforts.	1.5.2 Kokwaro  Delay of construction work shall be improved. Some negative impact to the homestead nearby raised road.
	1.5.3 Kasiru	1.5.3 Kasiru The preparatory work for Package 4 (raising the level of roads) could not commence because existing	1.5.3 Kasiru

Item	Indicators to be Confirmed	Result of Evaluation	Monitoring Result of Forum Members
		farmland encroached on the road reserve. Finally, land owners agreed to move out the road reserve in September 2007.	Well boundary shall be defined.
	1.5.4 Kochiewo	1.5.4 Kochiewo In Package 1, some conflict between the community and the contractor arose in relation to delayed payments.  The CFMO complained about the poor quality of preparatory work for the evacuation drill. Kenya Red Cross Society decided to re-hold the evacuation drill and implemented it on August 27 2008.	1.5.4 Kochiewo  Good work done. The movement of animals across the dike is a concern.
	1.5.5 Chil Chila	1.5.5 Chil Chila Riverbank protection was not a priority measure in the CAP. The pilot project was more focused on flood management at the community level in flood prone areas, whereas the concept of riverbank protection was to reduce sedimentation to the downstream. The demonstration effect of the riverbank protection in other upper catchment area was also expected. Background information was explained to the community in the planning stage, and the community agreed to implement the pilot project, even though riverbank protection was not their priority. After the project, the community appreciated: i) reduction of soil erosion caused by livestock using the crossing ramp; and ii) effective protection of a bridge using simple construction methods. As a result, the community proposed to carry out riverbank protection in another area.	1.5.5  The project is not high priority one of the community.
<b>5-2 Effectiveness of the Project</b>			
2.1 Achievement of the project outputs	(Please refer to Section 1.1)	(Please refer to Section 1.1)	
2.2 Achievement of the project purpose	2.2.1 Community Driven Flood Management  Perspective of purpose “To examine community-driven flood management with both mutual and self helps in terms of effectiveness”.	2.2.1 Community Driven Flood Management Various lessons were learnt from the project. The major findings so far are summarized below: 1) Prioritization of communities based on present and past flood damage. In the pilot projects, the communities with serious flood damage were selected and, accordingly, the community action plan indicated a very high need for flood protection and management. Therefore, the selection of communities should be done using the flood disaster map and the knowledge of local people about present and past flood damage. 2) Participatory approach to ensure community-driven flood management. The pilot project applied various participatory approaches. As a result, the CFMOs seem to want to manage flooding by themselves using locally available resources. The same approach should be applied in future community-driven flood management projects. 3) Capacity development based on “learning by doing” In the pilot projects, the CFMOs learned institutional development through the actual activities of CFMO, financial management through operation of funds raised by labor wages, flood management concepts through evacuation drill exercises, and maintenance of structural measures through	2.2.1 Community Driven Flood Management  Community should be involved in planning and implementation stages.  Proper selection and supervision will be required for construction works

Item	Indicators to be Confirmed	Result of Evaluation	Monitoring Result of Forum Members
		<p>involvement of labor work. The concept of “learning by doing” should be emphasized in future community-driven flood management projects.</p> <p>4) Formulation of community driven flood management projects. The key points for formulation of the projects were: i) priority of CAP should be considered as much as possible; ii) the balance between structural and non-structural measures should be considered; iii) negative impacts on other communities should be avoided; iv) land arrangements, necessary approvals and their costs should be examined; and v) if there is any limitation of funding or components in the project, the reason for non-selection should be given to the communities.</p> <p>5) EIA clearance If structural measures are included in the project, EIA clearance will be required according to applicable law in Kenya. The social impact on land, benefit sharing, and equal involvement of the whole community should be carefully assessed. Minimal negative impacts on the natural environment, will occur since the proposed structural measures will be developed only at the community level.</p> <p>6) Implementation of the project</p> <ul style="list-style-type: none"> <li>✓ The capacity of construction contractors should be carefully checked in the pre-qualification and tender process. In the tender process, the construction plan should be submitted as a supporting document for the bill of quantities (BOQ) and should be carefully reviewed. In the review of tender documents and negotiations, contractor with little understanding of construction work should be disqualified.</li> <li>✓ It was generally found that local NGOs have little technical knowledge of construction work, although they do have good skills and knowledge about institutional development at the community level. It is recommended that the structural measures work be done by construction contractors or by local foremen engaged by CBO.</li> <li>✓ Kenya Red Cross now has good knowledge and experience for the implementation of training programs for flood management. It is therefore highly recommended that new projects coordinate with Kenya Red Cross for implementation of training programs for flood management.</li> </ul>	<p>Frequency of the trainings especially evacuation drills should be increased.</p> <p>Linkage between CFMO and WRUA should be strengthen.</p>
	<p>2.2.2 Capacity Improvement</p> <p>Perspective of purpose “To improve flood management capacity through on-the-job training including site training and implementation of pilot projects”.</p>	<p>2.2.2 Capacity Improvement</p> <p>The pilot projects were the product of the CAP formulated by the communities during the community survey. This has resulted in the community becoming aware that they can be involved in the planning of their developmental agenda. They do not have to wait for planning to be done from outside the community and brought to them for implementation. This awareness necessitated the voluntary establishment of CFMOs. The communities realized that they need to organize themselves and therefore able to be part of the flood management efforts in their areas.</p> <p>During the construction work, community labor was used. In addition, the community voluntary</p>	<p>2.2.2 Capacity Improvement</p> <p>CBOs should be encouraged to utilize skills acquired.</p> <p>WRUA should be involved in flood</p>

Item	Indicators to be Confirmed	Result of Evaluation	Monitoring Result of Forum Members
		<p>donated 10-20% of their earnings to the CFMOs' account for the purpose of growing the organization and furthering community development. The CFMOs also meet regularly and issues related to flood management are at the core of the agenda in these meetings. The community has become proactive in matters concerning floods and water resource management. This has led the CFMOs to hold discussions with WRMA about the possibility of joining WRUAs, which will bring more benefits to the CFMOs. Some CFMOs aim at writing proposal to CDF, or other financial sources, to seek funding for protection from floods and improvement of community life. The evacuation drill was a new activity and the reception by the communities was over-whelming. The evacuation drills brought about a change in the communities' attitude towards evacuation as preventive measure.</p> <p>Based on the above observations, it seems that most communities will be able to stand on their own if a little assistance is offered to them to strengthen the CFMO. However, it is noted that degree of improvement varies from one community to the other. For example, in Kokwaro the CBO did not operate well and their demand for further assistance is still very high.</p>	<p>management training.</p> <p>WRUA should be facilitated for project expansion..</p>
	2.2.3 Indicators of Achievement	2.2.3 Please see attached chap 6 PDM for evaluation.	
<b>5-3.Impact</b>			
3.1 Impact of the overall goal	3.1.1 Long Term Benefit  Expected impact of the project's overall goal to "Achieve long-term well-being for all in flood prone areas through expansion and sustainability of community driven flood management".	3.1.1 Long Term Benefit  The community has become proactive in matters concerning floods and water resource management. Based on the Study Team's observations, community driven flood management can create long-term well-being for the communities in flood prone areas.	3.1.1 Long Term Benefit  The project will provide positive impacts to other communities.
3.2 Impact on Government policy	3.1.2 National and Regional Policy  Impact of the project on national or regional policy for water resources management.	3.1.2 National and Regional Policy  The lessons learnt from the pilot projects are reflected to the priority scheme for "Capacity Development of Community-driven Flood Management" proposed in the Master Plan for Integrated Flood Management in Nyando River Basin.  WRMA is establishing the WRUA development cycle for water resources management. During the project implementation stage, WRMA explained to the CFMO what joining a WRUA entails. WRMA can provide more support to the communities through a WRUA after completion of the project. As a	3.1.2 National and Regional Policy  Impact identified, since WRMA have been involved into the project.

Item	Indicators to be Confirmed	Result of Evaluation	Monitoring Result of Forum Members
		<p>result, one CBO joined a WRUA and three CBOs are considering joining a WRUA.</p> <p>The board members of WRMA visited the project site and they appreciated the effectiveness of the pilot projects based on the organizational and flood management training at community level. It is expected that those observations will contribute to the future planning of WRMA activities.</p>	
<b>5-4. Relevance of the Project</b>			
4.1 Relevance of the overall goal	<p>4.1.1 Policy of WRMA</p> <p>The overall goal of the project meets with the policy of WRMA.</p>	<p>4.1.1 Policy of WRMA</p> <p>LVSBS Regional Office and the WRMA Kisumu Sub-regional Office are preparing the catchment and sub-catchment management strategy, respectively. Flood and related poverty reduction components are key elements of both management strategies. Therefore, project's overall goal to "Achieve long-term well-being for all in flood prone areas through expansion and sustainable community driven flood management" meets the policy of LVSBS Regional Office and the WRMA Kisumu Sub-regional Office.</p>	<p>4.1.1 Policy of WRMA</p> <p>Impact identified.</p>
4.2 Relevance of the project purpose	<p>4.2.1 Needs of WRMA</p> <p>The project purpose meets with needs of WRMA.</p>	<p>4.2.1 Needs of WRMA</p> <p>WRMA is establishing the WRUA development cycle for water resources management. During the project implementation stage, WRMA proposed the expansion of community-driven flood management through the WRUA development in the Nyando River Basin. In this regard, it is understood that the project purpose meets with needs of WRMA.</p>	<p>4.2.1 Need of WRMA</p> <p>Impact identified.</p>
	<p>4.2.2 Needs of Target Communities</p> <p>The project purpose meets with needs of target communities.</p>	<p>4.2.2 Needs of Target Communities</p> <p>The project purpose "To examine community-driven flood management with both mutual and self helps in terms of effectiveness" does not meet an immediate need of the target communities. However, the purpose will contribute to future project formulation, and as a result, more communities will benefit.</p> <p>The project purpose "To improve flood management capacity through on-the-job training including site training and implementation of pilot projects" meets a direct need of target communities in the flood prone area, since according to the CAP result, the priority issue is flooding. On the other hand, flood management, including riverbank protection, is not a high priority need of target communities in the middle and upper catchment.</p>	<p>4.2.2 Needs of Target Communities</p> <p>Impact identified.</p>
<b>5-5. Sustainability</b>			
5.1 Project sustainability in terms of policy aspects	<p>5.1.1 National or Regional Policy</p> <p>Outcomes of the project conform to national or regional policy.</p>	<p>5.1.1 National or Regional Policy</p> <p>LVSBS Regional Office and WRMA Kisumu Sub-regional Office are preparing a catchment and sub-catchment management strategy, respectively. The result of the pilot project will be reflected in both these strategies. Therefore, it is reasonable to conclude that the outcomes of the project do conform to regional policy.</p>	



Item	Indicators to be Confirmed	Result of Evaluation	Monitoring Result of Forum Members
5.2 Project sustainability in terms of technical aspects	5.2.1 Capacity of WRMA	<p>5.2.1 Capacity of WRMA</p> <p>A full time counterpart from WRMA was involved in all processes of the pilot project. The JICA Study Team has no doubt that he has sufficient capacity for formulation and management of future community-driven flood management projects.</p> <p>It was observed that involvement of other WRMA staffs was not sufficient in the pilot project, due to most staff having other duties responsibilities. Therefore, JICA Study Team prepared a Flood Management Manual in order to assist WRMA with planning and implementing community-driven flood management projects in the future.</p>	<p>5.2.1 Capacity of WRMA</p> <p>Sustainable: 70% Fairly Sustainable: 30% Not Sustainable: 0%</p>
	5.2.2 Capacity of Communities	<p>5.2.2 Capacity of Communities</p> <p>The CFMOs meet regularly and have become proactive in matters concerning floods and water resource management.</p> <p>Based on the above observation, it seems that the communities will be able to stand on their own if a little assistance is provided to strengthen the CBO. Broadly, the communities do now have the technical capacity to sustain the projects. However, it is noted that the level of this capacity varies from one community to the other.</p>	<p>5.2.2 Capacity of Communities</p> <p>Sustainable: 50% Fairly Sustainable: 50% Not Sustainable: 0%</p>
	5.2.3 Operation and Maintenance of Structural Measures	<p>5.2.3 Operation and Maintenance of Structural Measures</p> <p>Communities noted that they can carry out the construction of structural measures since they learned the skills through involvement in construction work. The O&amp;M training on structural measures was also implemented. As noted in 5.2.2, now the communities will be able to stand on their own if a little help to strengthen the CBO is accorded. In addition, the communities have close linkage with WRMA.</p> <p>Considering the above, it can be understood that community has capacity to operate and maintain the structure. In case of heavy damage to the structure, however, community will need further support government organizations including WRMA.</p>	<p>5.2.3 Operation and Maintenance of Structural Measures</p> <p>Sustainable: 70% Fairly Sustainable: 30% Not Sustainable: 0%</p>
5.3 Project sustainability in terms of environmental aspects	5.3.1 Negative Impacts Negative impact on natural and social impacts caused by the project.	<p>5.3.1 Negative Impacts</p> <p>Two issues were identified. One is that the preparatory work on raising the level of local roads at Kasiru could not commence since existing farmlands had encroached on the road reserve. Another is that at Kokwaro, the constructed evacuation road at Kokwaro led to the flooding to three household and they opened on the road.</p> <p>Several meetings were held between WRMA, JICA Study Team and community in order to settle those issues. In the first issue, land owners agreed to move out of the road reserve in consideration of project benefits. In the second issue, CFMO is preparing the proposal to improve situation.</p>	<p>5.3.1 Negative Impact</p> <p>Negative impact was identified in raised road in Kokwaro.</p>

Item	Indicators to be Confirmed	Result of Evaluation	Monitoring Result of Forum Members
5.4 Project sustainability in terms of institutional aspects	5.4.1 WRMA Institution Operation of WRMA in terms of institutional aspects.	5.4.1 WRMA Institution Please see Section 5.2.1.	
	5.4.2 Operation of CFMOs	Operation of CFMOs Please see Section 5.2.2	
5.5 Project sustainability in terms of financial aspects	5.5.1 WRMA Budget Budget arrangement of WRMA after completion of the project.	5.5.1 WRMA Budget WRMA is establishing the WRUA development cycle for water resources management. At the Nyando Forum held during the project implementation stage, WRMA proposed the expansion of community-driven flood management through WRUAs. If communities become members of WRUA, they have the opportunity to access the Water Service Trust Fund to realize community flood management projects.	
	5.5.2 CFMO Finances Financial condition of CFMOs after completion of the project.	5.5.2 CFMO Finances During the construction work, community labor was used and the community voluntary donated 10-20% of their earnings to the CFMO account for the purpose of growing the organization and furthering community development. Most CFMOs maintained their account book properly. However, WRMA should monitor the financial condition of CFMOs, since some CFMOs may fail to maintain their fund correctly when undertaking future activities.	5.5.2 CFMO Finances Sustainable: 40% Fairly Sustainable: 50% Not Sustainable: 10%

## 5-6. Project Design Matrix for Evaluation on Pilot Projects

Project Name: The Pilot Projects in the Study on Integrated Flood Management for Nyando River Basin

Duration: 2007(May) – 2008(Oct)

Target Area: Five communities selected in the Study

Target Group: Community Driven Flood Management Organizations (CFMOs) to be established

Key Stakeholders: Community as project owner and beneficiaries, WRMA as project facilitator, local government (location/sub-location) as collaborator to community, and JICA Study Team as project supervisor

Date of Preparation: Oct 20, 2008

Narrative Summary	Objectively Verifiable Indicators	Achievement	Remarks
<p><b>Overall Goal</b> Achieve long-term well-being for all in flood prone areas through expansion and sustainment of community driven flood management</p>	<ul style="list-style-type: none"> <li>- Opinions of participants in the final forum meeting about the pilot projects</li> </ul>	<ul style="list-style-type: none"> <li>- All the forum members noted that the community-driven flood management project will be effective for improvement of economic and social situations in flood prone areas</li> </ul>	
<p><b>Project Purpose</b> 1. Examine community-driven flood management with both mutual and self helps in terms of effectiveness 2. Improve flood management capacity through on-the-job training including site training and implementation of pilot projects</p>	<ul style="list-style-type: none"> <li>- Satisfaction of community people on effectiveness of pilot projects to protect against flooding</li> <li>- Evaluation by Forum Members of achievement of capacity development on flood management</li> </ul>	<ul style="list-style-type: none"> <li>- Due to non-flood in April-May 2008, the assessment has not been done. However, majority of beneficiaries are fully satisfied with the project activities.</li> <li>- Good: 70%, Fair: 30%, Poor:-</li> </ul>	
<p><b>Output 1</b> Effective flood management structural measures are installed and functioning.</p>	<ul style="list-style-type: none"> <li>- Progress of construction</li> <li>- Damage to structures after flooding</li> <li>- Participation of community people</li> <li>- No of Users of facilities (wells, evacuation centers and roads)</li> </ul>	<ul style="list-style-type: none"> <li>- Please see PDM for each community.</li> </ul>	
<p><b>Output 2</b> Community driven flood management organization is established and functioning.</p>	<ul style="list-style-type: none"> <li>- Completion of bylaws</li> <li>- Progress of fund creation compared to amounts specified in by-laws</li> <li>- No. of meetings compared to numbers specified in by-laws</li> </ul>	<ul style="list-style-type: none"> <li>- Please see PDM for each community.</li> </ul>	
<p><b>Output 3</b> Flood Management measures are being operated at community level</p>	<ul style="list-style-type: none"> <li>- No. of participants in flood drills</li> <li>- Activities of CFMO related to flood management</li> </ul>	<ul style="list-style-type: none"> <li>- Please see PDM for each community</li> </ul>	
<p><b>Output 4</b> Effectiveness of education program on flood prevention is confirmed at the site level</p>	<ul style="list-style-type: none"> <li>- No. of participants in training program</li> <li>- Satisfaction of students and teachers</li> </ul>	<ul style="list-style-type: none"> <li>- Please see PDM for education program.</li> </ul>	

Project Name: The Pilot Projects on Odesso Community Flood Management  
Duration: 2007(May) – 2008(Sep)  
Target Area: Odesso village, Kasiru Sub-Location  
Target Group: Odesso Community Multipurpose Group  
Key Stakeholders: Community as project owner and beneficiaries, WRMA as project facilitator, local government (location/sub-location) as collaborator to community, and JICA Study Team as project supervisor  
Date of Preparation: Oct 20, 2008

Narrative Summary	Objectively Verifiable Indicators	Achievement	Remarks
<b>Overall Goal</b> Achieve long-term well-being for Odesso in flood prone areas	- Continuous activities of CFMO	- CFMO members continue the activities and joined into WRUA for further development.	
<b>Project Purpose</b> 1. Examine community-driven flood management with both mutual and self helps in terms of effectiveness 2. Improve flood management capacity through on-the-job training including site training and implementation of pilot projects	- Satisfaction of community people on effectiveness of pilot projects to protect against flooding - Evaluation by Forum Members and JICA Study Team of achievement of capacity development on flood management	- Due to non-flood in April-May 2008, the assessment has not been done. However, the M&E survey results indicate more than 80% of community people are fully or fairly satisfied with the project activities. - Good: 65%, Fair: 35%, Poor:-	
<b>Output 1</b> River bank protection in the Nyamasaria river is installed and functioning.	- Progress of construction - Quality of work - Participation of community people - Damage after the construction	- 4 months behind the original schedule - Quality is acceptable level. - Fully involved as unskilled labour work. - No damages are confirmed.	
<b>Output 2</b> Odesso Community Multipurpose Group is established and functioning.	- No of trainees received - Satisfaction of trainees - Completion of bylaws - Progress of fund creation compared to amounts - No. of meetings compared to numbers specified in by-laws - Activities of CFMO after the project	- M:9, F:14, Total 23 - More than 80% of trainees are fairly satisfied with the training. - Bylaws were prepared - The organization's account books has been maintained (Kshs 26,000) - Meeting records have been maintained. - Proposal preparation and income generation activities	
<b>Output 3</b> Flood Management measures are being operated at Odesso	- No of trainees received - Satisfaction of trainees received - Production of flood management manual - No. of participants in flood drills - Satisfaction of trainees received - No of signboard installed and maintained - Activities of CFMO related to the flood management	- 44 at average. - 50% of trainees are fully satisfied with the training. - Flood management manual was prepared, - 610. - More than 80% of trainees are fully satisfied with the drill. - One map and 10 signboards has been maintained, - Meetings on further flood protection.	

Project Name: The Pilot Projects on Kokwaro Community Flood Management  
Duration: 2007(May) – 2008(Sep)  
Target Area: Kokwaro Village, Central Bwanda Sub-Location  
Target Group: Kokwaro community development project  
Key Stakeholders: Community as project owner and beneficiaries, WRMA as project facilitator, local government (location/sub-location) as collaborator to community, and JICA Study Team as project supervisor  
Date of Preparation: Oct 20, 2008

Narrative Summary	Objectively Verifiable Indicators	Achievement	Remarks
<p><b>Overall Goal</b>  Achieve long-term well-being for Kokwaro in flood prone areas</p>	<ul style="list-style-type: none"> <li>- Continuous activities of CFMO</li> </ul>	<ul style="list-style-type: none"> <li>- CFMO members continue the activities and joined into WRUA for further development.</li> </ul>	
<p><b>Project Purpose</b>  1. Examine community-driven flood management with both mutual and self helps in terms of effectiveness  2. Improve flood management capacity through on-the-job training including site training and implementation of pilot projects</p>	<ul style="list-style-type: none"> <li>- Satisfaction of community people on effectiveness of pilot projects to protect against flooding</li> <li>- Evaluation by Forum Members and JICA Study Team of achievement of capacity development on flood management</li> </ul>	<ul style="list-style-type: none"> <li>- Due to non-flood in April-May 2008, the assessment has not been done. However, the M&amp;E survey results indicate more than 80% of community people are fully satisfied with the project activities.</li> <li>- Good: 65%, Fair: 35%, Poor:-</li> </ul>	
<p><b>Output 1</b>  Evacuation center with evacuation road is installed and functioning.</p>	<ul style="list-style-type: none"> <li>- Progress of construction</li> <li>- Quality of work</li> <li>- Participation of community people</li> <li>- Damage after the construction</li> <li>- Uses number</li> </ul>	<ul style="list-style-type: none"> <li>- 4 months behind the original schedule</li> <li>- Quality of both center and road was not acceptable level, but finally improved.</li> <li>- Partially involved as unskilled labour work.</li> <li>- No damages are confirmed.</li> <li>- Centre: -, Road: 500 users per day</li> </ul>	
<p><b>Output 2</b>  Kokwaro Community Development Project is established and functioning.</p>	<ul style="list-style-type: none"> <li>- No of trainees received</li> <li>- Satisfaction of trainees</li> <li>- Completion of bylaws</li> <li>- Progress of fund creation compared to amounts</li> <li>- No. of meetings compared to numbers specified in by-laws</li> <li>- Activities of CFMO after the project</li> </ul>	<ul style="list-style-type: none"> <li>- M:18, F:12, Total 30</li> <li>- More than 80% of trainees are fully satisfied with the training.</li> <li>- Bylaws were prepared</li> <li>- The organization's account books has been poorly maintained (Kshs. 40,000)</li> <li>- Meeting records have been poorly maintained.</li> <li>- Not done.</li> </ul>	
<p><b>Output 3</b>  Flood Management measures are being operated at Kokwaro</p>	<ul style="list-style-type: none"> <li>- No of trainees received</li> <li>- Satisfaction of trainees received</li> <li>- Production of flood management manual</li> <li>- No. of participants in flood drills</li> <li>- Satisfaction of trainees received</li> <li>- No of signboard installed and maintained</li> <li>- Activities of CFMO related to the flood management</li> </ul>	<ul style="list-style-type: none"> <li>- 46 at average.</li> <li>- More than 80% of trainees are fully satisfied with the training.</li> <li>- Flood management manual was prepared,</li> <li>- 107.</li> <li>- More than 80% of trainees are fully satisfied with the drill.</li> <li>- One map and 10 signboards has been maintained,</li> <li>- Meetings on maintenance of evacuation road.</li> </ul>	

Project Name: The Pilot Projects on Kasiru Community Flood Management  
Duration: 2007(May) – 2008(Sep)  
Target Area: Kasiru Village, Kore Sub-Location  
Target Group: Kitauchi Yoko Kasiru IFM Self Help Group  
Key Stakeholders: Community as project owner and beneficiaries, WRMA as project facilitator, local government (location/sub-location) as collaborator to community, and JICA Study Team as project supervisor  
Date of Preparation: October 20, 2008

Narrative Summary	Objectively Verifiable Indicators	Achievement	Remarks
<p><b>Overall Goal</b>  Achieve long-term well-being for Kasiru in flood prone areas</p>	<ul style="list-style-type: none"> <li>- Continuous activities of CFMO</li> </ul>	<ul style="list-style-type: none"> <li>- CFMO members continue the activities and but did not join into WRUA.</li> </ul>	
<p><b>Project Purpose</b>  1. Examine community-driven flood management with both mutual and self helps in terms of effectiveness  2. Improve flood management capacity through on-the-job training including site training and implementation of pilot projects</p>	<ul style="list-style-type: none"> <li>- Satisfaction of community people on effectiveness of pilot projects to protect against flooding</li> <li>- Evaluation by Forum Members and JICA Study Team of achievement of capacity development on flood management</li> </ul>	<ul style="list-style-type: none"> <li>- Due to non-flood in April-May 2008, the assessment has not been done. However, the M&amp;E survey results indicate more than 90% of community people are fully satisfied with the project activities.</li> <li>- Good: 65%, Fair: 35%, Poor:-</li> </ul>	
<p><b>Output 1</b>  Raising evacuation road, raised well and toilet at existing evacuation centre are installed and functioning.</p>	<ul style="list-style-type: none"> <li>- Progress of construction</li> <li>- Quality of work</li> <li>- Participation of community people</li> <li>- Damage after the construction</li> <li>- Uses number</li> </ul>	<ul style="list-style-type: none"> <li>- Raise road: 4 months behind the original schedule</li> <li>- Well: on time</li> <li>- Quality is acceptable level.</li> <li>- Fully involved as unskilled labour work.</li> <li>- No damages are confirmed.</li> <li>- Well: 150 HH, Road: 500 users</li> </ul>	
<p><b>Output 2</b>  Kitauchi Yoko Kasiru IFM Self Help Group is established and functioning.</p>	<ul style="list-style-type: none"> <li>- No of trainees received</li> <li>- Satisfaction of trainees</li> <li>- Completion of bylaws</li> <li>- Progress of fund creation compared to amounts</li> <li>- No. of meetings compared to numbers specified in by-laws</li> <li>- Activities of CFMO after the project</li> </ul>	<ul style="list-style-type: none"> <li>- M:21, F:9, Total 30</li> <li>- 100% of trainees are fully satisfied with the training.</li> <li>- Bylaws were prepared</li> <li>- The organization's account books has been maintained (Kshs 85,700)</li> <li>- Meeting records have been maintained.</li> <li>- Operation and maintenance of well</li> </ul>	
<p><b>Output 3</b>  Flood Management measures are being operated at Kasiru</p>	<ul style="list-style-type: none"> <li>- No of trainees received</li> <li>- Satisfaction of trainees received</li> <li>- Production of flood management manual</li> <li>- No. of participants in flood drills</li> <li>- Satisfaction of trainees received</li> <li>- No of signboard installed and maintained</li> <li>- Activities of CFMO related to the flood management</li> </ul>	<ul style="list-style-type: none"> <li>- 42 at average.</li> <li>- 1000% of trainees are fully satisfied with the training.</li> <li>- Flood management manual was prepared,</li> <li>- 83.</li> <li>- Around 50% of trainees are satisfied with the drill.</li> <li>- One map and 10 signboards has been maintained,</li> <li>- Meetings on further flood protection and community development.</li> </ul>	

Project Name: The Pilot Projects on Kogwedhi Community Flood Management  
Duration: 2007(May) – 2008(Sep)  
Target Area: Kochiewo Village, Magina Sub-Location  
Target Group: Kogwedhi Community Self Help Group consisting of Kochiewo, Kokul and Katieno villages  
Key Stakeholders: Community as project owner and beneficiaries, WRMA as project facilitator, local government (location/sub-location) as collaborator to community, and JICA Study Team as project supervisor  
Date of Preparation: October 20, 2008

Narrative Summary	Objectively Verifiable Indicators	Achievement	Remarks
<b>Overall Goal</b> Achieve long-term well-being for Kochiewo in flood prone areas	- Continuous activities of CFMO	- CFMO members continue the activities and joined into WRUA for further development.	
<b>Project Purpose</b> 1. Examine community-driven flood management with both mutual and self helps in terms of effectiveness 2. Improve flood management capacity through on-the-job training including site training and implementation of pilot projects	- Satisfaction of community people on effectiveness of pilot projects to protect against flooding - Evaluation by Forum Members and JICA Study Team of achievement of capacity development on flood management	- Due to non-flood in April-May 2008, the assessment has not been done. However, the M&E survey results indicate more than 70% of community people are fully satisfied with the project activities. - Good: 70%, Fair: 30%, Poor:-	
<b>Output 1</b> Dyke is rehabilitated and functioning.	- Progress of construction - Quality of work - Participation of community people - Damage after the construction	- 2.5 months behind the original schedule - Quality is acceptable level. - Fully involved as unskilled labour work. - No damages are confirmed.	
<b>Output 2</b> Kogwedhi Community Self Help Group is established and functioning.	- No of trainees received - Satisfaction of trainees - Completion of bylaws - Progress of fund creation compared to amounts - No. of meetings compared to numbers specified in by-laws - Activities of CFMO after the project	- M:21, F:7, Total 28 - More than 80% of trainees are fully satisfied with the training. - Bylaws were prepared - The organization's account books has been maintained (Kshs 34,000) - Meeting records have been maintained. - Income generation activities	
<b>Output 3</b> Flood Management measures are being operated at Kochiewo	- No of trainees received - Satisfaction of trainees received - Production of flood management manual - No. of participants in flood drills - Satisfaction of trainees received - No of signboard installed and maintained - Activities of CFMO related to the flood management	- 43 at average. - More than 80% of trainees are fully satisfied with the training. - Flood management manual was prepared, - 2563. - Around 50% of trainees are satisfied with the drill. - One map and 10 signboards has been maintained, - Meetings on further flood protection and community development.	

Project Name: The Pilot Projects on Chil Chila Community Flood Management  
Duration: 2007(May) – 2008(Sep)  
Target Area: Siwot and Kamiwa Villages, Chil Chila Location  
Target Group: Millennium Community Health Workers Group  
Key Stakeholders: Community as project owner and beneficiaries, WRMA as project facilitator, local government (location/sub-location) as collaborator to community, and JICA Study Team as project supervisor  
Date of Preparation: October 20, 2008

Narrative Summary	Objectively Verifiable Indicators	Achievement	Remarks
<p><b>Overall Goal</b>  Achieve long-term well-being for flood prone areas</p>	<ul style="list-style-type: none"> <li>- Evaluation by Forum Members and JICA Study Team of achievement of capacity development on flood management</li> </ul>	<ul style="list-style-type: none"> <li>- Good: 90%, Fair: 10%, Poor:-</li> </ul>	
<p><b>Project Purpose</b>  1. Examine community-driven flood management with both mutual and self helps in terms of effectiveness</p>	<ul style="list-style-type: none"> <li>- Satisfaction of community people on effectiveness of pilot project to protect eroded riverbank</li> </ul>	<ul style="list-style-type: none"> <li>- Fully satisfied: 60%,</li> <li>- Fairly satisfied: 35%,</li> <li>- Not satisfied: 5 %,</li> </ul>	
<p><b>Output 1</b>  River bank protection is constructed and functioning.</p>	<ul style="list-style-type: none"> <li>- Progress of construction</li> <li>- Quality of work</li> <li>- Participation of community people</li> <li>- Damage after the construction</li> </ul>	<ul style="list-style-type: none"> <li>- On time</li> <li>- Quality is acceptable level.</li> <li>- Fully involved as unskilled labour work.</li> <li>- No damages are confirmed.</li> </ul>	
<p><b>Output 2</b>  Millennium Community Health Workers Group.</p>	<ul style="list-style-type: none"> <li>- Progress of fund creation compared to amounts</li> <li>- No. of meetings compared to numbers specified in by-laws</li> <li>- Activities of CBO after the project</li> </ul>	<ul style="list-style-type: none"> <li>- The organization's account books has been maintained. (kshs 10,000)</li> <li>- Meeting records have been maintained.</li> <li>- Community development to access other fund sources</li> </ul>	



Project Name: The Pilot Project on Education Program for Integrated Flood Management  
Duration: 2007(May) – 2008(Mar)  
Target Area: Bwanda Primary School near Kokwaro village, Central Bwanda Sub-Location  
Target Group: Students of Bwanda Primary School  
Key Stakeholders: WRMA as project facilitator, local government (location/sub-location) as collaborator to community, and JICA Study Team as project supervisor  
Date of Preparation: October 20, 2008

Narrative Summary	Objectively Verifiable Indicators	Means of Verification	Important Assumptions
<p><b>Overall Goal</b>  Achieve long-term well-being for all in flood prone areas through expansion and sustainment of community driven flood management</p>	<ul style="list-style-type: none"> <li>- Opinions of participants in the final forum about the pilot projects</li> </ul>	<ul style="list-style-type: none"> <li>- All the forum members noted that education program will be effective for improvement of economic and social situations in flood prone areas</li> </ul>	
<p><b>Project Purpose</b>  1. Examine community-driven flood management with both mutual and self helps in terms of effectiveness  2. Improve flood management capacity through on-the-job training including site training and implementation of pilot projects</p>	<ul style="list-style-type: none"> <li>- Assessment result of flood management education programme</li> <li>- Evaluation by Forum Members of achievement of capacity development on flood management</li> </ul>	<ul style="list-style-type: none"> <li>- Assessment report of flood management education programme</li> <li>- Good: 100%, Fair: -, Poor:-</li> </ul>	
<p><b>Output 1</b>  Flood management textbook for primary school is developed</p>	<ul style="list-style-type: none"> <li>- No. of teachers involved</li> <li>- Quality of text book</li> </ul>	<ul style="list-style-type: none"> <li>- 16 teachers</li> <li>- Text was developed and 94% of teachers can understand the content.</li> </ul>	
<p><b>Output 2</b>  Flood management education is implemented at Bwanda Primary School 1</p>	<ul style="list-style-type: none"> <li>- No. of students received</li> <li>- Satisfaction of students and teachers</li> </ul>	<ul style="list-style-type: none"> <li>- 150 pupils</li> <li>- Teachers and Pupils: 71 % fully satisfactory,</li> </ul>	

***DATA BOOK 6.***  
***ENVIRONMENTAL SCOPING MATRIX***  
***FOR PRIORITY SCHEMES***

### Scoping Matrix for Priority Schemes

Name of Cooperation Project		Strengthening of Existing Dykes			
Item		Rating	Reasons	Countermeasures	
Social Environment: *Impacts on "Gender" and "Children's Right" may be related to all social environment criteria.	1	Involuntary Resettlement	B-	<ul style="list-style-type: none"> <li>- For dyke construction works, some houses exist on the right bank just downstream of Ahero bridge and both riverine areas in the lowermost reach.</li> <li>- About 25 houses subject to relocation as of July 2008.</li> <li>- Dyke alignment: Right bank just downstream of Ahero bridge: 10 houses including 5 shanties.</li> <li>- The following is relocated since these houses are to be confined on the high water channel between the proposed dykes: 6 houses in the right bank and 7 houses in the left bank</li> <li>- The scale of involuntary resettlement caused by project implementation is limited.</li> </ul>	<p>Preliminary land acquisition and resettlement plan (LARP) should be prepared before the implementation of land acquisition and resettlement. The restoration of livelihoods and living standards for the relocated household should be considered and proposed based on socioeconomic studies.</p> <p>In detailed design stage, setting of dyke alignment shall be adjusted to minimize resettlement numbers.</p>
	2	Local Economy such as Employment and Livelihood, etc	B-	<ul style="list-style-type: none"> <li>- The proposed works contribute to improvement of the living environment of the inhabitants due to mitigation of flood damages. However, above households subject to involuntary resettlement causes negative impacts to their livelihood if there are no livelihood recovery assistance by the relevant agencies.</li> </ul>	<p>The restoration of livelihoods and living standards for the relocated household should be considered and proposed based on socioeconomic studies in the LARP.</p>
	3	Land Use and Utilization of Local Resources	B-	<ul style="list-style-type: none"> <li>- In the operation stage, the negative impact to the cultivated area along dykes may occur, since sediment flow recharge soil nutrition through flooding. The flood has damaged the crops almost every year, while decrease of crop yield due to loss of soil nutrition</li> </ul>	<p>Agriculture extension shall be applied in order to minimize the negative impact on loss of soil fertility. Soil fertility can be improved by inputs of organic materials and chemical fertilizer to the cultivation area.</p>

Name of Cooperation Project		Strengthening of Existing Dykes			
Item		Rating	Reasons	Countermeasures	
	4	Social Institutions such as Social Infrastructure and Local Decision - making Institutions	C or B-	- It seems that most of local communities will accept the project, since the flood is most serious issue in the region. However, opinions on community to be affected by the project shall be confirmed.	The consultation meetings with local communities affected by dike construction shall be held.
	5	Existing Social Infrastructures and Services	B+	- Access of such social infrastructure will be improved through dike or improvement of road condition due to reduce of floods.	
	6	The Poor, Indigenous and Ethnic people	C	- Issue on indigenous and ethnic people is not applicable in and around the project site. - The project will reduce poor since flood disturb the regional economy.	
	7	Misdistribution of Benefit and Damage	B-	- Dike construction will benefit to most of local people since the flood is most serious issue in the region. However, 25 houses have to be relocated. therefore, opinions on community to be affected by the project shall be confirmed.	The consultation meetings with local communities affected by dike construction shall be held.
	8	Cultural heritage	C	- According to inventory survey made by the Study Team, there is no cultural heritage.	-
	9	Local Conflicts of Interest	C	- Local conflict of interest can not be observed in the target area. Such local conflicts of interest will be controlled by local government and communities in line with current regulation.	-
	10	Water Usage or Water Rights and Communal Rights	B-	- The access to the river for drawing water and fishing will be blocked in some communities during dike construction. In the operation stage, there is no negative impact, since rump is installed. - For construction works, river water might be used for construction purposes. However, it is limited in viewpoints of volume and period. No disturbance is occurred resulting in this item.	The crossing points to the river shall be planned in the construction plan.
	11	Sanitation	C or B-	- During construction stage, works may disturb the sanitation condition.	Contract with the contractor shall include environmental protection clause.

Name of Cooperation Project		Strengthening of Existing Dykes			
Item		Rating	Reasons	Countermeasures	
	12	Hazards (risk) Infectious Diseases such as HIV/AIDS	C or B-	- In implementation works, many technicians and workers from outside will be engaged and such groups might disturb condition in and around work site.	Guidance on HIV to the workers shall be organized
Natural Environment )	13	Topography and Geographical Features	C	- There is no negative impact to this item. The present features are not changed even after construction works.	-
	14	Soil Erosion	C	- Excavation for embankment materials is planned in the high water channels only.	-
	15	Groundwater	C	- There is no negative impact to this item. Pumping of groundwater is not planned in this project.	-
	16	Hydrological Situation	C	- No major changes of hydrology caused by the most of proposed works are expected, since only flow capacity of flood is to be improved but regular flow and its water level will not be affected.	-
	17	Coastal zone	C	- The swamp area is located in the lakeshore of the Lake Victoria along the Nyando River (around 7,000 ha wide and 15 km in long form river mouth of the Nyando River). The dyke along the Nyando River will be constructed before entrance of the swamp area in order to avoid the negative impact to the ecosystem of the swamp area.	-
	18	Flora, Fauna and Biodiversity	C	- Same as item 17.	-
	19	Meteorology	C	- River channel improvement works does not influence the meteorological condition.	-
	20	Landscape	C	- The existing dyke will be heightened by 1 to 2m. Almost no impact to landscape is expected.	-
	21	Global Warming	C	- River channel improvement works does not influence the meteorological condition.	-
Pollution	22	Air Pollution	C or B-	- During construction stage, heavy equipment such as dump truck, excavator, compactor, etc., will be utilized. - Such construction activity may cause air pollution in the adjacent area.	During construction, required countermeasures will be considered to minimize air pollution.

Name of Cooperation Project		Strengthening of Existing Dykes			
Item		Rating	Reasons	Countermeasures	
	23	Water Pollution	B-	<ul style="list-style-type: none"> <li>- Embankment materials are planned to be obtained from borrow pit on the high water channel nearby the proposed dyke.</li> <li>- Such construction activity may cause water pollution in the adjacent area.</li> </ul>	During construction, required measures are applied to minimize water pollution in the low water channel towards downstream reaches.
	24	Soil Contamination	C	<ul style="list-style-type: none"> <li>- In the construction works, there is no plan to use heavy metal and chemical materials resulting in soil contamination.</li> </ul>	-
	25	Waste	C	<ul style="list-style-type: none"> <li>- Dyke is constructed by using excavated materials in the high water channel. Throughout construction works, it is not expected to produce waste.</li> </ul>	-
	26	Noise and Vibration	C or B-	<ul style="list-style-type: none"> <li>- During construction stage, heavy equipment such as dump truck, excavator, compactor, etc., will be employed in the work site.</li> <li>- Such construction activity may cause noise and vibration to the adjacent area.</li> </ul>	During construction, required countermeasures will be considered to minimize noise and vibration
	27	Ground Subsidence	C	<ul style="list-style-type: none"> <li>- In this project, there is no plan to use groundwater resulting in ground subsidence.</li> </ul>	-
	28	Offensive Odor	C or B-	<ul style="list-style-type: none"> <li>- During construction stage, heavy equipment such as dump truck, excavator, compactor, etc., will be employed in the work site.</li> <li>- Such construction activity may causes offensive odor to the adjacent area.</li> </ul>	During construction stage, required countermeasures will be considered to minimize offensive odor.
	29	Bottom Sediment	C	<ul style="list-style-type: none"> <li>- In this project, there is no plan to dispose sediment into the river channel resulting in bottom sediment.</li> </ul>	-
	30	Accidents	C or B-	<ul style="list-style-type: none"> <li>- Construction activity may causes accidents.</li> </ul>	Contract with the contractor shall include safety clause
Overall rating		B			

Rating;

A: Serious impact is expected,

B: Some impact is expected,

C: No impact is expected. IEE/EIA is not necessary,

D: Extent of impact is unknown.

-: Negative impact

+: Positive Impact

Name of Cooperation Project			Network of Evacuation Roads traversing the Affected Communities		
Item		Rating	Reasons	Countermeasures	
Social Environment: *Impacts on "Gender" and "Children's Right" may be related to all social environment criteria.	1	Involuntary Resettlement	C	<ul style="list-style-type: none"> <li>- Existing 1 national and 3 local road will be raised by a total 18 km length.</li> <li>- Accordingly there is no house subject to resettlement..</li> </ul>	
	2	Local Economy such as Employment and Livelihood, etc	B+	<ul style="list-style-type: none"> <li>- The proposed works contribute to improvement of the living environment of the inhabitants due to improvement of access condition during flood.</li> </ul>	
	3	Land Use and Utilization of Local Resources	B-	<ul style="list-style-type: none"> <li>- The disturbance of existing traffic flow will be expected during construction stage, since A1 road and associated bridges are main route for Nakuru-Kericho-Kisumu. The traffic survey (May 2007) indicated that the traffic volume was 5,900 at Nyamasaria in A1 road.</li> </ul>	The proper construction plan with traffic restriction and temporary route shall be formulated in order to minimize disturbance of traffic flow. In addition, the information shall be provided to the local people before the construction, since affected period is limited.
	4	Social Institutions such as Social Infrastructure and Local Decision - making Institutions	C or B-	<ul style="list-style-type: none"> <li>- It seems that most of local communities will accept the project, since the flood is most serious issue in the region. However, opinions on community to be affected by the project shall be confirmed.</li> </ul>	The consultation meetings with local communities affected by dike construction shall be held.
	5	Existing Social Infrastructures and Services	B+	<ul style="list-style-type: none"> <li>- Access of such social infrastructures will be improved due to improvement of road condition during flood.</li> </ul>	
	6	The Poor, Indigenous and Ethnic people	C	<ul style="list-style-type: none"> <li>- Issue on indigenous and ethnic people is not applicable in and around the project site.</li> <li>- The project will reduce poor since flood disturb the regional economy.</li> </ul>	
	7	Misdistribution of Benefit and Damage	B-	<ul style="list-style-type: none"> <li>- Dike construction will benefit to most of local people since the flood is most serious issue in the region.</li> </ul>	

Name of Cooperation Project		Network of Evacuation Roads traversing the Affected Communities			
Item		Rating	Reasons	Countermeasures	
	8	Cultural heritage	C	- According to inventory survey made by the Study Team, there is no cultural heritage.	-
	9	Local Conflicts of Interest	C	- Local conflict of interest can not be observed in the target area. Such local conflicts of interest will be controlled by local government and communities in line with current regulation.	-
	10	Water Usage or Water Rights and Communal Rights	C-	- No impact is expected.	-
	11	Sanitation	C or B-	- During construction stage, works may disturb the sanitation condition.	Contract with the contractor shall include environmental protection clause.
	12	Hazards (risk) Infectious Diseases such as HIV/AIDS	C or B-	- In implementation works, many technicians and workers from outside will be engaged and such groups might disturb condition in and around work site.	Guidance on HIV to the workers shall be organized
Natural Environment )	13	Topography and Geographical Features	C	- There is no negative impact to this item. The present features are not changed even after construction works.	-
	14	Soil Erosion	C or B-	- Excavation for raising materials is obtained from borrows pits outside. The soil erosion may occur in borrow pit area.	Proper borrow pit shall be properly selected.
	15	Groundwater	C	- There is no negative impact to the groundwater. Pumping of groundwater is not planned in this project.	-
	16	Hydrological Situation	C or B-	- During construction stage, ditch drains along the existing roads will be affected.	Diversion channel shall be provided during construction works.
	17	Coastal zone	C	- No impact is expected, since project location is not coastal zone	-
	18	Flora, Fauna and Biodiversity	C	- Almost no impact is expected, since existing road is raised.	-
	19	Meteorology	C	- The works does not influence the meteorological condition.	-
	20	Landscape	C	- he existing road will be raised by about 0.5 to 1 m. Almost no impact to landscape is expected.	-
	21	Global Warming	C	- The works does not influence the meteorological condition.	-



Name of Cooperation Project		Network of Evacuation Roads traversing the Affected Communities			
Item		Rating	Reasons	Countermeasures	
Pollution	22	Air Pollution	C or B-	<ul style="list-style-type: none"> <li>- During construction stage, heavy equipment such as dump truck, excavator, compactor, etc., will be utilized.</li> <li>- Such construction activity may cause air pollution in the adjacent area.</li> <li>-</li> </ul>	During construction, required countermeasures will be considered to minimize air pollution.
	23	Water Pollution	C or B-	- During construction stage, drain along the road will be closed and affected. Such construction activity may cause water pollution in the local area of the project area..	During construction, diversion of the existing ditches should be provided for smooth drainage.
	24	Soil Contamination	C	- In the construction works, there is no plan to use heavy metal and chemical materials resulting in soil contamination.	-
	25	Waste	C	- Raising road is constructed mainly using excavated materials from borrows pits outside. Therefore, construction will be limited.	-
	26	Noise and Vibration	C or B-	<ul style="list-style-type: none"> <li>- During construction stage, heavy equipment such as dump truck, excavator, compactor, etc., will be employed in the work site.</li> <li>- Such construction activity may cause noise and vibration to the adjacent area.</li> </ul>	During construction, required countermeasures will be considered to minimize noise and vibration
	27	Ground Subsidence	C	- In this project, there is no plan to use groundwater resulting in ground subsidence.	-
	28	Offensive Odor	C or B-	<ul style="list-style-type: none"> <li>- During construction stage, heavy equipment such as dump truck, excavator, compactor, etc., will be employed in the work site.</li> <li>- Such construction activity may causes offensive odor to the adjacent area.</li> </ul>	During construction stage, required countermeasures will be considered to minimize offensive odor.
	29	Bottom Sediment	C	- In this project, there is no plan to dispose sediment into the river channel resulting in bottom sediment.	-
	30	Accidents	C or B-	- Construction activity may causes accidents.	Contract with the contractor shall include safety clause
	Overall rating		B		

Rating;

A: Serious impact is expected,

B: Some impact is expected,

C: No impact is expected. IEE/EIA is not necessary,

D: Extent of impact is unknown.

-: Negative impact

+: Positive Impact

Name of Cooperation Project		Capacity Development of Community-Driven Flood Management			
Item		Rating	Reasons	Countermeasures	
Social Environment: *Impacts on "Gender" and "Children's Right" may be related to all social environment criteria.	1	Involuntary Resettlement	C	<ul style="list-style-type: none"> <li>- The project structure plan will be formulated by community and the scale is limited within community.</li> <li>- No involuntary resettlement is expected.</li> </ul>	
	2	Local Economy such as Employment and Livelihood, etc	B+	<ul style="list-style-type: none"> <li>- The proposed works contribute to improvement of the living environment of the inhabitants due to improvement of flood condition.</li> </ul>	
	3	Land Use and Utilization of Local Resources	B+	<ul style="list-style-type: none"> <li>- The project structure plan will be formulated by community and the scale is limited within community.</li> <li>- Local resources will be effectively utilized.</li> </ul>	
	4	Social Institutions such as Social Infrastructure and Local Decision - making Institutions	C	<ul style="list-style-type: none"> <li>- The project structure plan will be formulated by community. No negative impact is expected.</li> </ul>	
	5	Existing Social Infrastructures and Services	C or B+	<ul style="list-style-type: none"> <li>- The project structure plan will be formulated by community. Existing social infrastructures and service may be improved..</li> </ul>	
	6	The Poor, Indigenous and Ethnic people	C	<ul style="list-style-type: none"> <li>- Issue on indigenous and ethnic people is not applicable in and around the project site.</li> <li>- The project will reduce poor since flood disturb the regional economy.</li> </ul>	
	7	Misdistribution of Benefit and Damage	C or B-	<ul style="list-style-type: none"> <li>- The negative impact such as involuntary land arrangement and conflicts amongst community member on the structure measures might occur.</li> </ul>	Land arrangement with full acceptance of owner and consensus building on the scheme amongst community members shall be carefully looked into before the implementation of the scheme.

Name of Cooperation Project		Capacity Development of Community-Driven Flood Management			
Item		Rating	Reasons	Countermeasures	
	8	Cultural heritage	C	- According to inventory survey made by the Study Team, there is no cultural heritage.	-
	9	Local Conflicts of Interest	C	- Local conflict of interest can not be observed in the target area. Such local conflicts of interest will be controlled by community in line with current regulation.	-
	10	Water Usage or Water Rights and Communal Rights	C or B-	- Some structure measures may disturb accessibility of water source.	Temporary route to access to water source shall be considered if necessary.
	11	Sanitation	C	- Almost no impact is expected, since most of labour will be community people.	
	12	Hazards (risk) Infectious Diseases such as HIV/AIDS	C	- No impact is expected, since most of labour will be community people.	
Natural Environment )	13	Topography and Geographical Features	C	- Almost no impact is expected, since scale of structure is limited within community.	
	14	Soil Erosion	C	- Almost no impact is expected, since scale of structure is limited within community.	
	15	Groundwater	C	- Structure may include communal well only. Therefore, almost no negative impact to the groundwater.	-
	16	Hydrological Situation	C	- Almost no impact is expected, since scale of structure is limited within community.	
	17	Coastal zone	C	- Almost no impact is expected, since scale of structure is limited within community.	-
	18	Flora, Fauna and Biodiversity	C	- Almost no impact is expected, since scale of structure is limited within community.	-
	19	Meteorology	C	- No impact is expected, since scale of structure is limited within community.	-
	20	Landscape	C	- Almost no impact is expected, since scale of structure is limited within community.	-
	21	Global Warming	C	- No impact is expected, since scale of structure is limited within community.	-
Pollution	22	Air Pollution	C	- During construction stage, heavy equipment may be utilized. - Such construction activity may cause air pollution. However, the use of heavy equipment is very limited.	Community should supervise the construction work to minimize or avoid air pollution.

Name of Cooperation Project		Capacity Development of Community-Driven Flood Management			
Item		Rating	Reasons	Countermeasures	
	23	Water Pollution	C or B-	- During construction stage, some contamination to the water may be expected in the earth work.	Community should supervise the construction work to minimize or avoid water pollution.
	24	Soil Contamination	C	- There is no plan to use heavy metal and chemical materials resulting in soil contamination.	-
	25	Waste	C	- During construction stage, some construction waste may be expected.	Community should supervise the construction work to minimize or avoid construction waste.
	26	Noise and Vibration	C	- During construction stage, heavy equipment may be utilized. - Such construction activity may cause noise and vibration. However, the use of heavy equipment is very limited.	Community should supervise the construction work to minimize or avoid noise and vibration.
	27	Ground Subsidence	C	- Structure may include communal well only. Therefore, almost no negative impact to the groundwater resulting in ground subsidence.	-
	28	Offensive Odor	C	- During construction stage, heavy equipment may be utilized. - Such construction activity may cause offensive odor. However, the use of heavy equipment is very limited.	Community should supervise the construction work to minimize or avoid offensive odor.
	29	Bottom Sediment	C	- In this project, there is no plan to dispose sediment into the river channel resulting in bottom sediment.	-
	30	Accidents	C or B-	- Construction activity may causes accidents.	Community should supervise the construction work to avoid any accident.
Overall rating		C			

*Rating:*

*A: Serious impact is expected,*

*B: Some impact is expected,*

*C: No impact is expected. IEE/EIA is not necessary,*

*D: Extent of impact is unknown.*

*-: Negative impact*

*+: Positive Impact*

***DATA BOOK 7.***  
***MINUTES OF MEETING FOR***  
***NYANDO RIVER BASIN***  
***WATER MANAGEMENT FORUM***

The Tenth Official Meeting  
For  
Nyando River Basin Water Management Forum

Date: 3<sup>rd</sup> November, 2008

Place: At Conference Room, Tom Mboya Labour College, Kisumu Kenya

**1. IN ATTENDANCE**

No.	Names of Participants	Organizations From
1.	OCHOLLA ONG'UDI	AWACH KANO WRUA
2.	JOSEPH K. KETER	KETITUI KIPKWES WRUA
3.	ANTONY OMBARA	COMMUNITY INITIATIVE ACTION GROUP
4.	GIDEON MIYOGO	MIN. OF WATER LVEMP (WQ)
5.	WILIAM OKELLO	WRMA
6.	LUCAS AWINO	NYANDO RIVER WRUA
7.	DAVID DULO	VIRED INTERNATIONAL
8.	GEOFFREY WEKESA	LBDA
9.	JOHN OMONDI	AWACH KANO WRUA
10.	ABUYA RICHARD	KIBOS WRUA
11.	ATELA JOANES	KARI - WKIEMP
12.	PETER B. KHAOYA	MIN. OF AGRICULTURE – NYANDO
13.	FRANCIS MUTUKU	AGROCHEMICAL- MUHORONI
14.	JANE OMOLLO	NYANDO WRUA
15.	STEPHEN TUWEI	AINAPNGETUNY WRUA
16.	PATRICK KHISA	WRMA- LVSC
17.	WILLIS MEMO	WRMA/JICA
18.	ALOO OGEKA	FORUM VICE CHAIRMAN
19.	WENSLAUS MASINDE	MIN. OF AGRICULTURE – KERICHO
20.	JOSEPH NGOME	HEMNET
21.	PAUL K. RONO	MBOGO RIVER WRUA
22.	PAUL K. ROTICH	WRMA
23.	SAMUEL GOR	WRMA
24.	DORCAS OJWANG	KANO PLAIN WRUA
25.	M.O.OLOKO	UHAI LAKE FORUM
26.	DAN ONG'OR	UHAI LAKE FORUM
27.	JOYCE OLANDO	OMBEYI KWE WOMEN GROUP
28.	JOSEPH O. OMOLLO	LVSWSB
29.	VINCENT ORAYO	KANO PLAIN WRUA
30.	D.O. OCHILO	LVSCA
31.	DAN ASAKA	RED CROSS – NYANDO
32.	ADHIAMBO LOMO	OKANA MBEGA.

## **2. Meeting**

The meeting commenced at 10.00 am with a word of prayer. Prof. Okeyo the Chairman of the Forum kicked off by lamented the lack of quorum. Thereafter a self-introduction of members took place. After introductions the chairman stated the day's meeting was crucial because it marked the end of the sponsorship of the Forum by JICA Study Team and asked the members to be persistently come to the meetings whenever they are called because the end of JICA sponsorship did not mark the end of the Forum.

### **2.1 Reading of the previous Forum meeting**

The minutes were read by Mr. Memo and passed without alteration as the true minutes of the previous meeting. Dan Ong'or proposed the minutes as the true minutes and was seconded by Mr Miyogo.

#### **Matters arising:-**

Mr Atela of KARI WKIEMP pointed out that in the evaluation report the phrase lack of community participation was pointed out several times and stated that the language was to be improved on the evaluation report that phrase should not be left out. Mr Memo stated that the issues raised were all being addressed.

Mr Ngome wanted to know what was going to be done to the matter that was raised in the last meeting and if there is a position that has been taken up. The Chair pointed out that the discussion in the agenda one was about the previous meeting minutes not on the position or outcome of the previous meeting.

### **2.2 Results of the Last Evaluation of the Pilot Project**

Mr Wekesa presented the results. He began by introducing the members of the Evaluation Team. Amongst the members introduced only Mr Ngome was present. He pointed out that two members did not participate with apologies. He explained that the evaluation was carried out during rainy season and Evaluation Team were unable to go to Kasiru because it was inaccessible and also they did not go to Chilchilla and Kogwedhi because the projects had already been completed during the mid-term visit.

He explained that the TOR was provided by the Study Team and it revolved around effectiveness, impact and sustainability. Mr. Wekesa stated that the report was ready and individual recommendations had also been documented.

Mr. Wekesa appreciated that JICA Study Team had provided most of the documents required. He dealt with the general recommendation on 1 the community involved in the planning stage but in the implementation stage limited community participation. Need for further discussion on how to involve community even in contracting the contractors

WRMA should establish the WRUA and establish office

WRMA and JICA have to state what plan they have to the CBOs and unrealized projects and if there is some cash kept for that particular purpose.

#### **Matter arising**

Mr Atela what improvement can you suggested and what is the accountable and what has been done to the recommendations forwarded.

Mr Wekesa recommendations made but not aimed for the pilot project but 24 communities. There has been improvement even on the projects that were underway.

Kasiru borehole a house built besides it what is WRMA take

Mr Asherl recommendation one on community participation and priority must be looked at from the basis of the TOR for JICA Study Team

WRMA has put in place funding strategy

What was the general recommendation rather than individual recommendation and based on TOR-

Recommendations done are not related with the TOR but seem to target WRUA and CBO and not the Pilot Project-Chairman

Chairman is the report of help to Study Team. Some of the recommendations have been taken up informing community about the selected projects- Mr Gejo

### 2.3 Explanation of 24 communities driven flood management

Mr Gejo stated the selection criteria of the 24 communities. He stated that this had already been done through community location meeting. He explained that the selection was based on the past impact of the flood. He explained the flood hazard map and CAP were done by community.

He explained that the structure measures to be taken up from the CAP were based on the flood management, intercommunity level, not likely to cause negative impact to other communities, no conflict with land arrangement. He highlighted the proposed structures for 24 communities as:-

- Construction of new evacuation centre in four communities @120 evacuees. Improvement of evacuation centre for 9 communities, borehole and toilet and storage(latter targets 2 existing evacuation centre)
- Some Communities had proposed dispensary but the project was on Integrated Flood Management and therefore storage facility with a complete design of a dispensary was proposed to be constructed which if the community were willing will then convert to dispensary in the future.
- Project to improve evacuation route through culvert placement and footbridge construction in some of the 24 communities
- Drainage improvement had been proposed in one village. Though other communities had proposed this intervention but their requested could not be taken up because of negative impact to other communities or such intervention demanded intercommunity intervention and therefore they could not be taken up.
- Weir and water pan construction for water improvement. The proposed Weir was going to be utilized as footbridge leading to the evacuation centre. Water pan was proposed by most communities but only 7 communities managed to make the necessary land arrangement.

On Non structure measure Mr Gejo listed them as a) Institution Training of CFMOs b) Community Flood Management c) Education program and d) Radio and posters

Mr Gejo also explained the future schedule. He stated that JICA was going to send the new design team that will come in November to survey the plan and prepare design report. He explained that EIA was on going and the survey part had already been completed and reports were being prepared and submitted to NEMA at the end of the month and the EIA team will make a follow with NEMA for approval purposes.

Mr Gejo concluded his presentation by explaining that Japan cabinet meeting was going to be held at the end of January and if approved the project will commence in May or June.

Matter arising:-

Mr Ngome wanted to know if the storage was going to be used as a dispensary, he pointed out that evacuees are often affected by health problem and the storage idea was good. He inquired if there was a way to enforce the idea of the storage to be used as a dispensary. Chairman responded that the community had Requested for a Dispensary and what was going to be constructed as storage will the design of dispensary and therefore the



community who are the proponent of the structure will utilize it for the purposes they had stated in their CAP.

Mr Gejo explained that it was difficult to take up the dispensary as a dispensary because this would demand that there must be a pre-arranged plan with Ministry of Health and given that the counter-agency was WRMA it would be difficult to make this arrangement. He clarified that If the facility was to be indicated as a dispensary JICA will demand assurance from MOH on availability of Doctors and nurses to work in these dispensaries and this will delay the process. He further pointed out that this explanation had already been given to relevant communities.

Mr Gejo pointed out that the design of the storage was indeed that of a dispensary and that storage was just a name of convenience. Mr Memo stated that he had consulted the MOH who had explained that the general community can construct a dispensary and once this is done then the community can make a request to government for health personnel and government will provide these personnel. He further explained that JICA Study Team mooted the idea of storage for purposes of getting the fund and once built the community are at liberty to utilize the facility as they had indicated in their CAP and shall request for health staffs as explained.

Mr Ngome was concerned that if the Japanese cabinet does not approve the project then the whole effort will be wasted effort because the Study Team was ready to go.

Mr Gejo explained that a design team which was not the same as JICA study team was being dispatched in late November, and that the study team will cooperate with them as much as possible to enable them come up with good results.

Mr Wekesa inquired about the financial aspect of the 24 communities and also wanted to know the position of the upper catchment in the 24 communities project.

Mr Gejo responded by explaining that the costing was going to be done by the design team and not JICA Study team whose mandate was only formulating the plans. On the Upper Catchment he explained that JICA did not want to pick soil conservation component in upper catchment but only aimed at concentrating on flood management in the flood plains.

Mr Ngome suggested that the ministry should be involved to avoid white elephants and modalities should be catered for to bring in the health staffs to the dispensaries once they are constructed.

Prof Okeyo stated that the Forum should authorize Mr Gejo to go ahead and enable the construction of the storage and later be utilized as health facilities. Mr Tuwei of Sugar Board stated that without designing the dispensary based on the standard approved by MOH and without consulting the MOH then after the construction of the facility the health department may refuse to send staffs and drugs on pretext that the design do not meet their criterion standards for dispensary.

Mr Memo stated the storage will be fitted with water tank and that was an important aspect for WRMA because the water can be harvested.

Mr Miyoga wanted an explanation if the 24 community projects were community driven as proposed by the study. Prof Okeyo responded that the structures proposed were not Mr Gejo's making but rather was as a result of the PRA exercise leading to CAP formulation as had been explained by UHAI in the last Forum meeting.

Provincial Irrigation Engineer observed that it was the building and the purpose for it as proposed by community that mattered and not the name given to the building he explained that whether dispensary or storage for the purposes of getting the building constructed was all that was important and he therefore explained that all that was needed was to take that building to the relevant government agency for approval based on the purpose intended for the building.

Mr Dan Ong'or pointed out that the community were aware that the so called storage were indeed to be utilized as dispensary and what was required was the capacity of the community to be built such that once the building is completed they can convert it to an operational dispensary.

Mr Ngome pointed out that based on the design presented to the Forum the building in itself indicated that it was a health facility and therefore all was needed was to ensure that it is utilized for this purpose.

Prof Okeyo pointed out that all that was required of the Forum was to approve the design of the building and the structures proposed in order to enable Mr Gejo to go back to Japan and negotiate with the government of Japan.

Mr Ngome proposed the approval of the formulated plan and Gejo's presentation and was seconded by Mr Kiplagat and the structures were passed unanimously by the Forum.

#### 2.4 Discussion on the continuity and sustainability of the Forum

Dr. Leah Onyango chaired this session. Mr Atela pointed out that Hon Ogeka led this session in the last Forum meeting and requested that Hon. Ogeka be given that opportunity to chair it again. Mr Wekesa stated that Dr Leah was at the right spot and she should chair the session he clarified his opinion that Hon Ogeka was given an assignment which was going to present.

Mr Ngome also pointed out that Hon. Ogeka was bias because he had pointed out that the main issue of this agenda as his baby and therefore the based place for him was on the floor of the Forum where he can raise issues and argue his case.

Prof Okeyo pointed out that there was a need for a neutral person and that the Forum had a lot of information that they have synthesized from Hon Aloo Ogeka and therefore the need for a neutral person to moderate the discussion.

Report from the group presented by Hon. Aloo Ogeka:-

- a) Need for continuity is unanimous. The main challenge was that the sub-committee lacked funds to make significant steps but yet still the consultation was done. There was consultation with the CEO of WRMA, Eng Olum, who pointed out that was WRMA a regulator and therefore it was difficult for it to form another body. The CEO pointed out that he had been invited to the 3rd stakeholders workshop and will come with Eng Croda, Mumma and barasa.
- b) The general think temporary was transformation of the Forum into a confederate WRUA.
- c) The report also recommended that since the Forum life was coming to an end the sub-committee mandated with registration of the Forum should be given life and mandate to continue with its business
- d) The Forum had been expansive in its operation and had done its work mandate well and had achieved its purpose. Hon Ogeka therefore recommended that in the 3rd workshop the former Forum members should be invited.

Dr Leah observed that if the sub-committee was to be given a life what was going to be its mandate and who was going to give it that mandate since the Forum will have ceased to exist.

Dr Abira observed that the general assumption was that the Forum had taken up the path of transforming into a confederate WRUA. She clearly pointed out that there was a need for members to come up with ideas of what they really wanted. She explained that the WRUA were voluntary organization with a constitution and with a particular water resource they manage. She also raised a question if the Forum idea was to become an umbrella WRUA.

She clarified that an Umbrella WRUA will demand an incorporation of other WRUAs in the basin to legitimize the idea of an umbrella WRUA. She further clarified that the membership of the WRUA required that one owns land in the riparian land or some one who uses water i.e. abstracting water and this she candidly pointed out will rule out some members of the Forum.

The Forum through the chair sought Mr Gejo's opinion on the way forward for the Forum. Mr Gejo observed that the Forum plays an important role and should continue and find ways of being an entity for purposes of future projects in the region from the Japanese government and also from other donors.

Mr Ngome pointed out the necessity of the Forum explaining that there was going to be a disconnect if the Forum ceases to exist given that the Forum had played a role in passing the projects to be implemented in the following year. He therefore called for sponsorship for the Forum to continue with its proceedings and for the sake of the projects passed by the Forum.

Prof Okeyo pointed out that the general agreement was that the Forum was important. He further observed that the sub-committee was mandated to find out how to register when to register and what form to register in and that was the detail to be discussed and not the complex issues that were being raised. He stated that the Forum members have been brought together and therefore their strength laid in their togetherness and not falling apart just because the Study was coming to an end.

Mr Koech of Sana International pointed out that there were other Forums in existence and operational and gave example of Forum by LSWSB that brings members from NGOs and CBOs. He explained that the Forum could borrow a leaf from such existing Forums.

Mr Atela observed that the option for a WRUA had been ruled out because of the conditionality for membership of WRUA. He pointed out that based on explanation of WRMA and JICA Study Team the life of the Forum had expired and there was a need of finding a new lease of life and therefore there was a need to formulate a way of sustaining the Forum and therefore a need for good will from institutions that participate in the Forum.

Dr Abira stated that the assumption that members of the Forum should wait for the stakeholders' workshop was faulty and wrong. She pointed out that in the agenda of the workshop there no item for discussion on continuity of the Forum and neither was there any room for it to come as a substantive agenda on the A.O.B. but only as any other A.O.B.

Dr Leah observed that two ideas had been postulated and that was 1) wait and consult and then register, or 2) register and add value

Mr Ngome pointed out that he was brought on board through WRMA and he observed that if WRMA was pulling out of the Forum then the organization shall be amorphous and difficult to organize mainly because organizing for such meetings needed facilitation

Mr Memo pointed out that the Forum registration should be fitted and anchored within legislative requirements. He further observed that the goodwill is only given based on presentation of vision that an organization envisages. He clarified that sustainability visavis the impact of the study had pointed out the centrality of the Forum, he therefore stated that there was no time nor room for wait and see attitude.

Prof. Okeyo observed that the first step was registration and thereafter the goodwill could be sought. He pointed out the organization involved had already showed there goodwill to the Forum by sending representation. He stated that if the Forum must organize themselves for another meeting if they wanted to wait and see. He explained that leadership demanded brevity in decision making. He therefore highlighted the three options available: 1) register 2) wait and see but organize for another meeting for decision 3) Dont register and move on.

Regional manager of WRMA pointed out that leading institutions are not allowed to become members of the WRUAs. She further stated that, Umberella WRUA concept was

not covered by water act and the idea of umbrella WRUA had been prompted by the implementation of the WRUA. She therefore stated that an umbrella WRUA can only come as a result of the WRUAs within the region aiming to maximize their work mandate and this ironically made some members of the Forum not eligible. She also pointed out that no donor was going to give out money for the WRUA to meet to discuss their organization (WRUA) business. She explained that the Water Service Trust Fund gives out money to water based organization to undertake the intervention steps. She clarified further that the Meeting of the 11 December was for stakeholders' to receive and review the draft report from JICA Study Team and not to discuss the issue of the Forum.

Mr. Owira of IDCCS concurred with Prof Okeyo that members should meet again and discuss and come up with details of registration.

It was thereafter proposed that a vote should be carried out by show of hands if the Forum was to be registered or not. This were the result of the election 13 members voted for registration, 3 not and 2 abstained

It was agreed that another meeting be convened. The members also elected the following members into interim office of the new organization:- Interim Chair Hon. Ogeka, Vice-Chair Mr. Ngome, Secretary Mr. Wekesa and treasurer Dr. Leah Onyango. There tasks are herein enumerated below

- a) Call for the next meeting
- b) Prepare for the registration of the entity
- c) Tentatively meeting will be held on 10th December venue Tom Mboya

## 2.5 AOB

Mr Wekesa stated that he was concern with the attendance of the members and observed that there was no WRUA representation in the meeting.

The Forum was also informed that the term of the CAAC had expired and that once the Minister puts it up in the gazette then election of new chairperson would be carried out.

Mr Gejo explained that on 4th November he was flying to Nairobi, and on 6th November he was flying off to Japan. He stated that his hopes were to come back after the end of December tenure of the Study Team witness the development in Nyando Basin. Thereafter he appreciated the help, assistance and cooperation offered by the Forum during the entire period the Forum was sponsored by JICA Study Team.

Hon Ogeka in his acceptance speech as the interim chair observed that the end had come to soon and appreciated the Regional Manager participation, the out going chairman, and he pointed out that he was more concern with implementation not studies. Prof Okeyo appreciated the effort, the cooperation and the believe that the Forum had bestowed on him, he appreciated the WRMA Regional Manager and Mr Gejo the co-team leader of the study team and the entire study team.

## 2.6 Closure of the meeting

Regional Manager closed the meeting by appreciating the members for their contribution, she appreciated Mr Gejo tireless effort. She pointed out that the approach of the IFM was so different from other studies because mainly it added value in terms of integration. She pointed out the Study was a model for other river basin to emulate. She thanked the outgoing chairman, the entire Forum membership and stated that WRMA was happy with work done and achieved.

Meeting ended at 2.30 pm

END

The First Official Meeting  
For  
Nyando River Basin Water Management Forum

Date: 18<sup>th</sup> August 2006

Place: At Conference Room, Imperial Hotel, Kisumu Kenya

**1. IN ATTENDANCE:-**

1. Patrick Khisa
2. Glasio Mature
3. Moses Gong'a
4. Stephen Tuwei
5. Paul Rono
6. Julius Cheruiyot
7. Anias Okello
8. Geoffrey Wekesa
9. Wilson Awori
10. George Ayaga
11. Sylvia Oloo
12. Muliro Chelwa
13. Nicholas Omondi
14. Mike Mutahi
15. Lina Dula
16. David Nduala
17. Stephen Auma
18. Joseph Agunda
19. William Okello
20. Leah Anyango
21. Samual Gor
22. Ludi Kaluchi
23. John Okungu
24. Antony Ndun'gu
25. Rueben Ngesa
26. Teresa Mwanja
27. Lilian Ndulu
28. Willis Memo

29. Ms Kitauchi
30. Mr. Ishikawa
31. Mr. Inoue
32. Mr. Gejo
33. Mr. Wairagu
34. Mr. Nyongesa DC Nyando
35. Mr. Paul Olando PC Nyanza.
36. Ms Rosemary Angewenyi (Interim Chairperson)

## **2. AGENDA:-**

The agenda was distributed to every member in the meeting and was not read aloud due to time constraint but all acknowledged the agenda to be the right ones.

## **3. MEETING:-**

The meeting commenced at 10.30 am. Chairperson apologized for late commencement of the meeting which was due to late arrival of the Chief Guest. She then asked Pastor Nduala to lead members in prayers. The Provincial Commissioner Mr. Paul Olando officially declared the Forum opened at 11.10 am. The meeting ended at 2.55 pm.

## **4. MINUTES:-**

- 4.1 Introduction of members their names and organization they represent.
- 4.2 Presentation by Mr. Inoue who gave a background of the study, outlining meticulously on the objective of the study, explaining the strategies consisting of public help, self help and mutual help. He stated that for the purpose of the study mutual help will be the one to be emphasized on.  
  
He also stated that the study is divided into two phases: phase one which commenced three weeks ago and phase two which is expected to commence in November 2006. He added that implementation of pilot project may be in April 2007.  
  
He also showed the flow chart of the study, discussed the structural and non structural measures and elaborated on community flood management. He also explained that during the implementation of pilot project an introduction of Japanese traditional measures on flood management may be made, if those measures are applicable in Kenya or Nyando river basin.

He stated also that the study will come up with a disaster map and a flood hazard map. He displayed the expected picture of the flood hazard map after the implementation of the study, He added, to achieve this, there will be need of consultation with administration officers and also with the communities.

He concluded that the study will involve collaboration and co-operation with different organizations namely: Ministry of Water and Irrigation(MWI), Water Resources Management Authority(WRMA), WRMA regional offices, communities, Government Agencies, and donors.

- 4.3 Speech by the Chief Guest, Mr. Paul Olando the Provincial Commissioner (PC) Nyanza Province. Ms Rose Angeweyi invited the PC to the podium after proposing that the Chairperson be elected later on as the Forum progressed.

The PC read an official written speech. In which he began by first acknowledging the formation of the Forum and thanked the JICA Study Team for the initiatives stating that Japan is and has been an important development partner of Kenya.

The speech handled various issues including the importance of the Lake Victoria and the declining water level caused by destructive human activities in the catchments areas. River Nyando drains into Lake Victoria but has been source of distress to the locals who live nearby it. PC hoped that this study will bring a lasting solution to the people living in the Nyando Basin. Giving his word that the Government of Kenya will offer full support and that his office in particular was open for the study team anytime they needed administrative assistance.

In an off-cuff speech, the PC shared his experience in the Basin while serving as District Commissioner. He said various studies have been done in the region and hoped this study was the last one which will implement its finding. He narrated the adaptive nature of the people in the area who have accepted floods as part of life and wait for flooding season to move to higher places. He noted his pleasure with Mr. Inoue's presentation. He also observed that the potential of the area was high and could be tapped once the problem of the floods is addressed.

PC then officially declared the Forum opened.

- 4.4 Ms Rose Angeweyi relinquished the Chair to Mr. Khisa after apologizing to the meeting stating that she had official duty to attend to. But before she left she introduced Mr. Gejo to lead the meeting on the background of the Forum.

4.5 Mr. Gejo gave a background and outline of the formation of the Forum. He then asked the members to go through the Draft Outline on Guidelines for the Nyando River Basin Water Management Forum document and bringing in their in-put on ways to improve the draft guidelines.

4.6 Mr. Khisa (Chair) opened the floor for discussions:-

1. Preamble was passed unchallenged.
2. Objectives: Members asked to be given time to read through them in order to have intelligent discussion arguing that having just received the document in the morning. They could not have a meaningful in-put. But it was agreed that the objective be discussed and in the next meeting more in-put will be tackled. Members then observed that the objectives were study oriented more than they were Forum oriented. Members also wanted to know if the Forum was a product of the study or the study a product of the Forum stating that if it is the latter then the Forum had life but if it is the former then the Forum life ends with the study. Mr. Gejo explained that the study's life-span was two years but the Forum is expected to continue.

#### CHANGES MADE ON OBJECTIVE

- A. Members passed in a new objective that links the community to the study team i.e The Forum will establish a link between the study team and the community.
- B. Objective 1 members passed that it reads that: Monitor the progress and output of the study.
- C. The question of recommendation to the study by the Forum observed as difficult because of the limited interactions by the two bodies. Though Mr. Gejo explained that the success of the study depended on the input of the Forum especially in-terms of local knowledge. Therefore the study team will brief the Forum and then recommendations made more-so on the consensus on the five pilot projects.
- D. Members proposed that objective 3 be separated to come up with two different objectives one dealing with project proposal and the another one to deal with funding(soliciting inclusive) by donors.
- E. The number of objectives was increased from 3 to 5.



3. Membership of the Forum was discussed apart from the language use the members agreed on the content and was passed.
4. Composition of membership: The list was suggested by stakeholders in the meeting on 3 and 4 August. Omitted deliberately were the Agrochemical Companies and fishing communities because their interactions with the Forum and the study team inevitable. Omitted by error were Institute of higher learning namely Maseno University and research team namely Lake Victoria Environment Management Board(LVEMP). Two slots were served for women organizations and one for youth. The number of membership rose from 35 to 37
5. Task of the members: Question of language use once again arose with some members proposing that in task 1 the wording should be changed from suggest to develop but Mr.Gejo argued that the word develop was a hindering term especially in study progress.
  - A. Selection criteria crucial and cannot be confined to the study team. The task was passed.
  - B. Task 3 passed without alterations.
  - C. Task 4 members observed that it was identical to objective 1 but Mr. Gejo reassured the meeting that despite the similarities task 4 was necessary. The members passed changes from monitor and suggest to monitor and evaluate the implementation of pilot projects.
  - D. Members agreed that task 6 and objective 3 were identical
6. Structure of the Forum: It was adopted as per the draft outline
7. Operations of the Forum: Members passed that the notice for the meeting be moved from one week to two weeks with a plan for meeting calendar to be established.
8. Attendance of meetings: Adopted as per the draft but requested change of language in particular the word comfortable to satisfy in issue 2. Members were asked to give proper contact address for easy accessibility.
9. Allowances: Will be based on Government of Kenya requirement as per the latest government circular. Transport allowance will be discussed with JICA Tokyo and proper format will be announced in the next meeting. Even though

*Minutes of Meeting*  
*1<sup>st</sup> Forum*

members gave suggestion of a flat rate of 1000 Kenya shillings or 400 for Kisumu resident and 1000 for non-resident.

4.7 A.O.B:

Members agreed to elect the Chairperson in the next meeting. Rescheduling of the next meeting to be communicated to the members.

4.8 Mr. Khisa thanked members for participating in the meeting and officially closed the meeting at 2.55 pm.

END

The Second Official Meeting  
For  
Nyando River Basin Water Management Forum

Date: 20<sup>th</sup> September 2006

Place: At Conference Room, Imperial Hotel, Kisumu Kenya

**1. In Attendance:**

1. Owalla Chris- NYC Cordinator
2. Julius Cheriot Kipkwes water association
3. Paul Rono Mbogo river association
4. Stephen Tuwei Ainapngetuny river association
5. Charles Oleko WRMA Kisumu
6. David Dulo VIRED
7. John Chirchir LVEMP
8. Adhiambo AKOM
9. Bernard Okebe People group
10. Wilson Aore KARI
11. David Asaka Redcross
12. William Okello WRMA
13. Aloo Ogeke Opinion Leader
14. Willis Memo WRMA
15. Greg Umayia CARE-Kenya
16. Rose Ang'weya WRMA
17. Evans Agolla Awach Kano
18. James Were Forest department
19. Francis Mutuku ESO-acfc
20. Dan Ongor UHAI
21. Geoffrey Wekesa LBDA
22. Gordon Kojo IDCCS
23. Akello N.O LVSWSB
24. Richard Onyari LVSWSB
25. Patrick Khisa WRMA
26. Margaret Sao Ombeyi Kwe
27. Ronny Onyango World vision
28. John Mumbo NEMA
29. Isaac Luvisi Radio Sahara
30. Jared Nyang'au FM Sahara
31. James Omamba Radio Star
32. Joseph Ngome HEMNET
33. Julius Merupe WRMA
34. Nicholas Omondi Osiendela
35. Veronica Wambi District Officer
36. Rhoda Onyanacha District Officer Nandi South
37. J.B Okeyo VIRED
38. Alfred Adongo SANA
39. Peter B.Khwaya District Agriculture Officer Nyando

## **2. AGENDA:-**

Alongside invitation letters agenda of the meeting was also attached and sent to Forum members prior to the meeting. But it is worth noting that before the commencement of the meeting the agenda was distributed to all participants and confirmed to be the right and exact copies of the early received ones.

## **3. MEETING:-**

Meeting commenced at 10:18 am with a word of prayer by Ms Rose Ang'weyi followed by introduction of all members present. Ms Rose Ang'weyi was the acting interim Chair.

## **4. MINUTES:-**

4.1 Mr. Gejo opened the floor by reminding the members to discuss the corrections recommended in the last meeting on draft operation outline. Mr. Khisa took the members through the document article after article.

### Objectives:

1. Objective 1 members passed that it reads monitoring and deliberate (Suggest).
2. Objective 2 was adopted without alterations.
3. Objective 3 was adopted without alterations.
4. Several suggestions were discussed but members agreed to leave it as it was for purposes of implementation of the study and ushering in post study era for the Forum. Members also agreed to register the Forum for legal purposes and give it an ability of being an entity. Registration will be done under Water Act 2002.

### Membership of Forum:

1. Kisumu inclusive in the Nyando River Basin by virtue of its two divisions Winam and Kadibo that are often affected by floods.
2. Members suggested that a third of the Forum seat be occupied by women though difficult to implement due to the fact that it is the institution that nominates its representative. Members further suggested that the alternate membership should be utilized to ensure gender parity by giving the slots on opposite sex modality. Though members agreed to let gender issue sort itself out as the Forum evolves.

### Tasks of Forum:

1. Additional task was added for Forum members that it be documented that members shall contribute to dissemination of Forum activities to their respective organization.
2. The rest of the tasks were passed without alterations

### Structure of the Forum:

1. The Forum questioned the rationale of having a Chairperson without a Vice-Chair stating that this kind of arrangement has no contingency plan especially when the Chairman is unable to attend or s/he is incapacitated. Members moved to amend agenda 3 to include the election of the Vice-Chair.
2. The members also moved that the word suspend be substituted by replace to avoid technical hitches and also agreed that it is organization that was indeed being replaced.
3. The members passed also that the draft document be precise in stating that the apology should be before the meeting and not after.
4. Selection and election of Chairperson, Secretary and Sub-Committees was adopted without alteration.

5. It was agreed that the Vice-Chairperson shall be the person who comes second to the Chairperson during the election.

Allowances:

1. Members could not exactly agree on allowances especially transport allowances and the issue was to be handled in the next Forum meeting after Mr. Gejo has gone to Japan and confirmed the exact figure from JICA-Tokyo.

4.2 Agenda3 election of the Chairperson and the Vice-Chairperson:

Members agreed to the secret ballot election. The procedure was a member to be nominated and then seconded to vie for the seat.

Two members were nominated and seconded to vie i.e Hon. Aloo Ogeka and Dr Okeyo Owuor. Before election the two contestants were asked by the members to share their visions with the Forum to act as a pointer in guiding members in choosing who to vote for.

Vision (Dr Okeyo Owuor):

He introduced himself as a person born and brought up in Bwanda a flood prone region. He also said that he is the director of the VIRED International a local NGO that is active in the Nyando river basin especially in areas of flood management in particular constructing drainage canals through a programme nick-named food for work. He stated also that he is an Environmental Science lecturer at Moi University.

He added that if elected he will concentrate his efforts towards management and not control of floods. For management entails managing the flood water to the benefits of the locals. While control will imply that the water is channeled to River Nile via Lake Victoria to the detriment of the locals.

Vision (Hon Aloo Ogeka):

He introduced himself as a man who resides in Muhoroni sugar-belt but was born and brought up in Nyakach and that he knew all the problems and pain that the floods often cause to the locals of Nyando basin. He also gave his credential of leadership by stating that he was a student leader during his hay days at the University, senior manager at the BAT Company and that he was privileged to serve as a Member of Parliament for Muhoroni Constituency in seventh Parliament.

He added that during his tenure as leader at various point of his life many have come to reorganize him as an articulate leader who fought for the rights of the members in organizations he has led without compromising competence. He finalized his speech by urging members to vote for him because the Chair of the Forum needs to be a person with strong personality a trait he carried in abundance.

Election results: Two candidates tied at sixteen votes each with no abstentions. Members then agreed that the two candidates both were capable of chairing the Forum but the slot was for only one to be the Chairperson thus by consensus members agreed that a coin be tossed. Hon Ogeke chose tail and Dr Owuor head. Dr Owuor won the toss. Thus Dr Owuor is the Chairperson and Hon. Ogeke his Vice-Chair and Ms Rose Ang'weya the Secretary of Nyando River Basin Forum

Dr Okeyo immediately took the chair and made his maiden speech thanking the members for their votes and promised to work together with Hon Ogeke to steer the Forum to greater heights.

#### 4.3 Discussion on selection criteria for priority areas for integrated Flood Management in the Nyando River Basin:

Mr. Inoue's presentation was articulate and straight to the point. He gave the Forum a summary on the progress of the study stating that 340 points had been visited in the last one month by the study team, time the water takes from the upper parts to reach swampy calculated and found to be 17 hours. Mr. Inoue updated the Forum on the direction the study has taken and informed them that in November the Community Participatory Activities shall commence leading to the selection of the pilot projects.

Mr. Gejo's presentation was precise and focused. He explained to the Forum that in Nyando district two divisions were selected for consideration i.e Nyando and Miwani and not because the other divisions were not affected but in prioritizing the two came out as first among equals in terms of need for flood management. In locations Ombeyi in Miwani division and Nyangoma in Nyando division were again to be considered as first among equals in their respective divisions.

Mr. Gejo explained also that the Sub-locations to be chosen in these locations shall be now be based on the decisions arrived at during the consensus meeting with these locations and the targeted village shall also be as a result of consensus meeting at the sub-locational level.

He also explained why Nyando was preferred to Kisumu stating that based on the Development Plan and previous study Kisumu does not consider floods as a high priority in its developmental agenda. But Nyando ranks floods as a high priority.

Several questions were raised in particular to the criteria used for selecting these targeted areas (divisions). For example members wanted to know if the study team came up with new strategies or they were just building upon the previous studies done on the Nyando basin. They also wanted to know why little consideration was given to the upper part of the basin that is the catchments areas yet they are the major source of the problems. Members also questioned the leaving out of Nyakach both Upper and Lower Nyakach yet they are one of the most renowned flooding zones in Kenya. Question of West Nyakach particularly Sango Rota areas also weighed heavily to most members.

Some of the responses to the questioned asked included the fact that most of the members and speakers in the first Forum talked of previous study that bore no fruit and continuous urging by members that JICA study team borrow some information from these studies. Another response was that the main criteria for coming up with priority was the damage level. The members were also asked to come up with documented proofs to substantiate and support their claim rather than rhetoric to facilitate the selection rather than be a hindrance. Forum was also told that the final target is not based on the study team preferences but on the consensus meetings to the study team the choice of the people is more important to the personal preferences of the team. Also the members were told to be considerate in their deliberation and avoid mentioning areas that were outside the perimeters of the basin especially areas that are often flooded by waters from River Mirui the Sango Rota regions.

Some of the suggestions that came up as the way forward are that it is a times difficult to go by the administrative boundary that limits the scope for there are certain location that are not heavily hit by floods but yet in the same location there is a village that always is struck by terrible floods and going by administrative boundary could a times be

misleading-Dr Owuor. It was also suggested that since CARE-Kenya, ICRAF and Maseno University are carrying out a survey in the region there is need for collaboration with these organizations to avoid doubling of effort and confusing the locals since both studies are going to carry out PRA's almost concurrently-Mr. Greg Umayu. Members also suggested that for the study to be truly integrated in approach the study has to be more involving and not only be tied within the lower basin but should reach out to the upper basin also. Mr. Gejo categorically ruled out any suggestions by some members that the number of the pilot projects be added stating that there will be only five pilot projects as planned and any addition of priority areas can be done only to the master plan.

Forum passed that there was positive progress by the study team but also added that there was need for improvement on the final document. Secretary in her closing remarks stated that the document will be refined especially in areas of high priority areas to meet the requirement of the Forum without interfering with the progress or hindering the progress of the study team.

4.4 There was no any other business and thus the Chairperson closed the meeting at 3:04 PM and members broke-off for lunch. The meeting was adjourned till next Forum meeting.

END

The Third Official Meeting  
For  
Nyando River Basin Water Management Forum

Date: 16<sup>th</sup> and 17<sup>th</sup> November 2006

Place: At Conference Room, Tom Mboya Labour College, Kisumu Kenya

**1. IN ATTENDANCE: -**

No.	Names of Participants	Organizations From
1	Wennslaus masinde	Ministry of Agricultuer
2	Paul K Rono	Mbogo W R U A
3	H .O Abuto	Ministry of agriculture
4	Wiliam k Lagat	N EWR
5	Stephen Tuwet	Ainapngetuny W R U A
6	Julius Cheruyot	Ketutui-Kipkenes WRUA
7	John Fedha	D.O 1 Nandi South
8	William Adera	Minstry of Agriculture
9	Stella Wanjau	ADRA K
10	Okeyo Owuor	Vired International
11	Barak Ochoro	WRMA/LVSC
12	Martin Ombogo	M.E.N.R
13	Chie Zaki	JICA
14	David Dulo	Vired International
15	Joyce Olando	Ombeyi Kwe Women Group
16	Gordon Kojo	IDCCs
17	Dishon Olufu	WRMA/LVSC
18	Ndungu AG	Wrma/LVSC
19	William Okello	WRMA/LVSC
20	Jared Oyier	Forest Dept
21	Herman Kiruaye	WRMA
22	Ronny Onyango	World Vision
23	Patrick Khisa	WRMA
24	Gidieon Miyoga	LVEMP
25	Phelesia Aluru	WRMA
26	Francis Mutuku	Agro-Chemical Co.
27	Samuel Gor	WRMA
28	Aloo Ogeka	Aloo Ogeka
29	Julias Merepu	WRMA
30	Daniel Asaka	Red Cross Nyando
31	Leah Onyango	Maseno University
32	Owallah Chris	National Youth
33	Peter Mireri	Osienala
34	Lillian Dullo	SANA international
35	Joseph Ngome	HEMNET
36	Evans Agola	Awach Kano WRUA
37	Erick Nakitam	CARE-Kenya
38	Geofrey Wekesa	LBDA
39	John Mumbo	NEMA



40	Harry Nyakongo	WRMA/LVSC
41	Dan Ong'or	UHAI
42	Nelson Lugose	TMLC
43	Willis Memo	WRMA/JICA
44	Adhiambo Lomo	Okana Mbaga WRUA
45	Richard Bii	Nganai WRUA
46	Elana Fox	Observing Student
47	Wilson Aore	Kari WKIEMP
48	Ng'eno Franco	Mbana water project
49	Nashon Okello	LVSWS
50	John Egesa	D.C Nyando

## 2. DAY ONE:

Meeting commenced at 10.20 a.m. with a word of prayer and then introductions of Forum members and confirmation of agenda of the meeting.

## 3. MINUTES

### 3.1 Introduction of members: WRMA.

Mr. Khisa was invited by the Chair of the Forum to introduce the members on WRMA current undertakings and vision on water management in the region. Mr. Khisa introduced the members to the new paradigm that WRMA has adopted: Integrated Water Resource Management (IWRM) which recognizes that different uses of water are interdependent. He addressed the issue of water allocation and management decisions, water management that entails water development, water governance crisis bearing in mind that only 20% of water in Nyando basin is developed and recognizing that water as a resource vis a vis food production as indispensable principle.

Mr. Khisa also spoke on the guiding principle of this paradigm which he described as a complete mind set shift from earlier on principles for it recognizes aquatic water systems depends on water flow, gender equality and water being a finite and vulnerable resource with economic value and needs participatory approach in its development.

The paradigm also addresses water security including looking at the diverted water from agriculture use to domestic use, bringing in all stakeholders to one table, encourage efficient use of water and improvement of water management.

Mr. Khisa also addressed the challenges this paradigm faced stating that incompleteness of water management policy though this obstacle is overcome by enactment of Water Act 2002, also demographic pressure possess a challenge, lack of understanding of IWRM principles, unwillingness to change, lack of tools and systems for integration, lack of political good-will and awareness and shadow of doubt cast on this paradigm.

He spoke also on strategies adopted to counter these challenges which include IRWM requires reform to avoid duplicity of efforts, policy and legal framework has to be addressed and agriculture being the most important user of water and therefore a need for thorough retrospect on water policy and management.

There no comments or questioned raised after the presentation.

### 3.2 Study progress and schedule: Mr. Gejo.

Mr. Gejo gave an overall progress of the study stating that the study is on the right course and now was moving towards pilot projects. He elaborated that each pilot project will be different from one another and will be based on the needs of the community and community priority in flood mitigations. He also explained the public hearing that were

carried out in Rabuor, Ahero and Ombeyi and how the in-put of these hearing were impacting the study positively leading to alterations and corrections where necessary.

Mr. Gejo also gave a precise schedule and plan that the study team were following. He also told the Forum that a local NGO had been contracted to carry out survey on communities' needs.

Questions arising:

Lower Nyakach one of the adversely hit division was not captured as other divisions but rather congregated with Nyando while Winam and Kadibo with similar attributes when it comes to floods were treated as separate divisions.

Mr. Gejo explained that there were two JICA Study Teams in Nyando and Lower Nyakach has been identified by the other team which identified Lower Nyakach development priority being flood management and therefore it could not be replicated by this JICA Study Team.

Though members agreed with the explanation they stated that the other Team zeros in on Sondu Mirui basin yet a big chunk of the area Gem Rae and Rangul are affected by R Nyando and was being left out by two Study Teams.

Members suggested that the two teams to prioritize and borrow from each other so as an area that is in dire need is not negated or completely left out. The Forum was asked by the chairman to scrutinize the report analytically to ensure that there in-put is evident and has been taken to consideration.

### 3.3 Presentation of findings on Upper Catchments: Mr. Wairagu

Mr. Wairagu presentation was divided into two sessions with permission of the Chair:

1<sup>st</sup> session entailed discussion on the proposed integrated catchments conservation plan which Mr. Wairagu elaborated on the background study on the basin highlighting on the historical perspective, economic activities that are mainly driven by poverty like sand harvesting, water pollution and the past studies that mainly ended with recommendations and huge reports that gather dust on the bookshelves and he noted that this is the departure point of this study for it aims to be community driven with implementations of pilot projects.

Mr. Wairagu also discussed the soil structure, the agro-ecological zones, flood peaks(April- May and August) stating that the reasons for August floods was the residual waters and short-rains, the forests and deforestations, wetlands resources (highland and low lands wetlands) and increased agricultural activities that has led to encroachments of catchments areas.

Questions arising:

- The members disputed the data that stated that there are floods in the month of August in Nyando basin. Red Cross official stated that he has never witnessed a situation where floods were at peak in the August in any sub-location in the entire basin he explained that they normally carry out evacuation exercise in April 8<sup>th</sup> - 15<sup>th</sup> and for ten days or so people live in evacuation centres and in early May most of the evacuees return to their homes after waters had subsided. It was concluded that there are no floods in August. Mr. Khisa explained that the earlier on data on the water master plan was wrong and need for Mr. Wairagu to liase with WRMA rain sub-stations for up dated data.
- Members also questioned the validity of the data that stated that Kericho had the biggest area of the basin consisting of 42.2Km sq yet Ainamtoi River in Nandi South pours 74% of Nyando waters members felt that this data was not collating with stark reality on the ground.

- Members also wanted Mr. Wairagu to be precise on the period that the rains generate in the basin so as to have a clear picture of the run-off waters.
- Members requested that even though what was being addressed was scientific there was need for the presenter to be as lay as possible in their presentation so as all members could understand and be at the same level while discussing this important presentation.
- Members also proposed that the past studies be looked at keenly to avoid repeating what had been study earlier on and to channel the available resources to areas that have not been tackled and implementation of the said projects.
- Members also proposed that the wetlands in Nyando basin are more than 3 mentioned and also they requested the presenter to be name specific when it comes to wetlands and avoid ambiguity by bring up names that hitherto none of the members have heard. They acknowledged that though difficult to be specific on these wetlands name due to the fact that at different points they are called by different names but there is some level of standardization that can be employed.
- There was a questioned raised by the Agro-Chemical Food company regarding to a new phenomenon witnessed recently on R. Nyando that it was increasingly migrating away from its original course forcing the company to dig channels to tap into this river resources.

Feedbacks:

- Issue on technicality it was agreed that due to the scientific nature of the subject there was no other way of going about it but scientific.
- The study had richly borrowed from the past done research and will review keenly the recommendations to come up with new strategies.
- The Forum was told that the migrating nature is not captured in any early research and this was the first time it was being documented and the reason for this migration was increased erosion and sedimentation and it was important to note that the migration was rampart and high level intensity.
- WRMA plans to come up with Catchments Management Plan. It recognizes catchments areas and has a plan of gazetting them and those gazetted will undergo process of aforestation. WRMA also stated that the study will come up catchments master-plan.

3.4 2<sup>nd</sup> Session (After-noon)

Continuation of Mr. Wairagu presentation: Prescriptions for fixing hot-spots

- Mr. Wairagu began by noting that all environmental degradation leads to poverty. He went on to discuss the land use, intervention around protected areas, intervention to recreate buffer zones(wetlands and river vegetations) and main causes of degradations of hot-spots.
- Katuk-Odeyo gully site according to Mr. Wairagu was not fit for human settlement and potential disaster zone. In his own view Mr. Wairagu proposed that people living around Katuk-Odeyo be allocated to new place and the area singled out for conservation purposes.

Questions arising:

- Members wanted a clarification on whether Nyando had different hydrological zones.

- On interventions discussed poverty came out as a cause of degradation and at the same time a result for degradation. Members suggested that an intervention that reduced wood as fuel for domestic consumption was worth coming up with.
- Members also questioned the intervention of water points for animal use at the expense of planting trees near river banks. They also questioned the rationale of proposing a controversial project of planting Eucalyptus tree despite its numerous disadvantages. Members actually stated the study should recommend limited or banishment of Eucalyptus in the low lands. The chairman asked Mr. Wairagu to provide scientific data in support of his claim that Eucalyptus tree planting as a remedy in the Nyando or else he should not insist on this as a scientific truth. One stated that planting of eucalyptus trees was solving a problem by creating a major problem. Also members also stated that the Forest Act made planting of trees difficult in the low lands.
- Members also stated that the oversight on small scale farmers and their contribution to pollution by the study was a set-back to the study for poor agricultural practices are often done by these small scale farmers.
- R.Nyando is most polluted during dry season and the study should capture this even more so as to come up with concrete solutions.
- Members also called for harmonization of various Acts so as there is no bottle-necks, conflicts or duplicity.
- There are 8 reports by LVEMP named Lessons Learned and Mr. Wairagu need to look at them the Chair suggested.
- Members questioned on how they could manage riparian land for the report that was not clear on it.
- Livestock keeping observed as a menace by the report and various remedial recommendation suggested without involvement of community yet animal rearing an important socio-economic in the region notwithstanding the fact that the study claims to embrace participatory approach.
- Katuk-Odeyo a controversial issue with potential of a conflict if not addressed properly and the study need to consult the community if they need to relocate rather than come up with such drastic measure.
- Mr. Wairagu raised issues in the matrix that all pointed at poverty commented the Vice-chair questioning the terms of reference of Mr. Wairagu if it is JICA Study team oriented, community oriented or Forum oriented.
- WRMA also raised issues they believed should be addressed by the study:
  - a) Catchments monitoring strategy not addressed.
  - b) Macro-catchments, structural measure and micro-catchments
  - c) Information on community approach
  - d) Report addresses problems of Awach Kano and not planetary recommendations
  - e) Need for best management report not theoretical modalities with little capacity of practicability.

Chairman noted that there was need of smaller Forums to direct the study on way it should take bearing in mind that WRMA was a major partner to the study and yet raises pertinent questions.

Feedbacks:

- Eucalyptus recommendation is an opinion that the presenter believes in and was not imposing it on the Forum and in Mr. Wairagu's opinion it does not pose any environmental concern.
- Pollution by small-scale farmers indeed an oversight and will be looked at. But animal tracks are a major concern for they are a major source of soil erosion in the basin and thus important to be addressed by construction of water points.
- Household energy vis a vis degradation has been necessary and serious attention by the study. Also reliance of wood fuel by tea factory enhances the need for adopting commercial tree farming because of the availability of ready market.
- Mr. Wairagu explained that though the prescriptions on hotspots were presented as a whole covering entire basin yet recommendations were sub-basin specific. He also stated that the Catchments Monitoring Strategy was being handled and there was no oversight whatsoever. Mr. Wairagu also noted that institutional framework and collaboration was to be discussed later and it had been keenly looked at.

**Additional Issues raised on prescriptions on Hot-Spots:**

- Representative of HEMNET questioned the transparency of the study stating that something was amiss in the presentation and called for smaller committees to direct the study. In his opinion lack of being name specific when it comes to mentioning of places and organizations indicated something to be amiss and therefore need for corrections. He also called for synergy between Study Team and WRMA so as to be efficient and with up to date data.
- Chairman responded by telling the members that they are not in the Forum to criticize and throw mud to the study but to positively criticize and come up with solutions rather than concentrate on the problems.
- Members made a plea that the issues they were raising as in-puts should be taken serious and be seen to impact on the research.
- Members called for through consultations with relevant organizations and people so that the research receives the seriousness it deserves for when there is disparity between what the research states and what is on the ground brings aspersion to otherwise well done work.
- Mr. Gejo in his closing remarks stated that he recognized that needs of most members was their desire to see implementation and not rhetoric of past studies and therefore he requested the members to kindly use the following day slot on presentation to discuss and agree on pilot projects.
- Chairman in closing remarks observed that few members were contributing and urged members to comment and recommend as the case may be and asked members not to be shy in asking for clarifications of terminologies they do not understand. He also added that the Forum will have failed if the study do not factor in the in-put of members and the study can only factor in when members contributed.
- The Chairman official closed day one's meeting with a word of prayer. Meeting ended at 5.00 p.m.

**4. DAY TWO:**

Meeting commenced at 9.30 a.m. Dr Owuor gave the Vice Chairman the honour of chairing the meeting to avoid monotony.

4.1 Presentation of the Official Mandates of Institutions Involved in Catchments Conservation Practices: WRMA, MAO, CAAC, NEMA, KFD, WRUAs etc: Mr. Memo

- WRMA is mandated to protect water resources and related activities and this mandate stems from Session paper 1999. Mr. Memo went ahead and explained what WRMA entails in terms of stakeholders, decentralization of decision making and empowerment.
- Mr. Memo also spoke on Catchments Area Advisory Committees (CAAC) which composes of 15 members and also said that CAAC were regional bodies set up to advice WRMA.
- He also showed a table that showed the linkages of WRMA and CAACs .
- Mr. Memo explained about Water Resource Users Association (WRUAs) and their role in water management. He also addressed how they are registered and their geographical cover.
- Mr. William Okello introduced CAAC Nyando and what it entails stating that its composition is 15 members drawn from different Government ministries, regional bodies and business community. He stated the main challenge of CAACs was means of achieving their duties and purposes.
- Mr. John Mumbo presented on NEMA (National Environment Management Authority) by first stating that NEMA was a government parastatal operating under the Ministry of Environment observing that NEMA was more like a forum where issues of environment are discussed. He went ahead to state that NEMA acts as a link between institutions and its role is coordinative rather than implementing and one of its major roles was ensuring protection and preserving of environment. NEMA also helps in formulation of District Development Plan on issues concerning environment.
- Mr. Khisa read to members Acts that were relevant to the study and to a large extent the Forum these include Water Act of 2002, Environment Act, Irrigation Act of 1996, and Agriculture Act cap 318, Fishery Act, Forest Act Cap 385, Cotton Act Cap 325 and Lake Basin Development Authority established under an Act of parliament in 1979. Ms Leah also added Physical Planning Act that takes care of space aspect and framework of legalization.
- Osienala Radio aims at empowering the people i.e. decongest the power around government that tend to muscle power for itself at the expense of the people and CAACs and WRUAs should utilize this avenue.
- Local Authority Act also need to be brought on board because all wetlands are Trust lands and squarely fall under local authorities.
- NALEM promotes institutional development and participatory approach
- KARI-WKEMP under a project sponsored by ICRAF attempts to make Nyando green again. Also there is an effort of rehabilitating and conserving Katuk Odeyo by opening up water pans for domestic and agricultural use. They are also concerned with micro-catchments conservations, they have also come up with soil maps in the region and also have come up with selected hot-spots in the basin.
- Forestry Departments are at the moment encouraging private forest-farming and extension services. They promote land use through sound soil and water conservation methodologies. They are also engaged in repossession of forest lands acquired illegally by private developers. They also coordinate with other organizations concerned with conservation and the conservation efforts have been enhanced with provision of guns to wardens to fight illegal loggers. The department has recently established Forest Resources Users Association (FRUAs).
- VIRED International vision is transforming environmental concerns to developmental apparatus. VIRED is engaged in flood mitigation funded by USAID

in 17 locations commonly referred to as food for work which entails constructing of water retention points that will be used during dry spell. In collaboration with Ministry of Agriculture VIRED has issued seeds to farmers to plant in the land VIRED helped in reclaiming. Also coordinate with Ahero Local Council in coming up with strategies to keep River Nyando clean. They are also concerned with wet-land management and have established a team to address the residing Lake Victoria.

- LVEMP has a department that deals with water quality and has been handling it into two phases. 1<sup>st</sup> phase ends 31<sup>st</sup> Dec 2006 and 2<sup>nd</sup> Phase commences in June 2007 in between is a transitional period .
- LBDA has done several studies on the Lake basin and still carry out more studies. It is also engaged in catchments conservation and has seedling plants centre in Rae and Kanyagwal with each facility having a capacity of 60,000 tree seedling annually.
- HEMNET is an organization of team of professional from different media houses who but work together in addressing health and environment issues. It tend to reach the silent majority with little technical scientific know-how in the best communicable way they can understand the scientific issues that directly or indirectly affects them.
- Agro-Chemical and Food Company is a government parastatal and manufactures bio-chemical fertilizers which are not toxic because the raw material are food and given freely to farmers who are engaged in tree planting and own tree nurseries in the basin. The company has also helped in formation of community based group in attempts of fighting environment degradation efforts by the locals. Also the Company has constructed huge water tanks that they use to re-channel water back to River Nyando.
- Okana-Mbega Water Users Association has witnessed the scramble for and away from water during the droughts and floods respectively. Due to residing of the lake the economic activities of the region are in jeopardy and the association has no capacity to do anything. The big question what can all these institutions that are of interest do to help in this dilemma?

#### 4.2 Presentation and Discussion on Formulation of Interim Proposal on Pilot Project On Catchments Management in Nyando Basin: Mr. Wairagu.

- Target area the Awach Kano Sub-Basin. Mr. Wairagu presentation handled various issues including; natural phenomenal, socio-economic profile, land use, challenges of poverty and opportunities for intervention.

#### Question arising:

- Members wanted to know the technical viability of the proposal vis a vis the reality on the ground. They requested for a break down on evaluated viability of objective cost, finance mechanism and evaluated opportunity for poverty alleviation.
- Dr. Okeyo wanted to know who was doing the proposing that was a complete radical departure (paradigm shift) from the existing ideas. He also wanted to know if this was a 6<sup>th</sup> site beside the five pilot projects that the study team had talked about. He asked also for criteria for site selection and finally he wanted to know if these proposals were not part of the study where they be taken to.
- KARI-WKEM is working in this area and already has designed dams and established their plan to what extend can the Study borrow from KARI and cooperate together?

- PRA already has been done in that area and repeating this PRA process will be traumatizing the locals especially if any good does not come out of it. Why not build up upon the already done PRA?
- Proposing kitchen gardens throw men out of conservation efforts because culturally speaking men view kitchen gardens as feminine and thus do not involve themselves yet they are the main degraders of forest in charcoal burning and wood harvesting.
- Members wanted to know criteria for prioritizing because in the last Forum Awach was considered middle in priority but what has brought the change of heart that now makes the Awach to be a high priority?
- The proposal began by acknowledging that poverty level in the region was 68% and at the same time proposes selling of water to the locals is this a genuine and realistic proposal? And will the locals get water? The big question still remains how do we use little water and get high productivity that is what the Study should be answering.
- Networking and community approach is the principle that the study adopts yet in the proposal this is the very principle that is negated. Who decided what and who was involved where is not indicated.
- Proposals like any other policies established is more concerned with resources than people living around these resources that is why water Act is detrimental to the domestic user.

Feedbacks:

- In answering Dr Okeyo, Mr. Wairagu stated that this was 5<sup>th</sup> site and was an initiative of the study and a possible pilot project and the criteria used in selection was based on the level of environmental degradation to which Awach Kano came out the leading.
- On issue of duplicity of effort with KARI-WKEMP Mr. Wairagu stated that there was cooperation between the study and KARI and Dr Ayaga (head of Kari project) had stated that the places needed more donors to construct water pans in the area and therefore there was no competition between the study and KARI but rather their roles were complimentary.
- If PRA had been carried out in the area there no need of repeating Mr. Wairagu agreed. But the Forum must understand that PRA are crucial especially in allowing the communities in dictating their developmental agenda Mr. Memo explained. Mr. Memo also added that it was misleading for members to state that Water Act was detrimental and does not address the people but water and stated that through this Water Act the people have more power and say on their management.
- Mr. Wairagu stated that the study completely supports the idea of going beyond the kitchen garden and that is why it was advocating for tree planting and establishment of tree nursery.

Additional Contributions:

- Members stated that capacity building had already been done and if the study team was willing they could develop these already existing structures or else define capacity building the study is after.
- One member stated that many water pans have been constructed in Awach Kano and most of them have collapsed due to soil structure. Proposing water pan as a pilot project needs a through assessment on what is the reason for these collapse and learn from these experiences and more importantly calculate the construction



cost based on this truth and then project its suitability based on economic cost and long term benefits.

- Economic viability of run-off water is not stated yet the whole proposal heavily rely on it members observed. They also noted that the proposal solely address water pans with no option of an alternative.
- Members also noted that people of Katuk Odeyo are tired with studies that do not bear fruits people come people go but Katuk Odeyo remains on peril and most of the inhabitants are happy with what KARI has done and for the first time they are seeing fruits.
- Also question of ownership was raised pointing out that out of experience that if the project is wholly funded the villagers will tend to sit and watch and thus the noble idea of self-sustainability thrown out of the window because no one will care for the project but if asked to contribute say 40% then chances of success is always high.
- Members also requested that all those who are concerned in the Katuk Odeyo be noted down and brought on the same table so as each entity will state its concern in the Katuk Odeyo gullies and therefore avoid duplicity and enhance cooperation.
- Members also requested that there was need to qualify the grammar so as all may understand and contribute. For there was tendency of being vague and at times ambiguous and thus throwing some members of board especially in application of scientific terms.
- Representative of Awach Kano Water Users Association sought a clarification on the project stating that waters of Sigowet do not flow to Upper Nyakach Katuk Odeyo areas but the waters flow to Lower Nyakach Rangul area and thus the proposal a little confusing if it is Sigowet-Upper Nyakach. Also he noted that the main sufferers of flood waters were people in Lower Nyakach yet they had not been taken to consideration.
- Members requested for a proper Kericho representation because since time immemorial water has been a cause of conflict and confrontation.
- WRMA also gave their take on what they believed the Study did not come out clear on:-
  - a) That they expected to see a whole Catchments plan that addresses each sub-catchments
  - b) If the proposals by the study qualifies also as a plan
  - c) The title of the proposal is subjective in the sense that it concentrate on run-off water and completely ignores rain water, river water and lake water etc
  - d) The proposals does not capture any figures in terms of water in the sub-catchments for example in Awach Kano it is not indicated how much can be allocated for domestic, agriculture use
  - e) The proposal does not take into consideration Land Tenure System bearing in mind that these water pans are constructed on private land and the draw off system proposed entails sealing off. It is a common fact that no one wants to invest their money or resources in a private land on by other person(s)
  - f) Proposal does not highlight who is on board in that Awach Kano and doing what to avoid duplications
  - g) And issues of technical options i.e. needs for more options in providing water.

Chairman Dr Okeyo expressed his appreciation on members passionate contribution but warned members not to be eager in canceling out ideas brought up but should be dynamic

and pragmatic at the same time by keenly looking at the proposal with an eye of furnishing and not rubbishing the report. He asked Mr. Wairagu to take home members in-put and look at them keenly and correct where need be and come up with a better report in the next Forum on 30<sup>th</sup> Nov.2006.

Mr. Wairagu requested that the date for an up dated report be discussed between him and Forum official so as to come up with a date that was convenient to all parties.

4.3 Scheduling of the next meeting:

- Next meeting was scheduled for 30<sup>th</sup> Nov.2006 at Tom Mboya Labour College and the letters for invitation will be sent to the members.
- 30<sup>th</sup> Nov. Meeting amongst other agenda JICA Study Team will present a draft master plan for Nyando Basin.

4.4 Closing Remarks:

- District Commissioner Nyando District Mr. John Egesa in his closing remarks thanked the members for sparing time on their busy schedule to deliberate on the important issues affecting the entire Nyando basin. He observed that in the United Nations conference at Gigiri it was stated that the water going down the Lake Victoria had the potential capacity of feeding over 130 million people if tapped well.
- He also expressed the fragility of the eco-system needs a lot of caring in the methodologies used in finding lasting solutions in the basin.
- He then declared the meeting official closed at 1.45 p.m.

There were no any A.O.B and meeting was then closed with a word of prayer.

The Fourth Official Meeting  
For  
Nyando River Basin Water Management Forum

Date: 30<sup>th</sup> November 2006

Place: At Conference Room, Tom Mboya Labour College, Kisumu Kenya

**1. IN-ATTENDANCE**

No.	Names of Participants	Organizations From
1	Wennslaus Masinde	Ministry of Agriculture Kericho
2	Paul K Rono	Mbogo W R U A
3	H .O Abuto	Ministry of Agriculture Nandi South
4	E. Babu Opere	Minstry of Agriculture
5	Stephen Tuwet	Ainapngetuny W R U A
6	Ngeno Franco	Ndanai Community Project
7	Bii Richard	Ndanai Community Project
8	Stanley Koech	Kenya Sugar Board
9	John Chirir	Ketitui/Kipwas
10	Joshua Osio	WRMA
11	Barak Ochoro	WRMA/LVSC
12	Eddah Wanjiku	KARI/WKIEMP
13	Omorror Caleb	UHAI Lake Forum
14	David Dulo	Vired International
15	Joyce Olando	Ombeyi Kwe Women Group
16	Gordon Kojo	IDCCs
17	Dishon Olufu	WRMA/LVSC
18	Willis Memo	WRMA
19	William Okello	WRMA/LVSC
20	J.L Fedha	D.O 1 Nandi South
21	Herman Kiruaye	WRMA
22	James Nyamato	WRMA
23	Patrick Khisa	WRMA
24	Gidieon Miyoga	LVEMP
25	Phelesia Aluru	WRMA
26	Francis Mutuku	Agro-Chemical Co.
27	Samuel Gor	WRMA
28	Aloo Ogeka	Aloo Ogeka
29	Julias Merepu	WRMA
30	James Oduor	Nyanza Youth Coalition
31	Leah Onyango	Maseno University
32	Owallah Chris	National Youth
33	Nicholas Omondi	Osiendela
34	Lillian Dullo	SANA international
35	Joseph Ngome	HEMNET
36	Evans Agola	Awach Kano WRUA
37	Greg Umayu	CARE-Kenya
38	Geoffrey Wekesa	LBDA
39	John Mumbo	NEMA

40	Harry Nyakongo	WRMA/LVSC
41	Jared Otieno	Forest Department
42	Joseph Ongoro	LVSWSB
	Absent with apologies	
1	Dr Owuor Okeyo	Vired International
2	Daniel Asaka	Red Cross

## 2. MEETING:

Meeting commenced at 10:35 a.m. with a word of prayer. The Vice-Chairperson began by relaying the apologies of the Chairman to the Forum explaining that the Chairman was unable to attend the meeting because of other engagements he was involved in Nairobi. Red Cross representative also sent his apologies via SMS clarifying that due to the damaging effects of the floods Red Cross was on the ground engaging in humanitarian and relief assistance activities in the Nyando Basin affected areas. Members had earlier on received the agenda of the meeting which was enclosed with the invitation letter. Again the members were issued with meeting agenda alongside document papers that were presentations items for the meeting as they registered participants.

### 2.1 Introductions:

Introductions were done as item number one of the agenda and this was for the purposes of those who were attending the Forum for the first time even though these new individuals were representing organizations that are members of the Forum. The Chair led the members as they introduced themselves.

### 2.2 Opening Remarks: Mr. Khisa

Mr. Khisa made the opening remarks by first thanking participants for making time from their busy schedule to attend the Forum meeting driven by their earnest desire to address the problems of floods in the basin.

Hon. Aloo Ogeka the acting Chair introduced the ideals of the Forum underlining the principle behind its formation. He indicated that the Forum played an important role of supporting, guiding and assisting the Study Team in carrying out the survey and study.

### 2.3 Presentation of Draft Master Plan: Mr. Eng. Inoue

Mr. Inoue made the presentation in which he took the members of the Forum through the documents page after page, item after item; from the introductory part which in essence was the background of the draft master plan to the last page of the document which dealt with the implementation of the master plan. He described in details the maps on the documents explaining the keys to understanding these maps. He managed to draw a vivid mental picture in his presentation of the draft master plan which included Short-term, Medium-term and Long-term implementing plans. He summarized his presentation by highlighting the priority schemes which included strengthening of existing dykes, need for network of evacuation roads, capacity building of community driven flood management organs and establishment of hydrological monitoring network. He finished the presentation by challenging the members to contribute their ideas to the draft master plan as solid inputs that will shape the master plan positively in that when the final master plan is presented in June it will contain the in-puts of the Forum.

#### 2.4 Tea break:

Members went for tea break at 11:15 and it lasted for twenty minutes.

#### 2.5 Discussion of the Draft Master Plan: Members

The Chair opened the floor by asking members not to be a barrier to the master plan but that they should be like enzymes that will catalysis the process in efforts of drafting a master plan. He then welcomed members to contribute on Mr. Inoue's presentation.

#### Questions Arising:

- Mr. Ngome of HEMNET questioned the time allocated for implementation schedule on page 12 during the presentation stating that this was the crucial point that needed plenty of time to be handled but in the presentation it was allotted little time. He went on to add that the span given in terms of short-term (3 years), medium-term (9 years) and long-term beyond 2021 was too long and yet the suffering of the people of Nyando was on increase and asking them to wait for more than fifteen years was to stretch people of Nyando to far.
- Mr. Mumbo of NEMA asked for clarification and meaning of an A1 truck road. He also wanted clarification on the implementation periods and he also wanted to know when the Environmental Impact Assessment will be carried out and if the Study Team will do it as a part for Master Plan or if it will only be done by the implementing body. He also wanted to know if desiltation of rivers will be done by community or mechanically.
- Mr. Mumbo also commented that strengthening of dyke without catering for a provision for drainage canal will lead to flow backs of flooding water and asked the Study Team to take that issue into consideration.
- Ms Leah Onyango of Maseno University appreciated the draft master plan stating that it was work well done. She appreciated the idea of the evacuation road being constructed but added that the Study Team should also look on facilitating evacuation roads used by evacuees along side their livestock because most people refuse to evacuate during floods simply because they cannot leave their animals behind as they (evacuees) move to evacuation centers. She also asked the Study Team to look into the land ownership issues giving a case example of people who own land between dykes and the river channels and some people not only have they cultivated on these land but they have also put up structures on these land. She went on to give example of Ahero where people have built between the dykes and R Nyando. She also raised the issue of community participation and awareness stating that most dykes have been damaged by community members when trying to access the river. She also stated that the river use by community members should be taken into consideration for it plays a part in erosion of the river banks.
- Mr. Greg Mayor of Care Kenya observed that the draft plan did not capture the economic activities of community members yet in Nyando Basin community members produced rice and sugar cane amongst other crops. He added that it will add value for the Study Team to go to the ground at this time when floods were wrecking havoc and observe with their own eyes and out of that experience they will come out with a first hand experience in the Master Plan. He also observed that the draft master plan stated what need to be done and not how it will be done.
- Mr. Mature Glasio of WRMA Kericho observed that the draft master plan did not capture the depleted catchments and the way forward for these catchments. He also wanted to know the sustainability of sediment retentions proposed in the draft master plan and how community stands to benefit from it. He further went on to

observe that the element of community involvement and NGOs role was not captured by the plan yet community was vital key for the success of the project.

- Mr. Miyago of LVEMP observed that water shed management was not captured by the draft master plan yet it was a vital component on management of floods. He also wanted clarification on modalities and operation of early warning system.

#### Discussion Feedbacks

- The Chair requested members not just to raise problems but also come up with solutions for these perceived problems too. He then invited Mr. Inoue to respond to the concerns raised by members.
- Mr. Inoue began by stating that the division of the implementation period was based on the government of Kenya allocations to flood mitigation stating that only 46 million is allocated for floods per annum and compared to 7164.8 million shillings required for implementation of the whole plan and it was only logical for the study team to be realistic and divide the stages of implementation into three. He added that but if the funds were readily available the implementation could be easily carried out within a considerable short time.
- He clarified that A1 truck road was a Kenyan term applied on the maps and even indicated on the road and only implies that a particular road leads to another country (an international link road).
- He also stated that though he has not practically ascertained it but based on his observation that most dykes in Nyando Basin collapse because of poor workmanship. But he added that during pilot projects the study team intends to bring proper workmanship on these dykes. He also added some dykes are damage as a result of community members' efforts of seeking passage through these dykes. Mr. Inoue went on to explain that this factor has been looked at keenly by the study team and during strengthening of dykes passage ways will be constructed too. He also added that community will play a pivotal role in the projects because they will be the custodian of these projects.
- He clarified that desiltation of the rivers will be done by community in terms of small rivers but when it comes to big rivers desiltation will be mechanical.
- He stated also that when it comes to evacuation roads the study team primary concern was the people and added that these roads will be constructed wide enough to allow animals also to pass through. He added that he had gone to site during floods and observed that the flooding water was dirty and though only 20 cm high but the road the water was flowing on could not be seen. This he explained that it reminded him of the concerns of the villagers who had earlier explained to him why they do not like evacuating during floods for simple reason that they feared bodily injuries they encounter while evacuating especially cuttings by glasses and metals, nail piercing and ankle twisting because of the poor visibility of roads and lies beneath the flooding brown water.
- Mr. Inoue also concurred with Ms Leah that land use between the dykes and river channel posed a challenge and gave an example of Japan where all lands between the dykes and river channels are gazetted as government land. He further explained that though by law it is prohibited to use these lands this does not stop people from farming in them it only helps in preventing them from constructing structures on these lands and also claiming compensation from the government in case of a disaster. He added the Master Plan will recommend to the government to publish Lands Bill that prohibits constructions between dykes and river channels and also to repossess back these lands by the government.

- Mr. Inoue told the Forum that operation and maintenance of the proposed water pans and drainage canals will be done by community members. He added that community members were expected to desilt the above mentioned structures every time they experience floods.
- He also clarified that the draft master plan did not touch much on the community including their economic activities simply because there was a team on the ground that was carrying out a community survey at that particular time the Forum was proceeding. He went on to assure members that the role of community was not forgotten and will be clearly catered for once the survey is complete because their participation will be factored in the master plan. Mr. Inoue added that when it comes to sediment retention structure the Study Team prefers the gabion style as opposed to concrete since gabion entails using local resources both in terms of material and labour and these structure constructions demands for community participation.
- Mr. Inoue went on to assure the Forum that the issue of depleted catchments was going to be handled and indeed it had already been agreed that Mr. Wairagu Environmental Specialist of JICA Study will handled it appropriately in the next Forum.
- On the question of monitoring system Mr. Inoue stated that it was easier to monitor floods on the R Nyando for it takes about 14 hours for water to flow from upper ridges down hill to Kano plains. This time span is ample time to warn people in the low lands once the water level begins to rise. But where the challenge lies is on R Nyamasaria and Awach Kano that takes about 1 hour for water o flow down steams and therefore warning incase of floods becomes tricky. He further went on to explain that because of these fast pace nature of these floods it is therefore prudent to consider and determine the sediment retention of gabion structure and nature and he went on and explained the scientific philosophy that underlined this conclusion, explaining that the flood waves and flood shapes as determining features for the choices of type and nature of gabions to be constructed.

Further comments, questions and discussions:

- Ms. Lillian Dulu of Sana International started off this session by observing that the presentation was real good but that it had only one shortcoming and that was in areas of networking and linkages. She stated that there was need to recognize other actors on the ground which enables the sharing experiences and therefore reducing the rate of duplicity of efforts by Study Team and other actors on the ground.
- Ms. Joyce Olando of Ombeyi Kwe women group asked that the Study Team should consider as matter of necessity to involve women groups in the implementation stages because women are at the heart of these flood problem and are the main victims who are hit the hardest when floods do occur.
- Ms Leah Wanjiku of KARI questioned the idea of dams being listed as medium and long term measures of flood mitigation while from events past and how they have been dealt with dams remain the major answer to flooding problems. She also suggested that warning system should be community driven, owned and managed basically by community. She also managed to put up a case for irrigation as the vision of Kano plains and therefore need for proper resources that will enable modern irrigation methodologies and not the manual gadgets that most people in Nyando are using for irrigation. She also suggested feeder roads

specifically designated for animals especially for usage as passage for these animals when they are being driven for watering.

- Mr. Geoffrey Wekesa of Lake Basin Development Authority (LBDA) suggested that the Ahero Bridge be included in the plans for road rising. He added that despite the fact that catchments are yet to be concluded but they should be part of the draft master plan. He observed also that water pans were not included in the implementation and added that because they are easy to construct their construction works should be prioritized and commenced at the earliest opportunity.
- Mr. Oloo of Lake Victoria Service Board (LVSB) sought to know the location of slit type weir and its importance. He also wanted to know what type of material will be used when constructing this structure. He also observed that it will be much better if afforestation efforts be encouraged in the lower parts of basin due to high alluvial soil left behind by the floods. He also commented that the raising of roads should start in Rabuor and be extended up to Katitu trading center. He added that the evacuation routes that the draft master plan addresses are not marked on the maps issued for purpose of presentation.
- Mr. Joseph Omollo of LVSB commented the draft master plan as noble and added that Water Act 2002 created various organs that could be used as implementing agency of the master plan. He explained that the Act mandated the constructions of dams and water pans and suggested that National water and piping construction be added as an implementing agency. He also challenged the Forum to think in terms of having a system of sourcing funds. He added that dam constructions be considered as short term measure because funds can easily be sourced for. He also observed that though big dams were suggested this did not mean that few small dams cannot be constructed to help ease the burden of floods.
- Mr. Stanley Koech of Kenya Sugar Board stated that sugar cane was one of the major cash crops in Nyando Basin and it was this very crop that was faced with the biggest challenges. He explained that during rainy seasons the roads are impassable and therefore farmers cannot deliver their cane to the factories and during the dry season the cane are so emaciated that they cannot fetch any good money when harvested in that deplorable conditions. He advocated for irrigation as one way of helping these farmers reap maximally of their labour adding that dams therefore should not be looked at as a flood mitigation solution only but as an answer to farmers needs also.
- Mr. Omondi of Osienala observed that though media plays an important role in the society its role in the draft master plan is not captured and if this oversight is corrected and media is incorporated in the master plan it will add more value to it.
- Mr. Adhiambo Lommo of Okana Water Users wanted to know why other rivers were not being considered for dam construction e.g. river Ombeyi and river Mirui and yet these rivers can be used for economic growth of people residing in these areas most of which engage in horticultural productions.
- Mr. Mutuku of Agro-Chemical and Food Company asked if the master plan included the upper catchments. He also raised the issue of pipes and water pumps being washed away in Chemilil and Muhoroni towns due to floods and sought the advice of the Forum and the Study Team on the way forward.
- Mr. Mature of WRMA wanted to know if the sediment retention was the worst case scenario or the worst is yet to come. He gave an example of water channels that were constructed two years ago of which most have since blocked because of



siltation and he wondered what will happen to the sediment retention! He added that water storage was a necessity that makes dams construction inevitable.

- Ms. Leah Onyango observed that capacity building of local Kenyan expert was necessary stating that Kenya has enough expertise and all that was needed was to develop these local know-how to be able to handle such high level consultancy for if there will be no capacity building come next time when the government wants a master plan for Budalangi it will be forced to contract abroad while it is cheaper if the locals could be trained by the Study Team that is already on the ground how to handle such kind of duties.
- The question of flood canals was also raised by a participant that commented that canals can be used to reduce flood waves.

#### Discussion Feedbacks:

- Vice-Chairman Hon. Aloo Ogeka stated that a master plan that has an implementation period of over 15 years was like turning back to 1954-1958 plan by Europeans and Ital-consult recommendations who after their consultation works left and yet the problems on the Nyando basin particularly Kano plain still persists to this day. He added that despite the area being flood prone ironically there is no water for domestic use in this area. He went on to give example of Mombassa where gravity is used to supply water for domestic use. And stated that if well studied similar method employed in Mombassa can be borrowed and applied in the Nyando basin. He also commented that there was no sewerage system in Muhoroni and Chemelil towns. He also sited the Magwagwa proposal and recommended that if it is adopted on R Nyando it will increase the power production at Sondu Mirui Power plant. He added that if flash floods are placed on a ten year plan as a strategy then this become a challenge that the study team need to look at and if possible rectify. He then welcomed Mr. Inoue to respond to the issues raised.
- Mr. Inoue began by assuring the members that the community was an integral part of the master plan and cannot be left out and once the community survey are carried out to completion the community will be co-opted in the master plan. Mr. Gejo on his part emphasized the issue of community participation pointing out that a local NGO had been contracted and was already on the ground carrying out the community survey.
- On issue of networking and collaborations Mr. Inoue stated that the master plan will advocate for strengthening of the already existing structures especially the District Disaster Committees and these will include co-opting in NGOs with similar interests.
- Mr. Inoue explained that constructing a dam takes time for it entails site identification, geological survey and optimum scaling which include a detailed designed. He added that all these processes for dam construction in themselves take time and that makes dam construction to be a medium term in implementation even if funds are readily available. But when the process still demands a need of soliciting for funds through applying through a donor agency then dam construction becomes a long term exercise.
- Mr. Inoue emphasized the importance of reliable community warning system and stated that this should be established as it was the best way of reducing damage during floods.

- He added that the raising of Ahero Bridge was well catered for in the draft master plan and he explained that this raising of Ahero Bridge was actually the main reason that raising the road and the dykes around the place was so costly.
- Mr. Inoue also explained that sediment retention will need proper workmanship stating that most of these structure collapse because of the inferior materials that are used in there construction. He emphasized that his Team advocates for steel being used in foundation and also leaving room for water sippage after construction.
- He also stated that it was difficult to know who does what on the side of government and the study team had sought for clarification from the government and the government side was in the process of handing over this data and this will help now to assign each implementation duty to the relevant bodies for execution.
- He also asked the Forum to suggest the dam site they had in mind. Adding that the three dam sites in the draft master plan were based on the previous studies carried out in the basin.
- Mr. Inoue stated that amongst the non structures measures radio was an important component and in 2007 the Study Team will come up with examples of communication methodology on radio and community.
- Mr. Inoue stated that water canals in flood management often cause more havoc than help wherever and whenever they have been constructed.
- On capacity building Mr. Inoue assured the members that the study team will print manuals on capacity building and hoped that the manual will be beneficial to all who are interested.

#### 2.6 WRMA take on the presentation: Mr. Khisa

WRMA acknowledge the draft master plan as a good one and only needed a little furnishing to make it complete. He pointed out the following areas as points that needed furnishing:-

1. Roles of institutions: He pointed out the government was about to release Strategy Paper which seeks to clarify, specialize and pin-point duties of different statutory bodies established by the government. He added that this will help the Study Team to identify who can implement what.
2. He also stated that the draft master plan did not capture the provision of clean water during the flood times and this oversight need to be corrected.
3. He stated that the issue of the upper catchments had already been agreed on that it will be presented in the next Forum stating that the Forum expects that the Study Team will come up with laudable document on upper catchments.
4. On issues of dam construction Mr. Khisa said that development of the dam was the government position and that is what the Minister and Permanent Secretary of Ministry of Water and Irrigation expects. He added that World Bank had already shown interest in terms of funding dam construction.
5. He also added that forecasting (warning) system cannot be left in the hands of unauthorized people and that though the community should be part and parcel of the forecasting system they cannot be left to manage it because they have no mandated authority. He added that the upper catchments should communicate flood alarms to WRMA and then WRMA disseminates the same information to the lower parts of the basin this he said will be quick and fast.

2.7 A.O.B

- Mr. Ngome of HEMNET wanted to know if the matter that were raised in the 2<sup>nd</sup> Forum Meeting at Imperial Hotel and had been referred to head office in Tokyo for further consultation had been resolved and if the Study Team had an answer to give to the Forum concerning feedback.
- Ms Wanjiku of KARI requested the Study Team that if it will be possible after the community survey is done with if the report will be made public and if the Study Team will be kind enough and share it with other interested organizations operating in the area.
- Mr. Inoue in his answer told the Forum that when they took the issue raised about allowances to Tokyo the JICA head office was surprised by the request of the Forum and they did not approve of it. The other issue taken to Tokyo was that one concerning pilot project that the Forum had requested that one be done in the upper catchments to this suggestion the Tokyo Head office agreed with the Forum's proposal.
- Mr. Gejo stated that the report will be shared to all who are interested in it and he added that not only will that but also in the next Forum the NGO that is carrying out the community survey will present its finding to the members in February meeting.

2.8 Closing Remarks:

- The Ag. Chairperson made the closing remarks. He thanked the members for taking time off from their busy schedule to attend the Forum. He went on to state that the Forum was here to stay and there was need to deliberate on the legal standing of the Forum. He added that the Forum has the mandate to source for fund an exercise it cannot carry out unless it becomes a legal entity. He added that based on these observations the Forum temporary relies heavily on WRMA and JICA Study Team to facilitate its legal standing and therefore arranging for Forum meetings. He summed up his speech by stating that Secretariat will call up members for the next Forum Meeting in the usual cordial manner that the secretariat has been using.
- Meeting was officially closed at 1:55 P.M. with a word of prayer and then members dispersed for lunch.

END

The Fifth Official Meeting  
For  
Nyando River Basin Water Management Forum

Date: 1<sup>st</sup> March 2007

Place: At Conference Room, Tom Mboya Labour College, Kisumu Kenya

**1. IN ATTENDANCE**

No.	Names of Participants	Organizations From
1	Serena Nasongo	VIRED International
2	Joel Ragut	Mbogo W R U A
3	John Maina	M.o.A/ LVEMP
4	William Adera	Minstry of Agriculture Nyando
5	Stephen Tuwet	Ainapnetuny W R U A
6	William Ongombe	Kano Plains Water Users Association
7	Philip Raburu	VIRED International
8	Stanley Koech	Kenya Sugar Board
9	Lucas Owino	River Nyando WRUA
10	Leah Onyango	Maseno University
11	Millicent Ouma	IDCCS
12	Eddah Wanjiku	KARI/WKIEMP
13	Dan Ong'or	UHAI Lake Forum
14	David Dulo	Vired International
15	Joyce Olando	Ombeyi Kwe Women Group
16	Gordon Kojo	IDCCS
17	Dishon Olufu	WRMA/LVSC
18	Willis Memo	WRMA
19	William Okello	WRMA/LVSC
20	Dorca Ojwang	Kano Plains WRUA
21	Pertalis Opango	WRMA
22	Okeyo Owuor	Chairman Forum
23	Allan Owaga	Red Cross Nyando
24	Gidieon Miyoga	LVEMP
25	Roselyne Owino	World Vision
26	Vincent Orayo	Kano water users association
27	Geoffrey Wekesa	LBDA
28	John Mumbo	NEMA
29	Joseph Ngome	HEMNET
30	Evans Agola	Awach Kano WRUA
31	Leah Onyango	Maseno University
32	Owallah Chris	Nyanza Youth Coalition
33	Nicholas Omondi	Osenala
34	Michael Wairagu	JICA Study Team
35	Tetsumari Gejo	JICA Study Team
36	Mr. Inoue	JICA Study Team
37	Mr. Oloo Patrick	C.E.O WRMA Nairobi
38	Ms Abira Margaret	Regional Manager WRMA
	No absentees with apology	

## **2. MEETING:**

Meeting commenced at 10:30 after the affirmation that there was a quorum. The Vice-Chairman relayed the apology of the Chairman to the Forum. The Vice-Chairman told members that Chairman was going to come in late for the meeting due to professional commitment. In chairman's absence the vice-chairman chaired the meeting proceeding. The chair asked members to confirm the agenda and if there were any burning issues he asked members to add it up in the agenda. There were no burning issues and the meeting proceeded according to the already circulated agenda. The Chair then asked the secretary of the Forum to lead in the introductions.

### 2.1 Introductions:

Introductions were led by Ms Margaret Abira Regional Manager WRMA. She introduced the CEO of WRMA Mr. Patrick Oloo who had privileged the Forum by his attendance of the meeting and was due to make a presentation to the members. Ms Abira then asked the WRMA staff in attendance to introduce themselves and then she asked each Forum member in attendance to introduce themselves first by stating who they were and the organization they were representing.

### 2.2 Opening Remarks:

Vice-Chairman made the opening remarks in which he appreciated the presence of CEO WRMA in the Forum. He also welcomed Ms Abira the Regional Manager of WRMA who was attending the Forum for the first time and stated that the Forum was eagerly waiting to hear Ms Abira maiden speech. He then invited the CEO WRMA Mr. Patrick Oloo to address the Forum.

Mr. Patrick Oloo on his part stated that he was honoured to be part of the Forum and added that apart from presentation he was going to make, he planned to sit and listen all the presentation, discussions and deliberations that the Forum was going to undertake. He stated the importance of the study on the Nyando Basin and added that WRMA as part of the government was keen on the findings of the study.

Mr. Inoue expressed optimism with the progress the study was making and gave a brief outline on the same. He added that the Study was divided in three phases and each phase was being worked at within a particular time frame and he was pleased that none of the phases so far had progressed out of the planned time frame.

Mr. Gejo on his part outlined the agenda indicating that each presentation was going to be tackled thoroughly by expert concerned.

### 2.3 Presentation on findings of community survey for targeted communities for pilot projects by Dr Philip Raburu:

Dr Philip Raburu began his presentation by first explaining to the forum that his document was a 400 page report and the allotted time for presentation was 30 minutes. He added that due to time constrains he was going to be brief yet precise to the point.

He began his presentation by stating that his organization VIRED International was contracted by the study team to carry out community survey in five villages. He pointed out to the Forum the terms of reference in which he was to carry out his assignment. He also explained that five sub-locations for pilot projects were not selected by him but handed over to him by the client (JICA Study Team) and his duty and mandate was to identify the most affected village for pilot projects a task VIRED had successful accomplished.

Dr Raburu explained to the Forum that P.R.A exercise was carried out in all the five villages, household questionnaires were also used in the survey and workshops for communities were held in which CAP for each village were formulated. Dr Philip also explained to the forum the research tools that were used during community survey adding that Kochogo South sub-location was the pretest sub-location.

Dr Raburu explained that because the survey was carried out during the floods most of salient factors during flooding were thus captured in the survey. He explained that even accessing some of these villages during the survey was a difficult task citing example of Kochiewo village in Magina sub-location whereby it took three weeks for VIRED staff to access it.

Dr Raburu stated that selection of the village was based on comparative survey on magnitude of flood damage in the selected sub-location.

Forum was told that maps were drawn by villagers and each clan was represented during the drawing of the village map and hazard map for each selected village.

He showed the village maps of Kasiru, Kochiewo, Odesso, and Kokwaro drawn by villagers to the Forum.

Dr Raburu also explained that his team was requested to conduct assessment of vulnerability ratio, community resources and development potential of various communities' vis-à-vis flood hazards. He told the Forum that there were no evacuation sites per se in sub-locations but villagers evacuated to either churches or school or both. Verification to authenticate what villagers were claiming was done thoroughly by VIRED and locations (of hazard, shelter etc) were captured on GPS Marks and viewing of the physical evidence.

Dr Raburu also told the Forum that they were requested by the study team to obtain baseline information of the selected villages using questionnaires which were structured by JICA Study Team after a discussion on dimensions of the questionnaires with VIRED. He further explained that 120 people were interviewed per each village. Dr Philip Raburu gave graphic explanations of their survey findings. He added that assistance these villages receive mainly comes from NGOs operating in the area and international bodies like Red Cross.

Dr Raburu reiterated the pathetic case of Kochiewo where VIRED staffs had first hand experience of effects of floods whereby they could not access the village for three weeks due to inundation. He explained to the Forum that loss of crop was the major hazard affecting these villages during periods of floods, followed by livestock losses and last but not least house damages.

Forum was told by Dr Raburu that CAP formulation for each village was done by communities in the five respective villages that were selected for pilot projects. He went further to outline each village CAP in brief to the Forum. He also explained how the opportunities for each CAP were prioritized by the communities themselves emphasizing that VIRED only played the role of facilitation.

Dr Raburu explained to the Forum that though the study was specifically concerned with floods but it was difficult for the communities to be flood specific in formulation of the respective CAP due to the fact that most of the problems they faced were inter-related and the floods being at the core of most of the problems either as the cause or the product.

The presenter observed that Kamiwa and Siwot were two unique villages because they are located in upper catchments and floods were not their major concern but environmental degradation.

On the Constrains to survey, Dr Raburu told Forum members that amongst other limitations the survey faced the major one was that survey was carried out during floods and it was difficult for the surveyors to access these villages, lateness during meeting, lack

of refreshments for villagers participating in the survey forcing them to spend the whole day without food or refreshments, lack of consistence in attendance by the participating villagers, to zero in on a particular village based on administrative boundary was difficult and not easy to deal with and this could have been countered by targeting the affected areas rather than affected village because flood hazards do not target a particular village but transcends the village, and mapping difficulties especially during digitalization of the villagers drawn maps.

Dr Raburu concluded his presentation by outlining the salient features of the survey which included

- The process of the survey being participatory
- Study was carried out at the right time i.e. during period of floods
- Education levels in these villages is low
- High numbers of vulnerable individuals in house holds in these villages
- Complete lack of disaster preparedness
- Both structures and non structures remedy are needed in these areas concurrently.

Finally Dr Raburu acknowledged JICA, Communities, Provincial administrations, VIRED staff and Forum for enabling the success of this survey.

2.4 Presentation of draft plan on pilot projects for integrated flood management in Nyando River Basin Mr. Gejo:

Mr. Gejo explained to the Forum the mode that was used in selecting the pilot project locations stating that many factors were looked into and for purposes of piloting the five sites were selected.

He named the five communities that are targeted for pilot as Odesso in Kasule sub-location central Kolwa in Winam, Kisumu, Kokwaro in Central Bwanda sub-location Kadibo division Kisumu, Kochiewo in Magina sub-location Nyando division, Nyando, Kasiru in Kore sub-location Miwani division, Nyando and Chilichilla Location Kericho. He explained to the Forum the major key issues affecting Odesso i.e. drainage conditions and the measures to be undertaken there in terms of pilot projects are 35M rehabilitation on river bank, desilting existing drainage 800M long, training on use of sandbags and strengthening food management organizations.

He gave an example of intervention that is used in Japan and added that if adopted in Odesso it will play a crucial role in flood management.

Mr. Gejo described the situation of Kokwaro to the Forum stating that there no dykes and poor flow capacity characterized the flooding water coupled with poor drainage in the village the roads in the area are quickly submerged and the evacuation centers in the village have shortage space and therefore cannot accommodate the fleeing evacuees effectively.

He explained to the Forum the measures the Study Team was proposing was raising road, constructing a new evacuation center, training on flood management and training on proper feeding of livestock.

Mr. Gejo told the Forum that though dykes were deemed necessary by the community in their CAP. But due to high cost of construction of dykes Mr. Gejo explained to Forum that it cannot be undertaken in the village in the pilot projects due to limited funds and added that the same case also applies in improving of the drainage in the village.

In his presentation on Kasiru Mr. Gejo noted that Kasiru village had no dykes, its canals were blocked, poor road that were inaccessible and has no source of clean water. He added

that the intervention the study team was proposing included: Raising a road that will link the two parts of Kasiru that are divided by rice paddy field, construct toilets, well and bathrooms for both men and women separately at the evacuation centers, training villagers on health especially on waterborne diseases.

On Kochiewo village Mr. Gejo explained that the village is affected by the damaged dyke, siltation of river Nyando and siltation of the drainage canals in the village. He told the Forum that the proposed interventions in the village included rehabilitation of existing dyke about 100M, non-structures measures like training villagers on dyke protection and also technical training on crop production.

For Chilchilla location Mr. Gejo told the Forum that major issue was forest degradation and river bank degradation and pollution. He explained that the Study Team was proposing to do river bank protection 20M long along the river, construct a ramp for cattle watering and a training program on cattle management and soil conservation.

Mr. Gejo explained to the Forum that the Study Team was proposing to erect boards that indicate the flood hazards, depth of inundated water and direction leading to evacuation center; also the study was proposing training villagers in evacuation drills; study was proposing also facilitating the formation of community based flood management organization and come up with an M.O.U. of operation between community, WRMA regional office and JICA study team.

Mr. Gejo also told the Forum that in spite of the presentation touching and elaborating on pilot projects, implementing this projects were subject to approval from JICA Tokyo office and added that the pilot projects were still proposals and based on availability of funds the pilot projects will be undertaken.

Mr. Gejo concluded his presentation by requesting WRMA to facilitate communities' preparation in the month of March and April in readiness for pilot projects.

#### 2.5 Presentation of environmental consideration on pilot projects by Mr. Wairagu:

Mr. Wairagu began his presentation by stating what his role entailed in pilot projects vis-à-vis environmental consideration. He explained to the members that his role was to facilitate Initial Environmental Assessment (I.E.A) in pilot schemes, to advice WRMA on the need or follow up of environmental assessment in pilot schemes, also to look at the legal and policy requirements for pilot projects in context of environmental assessment. He went on define EMCA 1999, its section and requirement and he also define NEMA and its role in environmental assessment stating that NEMA was the regulatory body in charge of Environmental Assessment. He also defined the lead agencies and their roles.

Mr. Wairagu explained to the members that it will be prudent to secure environmental clearance for these pilot projects at project report level. He further explained this clearance will be easy because the pilot schemes were small projects in proportion, devoid of irreversible impact and there are no instances of displacement of human settlement.

He went further to state that each pilot scheme will attract environmental report and he explained in detail to members what the environmental report will entail. He added that these reports are part of the project report documents that are forwarded to NEMA. He



noted to Forum that ten hard copies, signed form 1, payment of statutory fee and delivery of forms to NEMA was what was required.

Mr. Wairagu outlined to the Forum the position in which the pilot projects were vis-à-vis environmental assessment explaining that impact prediction, interpretation, evaluation of alternatives and viability of mitigation were in progress stating that various factors had been looked into like:

- That all intervention were largely small scale
- That all projects are demand driven i.e. they have overwhelming support by communities.
- That impact on established source of livelihood like sand harvesting based enterprises has been assessed.
- That impacts on local infrastructures e.g. local access routes were being looked into.
- That potential to exacerbate diseases hazards is thoroughly checked.
- That inherent cumulative impact down stream is looked into.
- That the potential impact on soil nutrients soil supply is analyzed.

He stated that impacts of the projects are easy to identify and have also readily available means of mitigation.

Mr. Wairagu further explained to the members that the key emergent issues concerning the pilot schemes were:

- Identifying and building capacity for project proponents.
- Securing requisite sectorial approval for pilot projects.
- Streamlining land tenure arrangement that they may be compatible with government requirement i.e. transfer of donated private land to community.

Mr. Wairagu also outlined the time frame for the pending tasks indicating that the target was to assemble outstanding issues by March 15<sup>th</sup> 2007 and to submit project reports to NEMA by March 31<sup>st</sup>. He went further to state that he expected NEMA's approval in June 2007.

#### 2.6 Tea break:

Members went for 15 minutes break from 12:45-13:05. After the break Hon Aloo Ogeka stepped down as the chair for Dr Okeyo Owuor the current Forum chairman who had come in the meeting late when the presentations were being done.

#### 2.7 Discussion on pilot projects for integrated flood management in Nyando River Basin:

The chairman appreciated the presence of WRMA C.E.O in the Forum meeting and expressed optimism that this was one among the many meetings the CEO will attend. He apologized to the members for coming in late. He further stated that he was impressed by the presentations. He thus opened the floor for debate.

Mr. Miyoga of LVEMP opened the discussion by raising issues on Kasule sub-location in particular Nyamasaria Bridge which he stated was the main cause of floods in the area due to small tunnels that are on the bridge that are often blocked by debris from the upper lands and observed that the solution in the area was redesigning the bridge.

Mr. Inoue responded that the assessment of Mr. Miyoga as being right and that proposal had been factored in the master plan.

Mr. Owalla of Nyanza Youth Coalition wanted to know why there was lack of disaster preparedness in an area where disasters are rampant. He also wanted to know the quality of the community meeting as opposed to the quantity in terms of attendance. Mr. Owalla also questioned the entry strategy of VIRED to community via the provincial administration which according to him was not an all inclusive strategy because mobilizations done by chiefs often leave a bitter taste to many villagers. He also asked that Dr Raburu be specific on the number of people interviewed in terms of gender because of dynamics of each gender in responding to issues.

Mr. Joseph Ngome of HEMNET wanted to know if the measures suggested for intervention by communities were categorized in short-term, mid-term and long-term by the study team. He also questioned VIRED assertion that it could not buy refreshments for the community, when they had been paid to carry out the survey by JICA Study Team.

Mr. Maina of LVEMP asked Dr Raburu if he could explain to the Forum the interventions suggested by communities based on gender and in particular Chilichilla location. He also wanted to know what the training on livestock management an intervention in Chilichilla entailed. Mr. Maina also drew the attention of the Forum and study team towards a water project that had been initiated in Chilichilla by his organization but due to constraints of funds was not completed and he sought to be guided if the study could factor it in as one of the pilot project. He also expressed his disappointment to the fact that apart of Nandi South being the major catchments of Nyando Basin was left out in the pilot projects.

Mr. Ader District Agriculture Officer Nyando wanted to know why the presentations were so quite on the implementation of the CAP.

Ms Leah Onyango of Maseno University commented that pilot projects needed to be owned by the community to afford the projects sustainability. She observed that to make this a possibility there was need for the study team to work with groups and to avoid opportunistic groups she suggested that the study will be better f dealing with groups that are already established rather than facilitate formation of new groups. She added that it will do more good if the study team built the capacity of these already established groups.

Mr. John Mumbo of NEMA Nyando wanted to know if the master plan being drafted by the study team will be tabled in the Forum before being handed to the authorities concerned. He also wanted to know who will do the monitoring and evaluation of the pilot projects. He wanted also to know if the community survey report can be made available to members. He also questioned the biasness of Dr Raburu in commenting on the role NGOs played in the area when Dr Raburu himself was an interested player in the region because of strong influence of VIRED in the Lower basin of Nyando. He also commented that all the pilot schemes required environmental assessment and asked the Study Team to collaborate with NEMA so that the projects get environmental approval at the project stage.

Responses:

Dr Raburu responded by stating that there were no structures on the ground for disaster preparedness an oversight that villagers reap its havoc every time disaster strikes.

On quality of attendance Dr Raburu stated that all people of all ages and gender were invited and they participated and added that all inclusiveness in the meetings was a pointer to the quality of the meeting. He also explained to the Forum that issues of gender were

captured in the report and it was due time constraints that he could not elaborate. But he assured the Forum that gender dynamics were captured in the reports.

Dr Raburu was categorical that based on the task they were assigned to do the best entry point to these communities was the provincial administration and added that apart from mobilizing and being leaders and head of security in the areas the chief and assistant chief played very minimal role in the meetings save for their contribution as members of the village.

Dr Raburu also explained that the survey was participatory and solutions to the problems arising were suggested by the communities and VIRED only played a facilitating role.

On lack of refreshment to community during the survey Dr Raburu responded that it was not a shortcoming from either Study Team or VIRED but it was part of the paradigm in community development strategy in which community contribute in different ways and forsaking lunch so as to come up with intervention for communities was an indication on how these communities desire to see lasting interventions put in place.

Dr Raburu also explained that biasness was not an issue during the survey especially in determining the role institutions played in the village stating that the findings were not his speculation but were determined the communities using proved research tools.

In the case of Chilichilla Dr Raburu told the Forum that due to cultural dynamics the attendance of women was low but this did not stop those women who attended the meeting in raising issues they felt were pertinent in the community.

Ms Serena a VIRED Staff elaborated on the CAP done by Chilichilla stating that based on the priorities villagers of Chilichilla low income came out as the major issues and the intervention suggested by villagers was training in crop and animal husbandry. She also explained that women in Chilichilla were overworked with only one or two hours to rest in a day.

Mr. Maina of LVEMP explained that erosion in Chilichilla was due to cattle trotting as they are driven to watering point at the river and elaborated that based on this fact they had started the project so that the cattle could be watered at particular homes-points in the village. He added that the project was initially commenced at cost of 15000 dollars which was not sufficient to see the project to completion. He explained to the Forum that structures used in the first phase of implementation are still in place and if funds could be allotted to the project for completion, Mr. Maina felt that apart of the CAP of Chilichilla will have found fulfillment.

There was an attempt by Mr. Owalla to disqualify the chairman from chairing meeting because of his position as VIRED director general and Mr. Owalla felt that due to this premises the chairman was not able to facilitate the meeting fairly. This attempt was thwarted by members.

Mr. Gejo on his part stated that Chilichilla was selected because it was accessible and the level of river bank degradation was high and because of these two factors demonstrative effect at Chilichilla was to the maximum as opposed to other regions. He added that because of lack of sufficient funds the Study Team could not undertake the entire CAP prepared by communities but based on assessment on the effect on down streams areas amongst other factor were considered in selecting the pilot projects.

Mr. Gejo also explained to the Forum that monitoring and evaluation was going to be carried out by JICA Study Team in conjunction with WRMA and community. He also added that documents were available to any Forum member who wished to access them and added that all was needed to access the documents was a visit at JICA Study Team offices at LAVICTORS house in Nyalenda Kisumu and make a request and the documents will be made available.

Mr. Inoue on his part told the Forum that the Master Plan was being finalized. He added the master plan was divided into three phases and most of the works on the master plan had been finished and in the next Forum detailed measures on the master plan will be presented.

#### Further Questions, Issue Arising and Discussion on Presentations

Mr. Joseph Ngome asked to know why in Mr. Wairagu's presentation he kept on mentioning WRMA and NEMA and what was the relation of Mr. Wairagu and WRMA and also what was Mr. Wairagu role in the Study.

Mr. Wairagu responded by stating that NEMA was the legal regulator of E.I.A in Kenya and therefore his mentioning of NEMA in almost every sentence he uttered was to recognize NEMA with honour it deserved. He went further to state that he was the environmental specialist to the study team and as part of his role he is tasked with ensuring pilot projects are cleared by NEMA. He added that E.I.A are not possible to be done on the master plan but environmental concern can and will be amplified.

Vice-chairman Hon Aloo Ogeka expressed his sentiments that during the previous Forum meeting the pilot projects were being discussed at the level of sub-location and location and asked to be told what had necessitated the projects too be reduced to the level of villages and if there will be any tangible impact of these project at village level. He also stated that there was no feedback mechanism between the National Committee and the Forum. He added that one of flood mitigation strategy was dam construction and several dams site had been suggested at different locations and asked the WRMA C.E.O to confirm to the Forum if KORU DAM had already been approved and it was now at performance contract with WRMA.

Mr. Gejo explained that the scale of pilot projects was determined based on budget availability of funds. He went further and explained the objectives of pilot projects was to observe if the community driven projects were a possibility and if they can be successful so as further implementation may be done of similar structured projects.

Mr. Ngome of HEMNET stated that the assertion of Vice-chairman ascertained what he had suspected all along that the Forum members were "leg men" and the real action was in Nairobi and called for further clarification. He added that village committees were not effective tool as proponent of the projects and since the Study Team were constrained by funds, Mr. Ngome wanted to know to what level was the community involved in their input as stakeholders especially in terms of finances. He also asked the Study Team to participate and interact with these organizations with an intention of enhancing their capacity.

C.E.O of WRMA Mr. Patrick Oloo in his response stated that the study was a government of Kenya initiative sponsored by Japanese government. He gave a brief history leading to the partnership of the two governments explaining that the government of Kenya wanted a master plan for Nyando Basin and with knowledge of JICA's ability of drawing very good master plans, the government of Kenya approached the government of Japan for funds and as a result the JICA study team on integrated flood management in the Nyando Basin. He explained that in 1992 JICA did a study in the basin and came up with very good recommendation but unfortunately there was no follow up.

Mr. Oloo further explained that the zoning of water bodies into Lake south, Lake North and Tana zones has improved efficiency.

He told the Forum that the client of the project was the government of Kenya and therefore all the reports are to be handed to the relevant government authority. Though he added that the members of the Forum who wanted to view the reports they were free to request the Study team to give them raw drafts.

The CEO explained that it was the stakeholders that saw the necessity of the Forum and out of that meeting the conception of the Forum was done.

He explained that incomplete project in Chilichilla was outside the mandate of the Study Team and the only thing that could be done was for the regional manager of WRMA to take up the issue with C.E.O of LVSB and discuss it with him and see ways of salvaging the project.

Mr. Oloo also explained that there are projects that demands more than bilateral partnership and extend to multilateral partnership especially through the World Bank. He gave the example of construction of dams and stated that these was high investment project that needs world bank funding to construct and gave an example of the proposed Dam in the Trans Nzoia Basin which is sponsored by the World Bank and has incorporated a similar group like the Forum as stakeholders.

#### 2.8 Chief executive officer of WRMA response on emerging policy issues.

The Chief Executive Officer of WRMA Mr. Patrick Oloo began his presentation by expressing his appreciation of the opportunity of attending the Forum meeting. He told the members that out of their contribution, he had learned a lot.

In his presentation Mr. Oloo addressed the issues on roles and institutions in water sector. Elaborating on WRMA, he stated that it was a regulatory body mandated with management of water as a resource. He explained to the members that Water Act 2002 allows WRMA to plan for water and management. He stated that in near future Ministry of Water will release water management plan which six water catchments will be included. He added that Lake Victoria catchment was the responsibility of the WRMA regional office. He explained to the Forum that in catchments there are sub-catchments which fall directly under the people living in the basin, he challenged members of the Forum that as people living in the basin and by extension members of the Forum they had the responsibility of planning for the sub-catchments.

He told the Forum that as a result of Water Act 2002 many projects on water were coming up and most of which had attracted government funding. He added that these projects are divided into two: Community Schemes and State Schemes. Elaborating on Community Schemes, Mr. Oloo stated that community scheme could get government funding for community to implement and own them.

Mr. Oloo also explain in his presentation that Policy Paper on the above schemes had already been completed though it has not been released yet because there was a slight oversight during its drafting which was being corrected. He added that this policy paper will give a clear guide on the institutions and management of the above mentioned schemes. He went on further to clarify that the policy paper will make clear who is the proponent and who will monitor the projects and will clearly define the roles of each institution in the above mentioned schemes.

The C.E.O posed a question to the Forum asking them who should remove the debris that block R Nyamasaria at the bridge so as to avert the impending calamity of floods? He questioned who was responsible the Ministry of Roads and Public Works? Ministry of Water and Irrigation? Or regional office WRMA? Or the community?

He further clarified to the Forum that JICA Study Team was on the ground to carry out a study with aim of drawing a master plan and not to implement projects. Because of this objective community contribution was important in facilitating the pilot projects. He added that for this to be possible there was need of identifying members of the community that

were committed to the task and are ready to pay the price even if it is a day without lunch to ensure the success of the project.

He also called for an all inclusive and participatory monitoring and evaluation system and asked the Study if it can accommodate two or three members of the Forum to do so. He commented also on the issue that members had raised on the proposals in CAP, stating that all proposed projects would not be undertaken but all will be captured in Catchments Management Strategies.

On dam issues that the members had raised Mr. Oloo explained that its construction was beyond government as at that moment and needs donor funding. He explained to the Forum that such high cost structures goes beyond technical level and are handled at inter-ministerial levels.

Questions Arising:

Mr. John Mumbo of NEMA requested that drafts of the Master Plan be made available to a member who wants to access it. He explained that wants the documents is with authorities at the headquarters it will be very difficult to access it.

Mr. Oloo accepted the request and asked the Study Team to allow members of the Forum to access the drafts.

Vice-Chairman Hon. Aloo Ogeka stated that the Forum was an integral partner of WRMA and yet it remained amorphous. He added that there was need to elevate the Forum into a structured organ it deserves to be.

Mr. Oloo applauded the idea citing an example of Lake Victoria North catchments where an organization of similar nature to the Forum had been incorporated in the World Bank sponsored project in the area.

2.9 WRMA Regional Manager Ms Abira:

Ms Abira began her address by first thanking the members of Forum for attending and participating in the meeting. She also thanked the C.E.O for gracing the Forum meeting by his very own individual attendance.

She explain to the Forum that due to many issues that were arising she had thought it wise to invite the C.E.O to address some of these issues and she added that she was happy that this task the C.E.O had successful accomplished.

Ms Abira explained to the Forum that it was statutory requirement for WRMA to involve stakeholders. She added that more meetings were coming up in which members of the Forum will invited in their individual capacity (Based on the organizations they were representing) and the meetings will be categorized in Lead Agency, NGOs and CBOs and WRUAs.

She assured members that in the catchments management plan, all the stakeholders will be involved though also at different levels

She concluded by emphasizing that the pilot projects were important and every lesson learned during implementation and monitoring and evaluation will be factored in and reflected in the Master Plan.

2.10 A.O.B

Mr. Miyoga wanted to know from the study team when Mr. Wairagu's presentation on upper catchments will be re-done as it had been promised to the Forum.

*Minutes of Meeting*  
*5<sup>th</sup> Forum*

Mr. Gejo responded by stating that Mr. Wairagu's presentation will be re-done in the next Forum meeting.

Mr. Lucas Owino of River Nyando WRUA explained that it was possible to bring to an end the flooding menace of R Nyando. He gave an example of R Yala and how government using excavators opened up the river course and ever since this intervention was done R Yala does not experience floods.

2.11 Closing Remarks:

The Chairman thanked members for attending and participating actively in the meeting. He thanked the C.E.O for endowing the Forum with his attendance and presentation.

The Chairman stated that as the tradition had become of asking Mr. Gejo to make the final remarks before prayers are made to close the meeting.

Mr. Gejo on his part invited members for lunch.

Mr. David Dulo of VIRED made the closing prayer. The meeting drew its curtain at 3:20 P.M

END

The Sixth Official Meeting  
For  
Nyando River Basin Water Management Forum

Date: 29<sup>th</sup> June 2007

Place: At Conference Room, Tom Mboya Labour College, Kisumu Kenya

**1. IN ATTENDANCE**

No.	Names of Participants	Organizations From
1	Okeyo Owuor	Chairman Forum
2	Odoyo Julius	River Nyando WRUA
3	Peter Mwangi	District Office Nyando
4	Patrick Meya	WRMA-Nyando
5	Joseph Kimani	Ainapnetuny W R U A
6	Dorcas Ojwang	Kano Plains Water Resources Users Association
7	Joseph Agunda	CARE Kenya
8	Rose Asamba	SANA International
9	Lucas Owino	River Nyando WRUA
10	Leah Onyango	Maseno University
11	Gordon Kojo	IDCCS
12	John Chirchir	Kipkvesi Water Users Association
13	Dan Ong'or	UHAI Lake Forum
14	David Dulo	VIRED International
15	Joyce Olando	Ombeyi Kwe Women Group
16	Gordon Kojo	IDCCS
17	Rueben Dienya	WRMA
18	Willis Memo	WRMA
19	William Okello	WRMA/LVSC
20	Athumani Mankanji	WRMA
21	L.K. Kiplagat	Ministry of Water and Irrigation
22	Adhiambo Lomo	Okana Mbega Water Users Association
23	Dan Asaka	Red Cross Nyando
24	Gidieon Miyoga	LVEMP
25	Francis Wadegu	World Vision
26	Vincent Orayo	Kano water users association
27	Geoffrey Wekesa	LBDA
28	John Mumbo	NEMA
29	Joseph Ngome	HEMNET
30	Evans Agola	Awach Kano WRUA
31	Leah Onyango	Maseno University
32	Owallah Chris	Nyanza Youth Coalition
33	Nicholas Omondi	Osienala
34	Yuki Ishikawa	JICA Study Team
35	Tetsunari Gejo	JICA Study Team
36	Mr. Inoue Yoshikimi	JICA Study Team
37	Mr. Hayakawa Tomoyo	JICA Study Team
38	Ms Abira Margaret	Regional Manager WRMA
39	Mr. Francis Mutuku	Agrochemical Company



40	Eng. J.M. Kinyua	WRMA Nairobi
41	Mr. Ishiwatari	JICA Tokyo (in attendance)
42	Mr. Saheki	JICA Tokyo (in attendance)
43	Mr. John Ndung'u	JICA Kenya (in attendance)
44	Mr. Matsumoto Sadakazu	JICA Study Team
	Absent with apology	
45	Hon. Aloo Ogeka	Vice-chairman

## 2. MEETING:

2.1 The meeting commenced at 10.15 a.m. with a word of prayer. Mr. Willis Memo then relayed the Chairman's apology to the Forum. He explained to the members that due to unavoidable circumstances the Chairman was going to be late for the meeting. Mr. Memo further explained that due to the absence of Vice-chairman the members of the Forum were mandated to elect a temporary Chair who was to stand in for the Chairman until he comes in. Mr. Francis Mutuku was elected the temporary chair. In attendance to the meeting were JICA Advisory Team from Tokyo and Nairobi.

2.2 The temporary chair then led members into a session of introductions in which members stated their names and the organizations they represented in the Forum. After the introductions of members, Dr Abira the Secretary of the Forum introduced Eng. Joseph Kinyua Operations Manager WRMA headquarters who was attending the Forum for the very first time. In the opening remarks Mr. Ishiwatari the mission leader of JICA Advisory Team stated that his team had visited the pilot projects sites and added that he was optimistic that these pilot projects will be of help to the community. He also stated that the opinion of the Forum members was vital because these opinions will be factored in the master plan.

2.3 The Chairman Dr Okeyo arrived at 10.40 a.m. and assumed the Chair from the temporary chairman Mr. Mutuku. He thereafter communicated his apology to the Forum for coming in late for the meeting. He then went further and called JICA Study team to present the Interim Report to the Forum.

2.4 Interim Report- Mr. Inoue and Mr. Gejo.

Mr. Inoue took the members through the first half of the paper titled, "Interim Report," in which he discussed the outline nature and plan of the structures and non-structures measures being proposed namely dykes, desiltation of rivers, water pans and small weirs for structure measures and on non-structures measures he elaborated on flood management cycle analysis. He further stated that the success of the implementation of the proposals will be based on how the government, organizations involved and the community will interact towards achieving this end. On priority schemes Mr. Inoue numbered them as i) Strengthening existing dykes ii) Network of evacuation routes which will include raising up of National Roads and Secondary Roads iii) Capacity development of Community Driven Flood Management Organizations and iv) a hydrological monitoring system.

Mr. Gejo discussed the remaining part of the paper "Interim Report," entitled Pilot Projects. He explained the objectives of the pilot projects being undertaken, how the pilot project site were selected and what projects will be undertaken in each site of the pilots. He further clarified that key approaches employed in the pilot projects were main keys that were

being proposed to be employed in the master plan. He explained to the Forum how the non- structure measures were going to be carried out. Mr. Gejo also explained to the Forum that the Project Management strategy had already been outlined in the MoU which some communities of the pilot projects sites. He added that monitoring and evaluation will be done in 2008 January and February and April and May in which five members of the Forum will be invited to be part of monitoring and evaluation team. Mr. Gejo also stated that there will be training for WRMA and after which the Master plan will be finalized in mid-July including the implementation plan that will then be forwarded to donors including the Japanese Government.

#### 2.5 Discussions on the Interim Report:-

- Mr. Mumbo of NEMA sought to know how the protection of the riverbanks will help in flood management and the relation between the two issues vis-à-vis the study. Mr. Mumbo was also curious about the earlier on elaborated Japanese traditional measures on flood management that had been indicated in the previous Forum that they might be considered for adoption in the pilot projects especially the ring dykes that looked so impressive
- Mr. Ngome of HEMNET inquired about the peculiarities of environment between Nyando and Japan and based on these peculiarities if the proposed implementation were relevant in the Nyando adding that when he visited Japan he did not see rivers. He also wanted to know the dashes indicated on the schedule of implementation paper connoted lack of money.
- Ms Leah Onyango of Maseno University wanted a clarification on the said training programmes that were going to be carried for WRMA if they were being collaborated with an institution or just JICA Study Team and she wanted also to know if after the trainees' had undergone the training if there will be issuance of certificate and from which institution.
- Mr. Kojo of IDCCS wanted to know if the study was collaborating with relevant ministries on the ground like the Ministry of Health in the implementation of the pilot projects. He also listed issues he felt were not captured in the Interim Report and were of great importance like zoning of river channel, development policy and issue of alternative land users.
- Mr. Kiplagat of Ministry of Water and Irrigation observed that the report did not capture irrigation and yet according to his observations it was one of the ingredient of development in the area given that the area only experience floods once or twice a year but the area experience draught more often and he added that if a policy is established of harnessing and harvesting this flood water then during the dry spell the water can be re-channeled to farms via irrigation.
- Mr. Mutuku of Agro-Chemical expressed his concern on the migratory nature of the R. Nyando averaging in the range of 8M per year. He added that various companies in the basin have invested much money in attempt to cope with this phenomenal of the river but in vain. He asked the JICA Study Team what was there expert opinion regarding this problem.
- Mr. Francis Wandegu of World Vision observed that in the Nyando basin most evacuation centers are informal set-ups and given that now JICA Team was constructing an established Evacuation center in Kokwaro village which had the potential of leading into an influx of refugees seeking shelter there thus over-crowding. He therefore wanted to know if there was a mechanism to counter such an influx incase such a scenario arises. He also wanted to know if other villages will get an

opportunity of witnessing the construction of the evacuation center and as a result replicate the same kind of facility in their own villages and sub-locations.

Responses:

- Responding on issues of riverbank protection vis-à-vis flood management, Mr. Gejo stated that one of the reason that rivers floods was the increased sedimentation in the downstream areas and the riverbank protection was aimed at reducing soil erosion. He added that Chilichila was selected for pilot because it is strategically placed and therefore it has tremendous demonstrative effect. He added that Odesso was a result of the CAP as was suggested by the community. Mr. Inoue on his part stated that the ring dykes proposed in the previous Forums were considered in the master-plan but because they are long-term measure structures in terms of implementation while the pilot project zeroed in on short term measures only.
- Mr. Gejo assured the Forum that in the last Forum meeting the community survey was presented by VIRED but in the next coming Forum meeting each participant was going to be issued with the document on the Community Survey Report that was presented by VIRED. He added that in terms of environment the Japan Experience Presentation by the WRMA was going to address most of the concern. Mr. Inoue on his part stated that in Japan dykes are constructed in a view of 100 years floods while Nyando constructs in a view of 10 years floods. He added that in Nyando most people do not build along the riverbanks but in Japan people have build along the riverbanks making it potential dangerous when it floods. On the same issue Dr Abira clarified that Japan has huge and vast rivers compared to Nyando yet most of these rivers have been tamed and the danger minimized.
- On issue of training Mr. Gejo explained that the training was being done in collaboration with World Hydrological Organization but the issuance of certificate will be done by JICA Study Team.
- Concerning issue of involving Ministry of Health Mr. Gejo explained that since the study team was involved in flood management the Red Cross who have experiences in rapid response in such areas and possess strong health and medical background were suitable counter parts when it came to things relating to health vis-à-vis. He added that on policy issues the established CAPs by the communities in these areas can be used to influence policy direction in the region. On issue of small dams and irrigation Mr. Gejo told the Forum that NIB was carrying out some irrigation efforts in the area including a site of pilot project i.e. Kasiru village Kore sub-location .
- Mr. Inoue on his part stated that floods were more serious in the lower catchments than in upper catchments and therefore most efforts were being directed in the lower catchments. He added that as opposed to the lower catchments, upper catchments CAP was mainly on soil-erosion and livestock management. He also added that the entire CAPs of the communities cannot be realized but the capacity building and proposal writing training will play a crucial role in empowering the CBOs on developmental issues and towards realizing these CAPs.
- Mr. Kinyua stated that efforts of stopping R Nyando from migrating were futile because R Nyando will only flood within its flood plain therefore what needed to be done was identify the flood plain and leave the R Nyando to its own disposition within this flood plain.

2.6 Role of WRUA for future expansions by Mr. Memo.

Mr. Memo began this discourse by first looking at WRMA vis-à-vis sustainability of pilot projects focusing mainly after the departure of JICA Study Team. He stated that the only

way WRMA can enter into these communities was via WRUAs which he described as organization formed by community at the household level.

He added that WRUAs are established under the law as provided in the constitution of Kenya and are registered by registrar of society. He explained that there was no room for WRUAs to become amorphous as the case of most of the organizations registered by Social Service Office. Mr. Memo observed that this makes these organizations more accountable and transparent. He also explained that membership of these WRUAs was voluntary and based on common problems bothering the members seeking solutions and ways of bettering their lives. Mr. Memo also elaborated on the requirements that needed to be fulfilled by these WRUAs in order for the organizations to be registered. He also told members that so far there are three WRUAs in Nyando Basin i.e. Kano plain WRUA, River Nyando WRUA and Kibos WRUA. He further stated that a WRUA are expected to sustain themselves with members' contribution and also to provide start up capital project portfolios for funding.

Mr. Kinyua on his part elaborated the principle behind WRUAs and their importance in implementing of water resource projects. He explained that WRMA being a regulator and not an implementer can only get an entry point to communities through WRUAs. He added that under the guidance of regional manager WRUAs are able to mature and nurtured into organizations with capacity of implementing water resource projects. Mr. Kinyua also explained that there were a negotiations going on concerning the MOU that was on the verge of being signed between the CEO of WRMA and CEO of Water Service Trust Fund in order for WRUAs to access the Trust funds.

Discussions on WRUAs for future expansions.

- Chairman appreciated the principle behind WRUAs and commented that WRUAs were in themselves the end of the studies because if WRUAs have capacity to implement then they should be learning how during the implementation of pilot projects. He added that WRUA was a way forward in the water resource management. He went further to ask if WRMA had taken into consideration the eventuality of overlaps of WRUAs in the stake and conflict of membership. He also wanted to know what was the size of a WRUA and what measures are in place to minimize conflict in terms of membership
- Ms Leah Onyango sought to know the capacity of these WRUAs and their effectiveness in handling the tasks outlined for them.
- Mr. Dulo of VIRED International inquired if there were efforts being done to link pilot projects to the WRUA given that there was an ample opportunity for these WRUAs to learn via the pilot project being carried out by the study team.
- Mr. Owallah of Nyanza Youth Coalition questioned the ability of the WRUA to report people it perceived were polluting or abusing water resources.
- Mr. Kojo wanted to know if it was possible to establish a WRUA within same geographical area there is an existing WRUA bearing in mind that the WRUAs in the Nyando basin have taken up names that give them a vast area of coverage.
- Mr. Lomo of Okana Mbega Water User Association asked if there was collaborations between WRUAs and other organizations established around them like water users association and Agricultural soil users associations. He also sought to know when the WRUAs were established and why the official of these WRUAs have not come out to be known by the communities and tell the people what exactly they do.
- Mr. Ngome questioned if WRUAs are creation of old and have been inactive or if they are new creations that have come as a result of Water Act 2002.

- Mr. Dan Ong'or of UHAI Lake Forum observed that if the formation of WRUAs was left for registrar per se there was bound to be a mistake that can bring conflict amongst WRUAs and he therefore requested WRMA to play a role in vetting these organizations. He also observed that the intention of other people to establish WRUA could be motivated by money and not the hydrological make ups of an area and therefore some of the WRUAs could be potential dangerous if not well monitored. He also wanted to know the studies being carried out by the study team and another one by Ministry of Water both aiming at master-plans if this was not a recipe of duplicity of efforts.
- Mr. Wandegu sought for a clarification on the relation between water service board and WRUAs.

Responses:

- Mr. Memo responded that WRUAs are set to benefit from the demonstrative efforts of the Study Team because currently the CBOs in these areas are being encouraged to link up with WRUAs operating within their localities. He further added that 4 meetings had already taken places in efforts of linking the WRUA with the CBOs
- Mr. Memo also explained to the Forum the registration of WRUAs will be done by registrar of society and the constitution of these WRUAs will be thoroughly scrutinized and therefore the issue of overlap will not arise.
- In explaining the differences in the WRUAs in Nyando basin Mr. Memo stated that while Kano plains WRUA was concerned with small rivers and streams, R. Nyando WRUA which is divided into 3 sections the upper, middle and lower section of the R Nyando deals specifically with R. Nyando.
- Mr. Memo also told the Forum that WRMA was in the process of training the WRUAs and builds their capacity.
- Mr. Kinyua responded that WRUAs are set up as a response to common problems and therefore this commonness of interest eliminates overlap. He urged members to view WRUAs in the light that they are not established for WRMA but they come up as a result of common interests of these members of community. Mr. Memo expounding on the same issue stated that WRUAs are formed by communities and only one WRUA is required by law to deal with a particular water resource and this eliminates overlaps.
- Mr. Memo also explained to the Forum that WRUAs were not a myth but a reality with even representation in the Forum. In explaining the genesis of WRUAs Mr. Memo stated that at first WRUAs were established in Mt Kenya region as a result of continuous conflict by communities over water resources and the success of these WRUAs in conflict resolution informed the water reforms towards this end.
- Dr Abira on her part stated that based on the reaction of members of the Forum on issues concerning WRUAs it will be prudent if a workshop is organized specifically for WRUAs discussion. She went further to assure members that WRMA was going to organize a workshop for WRUAs and Forum Members will be invited to attend. She also clarified those who know the problems are those who face these problems day in and day out and these are the people who have established the WRUAs not some elites in town but the communities who experience different problems posed by water as a resource and human activities around these water resource environs. She added that it was important to clarify who can be and who cannot be a member of a WRUA.
- Dr Abira also clarified the difference in the master plans being aimed at first by the study team and the other by the ministry of water. She explained that while the study team master plan was limited to floods the water-shed catchments plan aimed at

dealing with a wider area that makes even the integrated flood management master-plan a subsequent of the water-shed and catchments master- plan. Dr Abira further clarified that the master plans are being drawn for purposes of implementation not only by concern ministries and bodies but even by relevant stakeholders. She challenged the Forum that as stakeholder they should take up the plan look for funds and implement one of the projects proposed.

- Mr. Ishiwatari observed that WRUAs were still at the concept stage and there was a lot that still needed to be done. He stated that the main concern of JICA was the sustainability of these pilot projects and therefore it was crucial to identify who will do what and when will it be done i.e. a clear specification of duty of what WRMA will do, what the community will do and what JICA Study Team can do to support them.

#### 2.7 WRMA Japanese experience by Mr. Willis Memo.

Mr. Memo narrated to the Forum the experiences they (four WRMA staff) encountered in Japan. He described the rivers in Japan and how most of them have been managed such that their disaster potential dramatically reduced. He expressed admiration to a people who refused to be mastered by nature but by knowledge and severe determination have managed the versatile rivers. He also said that he was also impressed by the traditional methods employed to manage floods giving examples of the rivers and strategy employed. He also described the community participation through the e-community platform whereby information is shared. On experiences and lessons learnt Mr. Memo stated that he was very impressed by the emperor decree the middle ages policy that helped so much in managing the floods whereby people were forced to work on structures for flood mitigations. He further added that the early warning system in Japan was very impressive. Also Mr. Memo said that he was impressed by efforts done in distribution and redistribution of river water that included re-channeling of water back to the river and therefore water as resources was not wasted but rather managed well. And finally Mr. Memo said that he was impressed by the architectural designs of homes constructed in the flood prone basin. He described the houses as raised high above i.e. the houses are built after the land had been raised above the inundation water height.

#### Discussions:

- Mr. Ngome wanted to know if implementing the traditional Japanese methods was pegged on availability of money.
- Mr. Dulo observed that the Japan success story lies in a government that led by example and was always in the forefront and he further stated that if such enthusiasm is embraced by Kenyan government of the day then certain measures for flood management can easily be implemented. The Chairman asked members not to turn the Forum into a campaign platform and the Forum should be cognizant of modern times where by outdated methodology like Emperor Decree which is principally tied in benevolence of a dictator should be rejected.
- Mr. Kiplagat encouraged the Forum to be in the forefront in advocating for small dams construction that can enable the communities to tap the flood water and use it for irrigation during dry spell.
- Ms Orlando of Ombeyi Kwe women group urged members to view the issues being discussed not from the elitist point of view but rather victim of floods point of view because these victims of the flood are villagers most of whom possessed very minimum level of education and this factor does not rule out the fact that they know much about the floods and measure needed to be taken to counter the floods because they are the ones who live and are on the ground. She added that more often the flood

waters come and cause havoc and then depart leaving most villagers with nothing and still the droughts also come and ravage the villagers and therefore the idea of the small dam to harvest the flood water should be supported.

2.8 A.O.B.

- Mr. Lucas Owino of R Nyando WRUA observed that in the floods of early this year there was vast damages and four people were killed but the government did nothing to the communities in these areas and only his WRUA was there to visit the victims with no help at all apart from the moral support they offered. He also asked WRMA to assist WRUAs in mobilization and sensitization effort in the region.
- Ms Leah Onyango stated that the idea of workshop for WRUA was noble and requested that the workshop should be used to clarify the effectiveness of WRUAs, inclusiveness and exclusiveness of WRUAs, capacity of membership and modalities of membership.
- Mr. Miyoga referring to the previous meeting where WRMA had asked the Forum for time to consult and weigh whether they can add a token on the attendance allowance.
- This matter of allowances was clarified by WRMA regional manager that there was no need for consultation because the government had a clear cut policy on this allowances. Therefore she told the Forum that there will be no addition of allowances.
- Mr. Ngome asked the Chair on the progress of registering the Forum and making it autonomous from the Study Team such that the Forum can hold its on meeting, set up its on agenda and calendar.
- The Chairman explained to the Forum that the process was on going and no sooner the vice-chairman comes back then a clear outline for the process will be tabled in the Forum for deliberations.
- Mr. John Ndung'u of JICA Kenya observed that it was a good thing to see an idea being turned into a strong body with capacity to implement. Explaining his statement he observed that he was around when the Forum was just an idea but he has returned back to find that idea is now a constituted Forum in process of registration. He urged members to be steadfast in their endeavors. He added that pilot projects should be viewed as means to an end and never an end in themselves i.e. they should be an avenue for community to learn and replicate the same in other areas. He also urged WRUAs not to over concentrate on floods but also formulate other developmental agenda in the area.
- Mr. Ishiwatari in closing remarks observed that Forums were not one of the easiest things to be hosted in Japan because of the acrimonious atmosphere they tend to generate but he was happy with how Nyando Basin Forum was conducted and the manner in which issues were raised and ironed out.

2.9 The meeting closed at 2.15 P.M. with a word of prayers and members dispersed for lunch.

END

The Seventh Official Meeting  
For  
Nyando River Basin Water Management Forum

Date: 31<sup>st</sup> October 2007

Place: At Conference Room, Tom Mboya Labour College, Kisumu Kenya

**1. IN ATTENDANCE**

No.	Names of Participants	Organizations From
1.	Okeyo Owuor	Chairman Forum
2.	Odoyo Julius	River Nyando WRUA
3.	P.B Khaoya	Ministry of Agriculture Nyando
4.	Patrick Meya	WRMA-Nyando
5.	Joseph Kimani	Ainapnetuny W R U A
6.	Dorcas Ojwang	Kano Plains WRUA
7.	Nakitare E. Ojiambo	CARE Kenya
8.	Francis Wadegu	SANA International
9.	Lucas Owino	River Nyando WRUA
10.	Paul Rono	Mbogo River WRUA
11.	Ruth Achieng	KANO Plains WRUA
12.	John Chirchir	Kipkvesi Water Users Association
13.	Michael Oduor	UHAI Lake Forum
14.	David Dulo	VIRED International
15.	Joyce Olando	Ombeyi Kwe Women Group
16.	Jane Omollo	R. Nyando WRUA
17.	Patrick Khisa	WRMA
18.	Willis Memo	WRMA
19.	Peterlis Opango	WRMA/LVSC
20.	Arshal M Ogembo	WRMA
21.	Joshua Osio	WRMA
22.	Dishon Olufu	WRMA
23.	David Kithale	Ministry of Agriculture Kericho
24.	Adhiambo Lomo	Okana Mbega Water Users Association
25.	Meshack O. Mumbo	Red Cross Nyando
26.	Daniel Obuon	Rabuor Water Project
27.	Abuya F Richard	Kibos WRUA
28.	Richard Ouma	Rabuor Water Project
29.	Geoffrey Wekesa	LBDA
30.	Mr. Francis Mutuku	Agrochemical Company
31.	Francis Owuor	Awach Kano WRUA
32.	Owallah Chris	Nyanza Youth Coalition
33.	Nicholas Omondi	Osenala
34.	R.O Nyaroo	Ministry of Agriculture Nandi/Hills
35.	Atela Joanes	KARI-WKIEMP
36.	Samuel M. Obago	KARI-WKIEMP
37.	John Ocholla	Nyarombe- Futures
38.	Vincent Oroyo	Kano plains WRUA
39.	Stella Wanjau	ADRA Kenya- Kericho
40.	Yuki Ishikawa	JICA Study Team
41.	Mr. Inoue Yoshikimi	JICA Study Team



## **2. MINUTES:**

### **2.1 Introductions of Members by Chairman**

The meeting commenced at 10.15 a.m. with a word of prayer. After which introductions of individuals who were attending the Forum for the first time (as representative of particular organizations that are part of the Forum) was done. The meeting was chaired by Prof. Okeyo the Forum chairman.

Opening Remarks: Mr. Khisa made the opening remarks on behalf of the Regional Manager. Mr. Khisa began his speech by first sending the WRMA Regional Manager apologies stating that she was in Nairobi on official duties. Mr. Khisa went further and apologized for coming into the meeting late. Mr. Khisa thereafter addressed the following issues:-

- a) IFM projects: - He stated that the progress of the projects was on course. He clarified that the draft master plan was already out whose components included the structures and non structures measures. He emphasized that draft plan was going to be used by WRMA to solicit for funds for its implementation which includes building of dams and defining riparian land use.
- b) Mr. Khisa stated that the stakeholders' role was very much appreciated and congratulated JICA Study Team for involving the stakeholders in the study. He further pointed out that the aspect of Community Participation which the Study Team was employing was a major boast towards ownership of the projects by these pilot communities.
- c) Mr. Khisa further explained that the 5 pilot projects were not an end by themselves but mere pilots. He added that bigger projects were going to be carried out once funds were available. He went further to stated that the monies could be accrued from World Bank or JICA.
- d) Mr. Khisa explained to Forum members that WRMA intends to tie WRUAs to river boundaries and other water resource channels. He further clarified that WRMA had already signed an MOU with Water Service Trust Fund (WSTF). Mr. Khisa pointed out that this MOU was an open door for WRUAs to write proposals for their projects from WSTF

Mr. Inoue in his opening remarks pointed out that the Draft Master Plan was divided into three;

- a) Government help (which comprises both structured and non structured measures) which needs huge investment in terms of monies. He clarified that Ministry of Water and Irrigation had already submitted the proposal for funds.
- b) Mutual help which implies that the community is assisted by government and donor community to achieve the proposed projects,
- c) Self help which implies that the community comes up with projects that they are able to do and manage by themselves. Mr. Inoue explained that currently there were 5 communities that were being engaged in the piloting and 4 of these projects were being done in the lower basin. He further gave a brief description of the works that are being carried out in the villages. He added that the Workshop of 9<sup>th</sup> October 07 the pilots were explained in depth. He explained also that during this

workshop the Japanese experience by WRMA was also narrated through a power point presentation.

Mr. Inoue also explained that Forum meeting that was being held was purposed to deal with WRUAs as indicated in the agenda.

Chairman in his remarks urged the forum members to visit the sites and witness what was being done and replicate these pilots where possible at their various locations.

Mr. Lucas of River Nyando WRUA stated that the programmes needed to be expanded. He suggested that more boreholes needed to be drilled in the area, evacuation centres constructed and health facilities established in the area.

## 2.2 Explanation of the WRUA by Mr. Willis Memo

Mr. Memo began his presentation by first introducing the WRUA and the officials of these WRUAs that were present in the meeting.

Mr. Memo defined what WRUA was all about. He explained that a WRUA was a “Local body set up for by water uses to enable community to participate in the management of water resources”

He went on further to make a case for WRUA. He stated that the Government earlier on was more interested in water provision services and this aspect led to poor management of water resources, failure to attract and retain manpower, poor service delivery and dilapidated infrastructures. These problems arose a need that led to WRUA as a way forward policy to be established in the legislation in the reformation of the water sector.

Mr. Memo stated that another need for WRUA was in resolving conflicts among communities that are frequent in attempt to control and protect the water resources.

Mr. Memo further explained the linkages between WRMA, CAACs and WRUAs. In explaining the membership of WRUA Mr. Memo stated that WRUA can encompass various interest groups, he added that a WRUA can comprise pastoralists, farmers, industries. Mr. Memo also pointed out that in WRUA gender consideration was important and was keenly addressed as a policy issue whereby gender parity is catered for.

Mr. Memo also addressed the roles of WRUA which includes monitoring of water availability and use, supporting in data collection and maintenance of water resource stations, promote good water management practices, exchanging information and ideas on water resource use, promote water conservation practices, Promoting water projects to alleviate poverty, and resolving conflicts on water resource use

Mr Mutuko of Agro-Chemical Company stated that it was important to protect the River Banks especially on Nyando River because of the migratory nature of the river. He added that the companies in Muhoroni were threatened by imminent closure if this river tendency is not taken care of. He stated that two companies that were major employers in the area agro-chemical Co. and Muhoroni Sugar Co. were being affected by the migration of the River Nyando.

On Coverage and geographical extents Mr. Memo explained that WRUA were formed based on:

- a) there is a common a problem
- b) river zoning- for management-less than 20 KM

c) concentration of water points

On Rules and Regulations, Mr. Memo stated that WRUA were required to be registered with the Registrar of societies (This enables that particular WRUA to be recognized as legal entity) or with the Ministry of Social Services (This enable the WRUA to be recognized only as a community based organization but with little legal clout)

On Sustainability of the WRUA Mr. Memo explained that there were channels in which the WRUA could be self-sustainable, he further gave example of:

- a) Membership fee and contribution
- b) To provide start up capital-project portfolios for funding
- c) Sign an MOU with WRMA (talks of funding cycle)- draft rule for WRMA are already gazetted

Mr. Memo further clarified that WRMA works only with WRUA on the basis that they are recognized institution.

Mr. Memo further stated that WRUA was the contemporary mechanism for catchments management.

Mr. Memo stated that the Forum needed to find ways of joining an existing WRUA or form itself into a WRUA as a way forward fro the Forum or face an imminent death with the departure of JICA Study Team. Memo added that his take was that the Forum should take up the challenge of relating with a WRUA or operate as a WRUA.

Questions and comments

Mr. Mutuku wanted a clarification on the meeting point of local farmers trying to link with factories without feeling threatened by the latter and where the starting point of such an activity was.

Chairman of Kibos WRUA wanted to know if the concentration of locals at the water point could warrant the formation of a WRUA

Mr. Lucas of River Nyando WRUA sought a clarification on the membership charges to that the factories and industries should pay for membership if they are allowed to be members of a particular WRUA. He also pointed out that some clans in the area were reluctant to join the WRUA and yet they were stakeholders by virtue that most of these clans neighbour the water resources in question.

Mr. Khisa of WRMA in clarification explained with an example of Nzoia River whereby the three big companies in the area joined hands to form an organization that has done much in the area and has incorporated the local community in this venture. He challenged that the same be done in Muhoroni whereby the Agrochemical joins link with Muhoroni Sugar Co and Municipal council and the Irrigation Board to form a WRUA as an umbrella body to manage the affairs of water resource in the area.

On concentration of water pans in a locality Mr. Khisa explained that these can be resolved by water pans forming committees which in return form a WRUA that will be then mandated to protect and take care of the water resource in the area.

Mr. Memo explained that in the WRUA set up there was “no us and no them”. He added that all members of WRUA are to be defined by the WRUA’s rules and regulations charter and each member is required to pay their membership fee and contribution based on the constitution as defined in the rules and regulations.

Further Questions, comments and answers

Mr. Wekesa of LBDA wanted to know how WRMA will ensure that WRUA have licenses before the extraction of water is done by those who use water. Mr. Wekesa also wanted to know how water users association could be married with the WRUA to avoid conflict of interests or duplicity of duties.

Mr. Owalla of Nyanza Youth Coalition wanted to know the measures that were in place to protect the river from the polluters that join WRUA and swallow the interests of other interested bodies due to their commercial interests concerning a water resource.

In response Mr. Memo stated that Communities in question knew the users and abusers of water resources and since the WRUA and belongs to the communities and the water resources was great benefit to the communities and this implies that the communities cannot allow their common good be tampered with to protect the interest of unscrupulous member. Mr. Memo also added that an abstraction survey can also be done. Mr. Memo further pointed out that the WRUA will help in knowing the number of boreholes in a particular area.

Mr. Memo also explained that the water users were different from the resources users (WRUA) and there was no need of marrying the two. He further clarified that water users was more concern with supply and therefore they directly dealt with the service board.

Mr. Memo explained that there were no big fish and small fish in the water resources usage. He explained that the fear of Mr. Owalla that environment shall be abused at the expense of capital by big companies was misplaced but Mr. Memo further clarified that even if there was an attempt by these so called big fishes the schemes will be very difficult to succeed in this case of water resource because the WRUA employs persuasive approach, whereby negotiation is the key, and this aspect will ensure working with these companies to improve the water quality rather than to the contrary.

Chairman commented that WRUA are formed on basis of common interests groups and not as a WRMA initiative. He added that this aspect of WRUA was what made these WRUAs to be of interests especially in the management of water resource. He concurred with Mr. Memo that the WRUAs were the best way forward in water resource management

2.3 Mid-Term Evaluation of the pilot projects- field Trip to the sites by the Forum Members (selection of evaluation members) and WRMA Regional Staff.

Chairman invited Mr. Ishikawa to explain the way forward concerning the progress of the pilot projects and after which Mr. Ishikawa was to select the six members for the site visits along side WRMA and JICA Study Team. The Chairman urged the members that were going to be selected that the trip should be a learning experience and the ideas passed across during the trip should be carried back home.

Mr. Ishikawa on his part stated that the members of the Forum had requested to visit the sites (5) of pilot projects to evaluate the progress on the ground. After consultations the number of members for evaluation trip was increased to ten.

Mr. Ishikawa gave the conditions for members eligible for the site visits which included:

- Forum members who bid for tenders for the pilot projects contract were not going to be part of the team.
- At least each sector of the myriad spectrum that consists the Forum be represented in the evaluation team.

Mr. Ishikawa also stated that one day was not enough for the qualitative site visit and therefore he suggested a two day visit between 8<sup>th</sup> and 9<sup>th</sup> November.

Mr. Inoue explained to the Forum that the communities were in remote areas that are at times very muddy and the selected persons must be prepared to walk long distances of up to three kilometers if the sites are inaccessible by vehicles.

Members selected for the trip:

- Ms Stella Wanjau (ADRA Kenya)
- Mr. Owalla Chris (Nyanza Youth Coalition)
- Mr. Geoffrey Wekesa (LBDA-Kisumu)
- Mr. Francis Mutuku (Agro-Chemical Co.)
- Mr. David. Kithele (Ministry of Agriculture Kericho)
- Mr. Samuel Obaga (KARI-WKIEMP)
- Ms Jane Amallo (R. Nyando WRUA)
- Mr. K. Mwangi (R. Ainapngetuny Water Users)
- Mr. Richard Abuya (R. Kibos WRUA)
- Ms Ruth Achieng (Kano Plain WRUA)
- And 4 members of WRMA

The exercise starts at 7.00 am on 8<sup>th</sup> and 9<sup>th</sup> Nov

The selected members were then requested to register with Mr. Ishikawa for planning purposes after the closure of the Forum meeting.

Mr. Ishikawa explained that a simple Evaluation Form was going to be prepared and the selected ten members were expected to fill and submit this form at the end of 9<sup>th</sup> Nov.07.

After a debate on the manner of how the report was going to be written it was agreed that the report shall be consolidated into one by the selected members and handed to the JICA Study Team

OSIENALA representative stated that the report cannot be compiled by JICA Study Team in respect that it was the one that was being evaluated.

Mr. Ishikawa explained that the Study Team was more interested on a simple report not complicated one based on the evaluation forms that the selected members will fill in

Mr. Kithale stated that the out-put vis-à-vis in-put should be the basis of evaluation if the trip was expected to be of any significance.

2.4 A.O.B

Mr. Khisa in closing remarks stated that the expectations on WRUAs were so high and as a result discouragement becomes a challenge when there seems only that little was what was being done. He urged the WRUA that they should not allow discouragement to set in.

Mr. Khisa further explained that since MOU between WRMA and WSTF had been signed and World Bank had also shown interest in the funding of water resource projects, was an indication that the future for WRUAs was bright. He urged the WRUA officials to share

information learnt in the forum with other members. Mr. Khisa reiterated that WRMA was ready to assist WRUAs whenever called upon.

The Chairman closed the meeting by thanking the members for their sacrifice in order to attend the Forum meeting. He added that the Forum desire was to be transferred into an entity and stated that the Forum was keenly looking at the suggestion that it transforms itself into an umbrella WRUA. The meeting drew its curtain to an end at 12.50 p.m.

END

The Eighth Official Meeting  
For  
Nyando River Basin Water Management Forum

Date: 25<sup>th</sup> June 2008

Place: At Conference Room, Tom Mboya Labour College, Kisumu Kenya

**1. IN ATTENDANCE**

No.	Names of Participants	Organizations From
1.	WILLIAM OKELLO	CAAC- CHAIRMABN
2.	LILIAN ODONGO	IDCCS- REP: CORDINATOR
3.	HARRISON OKELLO	UHAI LAKE FORUM
4.	DORICE ASOI	WRMA- STUDENT ATTACHEE
5.	WILLIS MEMO	WRMA/JICA
6.	JOHN OMONDI	AWACH KANO WRUA
7.	OCHOLLA ONG'UDI	AWACH KANO WRUA
8.	JASHON OTUTE	AWACH KANO WRUA
9.	SIPROSA ONUNGA	AWACH KANO WRUA
10.	DAN ONG'OR	UHAI LAKE FORUM
11.	DR. BASIL ONG'OR	UHAI LAKE FORUM
12.	ODOYO JULIUS AWITI	RIVER NYANDO WRUA
13.	STEPHEN TUWEI	AINAPNGETUNY WRUA
14.	PAUL K. RONO	MBOGO WRUA
15.	DAVID DULO	VIRED INTERNATOINAL
16.	HERMAN KIRUAYE	WRMA
17.	GEOFFREY WEKESA	LBDA
18.	JACOB AKUNO	LBDA
19.	FESTUS KIMACH	A.C.F.C.
20.	VINCENT ORAYO	KANO PLAIN WRUA
21.	THOMAS BOR	MILLENIUM-CHW
22.	AGNES OTHUON	ODESSO COMMUNITY
23.	OGANGO OWENGA	MWI
24.	CHRIS OWALLA	NYANZA YUOTH COALLITION
25.	FRANCIS WADEGU	SANA INTERNATIONAL
26.	ATELA JOANES	KARI- WKIEMP
27.	PROF. OKEYO OWUOR	FORUM CHAIRMAN
28.	EVANS AGOLLA ONYANGO	AWACH KANO WRUA
29.	JOYCE ATIENO OLANDO	OMBHEYI KWE WOMEN GROUP
30.	DORCAS ATIENO OJWANG	KANO PLAIN WRUA
31.	FESTUS S. ODHIAMBO	KANO PLAIN WRUA
32.	ALLO OGEKA	FORUM VICE CHAIRMAN
33.	LUCAS AWINO	RIVER NYANDO WRUA
34.	ADHIAMBO LOMO	OKANA MBEGA
35.	JOSEPH NGOME	HEMNET
36.	REUBEN DIENYA	WRMA
37.	NICOLAS OMONDI	OSIENALA
38.	CHIRCHIR JOHN	MINISTRY OF AGRICULTURE
39.	CHRISTINE CHELANGAT	WORLD VISION – WINAM
40.	DAN ASAKA	KENYA RED CROSS – NYANDO
41.	DR. MARGARET ABIRA	REGIONAL MANAGER WRMA – KISUMU

## 2. MEETING

The meeting commenced at 9:55am with self introduction of the forum members. Prof. Okeyo who is the forum chair joined in and the acting chair, Mr. Okello handed over to him.

### 2.1 JICA Study Team Schedule

Mr. Gejo, the co JICA Study Team leader, presented the tentative JICA Study Team schedule to the forum members. The activities the schedule were: 1) To restructure and rehabilitate the JICA Study Team offices that had been vandalized during the post election violence. 2) The resumption of study with institutional building on flood management, 3) Pre-FS for the pilot projects, 4) implementation of the pilot projects, 5) training program for the WRMA staff, 6) study on impact of flood management to be caused by climate change, and 7)The preparation of progress report No. 2.

There were no questions raised or comments made and the chairman called for the next agenda to be discussed.

### 2.2 Progress of Pilot Project by JICA Study Team

Mr. Ngida presented the progress of pilot projects to the Forum members. He explained that the pilot projects were 1) a direct product of the CAP drafted by the communities. 2) beneficial to the target communities have established own CBOs. 3) that the community through the CBO had accepted that a percentage of their income from the works be deducted and credited to the CBO account for purposes of growth of these CBOs and 4) pointed out the progress and percentage each pilot project had achieved.

The chairman then gave an outline of the next agenda before the tea break.

### 2.3 Results of the first mid term Evaluation of the Pilot Project

Mr. Owalla from Nyanza Youth Coalition stated that the team visited the five project sites: Chilchila, Oddesso, Kokwaro, and Kogwedhi. He explained the challenges of carrying out the task of evaluation with no specification of tools for monitoring and evaluation. He thereafter enumerated his observation for the five pilot sites.

Mr. Wekesa of Lake Basin Development Authority representing the government, observed that PRA was properly carried out in all the five sites and should be emulated. He pointed out: 1) that the participation of the community should be more than mere involvement but full community contribution towards realization of the CAP. 2) that the final cost was not clear to enable the evaluation team ascertain the timeliness and effectiveness of the project .

### 2.4 Outline of 2nd Mid-Term evaluation of Pilot Projects

Mr. Gejo stated that the objective of the team was to evaluate the progress of the Pilot Project as at July. He added that the evaluation results will be handed to WRMA, JICA Study Team and to the Forum. He suggested the composition of the team be the same as the first evaluation team for the sake of continuity. He added that WRMA team will also accompany this team in the exercise. Members selected are outlined in the table below.

Name	Representing	Organisation
1. Geoffrey Wekesa	Government	LBDA
2. Samuel Obaga	Government	KARI-WKIEMP
3. David Kithale	Government	Ministry of Agriculture
4. Chris Owalla	NGO	Nyanza Youth Coalition
5. Joseph Ngome	NGO	HEMNET



6. Francis Mutuku	Private Sector	Agro-Chemical
7. Stephen Tuwei	WRUA	Ainapngeetuny
8. Jane Atieno Omollo	WRUA	River Nyando
9. Dorcas Ojwang'	WRUA	Kano Plains

## 2.5 New Community Driven Flood Management Project for 24 Communities

Mr. Memo of WRMA explained that the Forum was a prerequisite body in the formulation of the 24-community Driven Flood Management Project. He informed the forum that the Ministry of Water and Irrigation and WRMA had approved the expansion of the pilot projects to 24 more Communities. He pointed out that after the formulation of the draft plan based on the CAPs from the community is completed, it would be submitted to the forum.

The Forum accepted the suggested number of 24 communities but added that it should spread across six locations rather than four. The vice chairman put up a suggestion for the uplands but was informed the target was the low lands where the real effect of the flood is experienced.

## 2.6 A.O.B

There were suggestions that the Forum be transformed into a WRUA. The Vice Chairman opposed this suggestion and proposed that the forum evolves into a bigger entity than WRUA. He suggested that the Forum could transform itself into Nyando Basin Water Management Trust or Foundation.

The Forum nominated five members into a sub-committee tasked with its registration. These were: Hon. Aloo Ogeka, Mr.G. Wekessa of LBDA, Mr. Ocholla Ongudi, Ms. Doris Agol and Ms .Christine Chelangat of World Vision.

Representative of Kano Plains WRUA informed the forum that the Local Authority was a big disappointment in the management of water resources.

The Chairman asked if there was a representation of the Local Authority in the Forum but they were neither represented nor were members of the Forum.

It was suggested that the minutes of the Forum meetings, and other relevant pieces of information be made available to members of the forum.

## 2.7 Closure of the meeting

Mrs. Margaret Akinyi Abira, PhD closed the meeting with a word of prayer at 14:45pm

END

The Ninth Official Meeting  
For  
Nyando River Basin Water Management Forum

Date: 19<sup>th</sup> September 2008

Place: At Conference Room, Tom Mboya Labour College, Kisumu Kenya

**1. IN ATTENDANCE**

No.	Names of Participants	Organizations From
1.	OCHOLLA ONG'UDI	AWACH KANO WRUA
2.	JOSEPH K. KETER	KETITUI KIPKWES WRUA
3.	ANTONY OMBARA	COMMUNITY INITIATIVE ACTION GROUP
4.	GIDEON MIYOGO	MIN. OF WATER LVEMP (WQ)
5.	WILIAM OKELLO	WRMA
6.	LUCAS AWINO	NYANDO RIVER WRUA
7.	DAVID DULO	VIRED INTERNATIONAL
8.	GEOFFREY WEKESA	LBDA
9.	JOHN OMONDI	AWACH KANO WRUA
10.	ABUYA RICHARD	KIBOS WRUA
11.	ATELA JOANES	KARI - WKIEMP
12.	PETER B. KHAOYA	MIN. OF AGRICULTURE – NYANDO
13.	FRANCIS MUTUKU	AGROCHEMICAL- MUHORONI
14.	JANE OMOLLO	NYANDO WRUA
15.	STEPHEN TUWEI	AINAPNGETUNY WRUA
16.	PATRICK KHISA	WRMA- LVSC
17.	WILLIS MEMO	WRMA/JICA
18.	ALOO OGEKA	FORUM VICE CHAIRMAN
19.	WENSLAUS MASINDE	MIN. OF AGRICULTURE – KERICHO
20.	JOSEPH NGOME	HEMNET
21.	PAUL K. RONO	MBOGO RIVER WRUA
22.	PAUL K. ROTICH	WRMA
23.	SAMUEL GOR	WRMA
24.	DORCAS OJWANG	KANO PLAIN WRUA
25.	M.O.OLOKO	UHAI LAKE FORUM
26.	DAN ONG'OR	UHAI LAKE FORUM
27.	JOYCE OLANDO	OMBHEYI KWE WOMEN GROUP
28.	JOSEPH O. OMOLLO	LVSWSB
29.	VINCENT ORAYO	KANO PLAIN WRUA
30.	D.O. OCHILO	LVSCA
31.	DAN ASAKA	RED CROSS – NYANDO
32.	ADHIAMBO LOMO	OKANA MBEGA.

## **2. Meeting**

The meeting commenced at 9:40am with a word of prayer. Thereafter, Mr. Memo conveyed to the forum messages of apology from Prof. Okeyo and Dr. Abira respectively. Self introduction of members followed and the Vice Chair led out in the deliberations.

### **2.1 Reading of the previous Forum meeting**

Minutes of the previous meetings was read by Mr. Memo. After the reading, the Chair requested members to confirm the minutes of the previous meeting. In response, Mr. Wekesa pointed out that attendance list was not attached, the Chair concurred and stated that there was need to attach attendance list which includes members absent with apology and those absent without apology. Mr. Ochola Ongudi also proposed that the meetings were the true records of the previous minutes and he was seconded by Willam Okello.

Matters arising:-

- On min.2.1 - Mr Ngome observed that the renovation of the office vandalised during the post election crisis was a serious matter and wanted to know if the JICA Study Team had already set up the office in order.

- On min.2.3 - Mr Dulo observed that a visit to Kasiru village was not indicated and the chair concurred and stated that changes will be done.

- On min.2.4 - Mr Abuya wanted to know the position of the evaluation team having been a member on the first team but did not attend the second. Mr. Gejo explained that the list was final and was passed by the Forum which replaced the absentee members.

- On min.2.8 - AOB Mr Ngome wanted to know the position of local council and there representation in the Forum and indicated that the matter should be discussed in the Forum proceedings. Hon. Ogeka clarified the matter on the committee on the registration of the Forum. The committee met on 28th and came up with some resolutions which Mr. Memo was to pursue for further action.

The Vice Chairman explained that he had consulted with LVSB, NIB corporations and they felt that the Forum should be part of the three organization WRMA LVSB and NIB. Similarly, he had talked to Prof Croda who advised that the Forum need to register and avoid erratic activities. He again consulted with Prof. Mumma who gave legal advice and also pointed out his ability to source funding. Eng. Ombogo, whom he also, met stated that he will assist where necessary and added that there will be no funding to water sectors without going through the water reform director.

Mr. Khisa elaborated on the WRUAs and sub-catchments level of engagement. He gave out options for the registration of the Forum- Nyando WRUA, Nyando River Project and Nyando River Foundation. He explained further that registering as WRUA will confine the Forum to water resource, explaining that there was money in the WTF and there is need for NGO to come up and assist the WRUA to register with Attorney General in order to be eligible for funding and therefore get the money. He again suggested that Forum be transformed to project which will operate under lake basin and encompass all the WRUA in the region.

Mr. Memo proposed to the Forum that for the Forum to exist beyond the study 1) there is need of legal paper work, 2) there are policy and legislative issues to be addressed to enable members form WRUAs or join the existing ones and come up with an umbrella WRUA. 3) the Forum can be transformed into Nyando project, or 4) can come up with the Nyando Trust/Foundation.

#### Comments from members

Mr Wekesa said that the regional office should take up the matter on a serious note. He proposed that WRMA should draw boundary for the WRUAs and not allow them to overlap and make it easy to form an umbrella body that would go beyond the WRUAs mandate. He suggested that there is need for further consultation and come up with concrete plan.

Mr. Ngome came up with the idea of forming multiple WRUAs and seeking money from the WTF. He said that there is need for Forum to think bigger and come up with a big thing like the R. Nyando Commission

Mr. Samwel Obaga of KARI WKIEMP pointed out that there is need to define the participatory objectives for the Forum and bring it to sustenance before thinking of the name and how big the entity should be.

Hon. Ogeka stated that the Forum should be a multi-institutional organization which can come up with the body that will look beyond the study without taking it out of the hand of WRMA but involve WRUAs .He proposed that this body can look into finer details with respective CEOs and come with a package of issues to report on the way forward. After adequate deliberations, he requested that the Forum come up with resolution on the issue.

Mr. Mutuku stated that the issue was presented in the agenda to warrants its discussion so it should brought to the AOB and more members be selected and then come up with the substantive agenda.

Resolved: Members resolved that the issue be brought up in the AOB.

#### 2.2 Explanation of progress of Pilot Project by JICA Study Team

Mr Gejo explained that the study will be finalised by the end of November. Explanation of the final report will be in the December and the study will come to an end by mid of December. He clarified that office is in good condition even though some documents were lost during the crisis. He challenged that WRMA not part of the DMC and there is need for reorganization.

Responses:

Mr. Ngome said that the work schedule indicated that the study ends in December and then there is an indication of schedule that shows that it ends in March. Mr. Gejo clarified that the contract is stipulated to end in March to allow time for considering the comments raised by the government, the Forum or the workshop.

Mr. Wekesa observed that the objective was to evaluate and monitor yet the design are already done and no one in the forum has seen the design. In response, Mr. Gejo explained that the design was presented to the Forum and thereafter the designs are at JICA Study Team office and whoever wants to look at them are free to do so.

Mr. Ngome, questioned why Mr. Gejo is running away before the completion of the study. He was clarified by Mr. Memo that there is a difference between the pilot project and the

24 communities. The implementation of the five pilot sites is already done and the addition of the 24 communities was a request from the government of Kenya. The schedule has already been prepared and everything is going as scheduled.

Mr. Omollo of LVSB suggested that there should be information sharing between the Study Team and stakeholders to avoid duplication of efforts. Mr. Gejo assured him that he had met the NWCPD MD and there was request that they cooperate. The details and what had been done in terms of identifying site for the dam construction.

Agreed: The meeting agreed that Mr. Memo of WRMA to discuss on availing the information to the service board.

### 2.3 Results of the mid term Evaluation of the Pilot Project

Mr. Wekesa, leader of the evaluation team made the presentation. He pointed out that the community participation was good. He said also that there was dissatisfaction from the community because the contract was done and people from outside carried out. He said that the work was delayed by 9 months. He further said that Odesso community appreciated the work carried out, but pointed out that the contract seemed to have been stage managed for the evaluation team. He clarified that there were no competent officers from the government to supervise the work and the team was not furnished with the costing.

In Chilchilla, he said that work was well done, and completed as scheduled, though there were complains about the contractor.

In Kokwaro the evacuation centre was 25% completed, toilet was 60% completed and the road 40% completed. He observed that there were flaws in the design, culverts were pointed to evacuation centre and there were no proper planning. Similarly, the homes nearby were not consulted and the path led the water to flood these homes.

In Kogwedhi the dyke has been completed, but lack of community participation was noted. Kasiru 3 project, borehole done and completed successfully the house constructed next to the borehole, toilet constructed and the road was not being done well. Mr. Wekesa invited the other members to contribute.

Mr. Mutuku said that there was a disconnect between the contractor and the community. Community as result felt that they did not own the project. Need to clarify the land issues. Members of the Forum being contractor. He said that Tendering JICA seemed not to have control over the contractor. Coordination with other arm of the government and therefore work could not be done well. There was an agreement if the contractor involved in the forum vacate during the discussion

Mr. Khisa wanted to know how the pilot project can assist community overcome poverty. He also wanted to know how the pilot project has enhanced capacity building in the community. He was clarified that the community is happy and the pilot project are of assistance. Similarly, capacity building has been done well though community need more. The pilot project has had an impact in the area.

Mr. Omollo Borehole not clarified whether equipped with hand pump or pipes and need for sanitation being addressed.

Mr. Gejo prequalification to the companies listed with the ministry of water and the list was done then and shortlisted and the invited to bidding and the lowest bidder invited for negotiation.

Mr. Okello what is the size of the evacuation centre and how many people can be accommodated?

Allegation that the VIRED was involved in the pilot project as contractor and yet the director was the chair of the Forum. Clarification done on how VIRED got the tender. Mr. Omollo there must be clear outline of the conflict of interest.

The lesson learnt must be reflected in the 24 communities

Mr. Memo need for clear direction on the position of the Forum that if there are contract the members should not participate in the tendering or if they participate in the contracts they should not participate in the discussions concerning the contracts

Mr. Ocholla error made and no need there be opening of wounds but learn from mistake and move forward.

Mr. Ngome the recommendation done already in the report

Dan Asaka there is subjectivity of the report by virtue that members of the team are Forum members. He explained that the report was out even before they went for the monitoring. Need for extra money to hire external evaluators.

Chair stated that the recommendation be clearly looked into and then be passed by the Forum.

Mr. Ngome what was the chair position on the report that it was done before the evaluation. Chair the view of the contributor was that he was subjective therefore the issue was idiosyncratic to the member.

Dan of UHAI stated that bullet 1 and bullet 4 should not be passed

Mr. Memo donorship should be deleted but bullet three should be deleted or changed and instead that it should be

Bullet 1 page 15 the consent be expunged because it contradicts the preceding statement

Bullet 2 should be expunged

Bullet 3 Community involvement be recognized without compromising the quality of work

Bullet 4 Costing should be based on the BQ

Bullet 5 Contract should be upheld

Bullet 6 Contract should be upheld

Bullet8 Need for post project continuity

Action the report passed but under the condition that the linguistic changes be made that befits the forum. Mr. Memo and Mr. Khisa mandated to make the realignment in the wordings.

Min 04/08: Final Mid-Term evaluation of Pilot Projects

Mr. Gejo stated that the objective of the team was to evaluate the progress of the Pilot Project and report the results to WRMA, JICA Study Team and to the Forum. He said there is need to indicate the basis of the assessment three days of evaluation. Proposed that the same group be mandated to carry out the evaluation.

Questions arising from the Presentation

Mr. Khisa sought clarification on the member composition of the team.

Mr. Wekesa there is need for changes be made to the composition of the membership. The need for Mr Memo to be involved with the team and avail the necessary documents and answer the necessary questions.

The suggestion that each member make the report and signed is based on the fact that everyone becomes responsible of their assessment and where there is contradiction be clarified

Mr. Oketch the idea of everybody giving out report is time wasting and takes away the independence of the monitoring team because they cannot speak with one voice.

Mr. Gor there should be a clear cut responsibility on what they are evaluating and be responsible to their assessment.

Vice Chairman the evaluators can develop a questionnaire that will be filled by members and submitted to the team and thereafter come up with a consolidated report. Requested WRMA to turn out and give out the best to the evaluation team

Members selected are as outlined below.

Name	Representing	Organisation
1. Geoffrey Wekesa	Government	LBDA
2. Samuel Obaga	Government	KARI-WKIEMP
3. David Kithale	Government	Ministry of Agriculture
4. Chris Owalla	NGO	Nyanza Youth Coalition
5. Joseph Ngome	NGO	HEMNET
6. Francis Mutuku	Private Sector	Agro-Chemical
7. Stephen Tuwei	WRUA	Ainapngeetuny
8. Jane Atieno Omollo	WRUA	River Nyando
9. Dorcas Ojwang'	WRUA	Kano Plains

## 2.5 New Community Driven Flood Management 24 Communities survey UHAI Lake Forum

Mr Dan Ongor, Coordinator of UHAI, led the members through the background of the study. He outlined the methodology employed for the PRA. He pointed out that the history of the process started with the survey of 4 locations. He said that the actual locations surveyed were 5, due to an addition of one location, Kanyagwal, administratively curved out from Bwanda location. A meeting for identification of the target villages was held at the Chiefs camps and significant number of the villagers attended. He explained the selection criteria that was made at location level but where the sub-location were far apart the sub-location meeting were held.

The beneficiaries of pilot project were not viable for selection and also the flood ranking. The Uhai team looked at the demonstration effect of that community, high need of flood protection, population of the community and leadership of the community.

He pointed out that there were some mistakes in Kabuto and Kalondo Ugwe that led the community to be merged into one after realising that the maps of the two communities were almost similar, and they had to select another one. He also said that there were boundary disputes among the communities and cited the case of Masune and Nyachoda where there was conflict over a small portion of land shared by the two communities. He pointed out of the selected villages, Kanyagwal also was selected because it was part of the great Bwanda. He pointed out that the pretest was done in Kadika village Magina sub-location and defined the lesson learnt from the pretest. The main conditions came which area dry last the one that dry first, he enumerated the results of the survey based on locations, he too cited the problems and opportunities that came up in the CAP formulation. He showed the Forum an example of Action Map and explained that each village 25 people encompassing the various multifaceted dynamics of human population. He observed that some of these communities have already formed CBOs and have been issued with certificates from the social services department.

In Ombeyi location, he explained that Wangaya Mombasa and Kamagaga communities are squatters and need consent from NIB for any action to be taken up.

In central Kolwa location, the population is dense, and there is a lot of town influence and sand harvesting activity.

Last workshop held at Ahero Multipurpose Hall for the whole 24 communities

Issues arising poor community org,, Lack of Disaster preparedness ,land ownership, lack of awareness on HIV /AIDS scourge, fuel wood scarcity, low income, lack of knowledge to utilise water flood, and the challenge of keeping their word. Community should stop looking at JICA, WRMA but rather should look within the community for solutions.

Michael addressed the challenges especially in the GIS mapping where by the community lied and therefore forcing the team to go back to the field to come up with better maps. The hand drawn map difficult to deal with because of human error. Able to track the exact spot the proposed action

Challenge on the definition of water pan and dam borehole and shallow of well.

#### Matters Arising

Dan Asaka of Red Cross, noted that the selection are reflective of what is on the ground and asked for the copy of the report. Mr Mutuku proposed that members of the forum can be issued with soft copy of the report.

Mr. Ogolla the quality of water for domestic need to be taken care of this matter. Scarcity for water 3 level livestock use (water pan), domestic use (Shallow well), and irrigation

Mr. Ngome mobilization done through CBO? Because pilot project experience is that there was detachment between members and non members of CBO. Mr. Dan selection done through the provincial administration and was all encompassing every sector of the community.

Mr. Lucas where is the position of human diseases that are waterborne in the action plan. Dan cholera came out as a major problem and community came up with solutions.

Hon Ogeka Kasagam affected and not considered was the selection targeting rural areas. Kasagam is in Kolwa west and therefore not qualified for selection.

Mr. Memo what tools were used and how were they relate to the outcome. Mr. Memo where is the position of the WRUA in the selection of 24 communities. Tools employed tried to engage the people based on their level of engagement. WRUAs are not known in the areas because the Uhai wanted to incorporate them but none.

Vice chairman, continuity needed to be addressed and also the report should be handed over to the Forum.

He defined the collaborators

#### 2.6 A.O.B

1) The need for the Forum to come up with the modality of being an entity and therefore reliant on itself rather than on WRMA and JICA Study Team

Mr. Mutuku proposed that members propose 3 or 4 people to help the chair. There are already members but only ladies missing because the two ladies in the committee went back to school. Mr. Ogeka need for NEMA to be part of this group. There is need to facilitate the committee to enable the committee to operate request WRMA to look into this matter.

The ladies should be selected from the Forum, there are two ladies in attendance be selected and the team should meet after the Forum and consolidate the consultation result of the Vice Chair.

Hon Ogeka to WRMA to give full representation of regional catchment be engaged fully. Engage the WRMA CEO who can bring in Prof. Mumma on the table.

In response, Mr. Memo said that WRMA has a level from which it operates. Once it goes to the CEO level then the regional office cannot be involved. WRMA can only deal with



*Minutes of Meeting*  
*9<sup>th</sup> Forum*

WRUA and options pointed out in the morning and the entity issue should be looked at the open mind and not fixed on a particular pointer. Hon Ogeka nothing has been ruled out but all options are being considered

2) Lucas requested WRMA to mobilize provincial administration with the WRUAs on the training

2.7 Closure of the meeting

The chairman passed a vote of thanks to the JICA Study Team for their effort and suggested that JICA be part of the implementation team. He then adjourned the meeting and called for a word of prayer from one of the members. The meeting closed at 15:21pm and members dispersed for lunch.

END

***DATA BOOK 8.***  
***MINUTES OF MEETING FOR***  
***NATIONAL WORKSHOP***  
***AND***  
***REGIONAL WORKSHOPS***



**MINUTES OF MEETING**  
**THE FIRST STAKEHOLDERS WORKSHOP**  
**THE STUDY ON**  
**INTEGRATED FLOOD MANAGEMENT FOR**  
**NYANDO RIVER BASIN**

**3<sup>rd</sup> August 2006, Nairobi, Kenya**

## **1. Introduction**

### **1.1 Background**

Throughout history, people have settled next to waterways because of the advantages they offer in transportation, commerce, energy, water supply, soil fertility, and waste disposal. In spite of these benefits, our historic attraction to settling along rivers and streams is not without its drawbacks. At times floods have caused greater loss of life and property, and have disrupted families and communities in different parts of the world. Preparedness and response actions of the various disaster management authorities to prevent or mitigate flood-related disasters are highly dependent on the overall flood management strategy adopted by the country.

Kenya has been experiencing some of its worst flood events during recent years. Flood management has acquired importance in certain basins of the country. The Ministry of Water and Irrigation (MWI) is concerned and committed to implement a Flood Management Strategy for the country to make best use of the resources provided by the floodplains and the flood waters and at the same time prevent flood disasters affecting development.

### **1.2 The Strategy for Flood Management for Lake Victoria Basin in Kenya**

The Kenyan Minister of Water and Irrigation (MWI), requested WMO to assist the Kenyan Government in developing a National Strategy for Flood Management. WMO assisted MWI develop a Flood Management Strategy in the Lake Victoria basin as a pilot project under the WMO-GWP Associated Program on Flood Management (APFM). A team of Kenyan experts prepared a Strategy for Flood Management for Lake Victoria Basin in Kenya in close consultation with WMO experts. The work involved information gathering and interaction with regional stakeholders and policy makers through the organization of workshops. The Strategy was finalized by the Project Steering Committee consisting of experts from different, concerned departments of the Government of Kenya and was approved by the Minister (MWI).

### **1.3 Implementation process and follow-up of the developed Strategy**

Water resources development, including flood management, is an important vehicle for achieving Millennium Development Goals and poverty eradication. The Kenyan Government through the Ministry of Water and Irrigation is keen to implement the Strategy for Flood Management in Lake Victoria Basin. A National Committee has been established to start the process and lay a firm foundation for implementation. The MWI and WMO have been interacting with various Development Partners for securing funds for implementing the strategy and therefore supplementing the available national resources. In response JICA expressed interest to support MWI in the implementation of the activity.

In addition to JICA other development agencies such as World Bank and GTZ are involved in Kenya in water related programmes. It is often the case that various development assistance agencies, while implementing development activities in a country follow different approaches to a given issue. It is with the objective of bringing synergy between the activities of different development partners that this workshop was organized.

### **1.4 The Study on Integrated Flood Management for Nyando River Basin (JICA project)**

In response to an official request from the Government of Kenya to the Government of Japan, the Japan International Cooperation Agency (JICA) extended support to conduct a Study on the Integrated Flood Management for Nyando River Basin. Accordingly, JICA will undertake the Study in close cooperation with the concerned authorities of the Government of Kenya. The main objectives of the Study are to formulate an integrated flood management plan for the Nyando river basin, which forms one of the sub-basins of Lake Victoria, to support communities

strengthen their capacities in flood management and develop the capacity of institutions involved in flood management. The Study is proposed to be carried-out in two phases, Phase I is to prepare an Integrated Flood Management plan for Nyando River Basin and Phase II to carry-out Feasibility Study of prioritized projects and support activities related to implementation of capacity building programs.

## **2. The Workshop**

JICA, in collaboration with the Kenyan Ministry of Water and Irrigation (MWI) and WMO invited participants from stakeholders involved in flood issues in the region including government representatives from different concerned departments, NGOs, IGOs and other development partners to a national workshop to launch the Nyando Basin Study. The Workshop was held on 3<sup>rd</sup> August 2006 at the Nairobi Hilton Hotel and was facilitated by Mr Stanley Mbagathi (Guiding Systems Consultant).

### **2.1 The Workshop's Objectives**

The workshop was to ensure that the JICA study is demand driven and provides a platform for exchange of views and receives inputs from stakeholders and decision makers. The main objective of the workshop was to seek a synergetic approach to flood management in the Lake Victoria basin focusing on Nyando River Basin as a target area and to get inputs from stakeholders, policy makers and technical experts in Flood Management issues in Kenya, thus ensuring better cooperation and coordination amongst various stakeholders and technical and financial partners.

### **2.2 Opening**

The Chief Executive Officer of the Water Resources Management Authority (CEO-WRMA) Mr Patrick Oloo and the Director of Water Resources Engineer C.N. Irungu agreed to chair and co-chair the workshop sessions. In their remarks, they thanked the participants for their efforts to join with other officials in this important workshop. They also thanked the Assistant Minister, Permanent Secretary and other officials from MWI and other concerned governments departments for devoting part of their time to the workshop. Mr Irungu, invited the participants to introduce themselves.

After a short self-introduction by the participants, Mr Oloo invited Mr Yoshiaki Kano, JICA Resident Representative in Kenya to give his remarks. In his opening remarks Mr Kano mentioned that since last year JICA has been involved in implementing a master plan study to promote development in Nyando and Homa bay districts and this is the second study in the region.

He briefed participants on Japan's experience in flood management where the importance of community approach has been acknowledged. and assured them that Japan's assistance will directly reach the individuals who confront threats to human lives and livelihood. He appreciated the Strategy for Flood Management for Lake Victoria carried out by WMO and Coping with Floods in Kenya by UNEP, which assisted JICA in developing, the study. In conclusion he highlighted the main objectives of the study and hoped that it could contribute to enhance development in Nyando basin.

WMO's representative Mr M. Tawfik, in his opening remarks, thanked the Kenyan Government and particularly MWI for the support and facilities they provided to WMO to finalize the Strategy for Flood Management for Lake Victoria. He expressed WMO's appreciation and satisfaction for the level of cooperation with JICA to assist the MWI in implementing the strategy in Nyando basin. He briefed participants on the development process that was followed to finalize FM Strategy for L. Victoria.

Mr Tawfik added that the workshop will ensure that the inputs to the JICA study reflect national development priorities and provide a platform for exchange of views and inputs from various stakeholders and decision makers. The main objective of the workshop is to seek a synergetic approach to flood management in the Lake Victoria basin whilst focusing on Nyando River Basin and to obtain inputs from stakeholders, policy makers and technical experts in Flood Management issues in Kenya thus ensuring better cooperation and coordination amongst various stakeholders and technical and financial partners.

The UNEP representative, Ambassador Rotich, thanked the organizers for inviting UNEP to participate in this timely workshop and to share with the participants UNEP's experience in the flood issues in Kenya. He briefed the participants on UNEP's study in Western Kenya on Coping with Floods. He emphasized the importance of developing flood management strategies for the major river basins around Lake Victoria to reverse the deteriorating situation. He wished the study team successful work and offered UNEP's expertise to assist the team in implementing their activities.

Eng. Mahboub M. Masalim, Permanent Secretary Ministry of Water and Irrigation, thanked the participants for their participation in this important workshop. He also thanked JICA, WMO, UNEP and World Bank for their support to MWI in its work towards sustainable development and flood management in Kenya. He assured the Study Team full support of MWI to ensure successful implementation of their project.

The workshop was officially opened by Honorable. A. Sugow, Assistant Minister, Ministry of Water and Irrigation and M.P. on behalf of the Minister who could not attend the workshop due to prior engagements. The Minister expressed government's commitment to develop an integrated and inclusive approach to address the problem of people's vulnerability to floods and risk management through prevention, mitigation, preparedness, response and recovery.

The Minister gave a brief history of the Government's efforts in flood control in the Nyando basin. Regular maintenance work has been carried out on a piece-meal basis depending on availability of funds. He informed the participants that, in the last two financial years the government spent Ksh.92 million in flood control infrastructure in the Nyando basin. This fiscal year the Ministry has set aside Ksh.45million for flood mitigation and management in the Nyando basin.

He informed participants that the Ministry is committed to this study through active involvement and participation of the various study structures, which have been put in place. At the top policy forum is the Project Steering Committee being chaired by the Permanent Secretary while at the implementation level there is the Project Working Group being chaired by the Chief Executive Officer of Water Resources Management Authority who is also the implementing agency for the study before.

He concluded by thanking the Government of Japan for agreeing to finance this study and also extended his appreciation to the World Meteorological organization for their input in the preparatory studies conducted.

### **2.3 Participation**

The Workshop was attended by ninety two (92) participants representing senior officials from the Ministries and Authorities concerned and Regional Offices of Kenyan Government, Donors and investment agencies including JICA, JBIC, GTZ and WB, International organizations including WMO and UNEP, NGOs, Research institutes, Universities and private companies.

### **2.4 Organization of the Workshop**

The Chief Executive Officer of the Water Resources Management Authority (CEO-WRMA) Mr Patrick Oloo and the Director of Water Resources Engineer C.N. Irungu agreed to chair and co-

chair the workshop sessions. Mr Stanley Mbagathi of Guiding Systems Consultant acted as moderator and facilitated the discussions. The participants approved the agenda and copy of the approved agenda is attached as Appendix-1.

## **2.5 Press Conference**

Following the opening session a press conference was organized for the local press. The Minister, Permanent Secretary, representatives of JICA, WMO and UNEP participated and answered questions from representatives of the local press.

The Minister emphasized the necessity of a comprehensive approach and application of knowledge and experience gained. The Permanent Secretary explained that since structural measures are very expensive, this study intends to consider an integrated approach including social issues. He informed the press that community approach is an important issue in the study. Consideration of budget allocation will come after the study is completed.

JICA representative informed the press of the necessity of comprehensive approach to work together with all stakeholders and noted that the workshop is a kick-off for this process.

## **3. Presentations**

Six presentations were done on different topics. . One presentation was on Japanese Experience on Flood Management and in Development Assistance by JICA, two presentations by WMO on Integrated Flood Management (IFM) and The Strategy for Flood Management in Lake Victoria Basin, an aerial PPT Presentation by UNEP on reconnaissance of the floods and the main catchments in Western Kenya. An overview of the Nyando basin was presented by MWI on Integrated Flood Management in Nyando River Basin and finally JICA study team presented the proposed study for Nyando River Basin.

### **3.1 Flood Management: Global Experience- Japanese Experience and Assistance, by Mikio Ishiwatari, senior Advisor (Japan International Cooperation Agency- JICA)**

Mr Ishiwatari's presentation was focused on four major topics, namely;

1. Japanese experience in water related disasters
2. Counter measures taken in Japan
3. Experiences and lessons learnt and,
4. Experience in Japanese assistance to developing countries

He summarized to the participants how Japan is a country prone to flood disasters throughout its history. Until 1960s Japan used to loose over 1000 persons per year because of floods. Between 1960s to 1980 the number had been reduced to fewer than 100 persons per year and currently Japan loses less than 10 persons per year. These results have been achieved by adopting an Integrated Flood Management strategy (IFM).

He also presented also various measures, which have been developed by Japan to manage floods; these include hardware and software measures. The hardware measures are structures and technologies to control floods at the rivers. These include flood forecasting and warning systems, observation and information collection and dissemination systems. Flood management also requires a developed evacuation infrastructure. The software measures are related to community based disaster management. Communities are provided with information to create awareness on the various stages of an impending disaster. It is important that the community knows the various levels of warnings, safe evacuation routes and shelter and how to behave during floods.

Mr Ishiwatari provided information on Japan's assistance in integrated flood management to developing countries. It is in the form of technology transfer for flood forecasting and warning

systems. It supports information systems via satellite, telephone or radio e.t.c. It also provides assistance in evacuation techniques. He highlighted the importance of community participation as a key aspect of IFM and focused on schools approach to ensure public awareness at an early age.

### **3.2 Integrated Flood Management, by Mr Hisaya Sawano, WMO/APFM**

Mr Hisaya Sawano made a presentation of the WMO/GWP Associated Programme on Flood Management (APFM). Despite efforts by countries to manage floods, flood damages are increasing. According to statistics the recorded damage has been increasing since 1950s. Flood management faces several challenges as people continue to settle on flood plains and with the increasing populations and climate change and variability; the level of risk has increased over time. Flood management has to take into consideration people's decision-making process and issues of ecosystem conservation. To face these challenges the concept of integrated flood management (IFM) has been introduced.

Integrated Flood Management is a process promoting an integrated rather than fragmented approach to flood management, integrating land and water resources development in a river basin within the context of Integrated Water Resources Management (IWRM), with the aim of maximizing the net benefits from flood plains while minimizing loss of life from flooding. The objectives of Integrated Flood Management are:

- Sustainable development: balancing development needs and flood risks
- Maximising benefits: ensure livelihood security and poverty alleviation thereby reducing vulnerability
- Minimising loss of life
- Environmental preservation

Mr Sawano presented APFM activities on Flood Management in several developing countries in Africa, South Asia, South America and Central and Eastern Europe. The main activities of APFM are to enhance the objectives and principles of IFM by supporting the development of appropriate policy and legal frameworks. APFM also supports Institutional building and advocacy for IFM. Other instruments are publications and information dissemination through various media including the APFM website: <http://www.apfm.info>

### **3.3 Strategy for Integrated Flood Management for Lake Victoria Basin in Kenya, by M. Tawfik, Chief, Hydrology Division, WMO.**

Mr Tawfik presented an overview of the hydrology situation of Lake Victoria Basin in Kenya. He highlighted facts about the basin being rich in natural resources and fertile lands, but is among the poorest and socio-economically backward regions in Kenya. The strategy for flood management in Lake Victoria basin simultaneously addresses the present problems of the vulnerability of flood plain dwellers and the development of flood planning Strategies for securing livelihoods, improving living standards, and socio-economic benefits. At the same time the strategy ensures that these vulnerable communities are not exposed to flood risks and that there are no adverse environmental impacts of the flood management measures adopted. The starting point in an IFM strategy is a reorientation of approach to floods and development.

He presented the Formulation process, which involved establishment of a steering Committee consisting of various stakeholders. The inputs from the grass-root level were obtained through stakeholders workshop organised in the region.

This was followed by a policy makers' workshop, to obtain an input from representatives of the various sectors of development from the policy perspective. Based on the inputs from the consultative workshops a strategy was formulated with fifteen key elements under Integrated Flood Management principles. The IFM principles include Reducing Vulnerability, Reorientation of Approach to Development and Floods, Integrated Approach to Water Resources Development



and Flood Management, Protecting and Conserving Environment, Addressing Weather and Climate Variability and Change, Coordination between Various Ministries and Agencies

The Strategy is based on the flood management policy, which lays down the basic principles of flood management. The policy addresses the institutional, including legal and organizational, issues dealing with pre and post flood situations.

Mr Tawfik also presented an Action Plan for implementing the Strategy, which includes Short, Medium and Long Term measures.

#### **3.4 Integrated Flood Management in Nyando River Basin**, by Patrick Khisa, presented by Ms Rose Ang'weya, Regional Manager Lake Victoria South Catchment Regional Office

On behalf of Mr Patrick Khisa Ms Rose from WRMA Regional office made a presentation on IFM in Nyando River Basin. She presented the hydrological regime of the Nyando River and the climate and economical activities in the Basin. She focused on areas most affected by floods in the Nyando river basin which include Ahero and the Kano plains with total flood prone area which covers, 32 km<sup>2</sup> and affects over 22,047 people (2003) and causes the displacement of more than 7,000 people (2003).

Ms Rose, presented the Kenyan experience in Flood Management since the 1930s with more focus on recent events in 2002 and 2003 .The effects of flood disasters include loss of lives, displacement, sever damage to property e.g. houses, livestock, schools and other institutions. Floods also result, in water borne disease outbreaks.

Further Ms Rose discussed the forest situation in Kenya as it has been deteriorating due to encroachment on forestland by people in search of farmland resulting in increased populations and inadequate quality of farming in Kenya. Inadequate community awareness has been also contributing to the problem. Flood management therefore requires an integrated approach where stakeholder participation is very important.

Encroachment on riverbanks has been an increasing cause of riverbank degradation. The WRMA has developed rules on river quality management which when enforced will see the reduction of this factor.

A Water Policy 1999 was issued by the Kenya Government in 1999 and was revised in 2002. The revised act saw the establishment of the Water Resource Management Authority amongst other institutions charged with managing the water sector in Kenya.

The Nyando River Basin has been classified into Upper and Lower Nyando Catchment Management Unit (CMUs). She highlighted the achievements in community participation and capacity building under the WRMA, where Catchment Advisory Committees (CAACs) have been established and members have been trained. Water Resource User Associations (WRUAs) have been formed in different locations A Nyando River Water Management Forum involving -NGOs, CBOs, Govt Agencies, and Local Communities has been formed.

The WRMA is introducing an integrated flood management plan for the Lake Victoria basin, which includes structural measures, e.g. dykes, flood control dams and non-structural measures e.g flood forecasting and community awareness. A Nyando River Basin Flood Management Master Plan is under development.

Finally, she recommended that JICA study team on Nyando Basin should benefit from the recommendations made from other studies in terms of short and medium term measures, change of land use and agricultural practices, desilting the river mouth, river training and deepening and river bank protection.

### **3.5 Reconnaissance of the floods and the main catchments in Western Kenya- Preliminary findings, by Christian Lambmecht - UNEP**

Mr Christian Lambmecht presented the outcomes and findings of UNEP's project in Western Kenya on Reconnaissance of floods. The presentation consisted of a series of aerial photos covering the whole of the five main river catchments including Nyando river catchment. The preliminary findings regarding Nyando catchment are that the whole Nyando Basin is under attack by people carrying out unfriendly activities. There is encroaching of the forest edges. The shamba system which has been recently introduced to improve afforestation seems not to be working, as the nurseries have no tree seedlings.

In the Nzoia river basin's upper catchments, the practice of crop cultivation on the river banks is on the increase. In the river mouth from the air one can observe the huge plume of silt flowing in the lake.

Generally along all the rivers, there are no riverine forests and the steep escarpments on the upper catchments are bare. The large farms and tea estates do not practice agroforestry. This results in floods in the plains. "If one attacks nature, nature will fight back and the human being will be the loser".

### **3.6 The Study on Integrated Flood Management for Nyando River Basin, by: JICA Study Team**

The JICA Study Team made a presentation on the Study on IFM for Nyando River Basin including objectives of the Study, area to be covered, Phase I (Formulation of Master plan for integrated flood management) and Phase II (Formulation of priority schemes and implementation of pilot projects) Further the Team also presented the approach to be followed in preparing the study.

The concept of IFM will be followed by the JICA Study taking into account i) flood management with proper water and soil management, ii) setting up institutional framework among government authorities, communities and NGOs, and iii) institutional development for executing agencies, Water Resources Management Authority (WRMA).

The JICA study will focus on the structural measures with low cost and non-structural measures on a community basis. The JICA study will examine whether some Japanese traditional measures for flood control can be applied or not. If technically and financially possible, the measures will be demonstrated as one of pilot projects.

Based on lessons learnt from past JICA's technical cooperation in different countries, flood hazard maps are very useful tools to increase public awareness on flood preparedness at a community level. In the JICA study, two kinds of maps will be prepared. The disaster map, for the whole flood inundation area in the lower catchment, and baseline map for the integrated flood management,

Finally, the community action plan for flood management will be formulated taking into account (i) public awareness, (ii) share of role among government authorities, NGOs and the community, (iii) empowerment of people to enable participation.

To ensure strong collaboration and cooperation between the JICA study team and other Organizations monthly meetings with WRMA will be organized, and regular weekly meetings with the Project Working Group (PWG) will be arranged.

#### **4. Summary of Discussions and Conclusions**

Moderated By Stanley M. Mbagathi – GS Consult – WMO consultant

The presentations were followed by stakeholders' plenary discussions on the status, challenges and way forward for the Integrated Flood Management in the Nyando River Basin. The discussions were very lively and honest raising controversial issues and striving to achieve consensus on all points. The points of consensus achieved were presented in a summary form to the participants by the moderator and adopted as final workshop recommendations.

#### **5. Workshop Recommendations**

The Participants made conclusions and recommendations with respect to the future work for the implementation of the JICA study on Integrated Flood Management for Nyando Basin and agreed on the following:

1. The study on “Integrated flood management for Nyando River Basin” should be implemented taking into consideration issues addressed in the “Strategy for flood management for Lake Victoria Basin”.
2. The study on the master plan for Nyando Basin should look at alternatives and trade off / flood storage/ flow transfers between Nzoia, Yalla, Nyando , Sondu Gucha .
3. Considering various effects of flooding in Nyando basin, and touching on sustainability, there is a need to assist communities with small income generating projects which are environmental based e.g. tree nurseries, fish farming, energy conservation e.t.c.
4. Environmental issues should be incorporated in the study for the appropriate watershed management. Promoting the concept of nature conservation through promotional materials is very important, that can be achieved through giving specific information on such as amount of soil in tons that have been lost in Nyando basin during certain number of years.
5. Undertake innovative measures to check and manage gullies e.g. fill them with water and do fish farming
6. Collect information and create a data-base for access by any interested stakeholder wanting to undertake flood management activities and establish a coordination mechanism for stakeholder information sharing e.g. stakeholders at various levels
7. Ensure stakeholders involvement at all levels especially those working on the ground e.g. NGOs like VIRED, OSIENALA & UHAI the local universities - Moi & Maseno and the private sector
8. Identify opportunities from floods that can be used to benefit communities and improve their participation; taking into consideration upstream –down-stream activities agriculture/ irrigation & soil fertility, fish farming e.t.c
9. Take into consideration viable high cost and low cost structural measures including infrastructure improvement required for flood management e.g. evacuations
10. Identify viable community incentives to improve participation based on poverty alleviation measures that reduce overdependence on relief.
11. Support ongoing good flood control pilot measures instead of starting new ones or running similar parallel activities

12. The study to be followed by implementation and or demonstration of flood mitigation activities for upstream/downstream communities targeting in particular the productive sector e.g. afforestation for commercial use, water harvesting for irrigation and sugarcane farming
13. Promotion and enforcement of the new WRMA river quality and riverine protection rules

## **6. Closure**

In concluding the workshop, Mr Stanley Mbagathi, facilitator, summarised the discussions and presented the recommendations. Participants agreed on the conclusion and recommendations of the workshop and requested WMO Secretariat to finalize the report. It was agreed that, after WMO finalizes the draft, it should be circulated to all participants as soon as possible.

During the closing session, JICA representative thanked participants for their valuable contribution to the discussions, which made it a great success, as it was timely at the start of JICA Study. He assured participants that the study team, while carrying out the study, will take into consideration all issues raised including siltation as a great challenge, deforestation and the issue of long term and short term measures and to undertake the study on a community level. He appreciated WMO's cooperation with JICA in organizing the workshop and highlighted the need for more cooperation especially in the area of capacity building.

The WMO representative thanked the Kenyan Government and the participants for their useful and valuable contribution to the discussions and their strong support to cooperate with the study team. He also thanked the JICA team for their cooperation with WMO to improve the flood management situation in Lake Victoria Basin in particularly in Nyando Basin. He informed the meeting that WMO will organize a follow up meeting among technical and financial partners to assess progress and coordinate activities. He concluded by assuring the participants, WRMA and JICA of WMO's support to ensure successful implementation of the study and thanked the Water Resources Management Authority (WRMA) for their warm hospitality.

In his closing remarks, Mr Oloo, CEO WRMA, thanked all the participants and especially those from the lake basin region. He mentioned that a lot of activities have been implemented to change water resources that had been mismanaged; this includes the development and launch of water rules to be implemented for better management of the valuable resources. He thanked JICA, WMO and other partners for supporting WRMA in implementing their activities.

On behalf of the Permanent Secretary of MWI, MR. Nyaoro, Deputy Director of water resources (MWI), congratulated participants for their conclusion and recommendations reached after useful discussions. He thanked WMO and JICA for their efforts to develop the Study and to bring Stakeholders together for this important workshop. He also congratulated WRMA for being selected to coordinate the implementation activities with JICA. He was pleased to note that the study will benefit the people of Nyando by harvesting floods and converting them from a problem to an opportunity that will help the community. He concluded by assuring the Participants of his Ministry's support to the project and the community involvement in the development process.

On behalf of the participants the representative of Lake Victoria Committee gave a vote of thanks. He indicated that people suffer from floods and plenty of water just for a short period but they face drought problems for longer periods. He indicated the relevancy of the workshop that acted as a tool to show the other side of floods and positive uses that can enhance a community's standard of living. He thanked the organizers and assured the study team of their full cooperation.

The workshop closed on Thursday 3rd of August 2006 at 17:30 hrs.

**AGENDA**

**Stakeholders Workshop on  
Integrated Flood Management for Nyando River Basin  
3<sup>rd</sup> August 2006, Nairobi, Kenya**

**WORK PROGRAMME**

08:00 – 09:00 Registration

09:00 – 10:00 Opening

- CEO WRMA - Welcoming remarks
- Director of WR-MWI - Introduction to Workshop
- JICA representative - Japan support to Kenya
- WMO representative - Objective of Workshop
- Minister of Water and Irrigation - Official Opening
- 

10:00 – 10:30 Coffee Break / Press Conference

10:00 – 13:00 Presentations

- Flood Management – Global Experience - JICA
- Flood Management Strategy for Lake Victoria Basin - WMO
- Experiences on Flood control – UNEP
- An Overview of Nyando River Basin – Challenges and Opportunities - MWI
- JICA Study on Nyando River Basin – Introduction and Outline- JICA Study Team

13:00 – 14:00 Lunch Break

14:00 – 15:30 Integrated Flood Management for Nyando River Basin

Discussions – Stakeholders and Partners

- Current Situation
- Problems and Challenges
- Opportunities
- Community's Participations

15:30 – 16:00 Coffee Break

16:00 – 17:00 Integrated Flood Management for Nyando River Basin

Discussions – Stakeholders and Partners – Continued

- Needs and Requirements
- Proposed Actions
- Recommendations

17:00 – 17:10 Closing of the Workshop (PS – Ministry of Water and Irrigation)

17.30 – 19.00 Cocktail Reception



**MINUTES OF MEETING**  
**THE SECOND STAKEHOLDERS WORKSHOP**  
**THE STUDY ON**  
**INTEGRATED FLOOD MANAGEMENT FOR**  
**NYANDO RIVER BASIN**

**9<sup>th</sup> October 2007, Kisumu, Kenya**

# MINUTES OF STAKEHOLDERS WORKSHOP

Date : October 9, 2007  
Time : 9:30 a.m. to 6:00 p.m.  
Venue : Conference room, Imperial Hotel, Kisumu

## 1.0 MINUTES

### 1.1 Introduction to Workshop by WRMA, Regional Manager WRMA LVSC

An introduction of the participants was done by Ms. Abira, Regional Manager WRMA LVSC.

### 1.2 Opening Remarks by JICA Kenya Office, Senior Programme Officer JICA

Mr. Ngugi began his speech by first acknowledging that the workshop was part of the activities planned under the Study on Integrated Flood Management for Nyando River Basin. He further clarified that the workshop was a follow up to the first workshop held in Nairobi in August 2006.

Mr. Ngugi also explained that JICA supports five priority sectors, namely education, human resource development, economic and infrastructure development, health, and environmental conservation. He further explained that the Study on Integrated Flood Management was being conducted by Water Resources Management and Development Programme as part of the environment sector. He further clarified that JICA had previously offered assistance that led to formulation of National Water Master Plan in 1992.

Mr. Ngugi noted that the Study is a result of Government of Kenya request to Government of Japan. He clarified that the aim of the study was promotion of human security against the threat of perennial floods. He stated that the three main objective of the study were a) for formulation of integrated flood management plan for Nyando basin, b) to support community enhance their capacity in flood management and c) on-the- job training on site in the implementation of pilot projects.

Mr. Ngugi clarified that the stakeholders' forum was established after the commencement of the study with aim of monitoring and deliberate on the progress and outputs of the study and make recommendations on flood management.

Mr. Ngugi also remarked that the Interim Report on the study had already been completed in July 2007. He clarified further that the affected communities were expected to form or join WRUA for purposes of continuous involvement of these communities in water related issues.

Mr. Ngugi also pointed out that flood affecting other parts of the world, he gave examples of Japan, Bangladesh and Uganda. He further clarified that because of increased floods all over the world there was need for interactions of nations towards flood management.

### **1.3 Official Opening by WRMA CEO**

Mr. Patrick Oloo began his speech by first welcoming all the participants to the workshop. He acknowledged that Water Resource Users Associations (WRUA) were major stakeholders related to water. He clarified that flood management as a policy a measure necessitated the need for the study.

Mr. Oloo explained that there were various aspect which were being looked at by the study mainly in the structure and non structure components proposed in the interim report by the study. He clarified that the dams proposed would be used as water storage for dry season and also for purposes of containing floods during heavy rainfalls. Dykes constructed by NWCPC need to look at design structure due to rapid and increased changes both technological and metrological conditions.

He also stated that proper disaster management control measures like evacuation centers, evacuation route, awareness and sensitization as paradigm shift has to be incorporated as more of home made solutions are looked at, he added that capacity building was being done from the Ministry of Water and Irrigation (MWI) to the community through organizations that are established by the community.

Mr. Oloo further encouraged participants to participate actively in the workshop He also challenged the members of the village CBOs and WRUAs that their success will not be gauged by the numbers of seminars they attended but rather the difference they make in the community by the projects that they initiate and successful accomplish. Finally Mr. Oloo official announced the workshop opened.

### **1.4 Integrated Flood Management in Nyando River Basin, JICA Study Team**

Mr. Inoue began his presentations by first appreciating the participants for attending the workshop beside their busy schedule.

He explained that there were five essential elements of Integrated Flood Management (IFM) which includes 1) Integrated Management Approach, 2) Community based flood management, 3) Traditional flood management measures case example Japan, 4) Poverty alleviation and 5) Utilization of flood hazard maps.

Mr. Inoue further explained that Flood Disaster Map was prepared after carrying out interview at 350 points within the basin and the accuracy of map was confirmed by public hearing. He further clarified that disaster management circle that runs throughout the year had been developed.

Mr. Inoue went further and explained that the plan proposed for implementation was in three phases, namely short, medium and long term phases. He added that the implementation can be realized through Public help, Mutual help and Self help. He also showed participants the cost estimate for the proposed measures totaling to 11,259 million Kenya shillings.



Mr. Inoue elaborated on the priority schemes as follows:

- Priority schemes 1: to mitigate the magnitude of hazard
- Priority schemes 2: To ensure proper evacuation activity
- Priority schemes 3: To strengthen flood preparedness
- Priority schemes 4: To mitigate the vulnerability of community

Mr. Inoue also explained that there was need for Institutional Strengthening for community initiative works.

Mr. Inoue also explained how the selection of sub-location leading to five communities selected for piloting was done. He pointed out that the selection was done based on flood damage, flood characteristics, stakeholders' suggestions, regional balance and consensus building. Mr. Inoue added that participatory approach was employed during the survey and study which led to Community Hazard Maps drawn by the community themselves.

Mr. Inoue finally explained the nature of each Pilot Project being undertaken by the Study Team.

Ms. Abira emphasized in an elaboration to the participants that pilot project not the intervention measures but what was being used as indicators on the way forward for the flood management in the basin.

#### **1.5 WKCDD/FM Project in Nzoia Basin (WRMA LVNC/OP) By Simeon Mutie**

Mr. Simeon Mutie of OP explained that:

- Project under special programmes an initiative of GOK and World Bank. Floods have been dealt with in terms of response in the past which has often left locals poor and dependant and in abject poverty.
- Objectives of this project includes:
  - a) Empower communities
  - b) Management of floods

Mr. Mutie explained that the Scope of project covered western province and part of Nyanza Province (Siaya and Bondo) at the cost estimate of the project being 7 billion.

Mr. Mutie further clarified that Project implementation approaches included: Bottom up, integrated approach and multi-sectoral. He added that the main was to identify and deal with causes of the floods

On Institutional level Mr. Mutie explained that it was being done at two levels i.e. the National level which was being conducted by the Ministry of Special programmes and District level being conducted by District coordination unit

Mr. Mutie also explained that the Project components included

- 1) Community driven project which deals with approach Mobile advisory teams, promotion of livelihood Flood mitigation based income generating micro projects, fight against malaria initiatives.

- 2) Flood mitigation component which deals with catchments improvement of Structures for mitigation and an extensive communication strategy will be enhanced
- 3) Floodplain Management which deals with targeting alleviation of the socioeconomic costs in flooding in collaboration with communities
- 4) Flood Early Warning Systems which will involve establishing of effective EWS, Development of capacity for flood disaster management and Support for collection of data
- 5) Implementation support system which entails:
  - a) Support to policy analysis
  - b) Management of monitoring and evaluation

Mr. Mutie further explained that the Project was still in the preparatory stages and sourcing for management was on going and also that the preparatory studies were being carried out especially on Social Assessment.

#### **1.6 Integrated Flood Management in Japan- WRMA Regional Manager and Mr. Memo**

Ms. Abira explained that this presentation entailed a study trip of Kenyans to Japan. She stated that four WRMA staffs visited Japan from 13<sup>th</sup> may to 27<sup>th</sup> may 2007. Trainees were two staff from Nairobi and the other two from WRMA LVSC. She explained that the study was a revelation and there were salient features of the study that were of great interest and this included:

- Pioneer-community driven flood management processes
- Traditional Flood Management in Japan
- Ring levee: Flood preventing warehouse, spare platform-public shelter, Trenched paddy fields (agriculture, transport). The 15<sup>th</sup> century dyke still in existence though some have been encroached
- Raised rural house: Raised houses and shrine used as evacuation center, drums and bells in rural homes for purposes of warning other people in times of flood
- Separation of rivers Ibi, Nagara and Kiso community engaged people into forced labour to mitigate floods
- Traditional structure: Groin (crib spurs) made of wood (bamboo filled with stones for slowing down the flow of the river
- Non structures: Flood fighting drills are done periodically and flood fighting events by communities components evacuation operation, flood preparedness and Sandbag protection

Mrs. Abira also drew the attention of participant to Miyagase dam. Mrs. Abira explained that the dam is used to prevent floods, preserve, store water and

generate electricity. She further observed that Miyagase dam catchments were restored and preserved

Mr. Memo explaining on River Management he cited example of Arakawa River: He explained that Arakawa river basin has 76 CCTV cameras, water level set automatically and monitored and he further observed that dykes positioning was proper that even caters for the needs of the disabled. Mr. Memo also explained the role of research and development for disaster management

On Lesson learnt Mr. Memo observed the following:

1. Community involvement
2. Traditional approaches have a role to play
3. Community sensitization
4. Education and awareness
5. Policies on flood management

Recommendations are:

- Policy
- Actively involved communities
- Adopted integrated approaches
- Support communities to undertake intervention

## **1.7 Stakeholders views and comments and comments on IFM and JICA Study**

### **(1) District Commissioner (DC) Kericho**

DC Kericho, Mr. Njenga, urged that there must be a paradigm shift that takes into account the traditional approaches in instituting development. He also stated that Kericho experienced rainfall throughout the year but there were some areas were dry in Kericho. He gave example of Sori Division bordering Nyando district. He added that some works being done in the Nyando and Sori is left out yet water that goes down streams passes by Sori yet they do not benefit from this water and neither are they benefiting from the projects that have arose due to hazards caused by this water. Mr. Njenga went further and requested for small dam or water pan be constructed in this area for animal watering and irrigation purposes.

### **(2) WRMA Lake Victoria South Catchment (LVSC)**

Mr. Kisaa commented that the presentation were good and tackled the major areas of concerns. He observed that community participation was well captured and has been portrayed to be an important feature for flood management and the success of the same.

Mr. Kisaa noted that the difference between the two presentations was that while the western divided their approach into district levels the JICA study team chose to operate with the river basin. He observed that river cannot be confined to administrative boundary but river basin, and requested WKCDD/FM to take this view into account,

Mr. Kisaa also pointed out that WRUA were formed based on water bodies which transcend the administrative boundaries most of the time and therefore making

administrative boundaries of less importance when it comes to management of water resources which includes management of floods. Mr. Kisaa also called for integration approach between LVNC and LVSC and urged them to work together as a team.

Mr. Kisaa also observed that there was need to clearly define who is mandated with the responsibility of managing the early warning systems in hydro-metrological management. The two institution i.e. WRMA LVNC and Metrological department need to sit down and come up with a clear cut roles on the management of hydro-metrological.

Mr. Kisaa also observed that in the WKCDD/FM project presentations that there were no clearly define policy on the role of WRMA on one hand and OP on the other hand. He added that policy formulation was being frustrated by politicians in parliament who recently threw out an Act that was aimed at harmonizing policies and defining roles of institutions in implementing these policies.

Mr. Kisaa also stated that Land tenure was a challenge that needed to be addressed especially when dealing with those people who have settled in the riparian land. He added that there was a need of identifying how these people managed to settle on the riparian land and what needs to be done and where compensation is recommended be quickly done and allow for proper management of water resources and flood management. He added that it was important to know how these people settled there and how they were going to be helped and what can be done for them.

Mr. Kisaa also wanted to know the sites of the 3 dams in Nzoia river and where the money was coming from and if the money for the three dams was the 7 billion Kenya shillings that were being talked about in the political statements being made on news.

Mr. Kisaa also wanted to know what was going to be used to measure the amount of river fall and who was going to take the lead role in dissemination of the information

Mr. Kisaa also observed that watershed management plan was not captured though much had been done by the Study Team on the same. He explained that much had been promised earlier on watershed management yet in the presentation it was not addressed.

### **(3) WRMA Lake Victoria North Catchment (LVNC)**

He explained that Educational and Community programme was going to be taken up by LVNC and adopted.

He further observed that the presentations did not cater for microfinance issues and the presentations zeroed on management level only at the expense of financial aspect which addresses the issues of poverty.

He also observed that the integration of the political wing was not captured or attempt towards integrating the political wing is not reflected. He further

explained that without political favour the projects tended to die even before inception.

#### **(4) Representative, Odesso Village**

Chairlady of Odesso Community Multipurpose Group, Ms Othuon Agnes, observed that Odesso was in serious problems and no one was addressing them until JICA Study Team entered into the community. She explained that JICA Study Team has gone through the community and studied the problems that were affecting Odesso.

Ms Othuon further explained that implementation of river bank protection through gabion construction was underway and she further observed that this construction is a source of joy to Odesso community. She stated that with the help of the Study Team the CBO was formed and this has enabled and enhanced cooperation among villagers in community whereby the community now work together as one unit towards the development of the village.

Ms Othuon clarified that the Contractor is on the ground and community through the CBO are the ones that are supplying the labour force and 10% of their labour wages is being deducted and credited to the CBO Account. She added that there is glimpse of hope since the works started in the community because the young men who were unemployed are now working at the site of construction and widows who are vulnerable have been given soft works to do at the construction site. Ms Othuon further observed that the CBO has further benefited from the trainings that have been carried out by JICA.

She observed that the Japan Experience by WRMA was impressive and that what was done in Japan can be replicated here in Kenya. She therefore challenged the NGOs and donor community to take the lead initiatives to realize and adopt the Japan success story in management of floods.

Ms Othuon further explained that the Odesso community with the help of JICA was able to draw CAP. She added that NGOs and donors can help them realize the components highlighted in the CAP.

She briefly outlined some of the components of the CAP that which included: a) schools inaccessibility during floods leading to disruption of learning and therefore interfering with the general performance of the pupils in the area. b) lack of clean water during the floods leading to increased waterborne diseases, and c) need for a nursery school for the little children who cannot walk long distances to attended the only nursery school in the area which is located outside the village and becomes inaccessible during the floods

#### **(5) Representative, Kokwaro Village**

Chairman of Kokwaro Community Development Project, Mr. Onunga Kute, appreciated JICA for the projects that are being undertaken in Kokwaro village. He explained that Kokwaro village has been under siege from the menacing floods for a long time. He indicated that since 1960s floods have been a menace in the region, he added that the El Nino rains were destructive whereby crops were destroyed and lives were lost and general disruption of day to day livelihood. He

stated that during this period the village depended wholly on assistance and Red Cross and the government supplied their needs.

He further explained that Kokwaro is affected not only by River Nyando floods but also the draw back waters from Lake Victoria which causes havoc in Kokwaro destroying their crops and the community always has to rely on Red Cross for relief intervention.

He explained that as a result of JICA study team entry into the community a CBO has been established that links the community with JICA study team and as a result an evacuation center is being constructed and the community is actively involved. He also explained that the community contribution towards this development was worth noting, adding that the community donated the land for construction of the evacuation centre.

Mr. Kute also lamented of the poor roads in Kokwaro and added that JICA Study Team was constructing a road that leads to evacuation centre.

Mr. Kute further observed that despite all the projects being undertaken in the village River Nyando was still a menace and whenever it rains in the Nandi Hills Kokwaro community cannot have a peaceful sleep because of the fear of the impending danger posed by River Murui a tributary of River Nyando. He further added that due to desiltation of this tributary, there is normally slow flow of water as a result of the overflow of River Nyando into River Murui and this leads to floods in Central Bwanda sub-location. He therefore proposed that the stakeholders find a way of providing an excavator for purposes of desilting this river.

Mr. Kute also observed that there was a dyke that was being constructed on River Nyando by the government and he explained that a 4 km stretch has been done for over one year and this was due to slackness of government officers on the ground. He added that the rains often do not wait for these officers to complete the dyke but rather it washes away even the little progress done on the dyke. He therefore called for help from donors to achieve this dyke construction.

#### **(6) Representative, Kasiru Village**

Ms Magrita Osir, the Chairlady for IFM self help Group, observed that Kasiru was a forsaken land totally unknown until JICA Study Team opened it up. She stated that the village before JICA Study was inaccessible but now the village has opened up and vehicles are even accessing the village.

She further explained that the need of a group came into the community realization during trainings at Multipurpose Hall in Ahero, when the community was finalizing the CAP. Ms Osir explained that Kasiru is a water log area and therefore development of the area needed a joint venture not only by the community but by various support NGOs operating in the area.

Ms Osir also explained that NGO has been training the CBO Capacity development which included financial management. She added that on the other hand Red Cross Nyando branch has trained the CBO in Flood Management and use of clean water.

Ms Osir further explained that JICA has already constructed a borehole and the water flowing therein is clean. She added that the works being done in the village has made the unemployed youth and women an opportunity to work. She added that the projects being carried out in the village was a source of hope to the community.

In explaining the nature of Kasiru, Ms Osir explained that the village was divided by rice paddies, she further observed that the pilot projects were being done only on one divide of the village, she added that the water well that is being dug should be raised on a high tank and the water supplied in the other part of the village such that every community member is able to benefit from the project.

Ms Osir also noted that there was need for an evacuation centre to be constructed on the other divide of the village she explained that this will be of great help for the villagers living on that divide of the village will not be cross over through the hazards of waters in order to access the only evacuation centre in the area.

Ms Osir in conclusion stated that she was very happy because Kasiru had been opened up and is fairly accessible, what hitherto could not be achieved even by politicians who come for votes promising much but delivering nothing.

#### **(7) Representative, Kochiewo Village**

Mr. Gordon Ondiek, Chairman of Kogwedhi Community Self Help Group, explained that the CBO comprises of three villages which are located near to River Nyando. He explained that Kogwedhi as an area was perennially affected by floods.

He stated that the community members in this area were not happy with the government officers on the ground and they consider that Nyando River was a source of income for these officers. He stated that on paper it is indicated that 48 Million Kenya Shillings was being spent by government in mitigation efforts on the Nyando River yet little is witnessed done on the ground.

Mr. Ondiek stated that poor transport and communication network was the main problem in Kogwedhi. He explained that as a result of this, assistance aid to this area becomes a problem in times of disaster and therefore it becomes difficult to minimize damages in the area.

Mr. Ondiek also observed that during floods there are increased incidences of sickness and epidemics in the area and therefore there was a need of a health facility in the area to cater for the medical needs of the community members.

Mr. Ondiek also explained that JICA Study Team and community members began to communicate last year and since then much has been done and achieved in the area of Kogwedhi he went further to give example of the dyke which is still under construction in which community is involved in the works as labourers. He further clarified that in the month of September when the River Nyando overflowed the dyke was able to protect the overflow to the homesteads.

Mr. Ondiek further explained that Nyando River has many tributaries and in his view the dyke construction was not a lasting solution. He stated that widening of the river Nyando would be a better solution and worth trying.

He added that the dyke that was being constructed by JICA was only a 100 M long and suggested that if the dyke was going to have any impact then it had to be constructed to the very end in Nyalunya.

Mr. Ondiek thanked JICA for the help and urged other donors and NGOs to follow suit.

#### **(8) Representative, Siwot/Kamiwa Village, Chi Chilla Sub-location**

Mr. Thomas Bor Chairman of Millenium Community Health Workers Group on his part stated that the membership of Millenium CBO was 18 in number but added that there was corporate membership which included members of the two villages Kamiwa and Siwot.

He explained that the CBO basically was involved mainly with health issues but after coming into contact with JICA Study Team the CBO has diversify its activities to include flood management and as result of this the CBO was actively involved in the on going riverbank protection being undertaken at Bararget River.

He expressed his appreciation of JICA Study Team approach that was participatory and involved the community.

He added that Millenium had registered with WRUA Kano Plain. They are working together in different matters involving water resource management.

Mr. Bor explained that the tributaries joining to the River Nyando were facing problems of encroachment of the forest cover that acts as their catchments due to increased human activities in these areas.

Mr. Bor also observed that there was need for the projects being undertaken should be sustainable and this he explained could be achieved by training of community.

He further added that he supported the proposals for financial empowerment of communities, strengthening of policies and sensitization of the communities through trainings

He also stated that the Millenium CBO needed training in capacity building on afforestation given that the main cause of the floods.

#### **(9) Kawire Water Resources Users Association (WRUA)**

Chairman started of by stating that before 1960s there were no notable floods and he explained that this was due to the forest cover that had not yet been encroached.

He posited that planting of water friendly trees was the solution and the way forward in the management of floods.

He further observed that the construction of Nzoia dams was likely to cause conflict with the communities especially where the land will be taken from the



community and therefore the solution of the floods was not in the dams but reversing the loss of the forests through afforestation efforts.

#### **(10) Mara WRUA**

Mr. Kones Chairman of Mara WRUA observed that Mara basin was different from Nyando Basin. He pointed out that Mara's main salient feature was overt concentration on conservation efforts.

He clarified that emphasis should be directed on the catchments area of Mau forest catchments which is one of the major catchments area and the source water that flows into the lake.

He further clarified that Mara WRUA in effort to achieve its goal had trained provincial administration especially the chiefs and assistant chiefs on conservation efforts and therefore the provincial administration was actively involved in protecting the catchments and therefore by extension they take care of the rivers

He also questioned the disparities of rainfall forecasters with actual weather pattern and therefore questioned the effectiveness of early warning systems in flood management.

Mr. Kones further observed that there was reduced forest cover in the country and he added that individuals need to take responsibilities and play apart in the afforestation in a deliberate effort of increasing the forest cover.

He wondered why the Nyando basin depended on food from the highlands while the region possessed a lot of water flowing to the lake. He added that irrigation in the Nyando basin will improve food security in the region.

Mr. Kones also appealed for replication of the WKCDD/FM project in the Mara basin.

#### **(11) Ministry of Health**

Mr. Arodi Public Health Officer Nyando stated that there was need to harmonize the distribution of relief aid agency. He explained that due to lack of communication of these agencies there was duplication of efforts that at times leads to dumping of certain relief aid in these vulnerable communities. He gave an example of Chlorine that was dumped at one evacuation site.

Mr. Arodi further called for Integration of Public health in PRA exercise in order to come up with CAP that had a proper input from health department.

He urged that the Community capacity to manage the outbreak of diseases should be enhanced.

He urged the Government to come up with community initiatives where by community participate as it is indicated in the study approach and in the Japan experience presentation whereby the participatory approach was embedded.

### **(12) Lake Victoria South Water Services Board (LVSWSB)**

Mr. Onyari began by stating that LVSWSB was mandated with provision of water and sanitation services. He added that the LVSWSB covers a total of 26 districts.

He further observed that JICA Study Team's interventions did not take into account water infrastructures like the water pipes that are often washed away by floods and therefore interfering with supply of clean water.

Mr. Onyari also voiced his comments on the gullies which arise due to soil erosion. He explained that the study did not touch on this gullies yet they were important feature in the management of the floods.

He further observed that the sustainability of the projects after the long term plan time elapsed was not captured and he challenged the participants to come up with a way forward rather than wait for the donors again to come and charter away forward.

He stated that LVSSB had adopted sectoral approach in order to avoid duplication of effort. He assured Kokwaro community representative that LVSWSB had a tanker to supply clean water whenever they are called to and he added that LVSSB were in the efforts of digging small shallow wells.

### **(13) Irrigation Department, District Office**

Eng Kiptanui the provincial irrigation officer observed that the budget estimates as indicated by the study team on paper it appeared huge sum of money was needed and this he observed was a potential cause of donors to shy off and therefore he suggested that the study team attempt segmenting the budget into phases and factor in the contribution of the community in terms of the donated lands and labour.

He further clarified that in the role of government vis-à-vis the community in Japan experience was not captured.

He explained that pilot project did not touch on the irrigation component and yet the study was integrated flood management and this he observed was a limitation.

Eng. Kiptanui clarified that it was government responsibility to ensure synergic relationship of different sectors in the basin and what roles each sector should play towards the desired goals.

He added that water that floods the region could be harnessed and used for crop production in this flood prone and drought stricken area.

Eng. Kiptanui stated that money given out by government for irrigation purposes or any other purpose must be accountable and handled in a transparent manner. He further explained that it was the right of the farmer to know about the budget and the use of these monies.

### **(14) Nyando Forum**

Mr. Aloo Ogeka, the Vice Chair Nyando Basin Management Forum, stated that the impact of the forum was increasingly disintegrating. He observed that whereas

the Forum started at a high tempo the Forum was losing out. He explained his observation was based on the NGOs and other organizations that participate in the Forum had resorted into sending junior officers to participate in the Forum proceedings.

He also pointed out that the Forum was an amorphous body that needed to be reorganized into a body with proper structures.

He observed that micro socio-economic effort needed to be addressed in order to turn around the Nyando flood curse into a blessing. He stated that the main cause of the problem in the basin was poverty. He added that if poverty was addressed then the flood menace problem will be equally taken care of.

He posed this rhetoric question to the participants who own the irrigational channels. He added that this question needed to be addressed if dams were going to be constructed and irrigation done in this area. He stated candidly that for this dream of dams to be realized then it was imperative that the government states who owns these irrigation channels.

Mr. Ogeka further suggested that water utilization in the area should be paramount to the water flowing into the lake. He observed that most of the emphasis had been placed on the water flowing into the lake rather than utilization of water.

On pilot projects Mr. Ogeka observed that the pilot projects should be extended beyond the village level.

In conclusion Mr. Ogeka emphasized that CEOs involvement in the Forum was important but yet the Forum had been relegated into sending junior staffs and the CEOs will not in turn give them room to discuss the Forum proceedings.

## **1.8 Open Discussion**

- (1) Mr. Ngome of HEMNET observed that the Forum should be given an opportunity to visit the projects sites of piloting. He added that this will enable the Forum members to discuss issues based on what they had seen.

He also sought to know what did Office of the President (OP) implies based on the presentation of WKCDD/FM whereby it was indicated that the money had been given to the OP by World Bank. He asked for clarification on the OP if it meant the Office of the President Representative on the ground i.e. the assistant chief or chief or the President in Nairobi. He also wanted to know who exactly was going to implement the WKCDD/FM plan and when was the implementation.

- (2) Mr. Owalla of Nyanza Youth Coalition suggested that the Nyando Forum be divided into working committees in order to make it effective.

He observed that Wetlands were increasingly being destroyed and in his view this destruction of wetlands was the main cause of the floods. He therefore proposed a shift of focus to the wetlands conservation.

He observed that the Japan Experience pointed out to tree planting as a way forward and urged that Nyando Forum should start a tree planting activities as matter of urgency

- (3) Mr. Mumbo of NEMA stated that Environmental Impact Assessment (EIA) was an important requirement in any structural works that are to be carried out. He added that in the Study Team budget estimate the EIA cost are not catered for and yet there is no project that can commence without EIA clearance. He further suggested that when such a budget is being drawn EIA cost should be factored in.
- (4) Mr. Lomo of Okana Mbagwa water users Association stated that the dams construction was a necessity and should not be politicized.

He added that the government should come up with proper policy on flooding and flood management in order to have clear cut roles on who does what and when.

Mr. Lomo further observed that there was need for addressing the micro financing especially for agricultural purposes in Nyando Basin. He added that in the lower parts of the basin the communities were moving towards horticulture farming and as result there was need for funds to improve on this venture.

- (5) Mr. Lucas Owino of River Nyando WRUA observed that dams and water pans should be constructed for purposes of agriculture at the expense of water to flowing to the lake and therefore being of little use to the locals.

Mr. Lucas Owino also observed that the basin was characterized with poor road network and yet roads are catalysts for development

He further lamented the poor Health infrastructure in the region which he urged that it should be improved bearing in mind that AIDS is a big problem in the area and needed donor help to fight the scourge.

- (6) A participant observed that both the presentation by JICA Study Team and WKCDD/ FM concentrated on the floods and left out the other side of the coin the drought. He explained that drought was a big problem and only construction of the dam could help in the drought management.

He further observed that since the efforts were integrated flood management, Kenya water institute should be incorporated in this management.

- (7) Chairman WRUA Migori observed that there was need for Public education on water resources and also for environmental education awareness. He explained that this was the best way to sensitize the communities.

He further lamented that there was no developed wetlands management policies and this was a bottleneck in the flood management efforts.

He further acknowledged and appreciated the presentations. He added that he was impressed by the overall practicability of Mr. Inoue's presentation. But he questioned the sustainability of these pilot projects especially

because of the use of the non renewable resources at the expense of renewable resources like tree planting.

He further noted that Japan experience could have been much better if it had been interpreted in the context of a Kenya scenario and this would enhance the adaptability of the same success story to Kenya.

- (8) A participant sought to know whether the Flood Forecasting and Early Warning System (EWS) is being considered as an immediate project implementation. He further added that the delay of the EWS implementation meant lack of proper preparedness. He observed that WKCDD/FM captured this concept of EWS.
- (9) Mr. Obaga of KARI explained that deforestation was the main cause of floods and urged the established CBO to start up tree nurseries.  
  
He further observed that Capacity Building of these organizations was a noble thing and urged other stakeholders to follow suit in enhancing the capacities of these community based organizations.
- (10) Mr. Kones of Mara WRUA explained that Mara WRUA was an umbrella WRUA that covers the whole water channel. He added that this was advantageous especially in terms of coordination and dissemination of information.
- (11) Eng. Kinyua of WRMA Headquarters in responding to the concerns raised stated that WKCDD/FM was structured to address three issues:
  - Afforestation. In this component the salient feature was an attempt to address the issue of poverty that leads communities to abuse resources in effort of generating income
  - Catchments protection whereby WRMA LVNC ensures that works on protection are done along river line
  - Division of districts into core and non core districts. The Non core districts addresses Siaya and Bondo and Cherangani and Eldoret and some part of Nandi North and South districts
- (12) JICA Team Leader, Mr. Inoue, outlined the history on the studies done on the basin in 1992 JICA study. He added that it would be high time that repeated studies came to an end and the focus channeled to implement the plan.  
  
He suggested to participants to identify the source of fund for implementation rather than spent much time discussing and the same things over and over again.
- (13) Ms Abira in her response stated that the adoptability of the Japan experience to be Kenyan experience holistically was not an easy task because of the difference in technological advancement, topography and weather pattern but simulating and replicating certain experiences was a

possibility she gave an example of raised houses which will demand a change of architectural designs.

She added that also involvement of WRUA will help to realize and achieve some of the achievement witnessed in the Japan experience.

She added that WRMA was going to assist WRUAS to have the capacity of writing proposal for donor assistance for their activities.

Ms Abira further clarified that Integrated efforts should be embraced in order to realize the set goal of the study

She further stated that an Umbrella WRUA body was a noble idea and should be looked at as a way forward for the Nyando basin.

A participant sought for clarification on who should be consulted when the river level rises and who was going to respond during an alarm raised in case of the river rising or residing.

- (14) WRMA CEO, Mr. Oloo, responded to the issues raised by first clarifying that the Western Kenya project and Tana natural resource management were two projects that were being funded by World Bank.

He explained that the Western project was a flood mitigation oriented project and therefore its main concern was disaster and therefore this meant automatically it fell in the Office of the President under the Ministry of Special Programmes. He clarified that the Tana natural resources was not considered disaster and therefore its funds are channeled through Ministry of Water and Irrigation.

Mr. Oloo further pointed out that because the money was loaned by World Bank the Ministry of finance therefore also demands that the parastatal given money for the project should also receive it from the treasury at the level of a loan.

Mr. Oloo further pointed out that the content of workshop was captured in the progress report and the desired out put of the workshop was also indicated in the same report. He further noted that though most participants had received the report but most of them had not read it therefore they did not know the output of the workshop.

He further explained that the dam was a public state scheme (these are projects that are undertaken by the government). He added that there were those that are able to be done by the NGO and also there were those that were able to be done by the community. Based on this clarification Mr. Oloo challenged the participants to identify what they can do and begin doing them.

He further challenged the WRUA and CBO to measure up and perform because their yard stick will not be determined by how many seminars they had attended but rather the milestone in terms of projects started and accomplished.

He pointed out that the policy issues were being worked out and some of the policies were already captured in Water Act like that of floods. But he added that policy on lands was moving a little slowly because of the sensitivity of land in the country.

He further clarified that there was no money for dams for the western project because the money World Bank released was only 100 Million Kenya shillings

Mr. Oloo observed that the role of Forum in flood management was important and urged the Forum to look at the possibility of becoming an umbrella body for the WRUA and this will enable the Forum to have a direct influence on the policy issues

He further stated that the draft water rules had now been gazetted (in September) and they are at the government printer for anyone who wants to look at them.

He stated that EIA exercise was important and Water Resources Management Authority had agreed to comply with it and also EIA was government requirement.

He observed that there was a need for a smaller forum to share ideas of the plan that are in the document and discuss them and be share this information with other governmental agencies

He further observed that Western Kenya had 60% of waters and added that tackling it meant solving major crisis of water in the country.

- (15) Eng. Kinyua, WRMA, stated that Poverty contributed to flooding especially in the abuse of resources like charcoal burning which destroys catchments. He added that any plan of flood management must have a component that addresses poverty issues

He also called for proper land use and using water for productively especially in agriculture.

He further clarified that the dam issue was in the master plan of 1992, he further pointed out that the location for the dams was known but what lacked was a proposal for written for the funding. He pointed out that a detailed design was yet to be done and he requested JICA to help in coming up with detailed design.

He also explained that a document on Water Resources Users Circle was being developed and this he explained would localize WRUA within a particular locality and this will enable the WRUAS to solve certain water issues within that particular locality.

He further pointed out that Umbrella WRUA was a possibility but this body to have any meaningful contribution must be confined to WRUA members only i.e. those members who run a WRUA at a particular locality.

## **1.9 A.O.B.**

The date of the next Nyando Forum meeting was announced to be held on 31 Oct 2007.

## **1.10 Closing remarks:**

Eng. Ogallo MWI made the closing remarks. In his speech he urged the participants to revisit the purpose of the study. He clarified that the study was government of Kenya initiatives. He clarified that as a result Water Act which defined the role of agencies operating in the ministry of water, WRMA was the one that was mandated with implementing the projects.

He clarified that the main duty of the study was to come up with a master plan and piloting projects. He added the MWI have already received the draft master plan and sourcing for funds had already started in earnest.

He further observed that the Ministry of Forestry was important and should be incorporated in this integrative approach.

Eng Ogallo further stated that the Wetlands policy was in progress and a draft will soon be ready.

He observed that sustainability was an important aspect of any project and gave examples of the projects that were done by Lake Basin that were redundant and not operational work at present. He therefore urged that there was a need to put in place system that will make these projects sustainable.

Mr. Ogallo in closing stated that emphasis should be placed on the non-structure measures. He explained that when the communities are empowered this will imply reduced need for structures measures because the capacity of these communities will have been built and enhanced.

Finally Mr. Ogallo passed a vote of thanks to all the participants and the workshop was officially closed at 18:16 hours.



## AGENDA

**Stakeholders Workshop on  
Integrated Flood Management for Nyando River Basin  
9<sup>th</sup> October 2007, Kisumu, Kenya**

**WORK PROGRAMME**

09:00 – 09:30	Opening <ul style="list-style-type: none"> <li>• Introduction to Workshop by WRMA– (10 minutes)</li> <li>• Opening remarks by JICA Kenya Office-(10 minutes)</li> <li>• Official Opening by WRMA CEO (10 minutes)</li> </ul>
09:30 – 10:00	Presentations <ul style="list-style-type: none"> <li>• Integrated Flood Management in Nyando River Basin (JICA) <ul style="list-style-type: none"> <li>➤ The Master Plan</li> <li>➤ Outline and Progress of Pilot Projects</li> </ul> </li> </ul>
10:00 – 10:20	Coffee Break
10:20 – 12:00	Presentations (continue) <ul style="list-style-type: none"> <li>• WKCDD/FM Project in Nzoia Basin (WRMA/OP)</li> <li>• Integrated Flood Management in Japan <ul style="list-style-type: none"> <li>➤ Findings of the Kenyans Training in Japan (WRMA)</li> </ul> </li> </ul>
12:00 – 13:30	Lunch Break
13:30 – 15:00	Stakeholders views and comments on IFM and JICA study <ul style="list-style-type: none"> <li>➤ WRMA LVSC</li> <li>➤ WRMA LVNC</li> <li>➤ Representative from each pilot project area <ul style="list-style-type: none"> <li>• Odesso</li> <li>• Kokwaro</li> <li>• Kasiru</li> <li>• Kochiewo</li> <li>• Siwot and Kamiwa</li> </ul> </li> <li>➤ Stakeholder related to WKCDD/FM Project</li> <li>➤ WRUAs in basins other than Nyando River</li> <li>➤ Offices of other sector <ul style="list-style-type: none"> <li>• Education department</li> <li>• Health department</li> <li>• Transport department</li> <li>• Disaster management (OP)</li> </ul> </li> </ul>
15:00 – 15:20	Coffee Break
15:20 – 16:15	Discussions on Stakeholders Views and Comments
16:15 – 16:45	Conclusion and Summary of Workshop (WRMA)
16:45 – 17:00	Closing of the Workshop (WRMA)



**MINUTES OF MEETING**  
**THE THIRD STAKEHOLDERS WORKSHOP**  
**THE STUDY ON**  
**INTEGRATED FLOOD MANAGEMENT FOR**  
**NYANDO RIVER BASIN**

**11<sup>th</sup> December 2008, Kisumu, Kenya**

# MINUTES OF STAKEHOLDERS WORKSHOP

Date : December 11, 2008  
Time : 9:30 a.m. to 6:00 p.m.  
Venue : Conference room, Imperial Hotel, Kisumu

## 1.0 MINUTES

### 1.1 Opening and introduction

The meeting commenced at 9.20 am with a word of prayer from Mr. Wekesa. Thereafter it was followed by introduction of the stakeholders which was led by WRMA CEO Eng. Olum.

Objective of workshop was outlined by the Regional Manager, WRMA-LVSC as to share views and opinion on the study. She also introduced the agenda of the workshop programme.

Mr Inoue of JICA Kenya Office made the opening remarks. He stated that the Objective of the workshop was to discuss the draft final report. He pointed out that the opinion of the participants was important. He also explained the new 24 communities' project which aimed at Japanese government assistance. He pointed out that this new project was anchored on the pilot study. He stated that the Japanese Government was ready to support the 24 communities' project. He clarified that the JICA team had met the permanent secretary in the Ministry of Water and Irrigation and they had discussed the project and the PS had approved the minutes therein. He categorically stated that the key player of the project was not JICA but the 24 communities.

Eng. Nyaoro director of water official opened the workshop on behalf of the permanent secretary of Ministry of Water and Irrigation. He explained that Kisumu being the Millennium City much was expected from it. He clarified that the government of Kenya had requested the Japanese Government to assist in the perennial flooding problems experienced in the Nyando Basin with an aim of find lasting solution. He explained the objective of the study- was to develop a Master plan, institute community led initiatives in flood Mgt and building of the capacity of institution. He enumerated the outcome of the study i.e. the master plan, the pilot project

As a result of the success of the study and pilot project the MWI requested the implementation of 24 communities' project. He explained the Permanent Secretary had already signed the minutes that are going to be discussed by government of Japan for approval of the grant aid. He asked the participants to contribute their ideas and he thereafter declared the workshop officially opened.

### 1.2 Presentation of Draft Final Report, JICA Study Team

Team Leader, Mr. Inoue made the presentation stating that the study had been in progress for the last two years. He also explained that as a result of the study a flood disaster map had been developed.

He pointed out the objectives of the study. He also pointed out the transparency that was entrenched in the study which entailed establishing of Nyando Basin Forum as an umbrella body for various stakeholders and which some of the members were fronting it to be an umbrella WRUA in the region.

He explained that the Master plan was based on the flood disaster map. He explained that the concept of the master plan also considered short term medium and long term. He also clarified that the non structure measures had been divided into six components. He further pointed out that the structure measures that had been proposed were premised on the implementation plan as Government help, Mutual help and Self help. Mr. Inoue also explained the cost estimates of the short term, medium and long term plans. He gave an outline of the priority schemes and their cost prices.

He also explained the Pilot Project that which had been carried out in the five villages in Kisumu and Nyando district. He pointed out that Odesso village was visited by Japanese Tax payers. He explained that Evaluation of the projects had been carried out with assistance of the Forum. He listed the main Lesson learnt as a) Prioritization of communities based on present and past flood damage b) On job training on Project sustainability

He also explained that the Study carried out institutional strengthening for WRMA through training of the staffs among other trainings GIS training was carried out.

On the 24 community-driven flood management projects, Mr. Inoue pointed out that it was going to be divided into two components i.e. the structure and non structure.

He outlined six recommendations stemming from the study. Thereafter he thanked the stakeholders for their contribution and participations in the last two years the Study had been on-going and he appreciated the members that they were cooperative whenever they were called upon. He stated that he was optimistic that the proposals outlined by the Study were going to be of great assistance in the region.

### **1.3 Presentation of Global Warming and Flood, JICA Headquarter**

Mr. Ishiwatari of JICA Headquarter discussed the climate change and how to manage the floods in this new world environment. He gave a comparative look of a basin in Japan and in Nyando Basin. He outlined the Japanese government strategy on tackling. He gave an example of Mt. Kilimanjaro glacier reduction and rainfall increases which he stated was as a result of global warming.

He explained the ways in which the Japan government was reacting e.g. reduce the pollutant emission of the world by half. He further pointed out that the government of Japan shall provide grant aid to help combat the problem, he clarified that the grant aid had already been given out to Madagascar.

He explained that Japan was vulnerable to climate change, and that the climate change prediction had already been done and northern area it is projected that the rainfall will increase by 20% and as a result the flood problem will be more acute

which will lead to even severe droughts. He pointed out that the river flow for irrigation water will reduce drastically. He discussed the government recommendations which included 1) Coming up with strategies of zero casualty 2) improving national functions through structural and non structural adaptation.

He also explained and gave example of Tsurumi River in Japan. He further discussed on storage, infiltration, public awareness to mitigate flood damages. He therefore encouraged the Nyando basin to try and adopt this Japan strategy. He gave example of the JICA work in the Himalaya and pacific areas. He also discussed the integrated flood and urban management explaining that after 30 years the flood volume will increase giving an example of Manila Philippines.

Questions arising:

Mr. Khisa wanted to know if there was similar prediction for the flood that had been carried out for the River Nyando Basin for 20-30 years to come. Mr. Ishiwatari responded that such predictions had not yet been carried out by JICA for the Nyando basin.

#### **1.4 Presentation of Flood Situation in Tana Catchment, WRMA-TANA**

Technical Manager made the presentation. He explained that flood occurs mainly in the lower areas. He pointed out the five dams constructed in the area have been of great assistance in minimizing the flood damages.

He gave an overview of the Tana Catchment which explained covered square KM126000. He also explained the location of Tana and how the floods develop in the area. He clarified that in the Tana Basin there were two seasons of rain in March April and October and November. He pointed out that climate change was real because currently in the Tana what had been hitherto rainy season is so dry.

On Causes of floods in the technical manager pointed out the following a)Tana siltation, b) Encroachment of flood plains, and c) Tana catchment degradation. He explained that various urban towns have sprouted in the Tana like Embu Town, Maua Town and Isiolo town and therefore leading to the problem of development within the wetlands

On the way forward he pointed out that the encroachment of wetland was of concern and given that when the floods affects those who have encroached the wet lands they often seek compensation from WRMA.

He enumerated the impacts of floods. He also discussed the Mitigation measures which included Structural. He added that the hydroelectric dams have assisted, and that the check dam had been proposed in the area. On Non structural measures he stated that they needed to learn more from the Study and WRMA-LVSC which included Flood preparedness Community, Early warning systems and Challenges in flood management, Lack of capacity to address flood, Socio cultural issues, Land use practices and High cost of structural measures.

On the way forward the Technical manager highlighted the following: Public awareness, reclamation of water bodies, gazettement of water bodies,

comprehensive flood management plan and training of WRMA staffs on flood management.

Question arising:

One participant wanted to know why the land use be cannot be managed well especially in Tana where the settlement is not yet permanent in the wetlands because of the pastoralists nature of the communities in the region and therefore allow the flood plains to remain what they are flooding plains for the rivers.

The Tana WRMA regional manager stated that Dialogue was on-going with the town council to resettle these communities and not to allow the town to expand in the flood plains.

Madam Abira regional manager WRMA-LVSC relayed apologies for the PC who was unable to attend because of commitment of Jamhuri day celebration. She also explained that she had communicated with Prof Okeyo who indicated that he was going to come in late.

## **1.5 Stakeholders views and comments and comments on IFM and JICA Study**

### **a) Nyando Basin Forum**

Interim Chair Oloo Ogeka introduced Madam Leah Onyango who made the presentation on behalf of Nyando Forum. In her presentation Madam Leah highlighted the following:-

- The New entity shall be Nyando River Basin Development Trust whose membership will be both corporate and individual. She outlined the objectives of the trust which included:-
  1. Sensitize stakeholders on water resource management
  2. Establish partnerships with stakeholders in order to implement the Water Act
  3. Share information and document the activities of all stakeholders
  4. Promote policies and practices that lead to effective water resource management in the Basin
  5. Serve as a link in determining “what the people say” steer implementation and empower the people.
  6. Enhance cooperation and coordination between the government, NGOs, Support agencies and community institution.
  7. Clarify the structure, content and requirements for community driven programs in Water Resource development sector.
  8. Establish linkages with similar minded institutions.
  9. Enhance the development of social safeguard policy plans.
  10. Plan, manage and guide participatory development.
  11. Solicit for investments from potential donors.

12. Carryout rapid assessment in times of floods and disasters to invoke response.
  13. Arbitration and conflict resolution.
  14. Monitor distribution of development activities in the Basin area.
- The Nyando Trust way forward:-
    - a) Registration time frame 60 days
    - b) Office Space 14 days
    - c) Inception meeting Mid-February
    - d) Technical support for initial setup of a secretariat

Question of the post-study Nyando Trust arose whether it should be disbanded or not to which it was unanimously agreed that the Nyando Trust should not be disbanded but assisted in achieving its objectives

**b) Kenya Red Cross Society**

Dan Asaka of Kenya Red Cross appreciated the participatory nature the study. He stated that this nature enabled the Community to feel like owners of the project. He pointed out that the Red Cross had borrowed a leaf from the Study in implementing the Danish sponsored programme on flood management that Red Cross was currently undertaking. He clarified that The Red Cross covers 8 areas of Nyando District. Four main objectives:-

- (i) A paradigm shift from reactionary to proactiveness in disaster management
- (ii) Create awareness through training borrowed from the non-structures
- (iii) To improve capacity of Red Cross
- (iv) Assist the communities through empowering them in management of floods through their active participation of the communities

He reaffirmed the workshop that the Red Cross shall not duplicate what JICA aimed at doing in the region and he therefore advocated for further consultation. He re-emphasized that Red Cross as an organization had gained a lot from the Study Team especially on the nature and format the Study took in accomplishing the tasks that was before them. He further pointed out that Red Cross had since realized that they need to be in these vulnerable areas before the disaster struck which had since led to paradigm shift to preventive rather than rescue oriented.

**c) Plenary comments**

Participants wanted to know how the measures for flood management outlined in the presentation will be of assistance like early warning.

One of the participants wanted to know the negative aspect of the study if there was any because only the positive ones were highlighted. He also wanted to know if the evaluation exercise went beyond the study area.

Participants also wanted to know what was being done to reduce pollution and encroachment of swampy areas and the animal impact.

One participant wanted to know if the education programme was done only for selected schools or if there was a curriculum developed for schools in general.

#### **d) Responses**

Technical Manager responded that Pollution, encroachment of swampy and animal impact had led to the construction of check dams that had the pastoralist to utilise the dams and therefore this measure had been able to keep apart the farmers and pastoralists who traditional have fought for water resources near the river zone therefore reducing inter-community conflicts.

The WRMA-Tana regional manager explained that Maua and Isiolo towns have both previously recorded high cases of ill-health as a result of water; public health management faces challenges because of the difficulties in the management of waste disposal because of politician interferences.

He further clarified that the encroachment of swampy areas and the global warming had led to drying up of the rivers and therefore construction of a big dam had been proposed in the area.

Mr. Inoue of JICA Study Team clarified that some of the Structures measures proposed shall be carried out by the government e.g. like raising of A1 roads. He clarified that early warning which had been clearly indicated was important not only for short term but also that there was need for data to determine the long term. He also clarified that Sedimentation was a big problem therefore de-silting of drainages was not easy and he therefore suggested that to tackle the problem of drainage there was a need also to conserve catchment areas to avoid soil erosion especially in the uplands.

He also gave example of Odesso community that wanted gabions laid down the stream but the pilot was only able to cover a small area. He also gave example of communities in the pilot project that had been requested to join WRUA for continuity and sustainability through assistance that can only come from WRMA and only through WRUA but one CBO (Kasiru) had since refused to join the WRUA. These examples he explained were some of the negatives encountered.

### **1.6 Open Discussion**

#### **a) Former Chairman of Nyando Forum**

Prof Okeyo began giving his comments by posing this question “should we continue with the studies or built on the previous one that had already been carried out?” Prof Okeyo stated that he had personally benefited from the study and there was need for continuous data flow and this cannot be achieved unless a study is carried out. He pointed out that the world is increasingly changing and relying on the studies carried out some years back may not reflect the current trends and situation and therefore implementing such studies could bring about a lot of setbacks.



He stated that the Study concentrated on the community participation and therefore communities were able to benefit unlike other studies previously done. He further pointed out that demonstration effect of the pilot projects was an outcome of the study that has enabled another project to come through because of the success of the pilot projects. He explained that the Study was not without challenges which included some of the project being pinpointed as miniature in nature but yet have succeeded in their purpose leading to the potential 24 communities' project.

He stated that the Forum guided and monitored the Study, provided feedback where necessary and provided insight where called upon. He emphasized that this kind of setup in any study was vital and important and need to be replicate this kind of setup when development were being carried out.

**b) WRMA**

Regional Manager WRMA LVNC stated that it was important to consider traditional knowledge in the implementation of flood management. He pointed out that WRMA aim at establishing radio station which aims at being an avenue of sharing views on the rivers in the region.

He pointed out that Lesson learnt in Western in establishing organization like the Forum in Western Province should be considered. He narrated an incidence in Western whereby a splinter group ran away with the idea and formed a group registered the organization and squandered the money therein. He therefore urged the members of the Forum consider such eventualities before rushing in to establishing an organization.

Eng. Kinyua of WRMA headquarter stated that group formation should be based on format of WRMA if the group aimed to get funds from WRMA. He therefore clarified that there was need for consideration of sustainability of these groups before they established themselves.

Mr Khisa representing the regional office of WRMA-LVSC pointed out that the regional office was happy with the Flood Master Plan as proposed by JICA Study Team. He pointed out that WRMA-LVSC was impressed with the preventive and mitigation strategies proposed by the Master Plan. He stated that Master Plan document can be used also to seek for funds. He pointed out also that the CBO shall be integrated in the WRUAs to benefit from the fund.

He also explained that the Evacuation and Flood warning system had been thought of by WRMA and the idea that had been promulgated but in terms of the use of mobile phone but the radio idea in the WRMA LVNC had showed the way.

Mr Khisa also appreciated the Nyando Forum and thanked the entire Forum membership for their participation and involvement and contribution whenever they had been called upon.

He also stated the Capacity building of institution namely WRMA whose staffs had been trained on among other courses the GIS, and an experience learnt in Japan visit by WRMA staffs.

On the recommendation in the draft final, Mr Khisa stated that WRMA had already developed catchment strategy. He also stated that WRMA had interacted with the NGOs and that these interactions were on going. He further stated that WRMA had intensified its activities.

On Flood Management school programme Mr Khisa stated that it should be developed into school curriculum that the entire pupil may appreciate the value of combating disasters. He also stated that WRMA had gained a lot on the integration paradigm, involving various sectors and ministries

## **1.7 Way Forward for IFM**

Participants were divided into groups based on the activities of the organizations operations i.e. JICA Study Team, JICA Kenya, WRMA, NGO, Governmental agencies and WRUAs.

Mr. Ochola stated that the education programme should be taken up to KIE and developed for purposes of it being part of national curriculum.

Mr. Tuwei pointed out that the Project for 24 communities' was for the entire Nyando basin and if only in the lower basin will benefit minus the upper part which he explained was the root problem of the lower parts in terms of flood he therefore suggested 4 sites should be in the upper catchment.

### JICA Study Team: Recommendation:

a) to keep consistency with catchment management strategy b) to establish a coordination committee with other government agencies c) to prepare an implementation programme d) to maintain the Nyando Forum e) to transfer knowledge to catchments f) to update the master plan. Mr. Inoue pointed out that bullet b) should be the first action then c).

It was agreed that b) should be instituted at the end of Jan. 2009

Mr Mwaniki recommended that recommendation d) be scrapped out

Mr Owalla stated that an exit strategy was absolutely necessary and he pointed out that there was need for an institution to be on the ground for continuation purposes.

### Nyando Forum: Way forward:

Ms. Leah pointed out necessity of the Forum and all that was needed was the form of this organization. She stated that the Forum had already a plan and all that was needed was a mother institution that will lead and enable the registration of the organization. It was unanimously agreed that there was a need to maintain the forum within the Nyando basin but this organization must be linked to WRMA.

Mr Oloo ownership was with the Forum and based on water sector different agencies the Forum should take the lead in identifying where they belong and pursue towards this end.

### WRUA way forward

- WRUA need to be nurtured by stakeholders

- WRUA need to be build their capacity
- WRUA need to be funded immediatly and regional office to take the lead.

Eng Kinyua need to register or show papers that they are waiting for registration thereafter the Water Service Trust Fund can give them money for capacity building.

WRMA aims that each sub-catchment will have a WRUA and these WRUAs shall be involved in the development of sub-catchment plan.

Workshop was informed that WRMA operates only through WRUA and not any other organization. The workshop was also informed that there were no proposals from WRUA to WRMA that was forwarded in the last year. It was therefore suggested that the Forum should anchor towards the WRUA and therefore get the funds through proposal writing to WRMA.

#### **1.8 A.O.B**

Ms Leah of Maseno University suggested that on the master plan Ahero town should be clearly captured and clear demarcation of riparian area outlined because the development of Ahero Town was increasingly moving its edge towards the river Nyando. It was also suggested that harmonization of purpose of government officials that they may operate in oneness and unity of purpose.

#### **1.9 Closing remarks:**

Dr. Abira stated that floods were serious issue in the Nyando basin. She stated that the perception was that floods could be stopped and therefore citizenry could live without floods. She pointed out that the study had changed this mind set and replaced it with flood management. She clarified that the 24 communities' project was on-going and that the design team from Japan were already on ground and that she was hopeful that funds shall be approved. She also highlighted on the proposal writing and on how to get money from other donors. She concluded by appreciating JICA and their efforts they had invested in flood management in the Nyando Basin.

## AGENDA

**Stakeholders Workshop on  
Integrated Flood Management for Nyando River Basin  
11<sup>th</sup> December 2008, Kisumu, Kenya**

**WORK PROGRAMME**

- |               |   |
|---------------|---|
| 09:00 – 09:35 | Opening <ul style="list-style-type: none"> <li>• Introduction and welcome to Workshop by Regional Manager of WRMA-LVSC (15 minutes)</li> <li>• Opening remarks by JICA Kenya Office (10 minutes)</li> <li>• Official Opening by WRMA CEO (10 minutes)</li> </ul>  |
| 09:35 – 10:20 | Presentation: Draft Final Report on Integrated Flood Management in Nyando River Basin (JICA Study Team) <ul style="list-style-type: none"> <li>• Master Plan</li> <li>• Priority Schemes</li> <li>• Results of Pilot Projects</li> </ul>  |
| 10:20 – 10:30 | Tea Break   |
| 10:30 – 11:15 | Presentation: Global Warming and Flood (JICA)   |
| 11:15 – 12:00 | Presentation: Technical Cooperation and Activities on Integrated Flood Management (WMO: World Meteorological Organisation)  |
| 12:00 – 13:00 | Lunch Break   |
| 13:00 – 13:45 | Presentation: Case Study: Flood Situation in Tana Catchment (WRMA-TANA)   |
| 13:45 – 14:45 | Key stakeholders views and comments on IFM and JICA study <ul style="list-style-type: none"> <li>• Provincial Disaster Management Committee</li> <li>• Nyando River Basin Water Resource Management Forum</li> <li>• Regional Office of Kenya Red Cross Society</li> <li>• WRMA Regional Office - LVSC</li> </ul> |
| 14:45 – 15:00 | Tea Break   |
| 15:00 – 16:15 | Discussions on the way forward for Integrated Flood Management  |
| 16:15 – 16:45 | Conclusion and Summary of Workshop (WRMA)   |
| 16:45 – 17:00 | Closing of the Workshop (WRMA)  |