



COUNTY IRRIGATION DEVELOPMENT UNIT - CIDU

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MINISTRY OF WATER, SANITATION &
IRRIGATION
STATE DEPARTMENT FOR IRRIGATION

BARINGO COUNTY IRRIGATION SCHEME PILOT SURVEY REPORT

1. INTRODUCTION

The Ministry is implementing the provisions of the National Irrigation Policy 2017, The Irrigation Act 2019, Irrigation Regulations and National Services Strategy (NISS) in the irrigation sector. One of the reform issues is management of irrigation data and information including creation of an Irrigation and Drainage Management Information System (IDMIS)

Irrigation Act, 2019 Sec.6. (2),(i) Cabinet Secretary for irrigation in collaboration with County governments, gather information and maintain data bases on irrigation development and management including data on irrigation water supplies, demands, projects, irrigated areas, management, performance, potential for expansion and human resources.

2. PURPOSE

To pilot the data collection tools and collect data in a pilot survey exercise for irrigation schemes in Baringo County to aid in updating the Water MasterPlan, 2030 irrigation schemes Inventory.

3. METHODOLOGY

The taskforce team formulated data collection tools which include; **a survey form, survey questionnaire, Survey manual** and **electronic data collection tool** (Kobo Collect). The team piloted the tools on irrigation schemes in Baringo County so as to inform the roll out of nationwide mapping and survey of irrigation schemes. The Pilot survey was conducted from **27th February to 2nd March 2023** and **19th to 23st July, 2023**. The finances and equipment to undertake the pilot survey was provided by JICA, through the JICA expert attached to State Department for Irrigation. Additional financial support, staff and transport was provided by the National Irrigation Authority (NIA). The County Government of Baringo also provided transport and staff to support the field survey.

During the pilot survey, the task team trained 2 Sub County Officers from Baringo South and Mogotio sub-counties and 2 NIA officers from the headquarters and Perkerra Irrigation Scheme at Marigat in NIA offices on the use of the GPS receiver, survey manual, survey form, and the questionnaire which was embedded in Kobo Collect Application. The team first collected data on Perkerra Irrigation Scheme together before splitting into sub teams. The teams visited the irrigation schemes in five (5) Sub-Counties in Baringo County. The sub-counties visited include: **Baringo South**, Mogotio, **Baringo North**, **Eldam ravine**. The Ministry team, NIA and county team went through the existing irrigation schemes inventory (as contained in the Water Masterplan,2030) with the aim of ascertaining the existence of the schemes as documented in the Water Masterplan,2030 as well getting any other schemes which may not have been documented.

Data collection from the identified schemes was carried out under the supervision of assigned task members. The data was collected using the Kobo -Collect, processed and documented.

The pilot survey was carried out for **eight (8) days** and it informed the team of the efficacy of the tools problems, challenges and possible mitigation measures before embarking on the national survey to be carried out later.

4. OBSERVATIONS

1. Some of the schemes that were captured in the Water Masterplan inventory do not exist on the ground
2. There was a clear indication that the water master plan is not up to date.
3. Water shortage is becoming a huge concern as most rivers serving the schemes have low water flow.
4. Performance of a number of schemes in Baringo South and Tiaty sub – counties is compromised by insecurity
5. Most of the schemes have no registered Irrigation Water Users Association (IWUA)
6. Most of the schemes produce and market as individual farmers – hence likely to be exploited by brokers
7. *There is indication of low to NIL return to investment in some schemes*

5 RECOMMENDATIONS

The following recommendations arose from the survey;

1. The irrigation inventory in National water master plan (NWMP, 2030) need to be updated.

2. There is need for investment in water harvesting and storage infrastructure to secure adequate water for irrigation
3. There is need to enhance security allow irrigation farmer to undertake irrigation
4. There is need for irrigation farmers to be organized in registered Irrigation Water Users Associations (IWUAs) to enable proper management of irrigation schemes
5. There is need to organize the irrigation farmers in producer marketing groups facilitate aggregation and increase their bargaining power.
6. There is need to **optimize** on the potential of the existing irrigation schemes **infrastructure** and **facilities**

6 TERMINOLOGIES:

Irrigation Scheme - means a systematic and orderly irrigation system covering a defined area of land regardless of the type or system of irrigation employed

Scheme area – The entire area of the scheme installed with irrigation facilities including the roads and social amenities

Irrigable area – An area where irrigation facilities are maintained and farming is carried out using irrigation facilities regularly every year (excluding roads and social amenities)

Cropped area- Area currently cropped

Planned area- An area where F/S or D/D has been implemented or is under construction, but irrigation has not been implemented

Proposed area- Area where irrigation development is possible in the future

7 .DETAILED OUTCOMES OF THE SURVEY AS COMPARED TO WHAT IS IN THE WATER MASTER

a. OUTCOMES OF THE INVENTORY COMPARED TO WHAT IS IN THE WATER MASTERPLAN, 2030 published 2012

Schemes visited

Baringo South Sub County schemes

No	Scheme name	Status in the water masterplan	Status identified in the field
1	Perkerra	In the masterplan	<ul style="list-style-type: none"> • Identified and is in operation. • National public irrigation scheme • Large scale • Active • Scheme area - 5800acres • Irrigable area – 2500acres • Cropped area –2500acres • planned area – 50,000 acres • No. of farmers - 1500 • Source of water – R. Perkerra • Main crop – 800 acres • Infrastructure – in place, functional, Gravity fed, open earth canals

No	Scheme name	Status in the water masterplan	Status identified in the field
			<ul style="list-style-type: none"> • Implementing Agency – National Government (NG) - NIA • Future plans – Expansion of the scheme infrastructure and area, Construction water reservoir (Radat dam) • Challenge – shortage of water.
2	Kamoskoi	In the masterplan	<ul style="list-style-type: none"> • Identified and is in operation. • Named Loboï in masterplan • Medium scale • Active • Scheme area- 800 acres • Irrigable area – 700 acres • Cropped area –650 acres • Proposed area – 1400 acres • No. of farmers - 250 • Source of water – R. Loboï • Main crop – Maize (seed) 650 acres • Infrastructure – in place, functional, Gravity fed, pipeline/open lined canals • Implementing Agency – Community, NG, WFP • Future plans – Expansion of the scheme infrastructure, lining of canals • Challenge – shortage of water

No	Scheme name	Status in the water masterplan	Status identified in the field
3	Kapkuikui tirion kaptombes water user's association	In the masterplan	<ul style="list-style-type: none"> • Identified and in operation • Medium scale • Active • Scheme area- 500acres • Irrigable area – 300acres • Cropped area –100acres • Proposed area –200 acres • No. of farmers - 150 • Source of water – Kapkuikui swamp • Main crop – Maize(Seed) 100 acres • Infrastructure – in place, functional, Gravity fed, open lined canals • Implementing Agency – Community • Future plans – Expansion, Lining of Canals, Construction water reservoir • Challenge – shortage of water
4	Sandai	In the masterplan	<ul style="list-style-type: none"> • Identified and in operation • Large scale • Active • Scheme area- 5000cres • Irrigable area – 3000cres • Cropped area –2000acres • Proposed area –2500acres • No. of farmers - 1000 • Source of water – R. Waseges

No	Scheme name	Status in the water masterplan	Status identified in the field
			<ul style="list-style-type: none"> • Main crop – Maize 2000 acres • Infrastructure – in place, functional, Gravityfed, open lined canals • Implementing Agency – Community, WFP, JICA, PIU • Future plans – Expansion of the scheme • Challenge – shortage of water
5	Loldama	Not in the masterplan	<ul style="list-style-type: none"> • Identified during the pre-survey • Medium scale • Active • Scheme area – 1200 acres • Irrigable area – 1000 acres • Cropped area – 600 acres • Proposed area –1800 acres • No. of farmers - 240 • Source of water – R. Molo • Main crop – Maize, 600 acres • Infrastructure – in place, functional, Gravity fed, open earth canals • Implementing Agency – Community • Future plans – Construction of weir, lining of canals • Challenge – shortage of water
6	Kiserian (Onkorangai)	In the masterplan	<ul style="list-style-type: none"> • Identified

No	Scheme name	Status in the water masterplan	Status identified in the field
			<ul style="list-style-type: none"> • Medium scale • Active • Scheme area- 300acres • Irrigable area – 200acres • Cropped area –200acres • Proposed area –0acres • No. of farmers - 100 • Source of water – R. Yepos • Main crop – 200 acres • Infrastructure – in place, functional, Gravityfed, open lined canals • Implementing Agency – NG, WFP, World Vison, EU • Future plans – Extension of Main Canal, Construction water reservoir • Challenge – shortage of water •
7	Ngényin	In the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale • Active • Scheme area- 150acres • Irrigable area – 100acres • Cropped area –50acres • Proposed area – 0 acres • No. of farmers - 70

No	Scheme name	Status in the water masterplan	Status identified in the field
			<ul style="list-style-type: none"> • Source of water – R. Endao • Main crop – 50 acres • Infrastructure – in place, functional, Gravityfed, open lined canals • Implementing Agency – BCG, NG-CDF • Future plans – Extension of Main Canal, Construction water reservoir • Challenge – shortage of water. • Faces challenge of water shortage, Wildlife destruction of crops
8	Ketip-Terkek	Not in the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale • Active • Scheme area- 150acres • Irrigable area – 70acres • Cropped area –60acres • Proposed area – 50acres • No. of farmers - 85 • Source of water – R. Endao • Main crop – 60 acres • Infrastructure – in place, functional, Gravityfed, open lined canals • Implementing Agency – NG-MOA, BCG • Future plans – Repair of wire,Extension of Main Canal, Construction water reservoir

No	Scheme name	Status in the water masterplan	Status identified in the field
			<ul style="list-style-type: none"> • Challenge – shortage of water, Poor road network.
9	Mukutani	In the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale • Active • Scheme area- 110acres • Irrigable area – 110acres • Cropped area –110acres • Proposed area –0acres • No. of farmers - 60 • Source of water – R. Mukutani • Main crop – Maize 60 acres • Infrastructure – in place, functional, Gravityfed, open lined canals • Implementing Agency – BCG, WFP, World Vison, EU • • Future plans – lining of canal Expansion, Construction of water reservoir • Challenge – • Peace initiative scheme • Faces challenge of wildlife invasion and insecurity •

No	Scheme name	Status in the water masterplan	Status identified in the field
10	Embossos	In the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale • Active • Scheme area- 500acres • Irrigable area – 35acres • Cropped area –35acres • Proposed area – 0acres • No. of farmers – 30 • Source of water – R. Ol Arabal • Main crops – Maize 30 acres • Infrastructure – in place, functional, Gravityfed, open earth canals • Implementing Agency – BCG, WFP, World Vison, EU, NRT(Rangeland Trust) • Future plans – Expansion of area under crop • Challenge – <ul style="list-style-type: none"> ○ insecurity ○ wild life invasion
11	Endao	In the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale • Dormant • No Water • Scheme area- 500acres • Irrigable area – 300acres • Cropped area –0acres

No	Scheme name	Status in the water masterplan	Status identified in the field
			<ul style="list-style-type: none"> • Proposed area – 1000 acres • No. of farmers – 250 • Source of water – R. Endao • Main crops – 0 acres • Infrastructure – in place, functional, Gravityfed, open earth canals • Implementing Agency – BCG • Future plans – Construction of water reserve, • Challenge – shortage of water
12	Kamaech	In the masterplan	<ul style="list-style-type: none"> • Identified and is in operation • Scheme area – 200 acres • 100 acres under production • Main crop – maize commercial (good crop)- 25bags/acre • Second crop – horticulture and green grams • Faces challenge of water shortage and security • Implementing agency – WFP,
13	Kamonong'	In the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale • Active • Scheme area- 250 acres • Irrigable area – 200 acres • Cropped area – 200 acres • Proposed area – 400 acres

No	Scheme name	Status in the water masterplan	Status identified in the field
			<ul style="list-style-type: none"> • No. of farmers – 150 • Source of water – R. Waseges • Main crops – Maize, 200 acres • Infrastructure – in place, functional, pumped, main-pipeline, distribution open canals (partially lined/Earth) • Implementing Agency – BCG • Future plans – Expansion of lined canal • Challenged – shortage of water, destruction of crops by wildlife
14	Salabani	In the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale • Active • Scheme area- 700 acres • Irrigable area – 500acres • Cropped area – 300acres • Proposed area – 600 acres • No. of farmers – 270 • Source of water – R. Endao • Main crops – Maize, 300 acres • Infrastructure – in place, functional, Gravity fed, open earth canals • Implementing Agency – National Government (NG) – PIU

No	Scheme name	Status in the water masterplan	Status identified in the field
			<ul style="list-style-type: none"> • Future plans –lining of canals, Construction of water reserve, • Challenge – shortage of water
15	Mosuro	In the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale • Active • Scheme area- 900acres • Irrigable area – 900acres • Cropped area –900acres • Proposed area – 1000acres • No. of farmers - 1000 • Source of water – R. Ol Arabal • Main crop – Maize, 900acres • Infrastructure – in place, functional, Gravityfed, open earth/ lined canals • Implementing Agency – NG, WFP, BCG • Future plans – Extension of Main Canal, Construction water reservoir • Challenge – shortage of water, Insecurity
16	Lendorok	Not in the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale • Active • Scheme area- 152acres

No	Scheme name	Status in the water masterplan	Status identified in the field
			<ul style="list-style-type: none"> • Irrigable area – 126acres • Cropped area –126acres, commercial maize • Proposed area –0 acres • No. of farmers – 140 acres • Source of water – R. Murat • Main crop – 126 acres • Infrastructure – in place, functional, Gravity fed, open lined canals • Implementing Agency – NDMA, WFP, World Vison, EU. Funded by world vision to support women farmers, Peace initiative scheme, BCG • Future plans – Expansion of the scheme • Challenge – shortage of water • Faces challenges of wildlife invasion and insecurity
17	Cheratike	Not in the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale • Active • Scheme area- 1200acres • Irrigable area – 130acres • Cropped area –130acres • Proposed area – 500 acres • No. of farmers - 350 • Source of water – R. Ol Arabal • Main crop – Maize, 130 acres

No	Scheme name	Status in the water masterplan	Status identified in the field
			<ul style="list-style-type: none"> • Infrastructure – in place, functional, Gravity fed, open lined canals • Implementing Agency – NDMA -NG, BCG • Future plans – Extension of Main Canal, Construction water reservoir • Challenge • 200 acres flooded by lake Baringo • Faces challenge of water shortage and insecurity
18	Eldume	In masterplan	<ul style="list-style-type: none"> • Identified • Medium scale • Active • Scheme area- 1500acres • Irrigable area – 1000acres • Cropped area –800acres • Proposed area – 1500 acres • No. of farmers - 1000 • Source of water – R. Molo • Main crop – 800 acres • Infrastructure – in place, functional, Gravity fed, open lined canals • Implementing Agency – NG-PIU, EU, World Vision • Future plans – Expansion of scheme infrastructure, Construction water reservoir • Challenge – shortage of water.

Mogotio sub county schemes

No	Scheme name	Status in the water masterplan	Status identified in the field
1	Molo sirwe	In the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale • Active • Scheme area- 1750acres • Irrigable area – 1000acres • Cropped area –1000acres • Planned Area – 600 Acres • No. of farmers - 400 • Source of water – R. Molo • Main crop – 1000 acres - Maize, Tomatoes • Infrastructure – in place, functional, Pump fed, open lined canals • Implementing Agency – NG-NIA, BCG • Future plans – Expansion of scheme infrastructure, Construction water reservoir • Challenge – shortage of water
2	Mogotio livestock improvement centre	In the masterplan	<ul style="list-style-type: none"> • No surveys and feasibility studies done • No irrigation structures built

3	Maji moto	In the masterplan	<ul style="list-style-type: none"> • Small scale • Active • Scheme area- 80cres • Irrigable area – 80acres • Cropped area –80cres • Planned area –400 acres • No. of farmers - 120 • Source of water – Swamp • Main crop – 200 acres • Infrastructure – in place, functional, Gravity fed, open lined canals • Implementing Agency – NG, WFP, BCG • Future plans – • There is potential for the scheme to expand using water from a permanent river. • Challenge – •
4	Kipkitur	In the masterplan	<ul style="list-style-type: none"> • There is no scheme on the ground • No constructions • Proposed
5	Emining	In the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale • Dormant • Scheme area- 200 acres • Irrigable area – 200 acres • Cropped area – 100 acres • Source of water – R. Emining • Main crops – Maize and Tomatoes

			<ul style="list-style-type: none"> • Individual farmers irrigating using portable petrol pumps • Infrastructure – in place but not functional, in state of disrepair • Implementing Agency – BCG, NG, WFP • Challenge of water shortage due to low river flow
6	Emsos	In the masterplan	<ul style="list-style-type: none"> • Identified • Not in operation • Proposed scheme • Has no infrastructure • Has high potential for irrigation with water from the escarpment draining into lake Bogoria
7	Rosoga	Not in the masterplan	<ul style="list-style-type: none"> • Identified • Active – individual farmers using portable pumps • Medium scale • Scheme area – 3200 • Irrigable area – 400 acres • Cropped area – 200 acres • Proposed area – 2000 acres • No. of farmers – 80 farmers • Has intake and 1km main conveyance • River Emining • Main crops – maize and Tomatoes • High potential for irrigation • <i>Implementing agency – BCG</i>
8	Muguyuni	Not in the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale

			<ul style="list-style-type: none"> • Not in operation • Scheme area – 200 acres • Implementing Agency – Baringo County Government (BCG), WFP • Intake done • Main conveyance done but has challenge of pressure, No distribution system • Has also challenge of water shortage
9	Kabuswo	In the masterplan	<ul style="list-style-type: none"> • Identified • Proposed • Not yet constructed • Feasibility studies not yet done
10	Rossey	In the masterplan	<ul style="list-style-type: none"> • Identified and is in operation • Small scale • Scheme area – 50 acres • Irrigable area – 10 acres • Cropped area- 10 acres • Proposed area – 100 acres • Main crops – Maize and Tomatoes • No. of farmers – • Source water – R. Rossey • Main conveyance complete, distribution and tertiary system incomplete – pipeline, gravity fed • Requires completion distribution and tertiary canals • Funded by World Bank • Implemented by – KSCAP - MOALD

Eldama Ravine Sub County

No	Scheme name	Status in the water masterplan	Status identified in the field
1	Cheraik	In the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale • Scheme area – 500 acres • Irrigable area – 250 acres • Cropped area – 250 acres • Proposed Area - 500 acres • No. of farmers - 70 • Infrastructure - in place (incomplete) – intake and 1 km conveyance pipeline – gravity fed • Source of water – R. Emining • Active – Individual farmers using portable pumps • Main crops – Maize and tomatoes • Challenge of water shortage due low river flow • Future plans – To construct – Kiptengwen dam. (community yet to agree on donating land for the dam) • High potential for irrigation • Implementing agency – BCG

Baringo North schemes

No	Scheme name	Status in the water masterplan	Status identified in the field
1	Kiboi	In the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale • Active • Scheme area- 400acres • Irrigable area – 200acres • Cropped area –200acres • Proposed area – 700acres • No. of farmers - 269 • Source of water – R. Yeptos • Main crop – 200 acres • Infrastructure – in place, functional, Gravity fed, open lined canals • a water reservoir being done by DRSLP. The pipeline is from the dam to intake almost complete. Dam construction 50% complete • Implementing Agency – BCG • Future plans – Completion of Kaptiony dam • Challenge – shortage of water • Active – Individual farmers using portable pumps
2	Barwessa	In the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale

			<ul style="list-style-type: none"> • Active • Scheme area- 300acres • Irrigable area – 272acres • Cropped area –272acres • Proposed area – 500 acres • No. of farmers - 350 • Source of water – R. Yeptos • Main crop – 272 acres • Infrastructure – in place, functional, Gravity fed, open lined canals • Implementing Agency – NG-DRSLP, AFDB, World Vision • Future plans – Extension of Main Canal, Construction water reservoir • Challenge – shortage of water
3	Rebeko	In the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale • Stalled • Scheme area- 300acres • Irrigable area – 0acres • Cropped area –0acres • Proposed area – 300 acres • No. of farmers - 300 • Source of water – Rebeko spring • Infrastructure – Intake, main - 1.5km of main conveyance has been constructed pipeline, Distribution system not done

			<ul style="list-style-type: none"> • Implementing Agency – BCG • Future plans – complete the infrastructure works • The project has great potential to improve livelihoods of the community which is currently on relief food • Challenges • Lack of finances to complete the infrastructure works
4	Aiywet	Not in the masterplan	<ul style="list-style-type: none"> • Identified • Medium scale • Active • Scheme area- 100acres • Irrigable area – 80acres • Cropped area –80acres • Proposed area – 200 acres • No. of farmers - 80 • Source of water – R. Yeptos • Main crop – 80acres • Infrastructure – in place, functional, Gravity fed, pipeline • Implementing Agency – NG - NIA • Future plans – Extension of Main Canal, Construction water reservoir • Challenge – shortage of water

Tiaty

No	Scheme name	Status in the water masterplan	Status identified in the field
1	Tot-Kolowa	In the masterplan	<ul style="list-style-type: none">• Inactive due to water availability
2	Oighony	Not in the masterplan	<ul style="list-style-type: none">• Identified and is in operation• Has infrastructure• Funded world vision, WFP
3	Cheponyoria	Not in the masterplan	<ul style="list-style-type: none">• Not in operation

a. Photos

i. Perkerra irrigation scheme



Perkerra irrigation scheme intake



Mango trees in Perkerra irrigation scheme

ii. Maji moto



Lined canal for irrigation in Swamp water



production of beans and pawpaws

iii. Aiwet intake



Tomato and Maize crop at Cheraik and Rosoga irrigation scheme



iv. Kamoskoi irrigation scheme



Intake at kamoskoi

Kiboi irrigation scheme



Kiboi intake

v. Kapkuikui irrigation scheme



A dry intake in Kapkuikui



Farmers harvesting tomatoes kapkuikui

vi. Sandai irrigation scheme



Sandai scheme water intake



The dry main canal at Sandai scheme

Schemes not captured (Baringo South)

- Mbechot
- Kasiela
- Meisori
- Sintaan
- Logumgum
- Sokoni (Borders Loldama)

Baringo central

- Kapkelelwa