

# 13. Annexes



## Annex I: Rainfall Stations

Station Name	Region	Start Year	End Year	No. of years	No. of Monthly Records	Fill (%)
Borama	Awdal	1924	1990	67	804	66
Budhuxul	Bakool	1984	1990	7	84	79
Huddur*	Bakool	1922	1990	69	828	43
Jameko_Mubarak	Bakool	1984	1990	7	84	79
Mogadishu*	Banadir	1911	1990	80	960	99
Qardo*	Bari	1939	1980	42	504	85
Bur-Acaba	Bay	1984	1990	7	84	76
Dinsor	Bay	1939	1990	52	624	26
Baidoa*	Bay	1922	1990	69	828	80
Elbur*	Galgadud	1930	1974	45	528	60
Bardera*	Gedo	1922	1990	69	828	85
Luuq*	Gedo	1922	1990	69	828	77
Belet Weyne*	Hiraan	1926	1990	65	780	92
Jalalaqsi	Hiraan	1987	1990	4	48	71
Kerialo	Hiraan	1988	1989	2	24	100
Dudunle	L. Shabelle	1987	1990	4	48	66
Barro Weyne	L.Juba	1979	1988	10	120	78
Gololey	L.Juba	1988	1989	2	24	100
Kismayo*	L.Juba	1894	1990	97	1164	94
Mogambo	L.Juba	1984	1988	5	60	80
Modu_moden	L.Juba	1987	1988	2	24	100
Caagbashi	L.Shabelle	1987	1990	4	48	69
Genale*	L.Shabelle	1929	1990	62	744	60
Lafoole	L.Shabelle	1981	1988	8	96	100
Modun	L.Shabelle	1985	1990	6	72	64
Allesandra*	M.Juba	1930	1990	61	708	43
Bualle*	M.Juba	1987	1990	4	48	62
Jilib	M.Juba	1923	1990	68	816	45
Mareere	M.Juba	1977	1990	14	168	87
Lambar_Kon	M.Juba	1987	1990	4	48	60
Qalimow	M.Juba	1987	1990	4	48	66
Afgoi*	M.Shabelle	1922	1990	69	828	69
Balad	M.Shabelle	1922	1990	69	828	41
Jowhar	M.Shabelle	1922	1990	69	828	51
Galckayo*	Mudug	1933	1990	58	696	99

Station Name	Region	Start Year	End Year	No. of years	No. of Monthly Records	Fill (%)
Obbia*	Mudug	1924	1982	59	708	63
Allula	Nuugal	1944	1967	24	276	67
Bossaso*	Nuugal	1933	1976	44	528	100
Erigavo	Sanaag	1925	1990	66	792	37
Las_Anod	Sool	1944	1969	26	312	46
Burao	Togdheer	1921	1990	70	840	97
Berbera*	W.Galbeed	1906	1978	73	864	74
Gebilley	W.Galbeed	1944	1980	37	444	45
Hargeisa*	W.Galbeed	1921	1990	70	840	90

**Note:** The stations with an asterisk (\*) have other climatic data (temperature, wind speed, humidity radiation)

## Annex II: River Flow Stations

River	Station	Longitude	Latitude	Catchments Area (km <sup>2</sup> )	Start Year	End Year	Available Data (%)
<b>River levels and Flow - Historical data</b>							
Juba	Luuq	03:47:29	42:32:30	166,000	Mar-1951	Oct-1990	74
	Bardheere	02:20:30	42:17:00	216,730	Jun-1963	Oct-1990	57
	Marere	00:27:00	42:42:00	240,000	Jul-1977	Jan-1990	97
	Mogambo	00:09:00	42:44:00	260,000	May-1983	Dec-1989	74
	Kaitoi	00:47	42:40:00	240,000	Jan-1963	Dec-1979	49
	Jamame	00:01:10	42:41:00	268,800	May-1963	Jul-1990	41
Shabelle	Belet Weyne	04:44	45:12:20	207,000	Apr-1951	Oct-1990	80
	Bulo Burti	03:51:20	45:34:20	231,000	May-1963	Aug-1990	63
	M.Weyne	02:58:20	45:31:50	255,300	Jan-1963	Sep-1990	70
	Balcad	02:21:00	45:23:30	272,700	Apr-1963	Nov-1979	65
	Afgoi	02:08:40	45:07:30	278,000	May-1963	Sep-1990	90
	Awdhegle	01:59:10	44:50:00	280,000	Jan-1963	May-1990	54
<b>River levels and Flow - Current data</b>							
Juba	Luuq	03:47:29	42:32:30	166,000	Sep-2001	Ongoing	100
	Bardheere	02:20:30	42:17:00	216,730	Sep-2001	Ongoing	100
	Bualle	01:24:10	42:32:21	-	Sep-2008	Ongoing	100
Shabelle	Belet Weyne	04:44	45:12:20	207,000	Apr-2002	Ongoing	100
	Bulo Burti	03:51:20	45:34:20	231,000	Apr-2002	Ongoing	100
	Jowhar	02:46:11	45:30:00	-	Jan-1999	Ongoing	100

## Annex III: Water Sources Summary

Source Type	No. of Records	Agencies Involved	Regions (records)
Drilled Wells	429	<ul style="list-style-type: none"> <li>• UNICEF</li> <li>• Horn Relief</li> <li>• Concern World Wide</li> <li>• COOPI/CEFA</li> <li>• ICRC</li> <li>• Intersos</li> <li>• ADRA</li> <li>• PSAWEN</li> <li>• MWMR</li> <li>• SWALIM</li> </ul>	<ul style="list-style-type: none"> <li>• Awdal (25)</li> <li>• Woqooyi Galbeed (43)</li> <li>• Togdheer (14)</li> <li>• Sanaag (32)</li> <li>• Sool (18)</li> <li>• Bari (53)</li> <li>• Nugaal (48)</li> <li>• Mudug (48)</li> <li>• Galgadud (44)</li> <li>• Bakool (16)</li> <li>• Gedo (9)</li> <li>• Bay (43)</li> <li>• Middle Juba (6)</li> <li>• Middle Shabelle (4)</li> </ul>
Dug Wells	1374	<ul style="list-style-type: none"> <li>• UNICEF</li> <li>• Concern World Wide</li> <li>• German Agro Action</li> <li>• German Red Cross</li> <li>• Intersos</li> <li>• ADRA</li> <li>• ICRC</li> <li>• Horn Relief</li> <li>• COOPI/CEFA</li> <li>• PSAWEN</li> <li>• SWALIM</li> </ul>	<ul style="list-style-type: none"> <li>• Awdal (104)</li> <li>• Woqooyi Galbeed (212)</li> <li>• Togdheer (86)</li> <li>• Sanaag (107)</li> <li>• Sool (86)</li> <li>• Bari (127)</li> <li>• Nugaal (115)</li> <li>• Mudug (91)</li> <li>• Galgadud (113)</li> <li>• Bakool (57)</li> <li>• Gedo (100)</li> <li>• Bay (32)</li> <li>• Middle Juba (32)</li> <li>• Middle Shabelle (53)</li> <li>• Lower Shabelle (59)</li> </ul>
Dams	227	<ul style="list-style-type: none"> <li>• German Red Cross</li> <li>• SWALIM</li> </ul>	<ul style="list-style-type: none"> <li>• Awdal (14)</li> <li>• Woqooyi Galbeed (87)</li> <li>• Togdheer (19)</li> <li>• Sanaag (2)</li> <li>• Sool (2)</li> <li>• Bakool (9)</li> <li>• Gedo (55)</li> <li>• Bay (17)</li> <li>• Middle Juba (22)</li> </ul>
Springs	305	<ul style="list-style-type: none"> <li>• German Agro Action</li> <li>• ICRC</li> <li>• Concern Worldwide</li> <li>• ADREA</li> <li>• UNICEF</li> <li>• COOPI/CEFA</li> <li>• Horn Relief</li> <li>• MWMR</li> <li>• SWALIM</li> </ul>	<ul style="list-style-type: none"> <li>• Awdal (37)</li> <li>• Woqooyi Galbeed (34)</li> <li>• Togdheer (20)</li> <li>• Sanaag (30)</li> <li>• Sool (3)</li> <li>• Bari (108)</li> <li>• Nugaal (55)</li> <li>• Mudug (1)</li> <li>• Bakool (3), Gedo (11), Bay (2)</li> <li>• Middle Juba (1)</li> </ul>
Berkads and others	346	<ul style="list-style-type: none"> <li>• SWISS Group Caritas</li> <li>• German Red Cross</li> <li>• Horn Relief</li> <li>• ICRC</li> <li>• Concern World Wide</li> <li>• ADRA</li> <li>• PSAWEN</li> <li>• UNICEF</li> <li>• SWALIM</li> </ul>	<ul style="list-style-type: none"> <li>• Awdal (26)</li> <li>• Woqooyi Galbeed (44)</li> <li>• Sanaag (33)</li> <li>• Togdheer (191)</li> <li>• Nugaal (2)</li> <li>• Bari (13)</li> <li>• Mudug (6)</li> <li>• Bakool (2), Sool (20), Bari (3)</li> <li>• Gedo (10), Bay (9)</li> </ul>

## Annex IV: Irrigation Data Summary

Project Name	Area (ha)	District	Region	Operational Status
Military Farm/Crash Program	1,435	Belet Weyne	Hiraan	Partial
Kurtunwarey Settlement	29,742	Kurtunwarey	Lower Shabelle	Partial
Hawaay Project	395	Barawe	Lower Shabelle	Not Operational
Agricultural Research Centre	1,560	Afgooye	Lower Shabelle	Partial
Qoryooley Project	6,379	Qoryooley	Lower Shabelle	Partial
Golweyn Project	3,313	Merka	Lower Shabelle	Partial
Shalambood Project	6,993	Merka	Lower Shabelle	Partial
Waagade Zone	3,461	Merka	Lower Shabelle	Partial
Haduuman Zone	1,960	Qoryooley	Lower Shabelle	Partial
Bandar Zone	2,929	Qoryooley	Lower Shabelle	Not Functioning
Refugee Farm	5,487	Kurtunwarey & Qoryooley	Lower Shabelle	Not functioning
Mukoy Dumis Project	9,132	Kurtunwarey & Merka	Lower Shabelle	Partial
Jeerow Zone	9,086	Kurtunwarey & Qoryooley	Lower Shabelle	Partial
Der Flood Project	862	Qoryooley	Lower Shabelle	Not Functioning
Faraxaane Project	4,883	Qoryooley & Merka	Lower Shabelle	Not Functioning
Tahliil Zone	2,903	Qoryooley & Merka	Lower Shabelle	Partial
EDF Grapefruit Production Scheme	2,064	Merka	Lower Shabelle	Not Functioning
Primo Secundario Banana Zone	3,956	Qoryooley & Merka	Lower Shabelle	Partial
Banana Drainage Project	3,884	Qoryooley & Merka	Lower Shabelle	Partial
Majabto Zone	1,628	Qoryooley	Lower Shabelle	Partial
Asayle Project	4,563	Qoryooley	Lower Shabelle	Partial
Degwariiri Zone	6,748	Qoryooley	Lower Shabelle	Partial
Janaale Zone	9,220	Qoryooley & Merka	Lower Shabelle	Partial
Jowhar Sugar Estate	10,580	Jowhar & Balcad	Middle Shabelle	Partial
Afgoi-Mordile Project	19,365	Afgooye	Lower Shabelle	Partial
Balad Flood Irrigation Project	40,352	Balcad & Afgooye	Lower & Middle Shabelle	Partial
Barroweyne	4,194	Jowhar	Middle Shabelle	Partial
Farjano Project	28,740	Sablale & Barawe	Lower Shabelle	Partial
Juba (Mareerey) Sugar Project	9,636	Afmadow, Jamaame & Jilib	Lower & Middle Juba	Not functioning
Fanoole II Project	13,496	Jilib	Middle Juba	Not Functioning
Fanoole I Project	25,690	Bualle & Jilib	Middle Juba	Not Functioning

Project Name	Area (ha)	District	Region	Operational Status
Banana Estates (Medium Pump Schemes)	4,470	Jamaame & Kismayo	Lower Juba	Partial
Mogambo Irrigation Project	7,691	Jamaame	Lower Juba	Not Functioning
Homboy Settlement Irrigation Project	14,318	Jamaame & Jilib	Lower & Middle Juba	Never Implemented

## Annex V: List of Selected Documents

<http://agris.faoswalim.org/>

### Agriculture

1. Agricultural and Water Surveys for Somalia, *Final Report, Volume 1: General* (FAO 1967)
2. Agricultural and Water Surveys for Somalia - *Final Report Volume IV: Livestock and crop production* (Lockwood 1966).
3. Agricultural and Water surveys Somalia, *Final Report Volume V: Engineering Aspects of Development* (Lockwood Survey corporation 1968)
4. Agricultural and Water surveys, Somalia - *Final Report Volume VI: Social and economic aspects of Development* (Lockwood Survey Corporation Ltd, 1968)
5. Agricultural support project - Belet Weyne district, Hiran region, Somalia Mid-term review (Fox, E.J. 2002)
6. Banana Sector Study for Somalia - Preliminary analysis and strategic options report (Hack H. and McWilliams H. 2003)
7. Banana Sector Study for Somalia - Agricultural development and diversification in lower Shabelle (Mckilligan H. 2003)
8. Banana Sector Study for Somalia - Marketing Study in the Lower Shabelle region (Ouko J.O. 2003)
9. Compendium of agricultural statistics (FEWS - Department, Ministry of Agriculture, Somalia Democratic Republic 1988)
10. Crop investment and diversification, processing and marketing in the Shabelle Valley Project (CIDPM) and strengthening of agricultural activities in Shabelle project (SAASV) - Mid term review (Fox, E. J. Intermedia NCG, Maina, B. M. Independent Consultant, Hassan, A. M. Acacia Consultants 2003)
11. Dara Salaam Busley Agricultural Development Project - Annexes 1: Soils and 2: Water resources (Sir M MacDonald & Partners Limited 1988)
12. Dara Salaam Busley Agricultural Development Project - Main Report (Sir M MacDonald & Partners Limited 1988)
13. Dara Salaam Busley Agricultural Development Project - Annex 3: Social Economics (Sir M MacDonald & Partners Limited 1988)
14. Dara Salaam Busley Agricultural Development Project - Main Report (Sir M MacDonald & Partners Limited 1988)
15. Dara Salaam Busley Agricultural Development Project Annexe 6-11 (Sir M

- MacDonald & Partners Limited 1988)
16. Development of rice cultivation, processing and marketing in Jowhar and Qorioley districts - End of term review (Fox, J. NCG, Kenya 2002)
  17. Estimation of forest resources and some considerations regarding forest management and plantations (Micski J. 1989)
  18. Farming systems and poverty: Improving Farmers' Livelihoods in a Changing World (Dixon J. Gibbon D. Gulliver A. 2001)
  19. Improved agricultural production in the Oases of Bari region, North East Somalia. Mid-term review (Fox, J.,E. 2002)
  20. Master plan for Juba valley development, Main report (Somali Democratic Republic, German Agency for Technical Cooperation 1990)  
Master plan for Juba valley development, Annexes 5-14: (Somali Democratic Republic, German Agency for Technical Cooperation 1990)
  21. North West Region Agricultural Development Project Report: Feasibility study and technical Assistance - Technical Report No.2: Climatology (Sogreah Consulting Engineers 1982)
  22. North-West Region Agricultural Development Project: Feasibility study and technical assistance - Agricultural Development Programme - B. Irrigated Agriculture: Main Report and Annexes (Sogreah Consulting Engineers 1983)
  23. Shabelle Agricultural Rehabilitation Project (SHARP), Mid-term review (Fox, E.J. Intermedia NCG, Maina B.M. Independent Consultant, Hassan, M.A ACACIA consultants,. 2003)

### **Development Projects**

1. Farahaane Irrigation Rehabilitation Project - Topographical and Cadastral Survey Report (Sir M MacDonald & Partners Limited 1987)
2. Farahaane Irrigation Rehabilitation Project - Water Management Report (Sir M MacDonald & Partners Limited 1988)
3. Farahaane Irrigation Rehabilitation Project - Design Report (Sir M MacDonald & Partners Limited 1988)
4. Farjano settlement project - Land evaluation (Sir M. MacDonald & Partners Ltd, 1985)
5. Farjano settlement project - Land evaluation: Soil retention results (Sir M. MacDonald & Partners Ltd. 1985)
6. Feasibility study and technical Assistance: Implementation of 20 One Hectare Irrigated Farms in Jaleelo and Xunbawayne Area and Geed-Deeble Experimental Farm - Study of Irrigation Network (Sogreah Consulting Engineers 1982)
7. Genale Bulo Marerta Project, Annex 1 – Soils (Sir M MacDonald & Partners Limited, Somali Democratic Republic 1978)
8. Genale Bulo Marerta Project, Annex 2 - Water Resources (Sir M MacDonald & Partners Limited 1978)
9. Genale Bulo Marerta Project, Volume 1 - Master plan: Main report (Sir M MacDonald & Partners Limited 1978)
10. Genale Bulo Marerta Project, Annex III - Human resources and Institutions (Sir M MacDonald & Partners Limited Somali Democratic Republic 1978). Title page Missing
11. Genale Bulo Marerta Project – Annex IV: Existing Agriculture (Sir M MacDonald & Partners Limited 1978)
12. Genale Bulo Marerta Project - Annex V: Livestock (Sir M MacDonald & Partners Limited 1978)

13. Genale Bulo Marerta Project - Annex VI: Potential for Agricultural Development (Sir M MacDonald & Partners Limited 1978)
14. Genale Bulo Marerta Project – Annex VII: Engineering (Sir M MacDonald & Partners Limited 1978)
15. Genale Bulo Marerta Project - Annex X: Survey Data, Annex XI: Inception Report (Sir M MacDonald & Partners Limited 1978)
16. Homboy area and small holder banana cultivation in the lower Juba Valley and assessment of agricultural benefits – Main report (Sir M Macdonald & Partners 1981)
17. Homboy area and small holder banana cultivation in the lower Juba Valley and assessment of agricultural benefits - Feasibility study (Sir M MacDonald & Partners 1981)
18. Homboy area and small holder banana cultivation in the lower Juba Valley and assessment of agricultural benefits, Annex 2 and 3 (Sir M Macdonald & Partners 1981)
19. Homboy irrigated settlement project- Design criteria; Irrigation and Drainage Works (Sir M. Macdonald & Partners 1980)
20. Homboy irrigated settlement project - Ground water (Hunting Technical Services Limited 1978)
21. Homboy irrigated settlement project- Volume 1: Soils (Settlement Development Authority, Hunting Technical Services Limited 1978)
22. Homboy Irrigated Settlement Project - Volume 2: Physical Planning (Hunting Technical Services Ltd 1980)
23. Homboy Irrigated Settlement Project - Volume 3: Agricultural Planning (Hunting Technical Services Ltd 1980)
24. Homboy irrigated settlement project - Volume 4: Main Report (Hunting Technical Services Limited 1980)
25. Jowhar Sugar Estate Feasibility Study for Rehabilitation - Final Report: Annex 1 - Irrigation and Drainage (Instrupa Consulting GMBH, Sir M MacDonald & Partners Limited, Somali Democratic Republic HVA International BV 1984)
26. Jowhar Sugar Estate Feasibility Study for Rehabilitation Final Report Annex VI –IX (Sir M MacDonald & Partners Limited, Instrupa Consulting GMBH HVA International BV, 1984)
27. Mogambo Irrigation Project, Additional study for and alternative development (Sir, M MacDonald and Partners Limited 1979)
28. Mogambo Irrigation Project, Report on phase II development - Surface irrigation (Sir, M MacDonald and Partners Limited 1986)
29. Mogambo rice mill feasibility study: Preliminary report (Sir M MacDonald & Partners Limited 1982)
30. Mogambo Irrigation Project - Agricultural operations and mechanisation report (Sir M MacDonald & Partners Limited 1984)
31. Appraisal of Mogambo irrigation project - Supplementary study (Sir. M Macdonald and Partners Limited 1979)
32. Mogambo Irrigation Project - Design criteria (Sir M MacDonald & Partners Limited 1982)
33. Mogambo Irrigation Project - Electrification of pump station: Final Report (Sir M MacDonald & Partners Limited 1988)
34. Mogambo Irrigation Project - Feasibility study: Main report (1977) Mogambo Irrigation Project - Feasibility study: Summary report (Financial and Technical

- Services, Tippetts-Abbett-Mc Cathy-Stratton, Somali Democratic Republic 1977)
35. Mogambo Irrigation Project – Feasibility Study: Appendices Volume 2 (Financial and Technical Services, Tippetts-Abbett-Mc Cathy-Stratton, Somali Democratic Republic 1977) Mogambo Irrigation Project – Feasibility Study: Appendices Volume 3 (Financial and Technical Services, Tippetts-Abbett-Mc Cathy-Stratton, Somali Democratic Republic 1977) Northern Rangeland Development Project – Report on soils in the project area (Sir William Halcrow & Partners 1982)
  36. North-West Region Agricultural Development Project- Feasibility Study and Technical Assistance: Soil survey (Sogreah Consulting Engineers 1983)
  37. Project for the water control and management of the Shabelle river of Somalia - Volume I: General Report (Hunting Technical Services Ltd., Sir M. Macdonald and Partners, Consulting Engineers, UNDP 1969)
  38. Project for the water control and management of the Shabelle river of Somalia - Volume II: Balad Flood Irrigation Feasibility Study (Sir M. Macdonald & Partners, Consulting Engineers Hunting Technical Services Ltd. United Nations Development Program 1969)
  39. Project for the water control and management of the Shabelle River- Volume IIA: The Balad flood irrigation project feasibility study, technical annex (Hunting Technical Services Ltd., Sir M. Macdonald & Partners, Consulting Engineer, UNDP 1969)
  40. Project for the water control and management of the Shabelle river of Somalia- Volume III: Afgoi Mordille Flood controlled irrigation feasibility study (Hunting Technical Services Ltd., Sir M. Macdonald & Partners, Consulting Engineers, UNDP 1969)
  41. Project for the water control and management of the Shabelle river of Somalia- Volume III A: Afgoi Mordille Flood controlled irrigation feasibility study and Technical Annex (Hunting Technical Services Ltd., Sir M. Macdonald & Partners, Consulting Engineers, UNDP 1969)
  42. Project for water Control and Management of the Shabelle River of Somalia - Volume IV: Water Resources and Engineering (Sir .M. Macdonald & Partners Hunting Technical Services Ltd, 1969)
  43. Project for the water control and management of the Shabelle river of Somalia. Volume V - Soils and Agriculture (Hunting Technical Services Ltd, Sir M. Macdonald & Partners, Consulting Engineers, UNDP 1969)
  44. Project for the Water Control and Management of the Shebelle River Somalia - Annexes to Volumes IV and V: Water Resources, Engineering, Soils and Agriculture (Hunting Technical Services Ltd., Sir M. Macdonald & Partners 1969)

## **Fisheries**

1. Development of artisanal marine fishery monitoring: Methods and Tools (Elst , R. (Dr.) Oceanographic Research Institute Kwa Zulu-Natal (SA) 1997)

## **Floods**

1. Flood damage assessment study - Main report (Sir M MacDonald & Partners Limited 1981)
2. Flood relief channel head regulator - Report on 1985 scour damage (Sir M MacDonald & Partners Limited 1984)
3. Middle Shabelle flood control study - Draft Report (Mott MacDonald Group 1996)

4. Middle Shabelle flood control study - Final Report (EC, MacDonald Group 1996)
5. Synthesis of flood warning and control for the Juba and Shabelle rivers (Print, C. SWALIM 2001)
6. Somalia inter-agency flood response operation - Phase 1 November - December 1997: An Evaluation (Bradbury, M. Coultan, V. 1998)

### **Geology/Geomorphology/Hydrogeology**

1. Applied fluvial geomorphology for river engineering and management (Thorne C., R. (Eds.) Hey, R.D, Nelson, M.D 2005)
2. Geology and mineral resources of Somalia and surrounding regions: A - Regional geology (with a geological map of Somalia 1:1,500,000) (Abbate, E Sagri, M. Sassi, F.P. (Eds.) 1993)
3. Geology and Mineral Resources of Somalia and Surrounding Region: B Minerals and water resources (with a geological map of Somalia 1:1,500,000) (Abbate, E. Sagri, M. Sassi, F.P. (Eds.) 1993)
4. Geomorphology and River Management: Application of river styles framework (Brierley, Gary J. 2004)
5. Technical Assistance to North-West Agricultural development project (II phase) Somalia: Consultancy Report on Hydro geological Short Term Mission (Danish Rural Development Consultants 1987)
6. (Somalia) Water Well Drilling Team (China National Complete Plant Export Corporation 1986)

### **General**

1. Research data management (Muraya P. (ICRAF, Kenya) Coe R. (ICRAF, Kenya) Garlick C. (SSC, UK) 2002)
2. Social economic survey 2002: Somalia; Technical report on design and implementation (United Nations Development Program, World Bank 2002)

### **Ground Water**

1. Comprehensive groundwater development project Volume I- Executive Summary: End of Project Report (Louise Berger Int'l inc Roscoe Moss Inc 1986)
2. Comprehensive groundwater development project Volume II – General activities: End of Project Report (Louise Berger Int'l inc Roscoe Moss Inc 1986)
3. Comprehensive groundwater development project Volume III: Hydrogeology: End of Project Report (Louise Berger Int'l inc Roscoe Moss Inc 1986)
4. Groundwater Salinity Study October - November 1987 (Sir M MacDonald & Partners Limited; John Bingle Pty. Limited 1987)
5. Kismayo Hydrogeological Study (Parkes, A.J. (GIBB East Africa Ltd.) 1997)
6. Somalia Comprehensive Groundwater Project paper (UNICEF 1979)

### **Hydrology / Drought / Climate**

1. Agroclimatology of Somalia, Technical report No. 12 (FEWS Department Somali Democratic Republic 1988)
2. Brief description of major drainage basins affecting Somalia with reference to surface water resources (Kameer, D. 1989)
3. Climate, hydrology, and water resources of Arsi and Bale zones (Lule, A. Arsi Bale Rural Development Project 1997)

4. Daily, Monthly and Annual Rainfall for the Bakool and Gedo Region including stations (FEWS Department Ministry of Agriculture, Somalia Democratic Republic 1988)
5. Drought and hydrological variability in Southern Somalia: A dissertation (Musgrave, H. Imperial College of Science, Technology and Medicine 2002)
6. Flow forecasting models for Juba and Shabelle rivers (Sir M MacDonald & Partners Limited 1990)
7. Hydrometry Project Somalia - Annual flow hydrographs Juba and Shabelle Rivers 1951-1989 (Sir M MacDonald & Partners Limited, Institute of Hydrology 1990)
8. Hydrometry Project Somalia - Hydrometric Data Book Juba and Shabelle Rivers 1951-1989 (Sir M MacDonald & Partners Limited, Institute of Hydrology 1990)
9. Hydrological data collection and upgrading of the national hydrometric network On Juba and Shebelle rivers the in-service training of the field operation staff: Volume 1 - Main Report (Gemmell A., P. 1982)
10. Hydrological data collection and upgrading of the national hydrometric network On Juba and Shebelle rivers the in-service training of the field operation staff: Volume 2 - Juba Hydrometric data (1980/81) (Gemmell A., P. 1982)
11. Hydrological data collection and upgrading of the national hydrometric network On Juba and Shebelle rivers the in-service training of the field operation staff: Volume 3 - Shabelle Hydrometric Data (Gemmell A., P. 1982)
12. Hydrological data collection and upgrading of the national hydrometric network On Juba and Shebelle rivers, also the in-service training of the field operation staff; Operational Drawings Volume 4 (Gemmell A., P. 1982)
13. North-West Region Agricultural Development - Project Feasibility Study and Technical Assistance: Technical Report No 4. - Hydrogeology (Sogreah Consulting Engineers 1982)
14. Rainfall, environment and water resource development in Somaliland and the Sahel (Print, C. Imperial College of Science, Technology and Medicine, University of London 1999)
15. Surface and underground water resources of Shabelle River (Faillace, C. 1964)
16. Water resources assessment, water supply, planning and rehabilitation surveys Hydrological and geophysical surveys Gedo region Somalia January/February 2002 (Gajsek, C. International Committee of the Red Cross/Crescent, Gicheru, C., M. Earth water Ltd. 2002)

## **Irrigation**

1. Banana Sector study for Somalia - Rehabilitation and Management of the Irrigation System on Lower Shabelle (Fino D. 2003)
2. Emergency rehabilitation of the Congo and Hanshonley Irrigation canals, Jowhar district, Middle Shabelle Region, Somalia: Proposal (ADRA 1997)
3. Review note on Fanoole rice project rice milling facilities (Sir M MacDonald & Partners Limited 1985, John Bingle Pty. Limited 1985)
4. Present and future irrigated agriculture in the Shabelle and Juba rivers (Henry, J.C. 1979)

## **Land Resources Development/Natural Resources Management/ Environment**

1. Agricultural and Water Surveys for Somalia Volume III - Landforms and Soils (FAO 1966)
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