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(vol.3)

COMITE INTERAFRICAIN D'ETUDES HYDRAULIQUES
OUAGADOUGOU • HAUTE VOLTA

L'UTILISATION DES RESSOURCES EN EAU
ET DES TERRES DES REGIONS DE SAVANE

RESSOURCES DES REGIONS DE SAVANE

VOLUME 3
ANNEXES



1978
Information and Training Center
for Community Water Supply

INTERAFRICAN COMMITTEE FOR HYDRAULIC STUDIES
OUAGADOUGOU • UPPER VOLTA

SAVANNA REGIONAL WATER
RESOURCES AND LAND USE

SAVANNA RESOURCES

VOLUME 3
APPENDICES

CIEH-USAID
Accords de Subvention
625-11-120-712
et 698-0415

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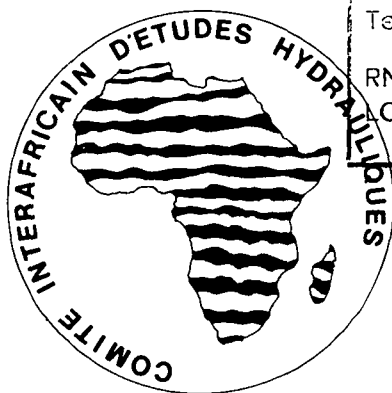
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RESSOURCES DES REGIONS DE SAVANE

**VOLUME 3
ANNEXES**



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345 Park Ave.
New York 10022

La présente Etude sur les RESSOURCES DES REGIONS DE SAVANE
comprend 4 Volumes:

This SAVANNA RESOURCES Study consists of 4 Volumes:

VOLUME 1. RAPPORT
REPORT

VOLUME 2. DOSSIER DES CARTES
MAPFOLIO

VOLUME 3. ANNEXES
APPENDICES

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- Appendix to Chapter 3. Frequential Analyses of Main Water Balance Parameters for Eleven Countries of the Savanna Region
- Annexe du Chapitre 4. Stations hydrométriques et données hydrologiques
- Appendix to Chapter 4. Gauging Stations and Hydrologic Data
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- List of the 390 mapping units of the OAU/IFAN soils map, showing soil units contained in each and their capability.
- 6 - 2 Liste des 166 unités cartographiques de la carte des sols au 1:5.000.000 de la FAO, couvrant le Tchad, le Cameroun, l'Empire Centrafricain, et montrant les unités de sol contenues dans chaque carte ainsi que leurs potentialités.
- List of the 166 mapping units of the FAO 1:5 million soils map covering Chad, the Cameroon and Central African Empire, showing soil units contained in each and their capability.

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6 - 3 Etude du cas No. 1 : Haute-Volta

Case study No. 1 : Upper Volta.

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Case study No. 2 : Nigeria

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APPENDIX TO CHAPTER 3

ANALYSES FREQUENTIELLES DES PRINCIPAUX TERMES DU BILAN HYDRIQUE
POUR ONZE PAYS DE LA REGION DE SAVANE

FREQUENTIAL ANALYSES OF MAIN WATER BALANCE PARAMETERS
FOR ELEVEN COUNTRIES OF THE SAVANNAH REGION

1. Bénin - Benin
2. Cameroun - Cameroon
3. Côte d'Ivoire - Ivory Coast
4. Empire Centrafricain - Central African Empire
5. Haute-Volta - Upper Volta
6. Mali
7. Mauritanie - Mauritania
8. Niger
9. Sénégal - Senegal
10. Tchad - Chad
11. Togo

APPENDIX 3 - 1 BENIN - Analyse fréquentielle des principaux termes du bilan hydrique.

BENIN - Frequential analysis of main waterbalance parameters.

Stations Pluviométriques faisant l'objet de traitement -

Rainfall stations for which data were processed -

Bohicon

Kandi

Natitingou

Parakou

Savé

BOHICON

VARIABLE : PLUIE EN MM		EFFECTIF DE L ECHANTILLON 33 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	11
2	0	0	0	0	0	0	0	0	1	5	0	0	0	1	12
3	0	0	0	0	0	0	0	0	2	8	0	0	1	0	32
4	0	0	0	0	0	0	0	0	4	24	0	0	0	0	35
5	0	0	0	0	0	0	1	4	9	19	0	0	0	0	37
6	6	0	0	0	2	5	13	21	26	42	0	5	22	1	47
7	12	0	0	2	7	12	18	37	48	64	1	12	40	14	81
8	19	0	2	6	13	18	26	34	44	53	5	18	35	4	64
9	30	1	11	16	24	29	47	55	60	71	16	29	58	10	99
10	45	3	13	21	29	39	49	63	66	84	18	39	64	4	99
11	50	3	17	24	40	49	57	63	77	89	22	49	68	35	100
12	38	17	24	26	31	36	41	51	63	77	25	36	55	13	89
13	41	0	3	17	30	39	42	50	63	72	11	39	56	42	92
14	52	4	11	21	35	48	54	64	76	97	17	48	66	10	115
15	47	19	32	36	42	46	49	68	86	110	35	46	72	28	126
16	49	9	18	28	41	48	54	78	103	120	26	48	88	7	130
17	54	13	21	29	40	53	63	74	80	93	24	53	77	6	102
18	35	6	16	17	24	34	47	66	87	103	16	34	67	0	126
19	49	2	19	23	33	47	57	68	79	85	22	47	71	0	118
20	20	0	2	3	8	18	25	46	68	89	2	18	56	4	120
21	17	0	1	3	10	16	41	49	53	74	3	16	50	0	107
22	7	0	0	1	5	7	12	25	39	60	1	7	28	0	77
23	8	0	0	0	3	7	17	28	48	59	0	7	37	0	78
24	29	3	5	11	19	27	34	56	67	106	9	27	63	1	130
25	28	1	3	10	18	27	33	45	57	62	7	27	50	6	67
26	49	3	8	17	37	47	64	71	90	106	15	47	75	29	131
27	53	15	27	37	49	52	61	75	78	102	37	52	77	23	131
28	47	7	18	26	37	44	58	70	82	93	24	44	76	12	135
29	29	1	5	15	24	28	34	56	75	81	11	28	58	12	94
30	29	2	5	9	19	25	33	46	72	89	8	25	50	14	121
31	9	0	0	0	2	7	11	22	27	43	0	7	24	1	66
32	2	0	0	0	0	1	7	10	17	23	0	1	11	4	32
33	0	0	0	0	0	0	4	9	16	23	0	0	11	0	30
34	0	0	0	0	0	0	0	3	7	15	0	0	4	0	22
35	0	0	0	0	0	0	0	0	0	7	0	0	0	0	17
36	0	0	0	0	0	0	0	0	0	12	0	0	0	0	21

VARIABLE : EVAPOTRANSPIRATION REELLE EN MM		EFFECTIF DE L ECHANTILLON 33 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	11
2	0	0	0	0	0	0	0	0	1	5	0	0	0	1	12
3	0	0	0	0	0	0	0	0	2	8	0	0	1	0	26
4	0	0	0	0	0	0	0	2	8	24	0	0	4	0	24
5	1	0	0	0	0	0	2	9	13	22	0	0	11	0	25
6	13	0	0	0	3	9	15	22	22	22	0	9	22	1	22
7	26	0	2	4	11	20	26	26	26	26	3	20	26	13	26
8	26	1	10	17	26	26	26	26	26	26	15	26	26	5	26
9	28	15	25	28	28	28	28	28	28	28	28	28	28	10	28
10	25	14	25	25	25	25	25	25	25	25	25	25	25	10	25
11	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
12	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23
13	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
14	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33
15	39	39	39	39	39	39	39	39	39	39	39	39	39	39	39
16	39	36	37	38	38	39	39	39	39	39	38	39	39	34	39
17	36	33	34	35	34	36	36	36	36	36	35	36	36	32	36
18	34	30	32	33	34	34	35	35	35	35	33	34	35	24	35
19	33	25	31	32	32	32	33	33	33	33	31	32	33	26	33
20	30	16	27	29	30	30	31	31	31	31	28	30	31	17	31
21	33	20	29	30	32	33	33	33	34	34	30	33	34	17	34
22	29	14	20	24	29	29	29	29	29	29	23	29	29	9	30
23	29	2	10	24	28	28	29	29	30	30	18	28	29	2	30
24	32	12	19	25	30	31	33	33	34	34	22	31	33	2	34
25	31	4	12	24	30	31	32	33	33	33	21	31	33	7	33
26	33	13	23	30	32	33	33	34	34	34	30	33	34	17	34
27	36	30	32	33	35	36	36	36	36	36	33	36	36	28	36
28	38	29	35	36	36	37	38	38	38	38	36	37	38	30	38
29	39	27	33	38	38	39	40	40	41	41	37	39	40	32	41
30	42	25	30	34	40	41	42	45	45	45	33	41	45	26	45
31	36	15	20	26	29	35	37	38	40	40	25	35	38	16	40
32	26	3	14	17	24	26	27	31	33	35	17	26	32	11	36
33	16	0	2	10	13	16	18	20	22	29	9	16	20	2	30
34	4	0	0	0	3	4	6	10	15	20	0	4	12	0	25
35	0	0	0	0	0	0	0	1	4	13	0	0	2	0	17
36	0	0	0	0	0	0	0	0	6	16	0	0	0	0	22

PARAKOU

VARIABLE 1 PLUIE EN MM		EFFECTIF DE L ECHANTILLON 50 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	10
4	0	0	0	0	0	0	0	0	0	5	0	0	0	0	7
5	0	0	0	0	0	0	0	0	4	17	0	0	0	0	44
6	0	0	0	0	0	0	0	0	8	21	0	0	2	0	32
7	0	0	0	0	0	0	2	5	8	21	0	0	6	0	33
8	0	0	0	0	0	0	6	12	23	30	0	0	17	0	45
9	19	0	0	3	8	19	30	33	42	56	0	19	36	0	65
10	15	0	3	7	10	15	21	35	43	53	4	15	40	0	63
11	19	0	5	9	13	19	29	35	46	61	5	19	41	0	82
12	25	2	7	12	18	25	33	39	50	71	8	25	44	0	81
13	32	7	13	17	23	32	40	51	63	83	15	32	59	0	92
14	38	7	14	19	33	38	44	48	62	75	17	38	53	1	92
15	43	13	19	25	35	43	54	68	91	98	22	43	76	1	109
16	46	15	23	29	40	46	57	63	71	88	25	46	68	8	92
17	56	13	29	35	39	56	63	67	92	119	33	56	74	7	129
18	40	14	20	29	35	40	57	69	80	105	24	40	73	1	127
19	39	8	14	22	30	39	56	65	85	108	17	39	76	3	131
20	45	6	16	28	32	45	54	73	90	110	21	45	84	2	116
21	62	4	25	38	49	62	70	87	107	146	33	62	92	0	171
22	49	9	20	29	45	49	59	71	99	127	23	49	84	2	142
23	47	13	21	29	39	47	58	81	91	117	26	47	83	5	154
24	73	25	43	58	68	73	90	101	110	123	46	73	103	14	145
25	73	21	31	48	61	73	84	110	135	162	37	73	113	5	201
26	64	23	38	48	60	64	75	85	104	122	43	64	88	6	132
27	70	21	44	51	62	70	78	96	114	125	46	70	102	5	136
28	49	11	20	32	41	49	56	61	80	95	25	49	69	0	110
29	30	0	5	10	20	30	40	48	61	80	7	30	54	0	87
30	14	0	0	0	8	14	18	23	29	60	0	14	25	0	66
31	0	0	0	0	0	0	0	1	12	21	0	0	2	0	28
32	0	0	0	0	0	0	0	0	0	8	0	0	0	0	17
33	0	0	0	0	0	0	0	0	0	2	0	0	0	0	17
34	0	0	0	0	0	0	0	0	0	7	0	0	0	0	16
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VARIABLE : EVAPOTRANSPIRATION REELLE EN MM		EFFECTIF DE L ECHANTILLON 50 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	10
4	0	0	0	0	0	0	0	0	0	7	0	0	0	0	21
5	0	0	0	0	0	0	0	0	6	24	0	0	0	0	25
6	0	0	0	0	0	0	0	4	11	23	0	0	6	0	23
7	2	0	0	0	0	2	5	8	15	25	0	2	10	0	28
8	5	0	0	0	0	5	9	19	27	30	0	5	23	0	30
9	21	0	0	7	13	21	31	31	31	31	0	21	31	0	31
10	26	2	8	14	19	26	26	26	26	26	10	26	26	0	26
11	27	5	10	16	26	27	27	27	27	27	13	27	27	0	27
12	26	8	16	26	26	26	26	26	26	26	24	26	26	0	26
13	26	18	26	26	26	26	26	26	26	26	26	26	26	4	26
14	31	25	31	31	31	31	31	31	31	31	31	31	31	5	31
15	36	36	36	36	36	36	36	36	36	36	36	36	36	15	36
16	35	35	35	35	35	35	35	35	35	35	35	35	35	19	35
17	40	35	38	39	40	40	40	40	40	40	38	40	40	14	40
18	38	33	35	37	37	38	38	38	38	38	36	38	38	25	38
19	36	33	34	35	35	36	36	36	36	36	34	36	36	19	36
20	34	31	33	33	34	34	35	35	35	35	33	34	35	22	35
21	37	33	35	36	37	37	37	37	37	37	35	37	37	13	37
22	32	28	31	31	31	32	32	32	32	32	31	32	32	14	32
23	31	30	30	31	31	31	31	31	31	31	30	31	31	19	31
24	34	33	34	34	34	34	34	34	34	34	34	34	34	32	34
25	32	31	31	32	32	32	32	32	32	32	32	32	32	30	32
26	32	31	32	32	32	32	32	32	32	32	32	32	32	30	32
27	35	35	35	35	35	35	35	35	35	35	35	35	35	34	35
28	39	37	38	39	39	39	39	39	39	39	38	39	39	36	39
29	42	36	39	40	41	42	42	42	42	42	39	42	42	31	42
30	43	25	29	39	42	43	44	45	45	45	31	43	45	16	45
31	27	10	14	24	26	27	31	34	36	37	18	27	35	2	37
32	13	0	2	8	9	13	17	21	26	30	6	13	22	0	32
33	1	0	0	0	0	1	4	7	10	20	0	1	9	0	25
34	0	0	0	0	0	0	0	0	4	11	0	0	0	0	16
35	0	0	0	0	0	0	0	0	0	2	0	0	0	0	13
36	0	0	0	0	0	0	0	0	0	1	0	0	0	0	7

SAVE

VARIABLE : PLUIE EN MM		EFFECTIF DE L'ECHANTILLON										50 ANNEES				
PERIODE	MENJAN	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	30	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	7	
3	0	0	0	0	0	0	0	0	0	2	15	0	0	0	21	
4	0	0	0	0	0	0	0	0	2	5	10	0	0	3	24	
5	0	0	0	0	0	0	0	4	16	29	47	0	0	26	66	
6	0	0	0	0	0	0	0	2	7	17	29	0	0	10	44	
7	13	0	0	2	9	13	27	35	40	62	0	13	35	0	71	
8	14	0	0	4	0	14	24	32	42	101	1	14	35	0	115	
9	24	0	2	7	10	17	24	38	45	55	81	6	24	47	107	
10	30	0	7	16	24	31	41	53	74	110	12	30	61	0	124	
11	34	4	11	10	22	35	43	49	60	75	12	35	49	0	90	
12	34	0	17	25	32	38	44	71	89	111	20	38	80	0	128	
13	32	5	11	14	14	32	41	58	77	109	12	32	66	1	142	
14	39	6	16	24	31	34	56	59	74	119	21	39	63	2	127	
15	52	14	24	34	47	54	74	85	94	133	32	58	88	7	169	
16	51	17	24	30	47	51	60	68	73	80	30	51	70	5	103	
17	62	25	28	45	59	62	70	74	102	140	43	62	88	23	236	
18	49	16	22	34	40	43	64	73	84	104	28	49	75	3	126	
19	51	2	9	23	33	51	54	71	47	121	11	51	75	0	104	
20	38	0	4	13	22	34	59	79	97	148	8	38	84	0	191	
21	34	1	11	16	24	36	50	79	114	192	13	34	93	0	230	
22	31	0	0	14	21	31	40	52	76	117	11	31	60	0	159	
23	24	0	3	10	17	24	40	54	77	118	7	24	58	0	133	
24	38	7	12	21	20	38	54	61	87	135	14	38	74	0	175	
25	49	4	12	25	40	49	63	75	94	127	20	49	80	0	141	
26	54	10	19	23	41	54	62	83	103	129	22	54	90	1	140	
27	58	20	32	43	57	54	70	93	100	116	37	58	94	6	128	
28	54	19	24	30	49	54	63	94	113	156	31	54	102	4	176	
29	42	3	12	14	20	42	52	63	69	90	16	42	65	0	131	
30	24	0	0	0	15	24	35	42	65	92	6	24	51	0	118	
31	5	0	0	0	1	5	10	15	34	70	0	5	21	0	104	
32	0	0	0	0	0	0	0	2	12	24	0	0	3	0	52	
33	0	0	0	0	0	0	0	0	1	13	0	0	0	0	20	
34	0	0	0	0	0	0	0	0	0	2	0	0	0	0	34	
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	11	

VARIABLE : EVAPOTRANSPIRATION PELLE EN MM		EFFECTIF DE L'ECHANTILLON										50 ANNEES				
PERIODE	MENJAN	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19	
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	25	
2	0	0	0	0	0	0	0	0	1	9	0	0	0	0	20	
3	0	0	0	0	0	0	0	0	6	21	0	0	1	0	28	
4	0	0	0	0	0	0	0	0	3	4	21	0	0	5	25	
5	0	0	0	0	0	0	0	4	14	26	26	0	0	26	26	
6	2	0	0	0	0	2	4	14	20	24	24	0	2	24	24	
7	23	1	1	3	13	23	27	27	27	27	2	23	27	0	27	
8	22	0	4	4	15	24	24	24	24	24	2	24	24	0	28	
9	30	3	15	26	30	30	30	30	30	30	19	30	30	0	30	
10	24	14	24	26	26	26	26	26	26	26	26	26	26	4	26	
11	31	23	33	31	31	31	31	31	31	31	31	31	31	7	31	
12	34	20	35	34	34	34	34	34	34	34	34	34	34	13	36	
13	43	14	24	34	40	40	40	40	40	40	32	40	40	8	40	
14	47	24	32	34	42	47	48	48	48	48	36	47	48	8	48	
15	48	31	34	44	44	44	44	44	44	44	39	44	44	12	48	
16	41	24	34	44	40	41	41	41	41	41	37	41	41	13	41	
17	38	34	37	37	34	34	34	34	34	34	37	38	38	27	38	
18	36	33	35	36	36	36	36	36	36	36	35	36	36	22	36	
19	34	24	32	32	32	34	34	34	34	34	32	34	34	9	34	
20	32	23	23	31	31	32	32	32	32	32	30	32	32	6	32	
21	34	24	24	33	34	34	34	34	34	34	31	34	34	3	35	
22	30	7	27	30	30	30	31	31	31	31	28	30	31	1	31	
23	30	12	24	24	30	30	31	31	31	31	28	30	31	0	31	
24	34	21	29	33	34	34	34	34	34	34	30	34	34	9	35	
25	33	14	31	32	32	33	34	34	34	34	31	33	34	2	34	
26	34	20	33	33	34	34	34	34	34	34	33	34	34	19	35	
27	37	35	34	37	37	37	37	37	37	37	37	37	37	26	37	
28	39	34	34	34	34	34	34	34	34	34	38	39	39	20	39	
29	41	34	34	40	40	41	41	41	41	41	39	41	41	25	41	
30	43	27	30	41	42	43	43	43	43	43	41	43	43	26	46	
31	34	14	27	30	32	34	34	34	41	42	28	34	39	9	42	
32	23	7	11	15	17	23	24	30	34	38	12	23	31	0	38	
33	8	0	0	0	4	4	12	15	22	32	0	8	16	0	34	
34	0	0	0	0	0	0	0	1	8	17	0	0	3	0	29	
35	0	0	0	0	0	0	0	0	1	14	0	0	0	0	25	
36	0	0	0	0	0	0	0	0	0	21	0	0	0	0	27	

APPENDIX 3 - 2 CAMEROUN - Analyse fréquentielle des principaux termes du bilan hydrique.

CAMEROUN - Frequential analysis of main water-balance parameters.

Stations Pluviométriques faisant l'objet de traitement -

Rainfall stations for which data were processed -

Garoua

Mamfé

Maroua

Ngaoundere

Yoko

MAMFE

VARIABLE :		EFFECTIF DE L ECHANTILLON 11 ANNEES																
PLUIE EN MM																		
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19			
1	0	0	0	0	0	0	0	8	20	31	0	0	20	55	*			
2	0	0	0	0	0	0	0	2	6	9	0	0	6	14	*			
3	0	0	0	0	0	0	0	0	2	8	0	0	2	32	*			
4	0	0	0	0	0	0	0	0	1	13	0	0	1	26	*			
5	17	0	0	2	5	12	23	40	54	56	0	12	54	84	*			
6	13	0	0	0	0	6	15	22	31	63	0	6	31	97	*			
7	34	21	0	0	17	33	48	75	92	95	0	33	92	129	*			
8	89	6	21	35	57	81	94	103	116	125	21	81	116	155	*			
9	80	27	15	31	49	73	84	97	113	121	15	73	113	134	*			
10	44	48	26	31	37	41	49	61	88	111	26	41	88	128	*			
11	69	60	25	27	44	64	73	84	101	121	25	64	101	131	*			
12	109	29	19	32	70	102	112	116	132	153	19	102	132	165	*			
13	74	26	28	52	61	71	81	96	104	107	28	71	104	114	*			
14	71	77	48	60	64	68	73	76	81	101	48	68	81	142	*			
15	92	53	46	56	70	88	129	168	172	175	46	88	172	204	*			
16	78	59	50	57	65	73	83	128	174	186	50	73	174	194	*			
17	122	40	35	43	57	93	130	152	166	172	35	93	166	214	*			
18	133	76	76	79	83	110	140	157	169	179	76	110	169	228	*			
19	107	118	88	78	92	103	114	159	203	224	68	103	203	245	*			
20	126	69	93	101	108	114	131	141	150	161	93	118	150	205	*			
21	207	139	175	187	196	205	212	221	239	260	175	205	239	330	*			
22	87	27	55	67	76	85	103	137	188	249	55	85	188	289	*			
23	137	66	108	110	123	135	142	159	194	232	108	135	194	264	*			
24	164	72	91	108	134	161	164	181	203	219	91	161	203	277	*			
25	171	94	106	119	127	152	174	177	185	205	106	152	185	270	*			
26	167	116	110	116	126	151	169	182	194	208	110	151	194	233	*			
27	164	143	120	138	147	158	170	202	239	257	120	158	239	265	*			
28	113	94	54	67	87	104	135	172	203	252	54	104	203	288	*			
29	126	119	104	117	120	124	126	145	170	189	104	124	170	208	*			
30	103	63	44	50	72	96	108	128	167	200	44	96	167	268	*			
31	45	9	0	3	23	42	45	56	70	79	0	42	70	99	*			
32	2	5	0	0	0	1	4	14	22	45	0	1	22	89	*			
33	0	0	0	0	0	0	0	0	1	2	0	0	1	4	*			
34	11	0	0	0	1	7	11	13	17	27	0	7	17	83	*			
35	0	0	0	0	0	0	0	0	0	6	0	0	0	16	*			
36	0	9	0	0	0	0	0	0	16	49	0	0	16	67	*			

VARIABLE :		EFFECTIF DE L ECHANTILLON 11 ANNEES																
EVAPOTRANSPIRATION REELLE EN MM																		
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19			
1	0	0	0	0	0	0	0	8	18	20	0	0	18	20	*			
2	0	0	0	0	0	0	0	2	8	14	0	0	14	20	*			
3	1	0	0	0	0	0	0	2	7	11	0	0	11	21	*			
4	0	0	0	0	0	0	0	1	6	15	0	0	15	20	*			
5	17	0	1	6	11	14	18	20	20	20	1	14	20	20	*			
6	18	0	0	0	9	18	18	18	18	18	0	18	18	18	*			
7	21	10	10	21	21	21	21	21	21	21	10	21	21	21	*			
8	21	21	21	21	21	21	21	21	21	21	21	21	21	21	*			
9	24	24	24	24	24	24	24	24	24	24	24	24	24	24	*			
10	21	21	21	21	21	21	21	21	21	21	21	21	21	21	*			
11	21	21	21	21	21	21	21	21	21	21	21	21	21	21	*			
12	21	21	21	21	21	21	21	21	21	21	21	21	21	21	*			
13	25	25	25	25	25	25	25	25	25	25	25	25	25	25	*			
14	30	30	30	30	30	30	30	30	30	30	30	30	30	30	*			
15	35	35	35	35	35	35	35	35	35	35	35	35	35	35	*			
16	35	35	35	35	35	35	35	35	35	35	35	35	35	35	*			
17	33	33	33	33	33	33	33	33	33	33	33	33	33	33	*			
18	31	31	31	31	31	31	31	31	31	31	31	31	31	31	*			
19	30	30	30	30	30	30	30	30	30	30	30	30	30	30	*			
20	28	28	28	28	28	28	28	28	28	28	28	28	28	28	*			
21	31	31	31	31	31	31	31	31	31	31	31	31	31	31	*			
22	27	27	27	27	27	27	27	27	27	27	27	27	27	27	*			
23	27	27	27	27	27	27	27	27	27	27	27	27	27	27	*			
24	31	31	31	31	31	31	31	31	31	31	31	31	31	31	*			
25	30	30	30	30	30	30	30	30	30	30	30	30	30	30	*			
26	30	30	30	30	30	30	30	30	30	30	30	30	30	30	*			
27	32	32	32	32	32	32	32	32	32	32	32	32	32	32	*			
28	34	34	34	34	34	34	34	34	34	34	34	34	34	34	*			
29	35	35	35	35	35	35	35	35	35	35	35	35	35	35	*			
30	39	39	39	39	39	39	39	39	39	39	39	39	39	39	*			
31	33	33	33	33	33	33	33	33	33	33	33	33	33	33	*			
32	29	29	29	29	29	29	29	29	29	29	29	29	29	29	*			
33	26	23	20	21	24	26	26	26	26	26	20	26	26	26	*			
34	22	13	10	17	21	22	22	22	22	22	10	22	22	22	*			
35	19	1	0	2	5	13	19	19	19	19	0	13	19	19	*			
36	19	8	0	0	7	11	20	21	21	21	0	11	21	21	*			

YOKO

VARIABLE : PLUIE EN MM		EFFECTIF DE L ECHANTILLON													29 ANNEES	
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19	
1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	6	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	1	15	0	0	0	0	22	
4	0	0	0	0	0	0	0	2	8	23	0	0	4	0	27	
5	0	0	0	0	0	0	0	3	12	30	0	0	4	0	38	
6	2	0	0	0	0	1	9	23	29	35	0	1	26	1	47	
7	19	0	0	0	11	18	27	33	46	66	0	18	36	1	78	
8	23	0	0	7	17	23	27	39	46	50	3	23	44	1	52	
9	28	0	7	17	22	27	38	52	63	104	15	27	57	9	127	
10	30	6	10	16	21	28	47	52	58	75	13	28	52	3	82	
11	37	3	12	20	28	35	42	49	59	77	16	35	50	5	97	
12	35	3	20	29	31	34	41	54	70	79	27	34	60	2	81	
13	43	6	20	30	37	42	49	58	95	132	27	42	62	0	164	
14	53	10	19	28	38	51	59	75	80	99	23	51	76	4	110	
15	61	16	30	36	42	60	64	71	79	92	33	60	74	4	126	
16	49	15	23	35	41	47	51	53	75	95	34	47	54	7	131	
17	39	6	15	24	31	38	54	57	63	78	21	38	59	1	81	
18	53	11	22	28	42	53	69	74	88	100	25	53	80	9	106	
19	53	16	20	23	40	52	62	67	77	106	22	52	70	7	123	
20	40	6	16	22	28	39	51	68	86	136	20	39	76	19	149	
21	65	1	16	23	34	59	76	84	90	100	20	59	85	21	106	
22	31	0	14	17	27	31	33	39	55	69	17	31	42	16	81	
23	45	5	20	38	40	44	54	74	87	126	32	44	82	51	134	
24	91	18	36	64	83	90	108	123	125	150	52	90	123	43	158	
25	89	31	58	71	77	88	100	115	119	133	70	88	118	51	144	
26	87	45	63	68	77	87	97	114	123	132	66	87	119	54	135	
27	112	40	66	77	104	111	119	138	157	175	72	111	142	72	194	
28	97	49	67	75	90	96	100	114	130	152	72	96	119	55	155	
29	101	32	64	80	89	101	110	120	142	174	78	101	125	44	176	
30	100	32	42	69	78	98	104	122	145	169	61	98	130	54	176	
31	41	0	7	18	30	39	50	60	74	113	15	39	60	26	126	
32	11	0	0	0	2	9	22	29	39	62	0	9	35	0	66	
33	0	0	0	0	0	0	0	0	2	6	0	0	0	0	26	
34	0	0	0	0	0	0	0	0	5	24	0	0	0	0	34	
35	0	0	0	0	0	0	0	0	0	1	0	0	0	0	2	
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

VARIABLE : EVAPOTRANSPIRATION REELLE EN MM		EFFECTIF DE L ECHANTILLON													29 ANNEES	
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19	
1	0	0	0	0	0	0	0	0	0	3	0	0	0	0	6	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	1	15	0	0	0	0	22	
4	0	0	0	0	0	0	0	2	8	25	0	0	4	0	26	
5	0	0	0	0	0	0	2	6	22	25	0	0	12	0	25	
6	10	0	0	0	1	9	17	22	22	22	0	9	22	1	22	
7	25	0	0	1	17	25	25	25	25	25	0	25	25	5	25	
8	24	0	3	14	21	24	24	24	24	24	7	24	24	8	24	
9	24	4	17	23	24	24	24	24	24	24	22	24	24	12	24	
10	20	8	20	20	20	20	20	20	20	20	20	20	20	12	20	
11	18	18	18	18	18	18	18	18	18	18	18	18	18	14	18	
12	19	14	19	19	19	19	19	19	19	19	19	19	19	5	19	
13	23	19	23	23	23	23	23	23	23	23	23	23	23	8	23	
14	27	27	27	27	27	27	27	27	27	27	27	27	27	14	27	
15	33	33	33	33	33	33	33	33	33	33	33	33	33	17	33	
16	34	33	33	34	34	34	34	34	34	34	33	34	34	17	34	
17	32	31	31	31	32	32	32	32	32	32	31	32	32	15	32	
18	31	30	30	31	31	31	31	31	31	31	31	31	31	22	31	
19	30	28	29	29	30	30	30	30	30	30	29	30	30	14	30	
20	28	27	28	28	28	28	28	28	28	28	28	28	28	27	28	
21	32	27	31	31	32	32	32	32	32	32	31	32	32	27	32	
22	30	29	29	30	30	30	30	30	30	30	30	30	30	29	30	
23	31	29	30	31	31	31	31	31	31	31	30	31	31	29	31	
24	34	33	34	34	34	34	34	34	34	34	34	34	34	33	34	
25	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	
26	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31	
27	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
28	34	34	34	34	34	34	34	34	34	34	34	34	34	34	34	
29	35	34	35	35	35	35	35	35	35	35	35	35	35	34	35	
30	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42	
31	43	39	40	41	42	43	43	43	43	43	41	43	43	41	43	
32	42	27	32	40	42	42	45	45	45	45	38	42	45	34	45	
33	26	10	15	23	25	26	31	34	39	39	21	26	36	17	39	
34	15	0	5	8	9	15	16	20	24	32	8	15	21	7	33	
35	2	0	0	0	0	1	3	5	10	22	0	1	6	0	28	
36	0	0	0	0	0	0	0	0	0	17	0	0	0	0	20	

APPENDIX 3 - 3 COTE D'IVOIRE - Analyse fréquentielle des principaux termes du bilan hydrique.

IVORY COAST - Frequential analysis of main water-balance parameters.

Stations Pluviométriques faisant l'objet de traitement -

Rainfall stations for which data were processed -

Bouaké

Bondoukou

Bouna

Boundiali

Ferkéssédougou

Man

Odiénné

BONDOUKOU

VARIABLE : PLUIE EN MM		EFFECTIF DE L'ECHANTILLON 42 ANNEES													
PERIODE	MEAN	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	2	7	0	0	0	0	16
2	0	0	0	0	0	0	0	0	0	8	0	0	0	0	17
3	0	0	0	0	0	0	0	0	1	20	0	0	0	0	37
4	0	0	0	0	0	0	0	0	5	11	0	0	0	0	27
5	1	0	0	0	0	1	3	6	16	33	0	1	15	0	62
6	8	0	0	0	0	8	13	23	42	61	0	8	30	0	91
7	9	0	0	1	3	9	14	27	39	59	0	9	31	0	79
8	19	0	0	7	14	19	30	40	50	76	1	19	49	0	87
9	31	3	11	16	21	31	38	46	56	84	15	31	47	0	91
10	29	2	8	15	23	29	37	43	56	74	10	29	51	0	102
11	36	3	10	23	30	36	42	52	61	77	15	36	59	1	83
12	43	5	17	22	35	43	58	73	78	84	20	43	76	3	88
13	51	3	18	24	37	51	58	66	78	102	21	51	71	1	109
14	39	14	23	26	31	39	46	57	68	84	25	39	61	9	110
15	47	8	26	34	39	47	53	61	77	93	32	47	71	4	114
16	45	11	27	35	41	45	62	70	83	94	28	45	77	4	109
17	49	15	21	33	42	49	53	59	65	84	27	49	62	11	120
18	48	8	21	31	40	48	53	61	66	87	24	48	64	0	101
19	21	0	1	2	8	21	29	45	58	65	2	21	50	0	79
20	12	0	1	0	10	12	18	24	37	43	3	12	32	0	47
21	14	0	0	2	4	14	19	29	41	56	0	14	33	0	81
22	8	0	0	1	2	8	10	17	26	35	0	8	19	0	42
23	7	0	0	1	2	7	14	24	36	56	0	7	26	0	63
24	26	0	7	8	15	26	28	41	54	79	8	26	47	0	99
25	51	7	14	29	38	51	63	75	84	101	24	51	82	0	120
26	60	17	29	36	41	60	68	73	85	124	32	60	79	4	128
27	56	20	27	41	47	56	69	83	99	109	38	56	89	14	115
28	64	23	30	43	50	64	78	87	100	117	35	64	93	9	119
29	56	12	23	30	41	56	63	68	75	92	25	56	72	0	121
30	46	3	13	19	26	46	54	71	74	84	16	46	72	0	96
31	11	0	0	1	7	11	16	29	44	59	0	11	39	0	78
32	3	0	0	0	0	3	5	16	20	33	0	3	18	0	42
33	0	0	0	0	0	0	0	9	17	35	0	0	13	0	62
34	0	0	0	0	0	0	2	4	14	22	0	0	8	0	34
35	0	0	0	0	0	0	0	2	11	23	0	0	4	0	34
36	0	0	0	0	0	0	0	3	11	0	0	0	2	0	13

VARIABLE : EVAPOTRANSPIRATION REELLE EN MM		EFFECTIF DE L'ECHANTILLON 42 ANNEES													
PERIODE	MEAN	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	2	7	0	0	0	0	16
2	0	0	0	0	0	0	0	0	0	11	0	0	0	0	18
3	0	0	0	0	0	0	0	0	3	20	0	0	0	0	29
4	0	0	0	0	0	0	0	5	8	17	0	0	7	0	26
5	1	0	0	0	0	1	4	11	24	25	0	1	16	0	25
6	15	0	0	0	5	15	23	24	24	24	0	15	24	0	24
7	27	0	1	5	13	27	27	27	27	27	3	27	27	0	27
8	28	0	6	14	18	28	28	28	28	28	12	28	28	0	28
9	30	14	14	28	30	30	30	30	30	30	20	30	30	2	30
10	31	20	29	31	31	31	31	31	31	31	31	31	31	5	31
11	35	23	34	35	35	35	35	35	35	35	35	35	35	6	35
12	39	33	39	39	39	39	39	39	39	39	39	39	39	13	39
13	47	35	41	43	45	47	47	47	47	47	47	47	47	28	47
14	45	37	39	42	44	45	46	46	46	46	41	45	46	27	46
15	47	26	42	45	46	47	47	47	47	47	44	47	47	25	47
16	39	31	37	38	39	39	39	40	40	40	38	39	40	30	40
17	37	33	34	35	36	37	37	37	37	37	35	37	37	32	37
18	33	31	33	33	33	33	33	33	33	33	33	33	33	28	33
19	24	23	24	24	24	24	24	24	24	24	24	24	24	20	24
20	23	20	23	23	23	23	23	23	23	23	23	23	23	10	23
21	22	15	22	22	22	22	22	22	22	22	22	22	22	2	22
22	16	1	16	16	16	16	16	16	16	16	16	16	16	0	16
23	16	6	16	16	16	16	16	16	16	16	16	16	16	0	16
24	22	7	20	22	22	22	22	22	22	22	22	22	22	2	22
25	24	15	24	24	24	24	24	24	24	24	24	24	24	4	24
26	28	24	24	28	28	28	28	28	28	28	28	28	28	16	28
27	36	34	34	36	36	36	36	36	36	36	36	36	36	33	36
28	37	35	37	37	37	37	37	37	37	37	37	37	37	34	37
29	39	36	37	38	39	39	39	39	39	39	38	39	39	36	39
30	43	35	40	41	43	43	43	43	43	43	41	43	43	34	43
31	36	25	31	34	36	36	37	37	40	40	33	36	38	20	40
32	30	17	23	27	28	30	31	36	37	38	25	30	37	8	38
33	22	1	4	13	16	22	28	30	34	34	11	22	32	0	34
34	15	0	0	2	6	15	19	23	28	30	0	15	25	0	30
35	3	0	0	0	0	3	8	16	24	26	0	3	21	0	26
36	2	0	0	0	0	2	5	11	13	17	0	2	12	0	18

BOONA

VARIABLE : PLUIE EN MM		EFFECTIF DE L ECHANTILLON 50 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
4	0	0	0	0	0	0	0	0	0	0	2	0	0	0	13
5	0	0	0	0	0	0	0	4	18	42	0	0	6	0	49
6	0	0	0	0	0	0	3	5	14	19	0	0	9	0	33
7	4	0	0	0	0	4	7	16	24	35	0	4	20	0	42
8	4	0	0	0	3	4	16	23	34	43	0	8	27	0	58
9	10	0	0	3	7	13	23	38	47	56	1	10	39	0	63
10	21	0	0	7	14	21	27	32	40	50	4	21	36	0	54
11	34	0	11	15	24	34	40	48	59	61	14	34	55	0	90
12	35	0	12	18	28	35	43	52	60	77	13	35	57	2	86
13	37	10	16	14	25	37	45	56	71	91	17	37	63	2	107
14	36	0	4	14	26	39	51	61	72	92	18	39	65	0	97
15	39	0	21	25	24	39	52	61	70	89	22	39	64	0	104
16	41	0	17	28	32	41	52	61	77	96	23	41	71	2	104
17	45	15	24	31	34	45	54	65	77	92	26	45	69	6	115
18	35	10	20	24	30	35	43	55	74	95	22	35	64	3	115
19	33	0	4	13	27	33	50	65	76	111	9	33	72	0	122
20	40	2	3	14	24	40	48	56	69	88	12	40	63	0	109
21	34	0	6	16	24	36	54	65	74	104	8	34	68	0	123
22	30	0	7	16	21	30	35	51	66	95	11	30	55	0	103
23	30	1	4	17	25	30	42	51	59	42	11	30	54	0	101
24	37	7	22	34	43	57	66	78	88	122	31	57	80	1	128
25	34	22	40	55	67	84	93	119	129	166	43	84	123	17	175
26	37	25	41	54	64	87	78	102	113	153	45	67	108	16	157
27	65	21	35	45	55	65	75	88	101	138	41	66	96	3	141
28	47	10	14	23	29	43	44	55	69	114	21	43	62	0	125
29	22	0	5	10	17	22	30	38	46	68	8	22	43	0	84
30	14	0	0	0	4	13	20	30	46	74	0	13	36	0	97
31	0	0	0	0	4	7	10	15	24	47	0	8	20	0	76
32	0	0	0	0	0	0	2	8	14	32	0	0	11	0	37
33	0	0	0	0	0	0	0	5	9	21	0	0	7	0	26
34	0	0	0	0	0	0	0	0	0	22	0	0	2	0	37
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	8
36	0	0	0	0	0	0	0	0	0	2	0	0	0	0	19

VARIABLE : EVAPOTRANSPIRATION REELLE EN MM		EFFECTIF DE L ECHANTILLON 50 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
3	0	0	0	0	0	0	0	0	0	0	2	0	0	0	7
4	0	0	0	0	0	0	0	0	0	4	0	0	0	0	13
5	0	0	0	0	0	0	0	4	18	27	0	0	6	0	27
6	0	0	0	0	0	0	4	11	22	25	0	0	15	0	25
7	6	0	0	0	3	6	12	21	27	30	0	6	24	0	30
8	8	0	0	1	5	8	16	30	30	30	0	8	30	0	30
9	15	0	5	7	10	15	32	32	32	32	6	15	32	0	32
10	29	0	12	18	22	29	29	29	29	29	13	29	29	0	29
11	28	6	16	27	28	28	28	28	28	28	20	28	28	0	28
12	27	12	27	27	27	27	27	27	27	27	27	27	27	3	27
13	27	26	27	27	27	27	27	27	27	27	27	27	27	20	27
14	27	23	27	27	27	27	27	27	27	27	27	27	27	0	27
15	28	28	28	28	28	28	28	28	28	28	28	28	28	17	28
16	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28
17	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31
18	35	35	35	35	35	35	35	35	35	35	35	35	35	35	35
19	40	36	38	39	40	40	41	41	41	41	38	40	41	32	41
20	39	29	35	37	38	39	40	40	40	40	37	39	40	20	40
21	41	30	35	39	40	41	41	41	41	41	37	41	41	2	41
22	36	23	29	33	35	36	36	37	37	37	31	36	37	17	37
23	34	22	28	30	33	34	34	35	35	35	30	34	35	3	35
24	38	27	33	36	37	38	39	39	39	39	35	38	39	12	39
25	36	31	35	36	36	36	36	36	36	36	35	36	36	24	36
26	36	34	35	36	36	36	36	36	36	36	36	36	36	28	36
27	39	36	38	39	39	39	39	39	39	39	38	39	39	33	39
28	42	35	41	41	42	42	42	42	42	42	41	42	42	32	42
29	43	31	38	40	42	43	44	44	45	45	38	43	45	20	45
30	40	23	28	34	36	40	42	43	47	47	31	40	45	9	47
31	28	15	17	22	24	28	30	33	39	39	19	28	38	5	39
32	15	2	6	8	12	15	22	27	31	34	7	15	30	0	34
33	7	0	0	0	4	7	11	15	22	27	0	7	17	0	28
34	1	0	0	0	0	1	5	11	17	23	0	1	12	0	23
35	0	0	0	0	0	0	0	1	6	15	0	0	2	0	19
36	0	0	0	0	0	0	0	0	0	11	0	0	0	0	21

BOUAKE

VARIABLE : PLUIE EN MM		EFFECTIF DE L ECHANTILLON 50 ANNEES														
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19	
1	0	0	0	0	0	0	0	0	0	7	0	0	0	0	10	
2	0	0	0	0	0	0	0	0	0	4	0	0	0	0	9	
3	0	0	0	0	0	0	0	6	19	24	0	0	11	0	41	
4	0	0	0	0	0	0	0	3	13	40	0	0	6	0	44	
5	5	0	0	0	2	5	16	24	40	61	0	5	34	0	74	
6	8	0	0	0	3	8	10	13	33	49	0	8	18	0	66	
7	21	0	0	7	15	21	27	32	42	75	2	21	34	0	108	
8	14	0	0	3	9	14	23	32	46	80	1	14	38	0	90	
9	27	2	8	16	23	27	37	41	57	77	12	27	45	0	105	
10	33	2	11	16	25	33	39	51	62	89	13	33	54	0	113	
11	37	9	16	25	32	37	52	58	70	89	19	37	62	1	98	
12	41	7	17	26	33	41	46	60	71	98	19	41	66	0	108	
13	29	4	17	21	26	29	36	52	57	86	19	29	55	0	110	
14	40	8	14	25	28	40	45	55	71	94	18	40	57	1	113	
15	39	14	19	28	30	39	50	60	77	103	24	39	67	1	140	
16	44	16	24	29	35	44	54	66	81	94	26	44	74	12	99	
17	41	10	16	25	34	41	48	56	75	97	19	41	62	4	102	
18	29	1	11	15	19	29	39	45	72	79	13	29	58	0	109	
19	29	0	4	7	16	29	39	54	61	74	4	29	57	0	94	
20	21	0	0	8	16	21	26	31	46	77	2	21	33	0	97	
21	20	0	2	4	11	20	24	33	61	97	3	20	43	0	117	
22	14	0	3	6	9	14	23	30	39	56	4	14	35	0	65	
23	22	0	6	12	16	22	29	31	39	58	7	22	31	0	69	
24	49	6	14	25	40	49	61	72	86	104	17	49	76	0	124	
25	56	12	34	45	51	56	64	75	102	145	37	56	83	3	167	
26	60	21	32	44	51	60	77	89	110	144	35	60	93	14	153	
27	54	19	27	34	50	54	62	78	86	99	31	54	81	4	133	
28	53	15	22	30	41	53	67	75	93	111	23	53	82	8	117	
29	35	6	15	19	30	35	42	51	60	74	17	35	58	0	87	
30	26	0	5	11	18	26	33	34	57	86	7	26	42	0	98	
31	9	0	0	1	5	9	12	17	30	44	0	9	21	0	61	
32	6	0	0	0	4	6	8	11	17	32	0	6	14	0	37	
33	0	0	0	0	0	0	3	9	14	18	0	0	11	0	22	
34	1	0	0	0	0	1	3	9	15	29	0	1	9	0	46	
35	0	0	0	0	0	0	0	2	11	22	0	0	4	0	34	
36	0	0	0	0	0	0	0	1	10	10	0	0	0	0	21	

VARIABLE : EVAPOTRANSPIRATION REELLE EN MM		EFFECTIF DE L ECHANTILLON 50 ANNEES														
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19	
1	0	0	0	0	0	0	0	0	0	7	0	0	0	0	10	
2	0	0	0	0	0	0	0	0	0	5	0	0	0	0	10	
3	0	0	0	0	0	0	0	6	19	24	0	0	11	0	30	
4	0	0	0	0	0	0	0	7	17	26	0	0	11	0	26	
5	12	0	0	0	3	12	20	26	26	26	0	12	26	0	26	
6	12	0	0	2	8	12	23	24	24	24	0	12	24	0	24	
7	27	0	5	16	22	27	27	27	27	27	11	27	27	0	27	
8	28	2	10	15	27	28	28	28	28	28	12	28	28	0	28	
9	30	7	21	30	30	30	30	30	30	30	26	30	30	3	30	
10	32	25	31	32	32	32	32	32	32	32	32	32	32	21	32	
11	36	34	36	36	36	36	36	36	36	36	36	36	36	29	36	
12	40	31	34	40	40	40	40	40	40	40	40	40	40	17	40	
13	46	30	42	43	44	46	46	47	47	47	42	46	47	17	47	
14	44	29	35	37	40	44	45	46	46	46	36	44	46	12	46	
15	47	30	33	40	44	47	47	47	47	47	35	47	47	9	47	
16	39	29	34	38	39	39	40	41	41	41	34	39	41	22	41	
17	37	30	34	35	36	37	37	38	38	38	34	37	38	20	38	
18	34	24	29	33	34	34	34	34	34	34	31	34	34	18	34	
19	29	18	29	29	29	29	29	29	29	29	29	29	29	11	29	
20	24	1	21	24	24	24	24	24	24	24	24	24	24	0	24	
21	22	10	22	22	22	22	22	22	22	22	22	22	22	0	22	
22	16	5	16	16	16	16	16	16	16	16	16	16	16	0	16	
23	15	9	15	15	15	15	15	15	15	15	15	15	15	0	15	
24	21	21	21	21	21	21	21	21	21	21	21	21	21	15	21	
25	23	23	23	23	23	23	23	23	23	23	23	23	23	13	23	
26	27	27	27	27	27	27	27	27	27	27	27	27	27	26	27	
27	36	35	36	36	36	36	36	36	36	36	36	36	36	30	36	
28	38	37	37	37	38	38	38	38	38	38	37	38	38	35	38	
29	40	37	34	39	40	40	40	41	41	41	39	40	41	34	41	
30	44	32	38	41	42	44	45	45	45	45	39	44	45	29	45	
31	35	22	26	30	33	35	36	38	41	43	28	35	40	17	43	
32	25	14	17	18	24	25	28	32	35	39	17	25	34	4	39	
33	16	0	3	8	11	16	19	21	26	30	5	16	23	0	34	
34	6	0	0	1	3	6	10	16	21	29	0	6	17	0	31	
35	0	0	0	0	0	0	1	8	19	25	0	0	11	0	26	
36	0	0	0	0	0	0	2	5	10	22	0	0	8	0	23	

BOUNDIALI

VARIABLE : PLUIE EN MM		EFFECTIF DE L ECHANTILLON 44 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3	0	0	0	0	0	0	0	0	0	1	0	0	0	0	4
4	0	0	0	0	0	0	0	0	0	3	0	0	0	0	15
5	0	0	0	0	0	0	0	0	3	14	0	0	1	0	20
6	0	0	0	0	0	0	0	0	16	22	0	0	12	0	35
7	1	0	0	0	0	1	3	6	15	31	0	1	14	0	59
8	3	0	0	0	0	3	5	12	23	32	0	3	20	0	36
9	5	0	0	0	0	5	16	28	44	55	0	5	33	0	75
10	10	0	0	3	7	10	16	20	35	53	2	10	28	0	60
11	18	0	3	10	16	18	22	26	44	79	6	18	41	0	94
12	32	5	14	20	27	32	40	45	63	74	19	32	54	0	81
13	27	0	7	17	22	27	34	42	55	68	9	27	49	0	74
14	37	7	18	23	32	37	49	51	56	68	22	37	54	0	85
15	40	7	19	23	28	40	47	51	64	79	21	40	59	2	102
16	50	11	24	30	36	50	58	73	97	120	27	50	87	0	139
17	56	18	26	40	49	56	60	68	79	97	35	56	73	8	114
18	54	17	20	33	38	54	59	71	87	113	30	54	84	7	124
19	54	4	17	31	42	54	67	77	123	131	27	54	105	0	156
20	98	12	33	47	62	78	103	112	120	148	41	98	115	0	158
21	107	26	52	78	97	107	123	128	166	189	76	107	149	15	206
22	95	15	40	55	78	95	104	122	169	192	50	95	152	6	207
23	111	52	73	88	99	111	120	140	159	168	84	111	152	26	197
24	117	44	58	76	94	117	124	136	171	204	68	117	158	29	219
25	90	42	53	69	79	90	111	116	161	179	58	90	150	25	208
26	75	25	40	56	60	75	87	107	148	168	48	75	125	18	214
27	55	22	27	41	45	55	64	70	95	129	37	55	87	13	137
28	46	5	14	27	40	46	55	70	74	93	26	46	72	0	125
29	28	0	8	12	19	28	38	53	65	107	12	28	60	0	139
30	25	1	11	17	19	25	33	45	53	82	15	25	52	0	116
31	9	0	0	0	4	9	15	22	27	51	0	9	25	0	61
32	2	0	0	0	0	2	6	13	30	43	0	2	25	0	49
33	0	0	0	0	0	0	0	0	7	19	0	0	3	0	29
34	0	0	0	0	0	0	0	0	4	19	0	0	0	0	25
35	0	0	0	0	0	0	0	0	0	2	0	0	0	0	6
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10

VARIABLE : EVAPOTRANSPIRATION REELLE EN MM		EFFECTIF DE L ECHANTILLON 44 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10
2	0	0	0	0	0	0	0	0	0	2	0	0	0	0	17
3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	5
4	0	0	0	0	0	0	0	0	1	9	0	0	0	0	26
5	0	0	0	0	0	0	0	0	11	20	0	0	3	0	23
6	0	0	0	0	0	0	0	1	18	24	0	0	12	0	24
7	3	0	0	0	0	3	6	14	24	27	0	3	21	0	27
8	6	0	0	0	2	6	8	17	26	27	0	6	24	0	27
9	15	0	0	1	3	15	20	30	30	30	0	15	30	0	30
10	18	0	3	7	10	18	22	27	27	27	6	18	27	0	27
11	26	1	4	18	19	26	27	27	27	27	14	26	27	0	27
12	26	11	18	26	26	26	26	26	26	26	26	26	26	2	26
13	26	12	20	26	26	26	26	26	26	26	25	26	26	6	26
14	25	25	25	25	25	25	25	25	25	25	25	25	25	13	25
15	36	23	36	36	36	36	36	36	36	36	36	36	36	16	36
16	41	27	41	41	41	41	41	41	41	41	41	41	41	12	41
17	51	38	51	51	51	51	51	51	51	51	51	51	51	26	51
18	52	41	47	50	52	52	52	52	52	52	49	52	52	29	52
19	46	37	39	42	44	46	46	46	46	46	41	46	46	34	46
20	39	35	37	38	39	39	39	39	39	39	37	39	39	30	39
21	41	34	41	41	41	41	41	41	41	41	41	41	41	36	41
22	37	35	36	37	37	37	37	37	37	37	37	37	37	33	37
23	36	36	36	36	36	36	36	36	36	36	36	36	36	35	36
24	41	41	41	41	41	41	41	41	41	41	41	41	41	40	41
25	37	37	37	37	37	37	37	37	37	37	37	37	37	36	37
26	38	37	38	38	38	38	38	38	38	38	38	38	38	37	38
27	41	39	40	40	41	41	41	41	41	41	40	41	41	38	41
28	42	39	41	41	42	42	42	42	42	42	41	42	42	39	42
29	44	35	39	42	42	44	45	45	45	45	40	44	45	28	45
30	46	27	37	40	42	46	48	48	49	49	40	46	49	16	49
31	33	21	24	28	30	33	35	37	40	43	27	33	38	9	43
32	23	12	16	19	23	24	29	37	38	38	15	23	32	7	38
33	8	0	0	3	6	8	15	21	24	33	0	8	26	0	33
34	3	0	0	0	0	3	8	11	19	27	0	3	17	0	28
35	0	0	0	0	0	0	0	3	8	17	0	0	6	0	18
36	0	0	0	0	0	0	0	0	1	6	0	0	0	0	14

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VARIABLE : PLUIE EN MM		EFFECTIF DE L ECHANTILLON 47 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
4	0	0	0	0	0	0	0	0	0	2	0	0	0	0	10
5	0	0	0	0	0	0	0	0	4	36	0	0	1	0	54
6	0	0	0	0	0	0	0	0	5	11	0	0	2	0	37
7	1	0	0	0	0	0	6	9	16	24	0	0	13	0	30
8	5	0	0	0	1	5	9	16	27	42	0	5	21	0	51
9	17	0	0	5	10	17	28	31	50	64	2	17	43	0	76
10	15	0	0	4	6	13	18	24	35	55	2	13	28	0	66
11	24	0	8	12	17	24	28	36	46	64	10	24	43	0	80
12	40	4	13	18	23	37	49	56	65	84	14	37	59	2	96
13	30	3	13	22	27	29	34	37	47	64	15	29	41	0	83
14	31	1	13	20	24	30	37	56	65	71	18	30	60	0	74
15	51	9	15	34	37	50	60	68	91	108	20	50	81	6	132
16	41	15	21	28	30	39	47	54	67	86	24	39	60	4	109
17	46	19	25	34	41	45	52	66	76	89	27	45	73	13	100
18	46	13	25	34	42	45	57	65	78	98	27	45	75	5	114
19	48	8	18	26	32	46	55	68	83	110	22	46	80	0	124
20	52	19	28	36	42	50	62	68	73	97	30	50	70	8	118
21	66	4	20	30	51	65	79	91	115	142	25	65	97	0	180
22	89	9	32	50	64	87	105	124	142	177	35	87	130	3	194
23	95	29	54	71	82	95	105	122	143	175	62	95	136	18	191
24	82	17	41	61	70	81	104	112	141	164	44	81	133	10	169
25	78	32	50	59	64	73	89	98	124	146	55	73	115	24	172
26	70	24	44	57	60	66	86	95	114	133	50	66	101	11	157
27	70	26	43	55	65	69	75	81	93	104	46	69	89	20	110
28	34	16	20	28	29	33	36	43	62	71	22	33	59	8	77
29	27	2	7	13	20	27	33	43	61	78	9	27	52	0	81
30	23	0	5	11	19	22	31	35	45	67	8	22	40	0	71
31	5	0	0	0	1	5	9	18	23	48	0	5	21	0	52
32	0	0	0	0	0	0	1	4	15	33	0	0	9	0	49
33	0	0	0	0	0	0	0	2	9	24	0	0	5	0	32
34	0	0	0	0	0	0	0	0	4	19	0	0	3	0	36
35	0	0	0	0	0	0	0	0	1	7	0	0	0	0	11
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4

VARIABLE : EVAPOTRANSPIRATION REELLE EN MM		EFFECTIF DE L ECHANTILLON 47 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3	0	0	0	0	0	0	0	0	0	2	0	0	0	0	14
4	0	0	0	0	0	0	0	0	1	10	0	0	0	0	16
5	0	0	0	0	0	0	0	0	5	25	0	0	4	0	25
6	0	0	0	0	0	0	0	2	10	23	0	0	7	0	23
7	6	0	0	0	0	5	8	13	22	27	0	5	20	0	27
8	6	0	0	0	3	5	15	20	28	28	0	5	27	0	28
9	28	0	3	9	12	26	30	30	30	30	4	26	30	0	30
10	25	0	2	10	17	24	26	26	26	26	4	24	26	0	26
11	25	4	11	20	25	25	25	25	25	25	12	25	25	0	25
12	26	12	25	26	26	26	26	26	26	26	26	26	26	6	26
13	26	26	26	26	26	26	26	26	26	26	26	26	26	12	26
14	26	26	26	26	26	26	26	26	26	26	26	26	26	9	26
15	33	27	33	33	33	33	33	33	33	33	33	33	33	13	33
16	32	31	32	32	32	32	32	32	32	32	32	32	32	24	32
17	35	35	35	35	35	35	35	35	35	35	35	35	35	21	35
18	41	39	41	41	41	41	41	41	41	41	41	41	41	36	41
19	41	36	39	39	40	40	41	41	41	41	39	40	41	34	41
20	41	36	39	40	40	41	41	41	41	41	39	41	41	36	41
21	42	37	40	41	42	42	42	42	42	42	41	42	42	27	42
22	38	35	36	38	38	38	38	38	38	38	36	38	38	24	38
23	36	34	36	36	36	36	36	36	36	36	36	36	36	31	36
24	40	38	40	40	40	40	40	40	40	40	40	40	40	33	40
25	37	35	37	37	37	37	37	37	37	37	37	37	37	30	37
26	37	36	37	37	37	37	37	37	37	37	37	37	37	34	37
27	40	38	40	40	40	40	40	40	40	40	40	40	40	37	40
28	42	40	41	42	42	42	42	42	42	42	41	42	42	37	42
29	44	36	40	41	43	43	44	45	45	45	40	43	45	34	45
30	44	27	35	37	40	44	45	47	47	47	35	44	47	21	47
31	33	16	22	27	29	32	34	35	37	37	25	32	37	6	37
32	20	3	9	13	17	19	23	27	31	32	11	19	30	0	32
33	8	0	0	1	3	7	13	18	24	27	0	7	22	0	27
34	3	0	0	0	0	2	5	9	17	22	0	2	13	0	22
35	0	0	0	0	0	0	0	2	9	22	0	0	6	0	22
36	0	0	0	0	0	0	0	0	1	11	0	0	0	0	19

MAN

VARIABLE : PLUIE EN MM		EFFECTIF DE L'ECHANTILLON 50 ANNEES														
PERIODE	MEDIA	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19	
1	0	0	0	0	0	0	0	0	1	14	0	0	0	0	25	
2	0	0	0	0	0	0	0	0	8	14	0	0	1	0	26	
3	0	0	0	0	0	0	3	5	11	22	0	0	6	0	39	
4	0	0	0	0	0	0	2	12	24	37	0	0	15	0	56	
5	13	0	0	5	13	19	25	36	48	0	13	31	0	62		
6	21	0	1	6	17	21	35	42	47	69	5	21	44	0	79	
7	20	0	1	6	18	20	25	29	38	64	3	20	31	0	96	
8	29	4	7	15	20	29	42	55	70	84	10	29	58	1	100	
9	34	4	13	23	30	39	46	63	74	97	19	39	69	1	117	
10	41	5	13	20	37	41	47	55	73	92	20	41	64	0	98	
11	41	7	17	28	37	41	46	52	61	82	24	41	57	0	97	
12	57	12	25	35	50	57	63	70	80	115	28	57	76	9	135	
13	41	7	25	29	33	41	45	50	57	83	25	41	52	0	87	
14	45	8	25	32	36	46	54	63	79	107	28	46	67	0	133	
15	49	15	22	40	46	49	65	78	89	116	27	49	81	8	137	
16	59	27	37	44	49	59	73	91	112	143	38	59	97	4	157	
17	69	25	37	45	61	68	74	81	101	122	40	68	84	11	145	
18	48	18	24	34	40	44	61	66	90	109	29	48	82	7	121	
19	44	8	17	28	40	44	61	82	94	129	24	44	89	1	196	
20	56	6	22	45	50	56	66	85	119	151	28	56	95	0	154	
21	57	10	18	32	42	57	77	98	118	136	26	57	104	2	169	
22	58	22	33	41	49	58	68	92	119	150	35	58	112	9	172	
23	64	18	28	47	53	64	82	94	131	159	36	64	108	10	180	
24	103	24	45	76	89	103	114	123	139	159	58	103	128	10	196	
25	105	46	74	90	98	105	121	126	139	191	84	105	129	29	237	
26	110	65	69	82	98	110	127	134	156	199	72	110	148	40	213	
27	76	34	42	58	69	76	95	111	147	182	49	76	126	10	191	
28	57	25	24	44	49	57	78	90	100	163	37	57	94	10	181	
29	45	6	14	25	36	45	58	65	81	114	19	45	71	0	136	
30	33	0	11	17	22	33	39	48	65	100	13	33	55	0	111	
31	15	0	7	7	11	15	22	28	44	69	3	15	31	0	77	
32	6	0	0	1	3	6	10	16	24	42	0	6	18	0	62	
33	1	0	0	0	0	1	5	13	28	38	0	1	19	0	49	
34	0	0	0	0	0	0	2	4	10	30	0	0	5	0	38	
35	0	0	0	0	0	0	2	6	18	36	0	0	7	0	51	
36	0	0	0	0	0	0	0	1	9	19	0	0	3	0	24	

VARIABLE : EVAPOTRANSPIRATION REELLE EN MM		EFFECTIF DE L'ECHANTILLON 50 ANNEES														
PERIODE	MEDIA	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19	
1	0	0	0	0	0	0	0	0	1	14	0	0	0	0	20	
2	0	0	0	0	0	0	0	3	10	18	0	0	8	0	21	
3	1	0	0	0	0	1	4	7	15	23	0	1	11	0	23	
4	1	0	0	0	0	1	8	16	20	20	0	1	18	0	20	
5	16	0	0	8	11	16	20	20	20	20	0	16	20	0	20	
6	19	0	7	15	19	19	19	19	19	19	10	19	19	0	19	
7	22	5	14	22	22	22	22	22	22	22	20	22	22	0	22	
8	23	12	19	23	23	23	23	23	23	23	23	23	23	7	23	
9	24	24	24	24	24	24	24	24	24	24	24	24	24	16	24	
10	21	21	21	21	21	21	21	21	21	21	21	21	21	18	21	
11	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
12	20	20	20	20	20	20	20	20	20	20	20	20	20	20	20	
13	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24	
14	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
15	32	32	32	32	32	32	32	32	32	32	32	32	32	32	32	
16	33	33	33	33	33	33	33	33	33	33	33	33	33	33	33	
17	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	
18	30	30	30	30	30	30	30	30	30	30	29	30	30	29	30	
19	28	28	28	28	28	28	28	28	28	28	28	28	28	28	28	
20	27	27	27	27	27	27	27	27	27	27	27	27	27	27	27	
21	29	29	29	29	29	29	29	29	29	29	29	29	29	27	29	
22	26	26	26	26	26	26	26	26	26	26	26	26	26	24	26	
23	25	25	25	25	25	25	25	25	25	25	25	25	25	25	25	
24	30	30	30	30	30	30	30	30	30	30	30	30	30	29	30	
25	29	29	29	29	29	29	29	29	29	29	29	29	29	28	29	
26	30	30	30	30	30	30	30	30	30	30	30	30	30	30	30	
27	32	32	32	32	32	32	32	32	32	32	32	32	32	31	32	
28	33	33	33	33	33	33	33	33	33	33	33	33	33	30	33	
29	35	35	35	35	35	35	35	35	35	35	35	35	35	28	35	
30	37	37	37	37	37	37	37	37	37	37	36	37	37	32	37	
31	31	31	31	31	31	31	31	31	31	31	31	31	31	26	31	
32	27	27	27	27	27	27	27	27	27	27	27	27	27	17	27	
33	24	14	21	23	24	24	24	24	24	24	22	24	24	4	24	
34	20	4	7	11	18	20	20	20	20	20	9	20	20	0	20	
35	16	0	0	3	13	16	16	16	16	16	7	16	16	0	16	
36	18	0	0	1	4	18	20	20	20	20	0	18	20	0	20	

ODIENNE

VARIABLE : PLUIE EN MM		EFFECTIF DE L ECHANTILLON 50 ANNEES													
PERIODE	MEMO	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
2	0	0	0	0	0	0	0	0	0	1	0	0	0	0	5
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	7	0	0	0	0	19
5	0	0	0	0	0	0	0	0	7	24	0	0	2	0	34
6	0	0	0	0	0	0	0	2	7	34	0	0	3	0	42
7	0	0	0	0	0	0	1	9	25	0	0	5	0	0	40
8	5	0	0	0	1	5	10	14	24	40	0	5	17	0	61
9	14	0	0	4	8	14	18	21	35	47	0	14	25	0	57
10	17	0	0	7	7	12	15	23	30	40	1	12	26	0	55
11	23	0	1	8	15	23	29	36	43	54	5	23	38	0	59
12	25	5	10	14	17	25	33	47	58	74	11	25	53	0	87
13	26	4	9	14	17	26	33	42	52	71	11	26	45	1	82
14	29	8	13	19	26	29	39	56	64	92	13	29	60	2	99
15	42	9	14	26	34	42	47	52	63	84	23	42	53	3	96
16	40	11	20	25	30	40	48	63	72	79	21	40	65	3	110
17	44	15	24	32	41	44	54	66	81	100	29	44	71	5	130
18	47	18	26	31	41	47	58	69	87	114	28	47	75	11	139
19	59	24	33	48	53	59	69	83	97	132	45	59	89	8	149
20	65	33	45	60	74	85	93	104	111	155	52	85	105	2	191
21	132	58	74	99	115	132	145	165	184	197	89	132	172	30	211
22	104	66	60	81	93	104	122	142	168	206	73	109	153	34	238
23	126	69	73	84	103	126	143	156	188	214	81	126	167	21	224
24	120	64	65	96	108	120	143	164	173	201	91	120	166	49	221
25	43	45	60	71	88	93	125	148	171	203	67	93	151	27	224
26	45	38	60	68	84	95	99	107	121	154	55	95	114	19	181
27	71	25	41	51	64	71	78	88	100	121	46	71	94	7	132
28	53	10	21	37	45	53	57	71	82	108	33	53	75	6	122
29	52	10	22	37	45	52	65	71	80	109	31	52	75	2	116
30	41	4	17	24	32	41	50	56	74	87	21	41	62	1	91
31	19	0	6	9	14	19	23	28	41	55	8	19	34	0	67
32	12	0	0	0	5	12	19	25	31	47	0	12	26	0	60
33	0	0	0	0	0	0	0	4	7	14	0	0	6	0	30
34	0	0	0	0	0	0	0	0	5	20	0	0	2	0	24
35	0	0	0	0	0	0	0	0	0	9	0	0	0	0	32
36	0	0	0	0	0	0	0	0	2	0	0	0	0	0	5

VARIABLE : EVAPOTRANSPIRATION REELLE EN MM		EFFECTIF DE L ECHANTILLON 50 ANNEES													
PERIODE	MEMO	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
2	0	0	0	0	0	0	0	0	0	3	0	0	0	0	6
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	1	13	0	0	0	0	19
5	0	0	0	0	0	0	0	9	24	0	0	2	0	0	26
6	0	0	0	0	0	1	3	13	25	0	0	4	0	0	25
7	1	0	0	0	1	5	8	18	28	0	1	10	0	0	28
8	14	0	0	4	10	13	18	28	29	0	10	24	0	0	29
9	17	0	1	6	11	17	21	28	31	31	4	17	31	0	31
10	14	0	2	7	12	14	25	28	28	28	3	19	28	0	28
11	26	0	5	10	19	26	27	27	27	27	8	26	27	0	27
12	27	9	13	14	27	27	27	27	27	27	16	27	27	3	27
13	27	12	17	20	27	27	27	27	27	27	19	27	27	3	27
14	27	11	27	27	27	27	27	27	27	27	27	27	27	4	27
15	34	26	33	34	34	34	34	34	34	34	34	34	34	12	34
16	34	27	34	34	34	34	34	34	34	34	34	34	34	14	34
17	37	33	37	37	37	37	37	37	37	37	37	37	37	20	37
18	42	31	34	42	42	42	42	42	42	42	41	42	42	17	42
19	41	38	40	41	41	41	41	41	41	41	40	41	41	37	41
20	34	37	34	34	34	34	34	34	34	34	34	34	34	35	34
21	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
22	39	39	39	39	39	39	39	39	39	39	39	39	39	38	39
23	39	39	39	39	39	39	39	39	39	39	39	39	39	38	39
24	42	42	42	42	42	42	42	42	42	42	42	42	42	42	42
25	40	40	40	40	40	40	40	40	40	40	40	40	40	39	40
26	40	40	40	40	40	40	40	40	40	40	40	40	40	37	40
27	41	41	41	41	41	41	41	41	41	41	41	41	41	39	41
28	43	40	43	43	43	43	43	43	43	43	43	43	43	37	43
29	45	40	44	45	45	45	45	45	45	45	44	45	45	32	45
30	49	34	45	45	49	49	49	49	49	49	46	49	49	22	49
31	41	27	33	37	40	41	42	43	44	44	34	41	44	18	44
32	32	18	23	27	29	32	36	37	34	39	25	32	38	9	39
33	18	4	4	12	15	18	20	26	31	34	10	18	28	1	34
34	5	0	0	1	4	5	10	16	23	28	0	5	19	0	28
35	0	0	0	0	0	0	0	4	13	23	0	0	7	0	23
36	0	0	0	0	0	0	0	3	16	0	0	0	1	0	22

APPENDIX 3 - 4 EMP, CENTRAFRICAIN - Analyse fréquentielle des principaux termes du bilan hydrique.

CENTRAL AFRICAN EMP - Frequential analysis of main waterbalance parameters.

Stations Pluviométriques faisant l'objet de traitement -

Rainfall stations for which data were processed -

Bambari

Birao

Bossangoa

Ndélé

BAMBARI

VARIABLE :		EFFECTIF DE L ECHANTILLON 21 ANNEES																
PLUIE EN MM																		
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19			
1	0	0	0	0	0	0	0	0	0	10	0	0	0	0	19			
2	0	0	0	0	0	0	0	0	1	6	0	0	0	0	8			
3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	10			
4	0	0	0	0	0	0	0	1	4	13	0	0	3	0	26			
5	0	0	0	0	0	0	3	5	7	19	0	0	6	0	43			
6	1	0	0	0	0	1	3	4	23	32	0	1	13	2	54			
7	10	0	0	2	4	9	10	15	39	54	0	9	26	3	67			
8	26	1	4	5	17	25	28	35	44	59	4	25	39	29	67			
9	28	1	6	8	14	24	29	33	38	44	7	24	36	2	56			
10	26	2	7	10	16	23	34	41	59	66	8	23	51	19	69			
11	34	5	11	18	21	30	41	49	52	73	14	30	51	8	92			
12	31	5	11	18	22	30	33	41	56	60	15	30	51	15	64			
13	35	6	15	19	25	32	40	48	58	63	17	32	52	22	74			
14	49	2	19	25	34	46	55	62	79	95	21	46	70	10	101			
15	52	22	33	43	46	52	58	69	79	87	40	52	74	44	98			
16	46	21	24	32	39	44	47	52	67	83	28	44	54	49	90			
17	53	19	36	38	47	50	61	65	82	114	37	50	68	26	116			
18	40	8	15	26	36	38	62	66	73	87	22	38	69	12	90			
19	46	19	29	34	40	45	53	62	85	106	31	45	68	33	122			
20	73	10	45	51	61	70	75	78	83	97	49	70	80	39	126			
21	65	24	40	45	55	65	69	75	87	111	41	65	78	19	123			
22	61	13	21	32	39	54	74	90	119	154	28	54	108	33	173			
23	66	24	42	49	56	63	75	95	125	132	45	63	110	29	145			
24	60	10	38	44	46	57	63	84	91	105	43	57	86	47	110			
25	68	14	21	44	55	65	72	75	86	97	33	65	79	39	112			
26	74	11	34	45	65	74	77	79	87	117	36	74	80	12	146			
27	72	6	37	44	56	66	78	94	100	120	42	66	97	34	141			
28	81	20	31	47	61	80	83	90	109	126	35	80	100	24	130			
29	70	18	25	29	44	68	80	89	99	105	27	68	96	46	110			
30	44	19	27	33	39	43	59	69	79	98	29	43	73	32	113			
31	21	0	3	8	18	20	25	29	33	43	5	20	31	17	63			
32	6	0	0	0	0	3	7	16	19	26	0	3	18	0	34			
33	0	0	0	0	0	0	1	4	19	24	0	0	11	0	28			
34	0	0	0	0	0	0	0	0	2	15	0	0	1	0	27			
35	0	0	0	0	0	0	0	0	0	8	0	0	0	0	19			
36	0	0	0	0	0	0	0	2	10	19	0	0	4	0	24			

VARIABLE :		EFFECTIF DE L ECHANTILLON 21 ANNEES																
EVAPOTRANSPIRATION REELLE EN MM																		
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19			
1	0	0	0	0	0	0	0	0	0	10	0	0	0	0	19			
2	0	0	0	0	0	0	0	0	3	6	0	0	1	0	8			
3	0	0	0	0	0	0	0	0	0	3	0	0	0	0	10			
4	0	0	0	0	0	0	0	1	4	13	0	0	3	0	23			
5	5	0	0	0	0	3	5	6	9	19	0	3	7	0	26			
6	3	0	0	0	0	2	4	13	23	23	0	2	23	11	23			
7	10	0	0	2	4	9	11	19	25	25	1	9	25	12	25			
8	25	1	4	12	25	25	25	25	25	25	8	25	25	12	25			
9	28	2	10	18	28	28	28	28	28	28	13	28	28	15	28			
10	25	5	18	25	25	25	25	25	25	25	23	25	25	13	25			
11	25	13	25	25	25	25	25	25	25	25	25	25	25	13	25			
12	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24			
13	24	24	24	24	24	24	24	24	24	24	24	24	24	24	24			
14	23	23	23	23	23	23	23	23	23	23	23	23	23	23	23			
15	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29			
16	29	29	29	29	29	29	29	29	29	29	29	29	29	29	29			
17	31	31	31	31	31	31	31	31	31	31	31	31	31	31	31			
18	36	35	35	36	36	36	36	36	36	36	36	36	36	36	36			
19	35	34	35	35	35	35	35	35	35	35	35	35	35	34	35			
20	35	33	34	35	35	35	35	35	35	35	35	35	35	34	35			
21	39	38	38	39	39	39	39	39	39	39	39	39	39	38	39			
22	36	35	35	36	36	36	36	36	36	36	36	36	36	35	36			
23	37	35	37	37	37	37	37	37	37	37	37	37	37	35	37			
24	41	40	41	41	41	41	41	41	41	41	41	41	41	40	41			
25	38	34	37	38	38	38	38	38	38	38	37	38	38	35	38			
26	39	31	39	39	39	39	39	39	39	39	39	39	39	33	39			
27	40	37	38	40	40	40	40	40	40	40	39	40	40	38	40			
28	40	36	39	40	40	40	40	40	40	40	39	40	40	36	40			
29	41	39	40	40	41	41	41	41	41	41	41	41	41	40	41			
30	45	42	44	45	45	45	45	45	45	45	44	45	45	43	45			
31	39	33	35	37	38	39	39	40	41	41	36	39	41	36	41			
32	35	22	26	29	30	34	35	36	37	39	28	34	36	30	40			
33	23	5	13	16	19	22	25	32	33	35	14	22	33	17	36			
34	6	0	0	0	3	6	11	19	24	30	0	6	20	6	31			
35	0	0	0	0	0	0	1	5	15	20	0	0	9	0	22			
36	1	0	0	0	0	0	3	4	14	18	0	0	9	0	20			

BOSSANGO

VARIABLE : PLUIE EN MM		EFFECTIF DE L ECHANTILLON 23 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	5	0	0	0	0	8
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
5	0	0	0	0	0	0	0	0	0	2	0	0	0	0	5
6	0	0	0	0	0	0	0	2	7	15	0	0	5	14	22
7	3	0	0	0	0	1	6	8	10	37	0	1	9	20	48
8	10	0	0	0	0	7	11	14	17	27	0	7	15	0	29
9	13	0	0	3	10	12	15	22	32	40	1	12	27	0	45
10	16	0	1	6	12	15	22	31	47	60	3	15	37	2	103
11	16	0	0	2	9	15	18	28	41	49	0	15	37	0	52
12	31	0	4	14	26	31	36	52	66	83	9	31	59	9	93
13	23	0	0	11	17	22	27	33	49	67	4	22	40	5	91
14	38	1	11	22	30	36	39	45	61	68	17	36	54	0	74
15	59	14	25	38	46	57	61	73	77	83	35	57	76	33	85
16	40	10	17	24	28	38	42	56	74	82	21	38	68	3	91
17	41	2	7	16	24	36	45	56	88	98	13	36	75	28	111
18	59	8	19	26	55	58	68	75	85	96	22	58	80	29	104
19	58	3	8	11	29	54	62	76	90	100	9	54	83	28	112
20	74	20	36	52	62	71	82	102	124	149	44	71	112	14	153
21	86	15	23	46	73	85	93	119	136	146	34	85	128	31	197
22	84	24	45	57	76	83	89	107	131	153	52	83	116	82	186
23	85	36	50	63	79	84	92	103	141	180	58	84	122	77	198
24	79	47	60	68	74	79	88	114	135	179	62	79	128	60	242
25	82	15	47	58	73	78	100	107	118	125	51	78	114	35	172
26	82	12	23	28	57	72	90	110	122	131	24	72	118	51	140
27	65	11	38	52	63	65	86	104	127	167	47	65	114	26	197
28	47	19	23	27	41	45	53	79	97	127	25	45	90	29	164
29	76	7	25	37	62	70	76	93	115	142	31	70	103	14	200
30	41	0	9	21	31	38	48	64	73	94	15	38	71	33	108
31	11	0	0	0	1	7	13	16	22	33	0	7	19	4	40
32	0	0	0	0	0	0	0	1	3	25	0	0	2	0	46
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
34	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VARIABLE : EVAPOTRANSPIRATION REELLE EN MM		EFFECTIF DE L ECHANTILLON 23 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	5	0	0	0	0	8
4	0	0	0	0	0	0	0	0	0	4	0	0	0	0	14
5	0	0	0	0	0	0	0	0	0	2	0	0	0	0	5
6	0	0	0	0	0	0	0	2	7	15	0	0	5	12	20
7	3	0	0	0	0	1	6	8	10	28	0	1	9	14	28
8	10	0	0	0	3	10	12	17	29	30	0	10	23	14	30
9	15	0	0	8	13	15	21	31	31	31	2	15	31	0	31
10	26	0	1	9	17	23	27	27	27	27	3	23	27	2	27
11	20	0	6	12	17	20	23	26	26	26	9	20	26	0	26
12	27	6	20	27	27	27	27	27	27	27	25	27	27	10	27
13	28	9	14	27	28	28	28	28	28	28	21	28	28	6	28
14	30	6	30	30	30	30	30	30	30	30	30	30	30	13	30
15	35	34	35	35	35	35	35	35	35	35	35	35	35	34	35
16	33	33	33	33	33	33	33	33	33	33	33	33	33	26	33
17	33	22	32	33	33	33	33	33	33	33	33	33	33	24	33
18	39	25	38	38	39	39	39	39	39	39	38	39	39	26	39
19	37	34	35	36	36	37	37	37	37	37	36	37	37	35	37
20	36	35	36	36	36	36	36	36	36	36	36	36	36	35	36
21	40	38	38	40	40	40	40	40	40	40	39	40	40	39	40
22	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
23	36	36	36	36	36	36	36	36	36	36	36	36	36	36	36
24	41	40	41	41	41	41	41	41	41	41	41	41	41	40	41
25	37	36	37	37	37	37	37	37	37	37	37	37	37	36	37
26	38	36	37	37	38	38	38	38	38	38	37	38	38	37	38
27	39	37	39	39	39	39	39	39	39	39	39	39	39	37	39
28	40	38	39	39	39	40	40	40	40	40	39	40	40	38	40
29	41	33	39	40	41	41	41	41	41	41	39	41	41	34	41
30	44	24	42	44	44	44	44	44	44	44	43	44	44	29	44
31	36	11	26	34	36	36	36	36	36	36	30	36	36	19	36
32	28	1	12	19	26	28	29	33	33	33	16	28	33	15	33
33	12	0	0	3	10	12	14	21	28	28	1	12	25	7	28
34	1	0	0	0	0	0	1	11	20	23	0	0	18	0	23
35	0	0	0	0	0	0	0	2	3	15	0	0	2	0	22
36	0	0	0	0	0	0	0	0	0	2	0	0	0	0	7

VARIABLE : DEFICIT ETM-ETR EN MM		EFFECTIF DE L ECHANTILLON 23 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	25	11	25	25	25	25	25	25	25	25	25	25	25	16	25
2	25	23	25	25	25	25	25	25	25	25	25	25	25	23	25
3	28	20	27	28	28	28	28	28	28	28	28	28	28	10	28
4	25	10	24	25	25	25	25	25	25	25	25	25	25	2	25
5	25	17	22	25	25	25	25	25	25	25	25	25	25	20	25
6	24	0	9	16	22	24	24	24	24	24	13	24	24	0	24
7	22	0	0	18	20	21	26	28	28	28	9	21	28	0	28
8	17	0	0	1	15	17	19	29	30	30	0	17	30	0	30
9	16	0	0	0	8	14	16	20	28	31	0	14	23	0	31
10	0	0	0	0	0	0	7	14	21	26	0	0	18	0	26
11	6	0	0	0	0	5	7	12	16	23	0	5	14	0	25
12	0	0	0	0	0	0	0	0	1	9	0	0	0	0	14
13	0	0	0	0	0	0	0	0	6	13	0	0	1	0	15
14	0	0	0	0	0	0	0	0	0	1	0	0	0	0	9
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
18	1	1	1	1	1	1	1	1	2	2	1	1	1	1	2
19	1	1	1	1	1	1	1	2	2	2	1	1	2	1	3
20	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
21	1	1	1	1	1	1	1	1	1	2	1	1	1	1	2
22	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
23	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
24	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
25	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
26	1	1	1	1	1	1	1	1	2	2	1	1	1	1	2
27	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1
28	1	1	1	1	1	1	1	2	2	2	1	1	2	1	2
29	1	1	1	1	1	1	1	1	2	3	1	1	1	1	3
30	0	0	0	0	0	0	0	0	0	2	0	0	0	0	5
31	0	0	0	0	0	0	0	0	1	9	0	0	0	0	13
32	4	0	0	0	0	3	4	7	13	21	0	3	10	0	26
33	15	0	0	3	11	14	16	19	24	28	0	14	22	0	28
34	21	0	0	4	19	21	23	23	23	23	2	21	23	0	23
35	23	0	15	20	23	23	23	23	23	23	19	23	23	1	23
36	26	16	26	26	26	26	26	26	26	26	26	26	26	19	26

VARIABLE : DRAINAGE EN MM		EFFECTIF DE L ECHANTILLON 23 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	13
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	11	0	0	0	0	21
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
15	0	0	0	0	0	0	0	6	16	26	0	0	8	0	32
16	0	0	0	0	0	0	0	8	23	35	0	0	16	0	52
17	0	0	0	0	0	0	0	11	13	37	0	0	12	0	58
18	14	0	0	0	0	11	22	34	36	41	0	11	35	0	53
19	0	0	0	0	0	0	12	25	39	51	0	0	33	0	58
20	20	0	0	1	11	16	28	56	67	81	0	16	62	0	83
21	49	0	0	9	36	49	52	71	99	109	2	49	83	1	160
22	42	0	2	12	18	39	49	67	91	113	7	39	76	49	146
23	47	1	9	26	42	45	52	67	104	144	17	45	85	41	162
24	42	11	23	31	37	41	51	77	98	142	26	41	91	24	205
25	41	0	6	16	32	37	59	65	77	84	10	37	73	14	131
26	44	0	0	0	16	32	52	73	85	93	0	32	80	31	103
27	26	0	0	11	21	26	36	54	78	122	5	26	65	4	159
28	4	0	0	0	0	4	14	40	55	87	0	4	49	0	125
29	24	0	0	0	22	24	30	43	75	94	0	24	58	0	153
30	0	0	0	0	0	0	0	23	32	53	0	0	30	12	67
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

HAUTE VOLTA - Analyse fréquentielle des principaux termes du bilan hydrique.

UPPER VOLTA - Frequential analysis of main water-balance parameters.

Stations Pluviométriques faisant l'objet de traitement -

Rainfall stations for which data were processed -

Bobo-Dioulasso

Boromo

Dédougou

Djibo

Dori

Fada N'Gourma

Gaoua

Kaya

Ouagadougou

Ouahigouya

Pô

MALI - Analyse fréquentielle des principaux termes du bilan hydrique.

MALI - Frequential analysis of main waterbalance parameters.

Stations Pluviométriques faisant l'objet de traitement -

Rainfall stations for which data were processed -

Bafoulabé	Ségou
<u>Bamako</u>	Sikasso
Banamba	Sokolo
Bougouni	Tombouctou
Diéma	
Douentza	
Gao	
Hombori	
Kayes	
Kéniéba	
Kita	
Koutiala	
Ménaka	
Mopti	
Nara	
Niafouké	
Niono	
Nioro du Sahel	
San	

NIORO DU SAHEL

VARIABLE :		EFFECTIF DE L'ECHANTILLON 50 ANNEES																
PLUIE EN MM		DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
11	0	0	0	0	0	0	0	0	0	5	0	0	0	0	11			
12	0	0	0	0	0	0	0	0	1	10	0	0	0	0	19			
13	0	0	0	0	0	0	0	0	1	6	0	0	0	0	16			
14	0	0	0	0	0	0	0	0	2	6	0	0	0	0	10			
15	1	0	0	0	0	1	3	4	14	36	0	1	13	0	43			
16	5	0	0	1	3	5	7	12	15	27	0	5	14	0	32			
17	20	0	3	4	4	4	4	4	4	4	4	4	4	4	4			
18	24	3	6	9	15	24	26	37	42	51	4	20	33	0	65			
19	34	10	14	25	30	44	48	54	75	88	18	34	57	0	100			
20	43	13	23	33	37	43	47	57	75	103	24	43	62	4	113			
21	62	17	25	37	53	64	79	93	111	146	31	68	100	13	154			
22	64	13	26	35	47	54	61	81	101	156	28	54	88	0	196			
23	66	24	34	44	57	66	82	101	122	184	41	66	111	6	252			
24	66	15	27	47	54	66	88	122	141	163	44	66	137	4	169			
25	62	15	21	26	33	42	54	69	80	90	22	42	71	6	119			
26	39	9	14	20	25	39	46	56	64	87	16	39	58	2	109			
27	14	0	1	5	12	19	23	33	41	55	3	19	34	0	59			
28	11	0	0	1	4	11	12	19	25	32	0	11	21	0	41			
29	0	0	0	0	0	0	1	7	15	20	0	0	9	0	30			
30	0	0	0	0	0	0	0	1	2	8	0	0	1	0	18			
31	0	0	0	0	0	0	0	0	0	1	0	0	0	0	3			
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
33	0	0	0	0	0	0	0	0	0	3	0	0	0	0	10			
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
35	0	0	0	0	0	0	0	0	0	1	0	0	0	0	4			
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			

VARIABLE :		EFFECTIF DE L'ECHANTILLON 50 ANNEES																
EVAPOTRANSPIRATION PEELE EN MM		DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
11	0	0	0	0	0	0	0	0	0	8	0	0	0	0	11			
12	0	0	0	0	0	0	0	0	1	10	0	0	0	0	19			
13	0	0	0	0	0	0	0	0	1	6	0	0	1	0	16			
14	0	0	0	0	0	0	0	0	2	7	0	0	1	0	11			
15	0	0	0	0	0	0	0	0	4	8	0	0	13	0	43			
16	0	0	1	2	4	6	10	14	18	32	1	6	15	0	37			
17	21	0	3	4	4	4	25	31	40	40	5	21	33	0	40			
18	24	4	3	10	16	24	24	33	33	33	9	24	33	0	33			
19	32	11	22	30	32	32	32	32	32	32	27	32	32	4	32			
20	26	24	24	24	24	24	24	24	24	24	29	24	24	12	29			
21	41	31	41	41	41	41	41	41	41	41	41	41	41	16	41			
22	47	35	44	47	47	47	47	47	47	47	46	48	48	17	48			
23	53	46	50	52	52	52	52	52	52	52	51	52	52	14	52			
24	54	32	54	58	58	58	58	58	58	58	57	58	58	26	58			
25	64	27	35	34	44	43	51	51	51	51	38	49	51	20	51			
26	44	16	23	33	30	44	44	51	51	51	27	44	51	8	51			
27	31	1	10	19	28	30	34	34	45	51	14	30	42	0	52			
28	12	0	1	4	8	12	16	24	27	30	1	12	25	0	48			
29	0	0	0	0	0	0	0	0	0	0	0	0	13	0	38			
30	0	0	0	0	0	0	0	1	3	18	0	0	2	0	21			
31	0	0	0	0	0	0	0	0	0	2	0	0	0	0	3			
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10			
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0			
36	0	0	0	0	0	0	0	0	0	1	0	0	0	0	5			

APPENDIX 3 - 7 MAURITANIE - Analyse fréquentielle des Principaux
termes du bilan hydrique.

MAURITANIA - Frequential analysis of main water-
balance Parameters

Stations Pluviométriques faisant l'objet de traitement -

Rainfall stations for which data were processed -

Aïoun-El-Atrouss

Boutilimit

Kiffa

Néma

Nouakchott

KITFA

VARIABLE : PENTE EN MM		EFFETIF DE L'ECHANTILLON 50 ANNEES													
PERIODE	EFFETIF	*DEC 1	*DEC 2	*DEC 3	*DEC 4	*DEC 5	*DEC 6	*DEC 7	*DEC 8	*DEC 9	*QUA 1	*QUA 2	*QUA 3	*VIN 1	*VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
14	0	0	0	0	0	0	0	0	0	0	3	0	0	0	4
15	0	0	0	0	0	0	0	0	2	6	0	0	0	0	14
16	0	0	0	0	0	0	0	3	6	11	14	0	0	0	18
17	1	0	0	0	0	1	4	6	15	37	0	1	8	0	48
18	5	0	0	0	2	5	10	15	17	31	0	5	15	0	32
19	10	0	0	0	6	10	14	21	32	52	1	10	24	0	55
20	18	1	0	0	10	15	22	33	44	55	4	15	36	0	64
21	34	3	0	0	13	25	33	43	51	68	10	33	63	0	93
22	51	6	0	0	17	31	39	54	62	73	4	31	57	0	86
23	71	14	0	0	23	41	49	55	71	88	22	41	61	0	114
24	93	23	13	0	30	43	46	57	76	104	20	33	68	2	126
25	118	35	24	0	38	52	57	69	84	109	8	26	41	0	84
26	146	51	44	0	46	60	72	84	98	124	5	25	40	0	74
27	177	71	63	0	54	74	87	100	117	144	1	13	26	0	55
28	211	93	81	0	62	87	101	117	137	168	0	1	13	0	40
29	248	118	106	0	70	97	114	131	154	188	0	0	0	0	7
30	288	146	135	0	78	107	126	145	170	214	0	0	0	0	0
31	331	177	165	0	86	119	138	159	187	234	0	0	0	0	0
32	377	211	195	0	94	131	152	173	204	258	0	0	0	0	0
33	426	248	225	0	102	145	167	190	222	287	0	0	0	0	0
34	478	288	264	0	110	159	183	210	242	320	0	0	0	0	0
35	533	331	303	0	118	173	201	231	274	358	0	0	0	0	0
36	591	377	342	0	126	187	216	246	294	394	0	0	0	0	0

VARIABLE : EVAPORATION REELLE EN MM		EFFETIF DE L'ECHANTILLON 50 ANNEES													
PERIODE	EFFETIF	*DEC 1	*DEC 2	*DEC 3	*DEC 4	*DEC 5	*DEC 6	*DEC 7	*DEC 8	*DEC 9	*QUA 1	*QUA 2	*QUA 3	*VIN 1	*VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	3
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	4
15	0	0	0	0	0	0	0	1	6	0	0	0	0	0	14
16	0	0	0	0	0	0	0	3	8	12	16	0	0	0	18
17	1	0	0	0	0	1	4	5	15	37	0	1	8	0	48
18	5	0	0	0	1	5	10	15	17	31	0	5	15	0	32
19	10	0	0	0	4	8	16	23	32	52	0	8	24	0	54
20	18	0	0	0	10	16	22	35	43	55	3	16	39	0	64
21	34	0	0	0	13	25	33	43	51	71	10	33	63	0	93
22	51	0	0	0	17	31	39	54	62	73	4	31	57	0	86
23	71	0	0	0	23	41	49	55	71	88	22	41	61	0	114
24	93	0	0	0	30	43	46	57	76	104	20	33	68	2	126
25	118	0	0	0	38	52	57	69	84	109	8	26	41	0	84
26	146	0	0	0	46	60	72	84	98	124	5	25	40	0	74
27	177	0	0	0	54	74	87	100	117	144	1	13	26	0	55
28	211	0	0	0	62	87	101	117	137	168	0	1	13	0	40
29	248	0	0	0	70	97	114	131	154	188	0	0	0	0	7
30	288	0	0	0	78	107	126	145	170	214	0	0	0	0	0
31	331	0	0	0	86	119	138	159	187	234	0	0	0	0	0
32	377	0	0	0	94	131	152	173	204	258	0	0	0	0	0
33	426	0	0	0	102	145	167	190	222	287	0	0	0	0	0
34	478	0	0	0	110	159	183	210	242	320	0	0	0	0	0
35	533	0	0	0	118	173	201	231	274	358	0	0	0	0	0
36	591	0	0	0	126	187	216	246	294	394	0	0	0	0	0

APPENDIX 3 - 8

NIGER - Analyse fréquentielle des principaux
termes du bilan hydrique.

NIGER - Frequential analysis of main waterbalance
parameters.

Stations pluviométriques faisant l'objet de traitement -

Rainfall stations for which data were were processed -

Birni-Nkonni

Dogodoutchi

Filingue

Gaya

Gouré

Mainé Soroa

Maradi

Nguigmi

Niamey

Tahoua

Tanout

Tillabery

Zinder

APPENDIX 3 - 10

TCHAD - Analyse fréquentielle des principaux
termes du bilan hydrique.

CHAD - Frequential analysis of waterbalance
parameters.

Stations pluviométriques faisant l'objet de traitement -

Rainfall stations for which data were processed -

Abéché

Am-Timan

Ati

Baïbokoum

Bol

Bousso

Moissala

Moundou

N'Djamena

Pala

Sarh

BOL

VARIABLE : PLUIE EN MM		EFFECTIF DE L'ECHANTILLON 34 ANNEES															
PERIODE	JAN	FEB	MAR	AVR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	2	0	0	0	0	7
15	0	0	0	0	0	0	0	0	0	4	13	0	0	0	0	0	14
16	0	0	0	0	0	0	0	0	1	3	0	0	0	1	0	0	25
17	0	0	0	0	0	0	0	0	4	10	0	0	0	2	0	0	12
18	0	0	0	0	0	0	1	2	7	17	0	0	0	2	0	0	15
19	2	0	0	0	0	1	2	4	6	13	21	0	2	8	0	0	24
20	9	0	0	0	3	5	9	17	24	32	43	2	9	31	9	0	39
21	24	0	1	11	14	24	31	51	76	95	5	24	67	16	9	55	116
22	43	3	13	27	30	43	52	55	74	81	21	43	59	4	4	119	119
23	49	6	13	17	24	49	53	62	88	124	15	49	72	24	7	182	182
24	46	1	15	24	30	46	53	57	64	84	17	46	62	7	7	125	125
25	15	0	2	4	16	15	22	28	32	37	4	15	29	4	4	54	54
26	4	0	0	1	5	4	13	17	30	48	1	9	20	0	0	62	62
27	1	0	0	0	0	1	2	5	11	20	0	1	6	0	0	27	27
28	0	0	0	0	0	0	0	0	3	7	0	0	0	0	0	16	16
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

VARIABLE : EVAPOTRANSPIRATION PELLE EN MM		EFFECTIF DE L'ECHANTILLON 34 ANNEES															
PERIODE	JAN	FEB	MAR	AVR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	31	2	12	25	28	31	34	37	41	45	22	31	38	4	48	0	0
2	12	0	0	2	6	12	17	20	30	44	1	12	24	0	48	0	0
3	7	0	0	0	1	3	5	11	20	25	0	3	15	0	31	0	0
4	0	0	0	0	0	0	0	0	3	7	0	0	1	0	16	0	0
5	0	0	0	0	0	0	0	0	1	0	0	0	0	0	4	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
16	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
25	0	0	0	0	0	0	0	0	0	2	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0	0	14
27	0	0	0	0	0	0	0	0	4	13	0	0	0	0	0	0	25
28	0	0	0	0	0	0	0	0	1	5	0	0	0	0	0	0	19
29	0	0	0	0	0	0	0	1	4	10	0	0	2	0	0	0	15
30	0	0	0	0	0	0	1	2	7	17	0	0	3	0	0	0	24
31	2	0	0	1	2	6	8	15	27	27	0	2	10	0	31	0	0
32	12	0	1	4	5	12	20	27	30	30	3	12	30	9	30	0	0
33	31	1	7	15	22	31	38	38	38	38	12	31	38	16	38	0	0
34	38	4	14	25	34	34	38	38	38	38	27	38	38	19	38	0	0
35	41	11	15	41	41	41	41	41	41	41	39	41	41	22	41	0	0
36	53	14	20	45	47	53	54	54	54	54	39	53	54	22	54	0	0

TOGO - Analyse fréquentielle des principaux termes du bilan hydrique.

TOGO - Frequential analysis of main waterbalance parameters.

Stations pluviométriques faisant l'objet de traitement -

Rainfall stations for which data were processed -

Anié Mano

Atakpamé

Sansanne-Mango

Sokodé

ANTE MANO

VARIABLE : PLUIE EN MM		EFFECTIF DE L ECHANTILLON 24 ANNEES													
PERIODE	MEDIANE	*DEC 1	*DEC 2	*DEC 3	*DEC 4	*DEC 5	*DEC 6	*DEC 7	*DEC 8	*DEC 9	**QUA 1	*QUA 2	*QUA 3	**VIN 1	*VIN 19
1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	4
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3	0	0	0	0	0	0	0	5	20	26	0	0	18	0	28
4	0	0	0	0	0	0	0	0	1	8	0	0	0	0	16
5	0	0	0	0	0	0	0	3	17	26	0	0	9	0	30
6	4	0	0	0	2	4	5	9	17	28	0	4	11	0	39
7	18	0	1	4	5	18	24	28	44	68	3	18	32	12	102
8	17	0	2	8	10	17	20	24	32	44	4	17	29	0	57
9	26	0	0	4	9	26	32	40	53	71	1	26	49	3	84
10	35	0	1	8	13	35	36	41	54	66	4	35	49	7	73
11	34	0	8	18	21	34	41	54	74	95	15	34	59	0	104
12	29	2	7	17	23	29	38	45	58	70	16	29	51	11	73
13	28	2	5	12	24	28	33	37	46	55	8	28	41	24	62
14	28	10	13	16	18	28	33	39	61	75	15	28	55	14	89
15	58	4	10	35	40	58	66	73	86	98	31	58	78	20	105
16	47	4	19	38	41	47	52	64	94	107	37	47	82	5	120
17	67	17	25	41	50	67	75	79	90	96	38	67	87	32	102
18	58	5	31	39	48	58	65	73	79	87	36	58	76	12	95
19	36	4	14	18	23	36	52	59	85	96	17	36	81	21	100
20	55	6	14	25	37	55	77	97	120	129	22	55	110	28	135
21	58	0	12	26	54	58	64	66	79	109	15	58	74	8	113
22	38	0	7	16	27	38	47	55	82	113	14	38	70	31	127
23	39	1	13	22	31	39	50	53	62	70	20	39	59	8	83
24	35	5	12	19	27	35	44	51	66	75	16	35	62	35	84
25	47	14	19	33	37	47	59	81	99	111	30	47	97	40	128
26	44	16	25	36	39	44	55	62	78	97	32	44	73	15	127
27	49	6	22	32	38	49	53	75	103	111	30	49	91	14	112
28	48	5	14	21	29	48	50	56	66	80	16	48	64	15	101
29	31	1	6	18	24	31	44	51	52	71	10	31	51	12	76
30	12	0	0	2	4	12	19	40	53	76	1	12	51	1	107
31	1	0	0	0	0	1	3	3	22	45	0	1	6	0	49
32	0	0	0	0	0	0	2	5	17	32	0	0	14	0	44
33	0	0	0	0	0	0	0	0	7	13	0	0	6	0	16
34	0	0	0	0	0	0	0	4	22	32	0	0	14	0	49
35	0	0	0	0	0	0	0	0	1	2	0	0	1	0	4
36	0	0	0	0	0	0	0	0	7	17	0	0	1	0	18

VARIABLE : EVAPOTRANSPIRATION REELLE EN MM		EFFECTIF DE L ECHANTILLON 24 ANNEES													
PERIODE	MEDIANE	*DEC 1	*DEC 2	*DEC 3	*DEC 4	*DEC 5	*DEC 6	*DEC 7	*DEC 8	*DEC 9	**QUA 1	*QUA 2	*QUA 3	**VIN 1	*VIN 19
1	0	0	0	0	0	0	0	0	0	1	0	0	0	0	4
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
3	0	0	0	0	0	0	0	5	20	26	0	0	18	0	28
4	0	0	0	0	0	0	0	0	3	12	0	0	1	0	17
5	0	0	0	0	0	0	1	6	18	26	0	0	11	0	29
6	4	0	0	1	2	4	8	11	17	24	0	4	11	0	26
7	22	0	1	4	10	22	26	30	30	30	3	22	30	12	30
8	23	3	8	12	17	23	29	30	30	30	11	23	30	1	30
9	32	0	2	13	26	32	32	32	32	32	7	32	32	3	32
10	28	0	2	17	28	28	28	28	28	28	12	28	28	14	28
11	27	15	23	27	27	27	27	27	27	27	27	27	27	8	27
12	26	12	26	26	26	26	26	26	26	26	26	26	26	11	26
13	31	22	31	31	31	31	31	31	31	31	31	31	31	26	31
14	35	11	23	35	35	35	35	35	35	35	35	35	35	22	35
15	42	30	40	42	42	42	42	42	42	42	42	42	42	33	42
16	41	35	37	41	41	41	41	41	41	41	40	41	41	36	41
17	39	30	33	39	39	39	39	39	39	39	38	39	39	34	39
18	37	30	35	37	37	37	37	37	37	37	37	37	37	33	37
19	34	31	33	33	34	34	35	35	35	35	33	34	35	32	35
20	33	27	31	32	32	33	33	33	33	33	31	33	33	29	33
21	35	18	33	34	35	35	35	35	35	35	34	35	35	24	35
22	31	16	29	30	30	31	31	31	31	31	30	31	31	20	31
23	30	13	29	29	29	30	30	30	30	30	29	30	30	15	30
24	33	19	32	32	33	33	34	34	34	34	32	33	34	20	34
25	33	28	30	32	32	33	33	33	33	33	32	33	33	30	33
26	35	32	33	34	34	35	35	35	35	35	33	35	35	33	35
27	37	35	36	37	37	37	37	37	37	37	36	37	37	35	37
28	39	35	37	38	39	39	40	40	40	40	38	39	40	36	40
29	42	33	35	39	41	42	42	42	42	42	38	42	42	35	42
30	43	18	23	34	40	43	45	46	46	46	28	43	46	26	46
31	29	3	7	18	25	29	35	39	39	39	13	29	39	10	39
32	20	0	0	7	12	20	24	29	36	36	5	20	35	4	36
33	8	0	0	0	1	8	9	17	25	29	0	8	21	0	31
34	4	0	0	0	0	4	11	16	24	26	0	4	21	0	26
35	0	0	0	0	0	0	1	4	14	26	0	0	7	0	27
36	0	0	0	0	0	0	2	9	12	14	0	0	11	0	16

ATAKPAME

VARIABLE : PLUIE EN MM		EFFECTIF DE L ECHANTILLON 43 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	3	7	13	0	0	5	0	19
2	0	0	0	0	0	0	0	0	2	15	0	0	0	0	25
3	0	0	0	0	0	0	0	3	7	31	0	0	5	0	37
4	0	0	0	0	0	0	0	8	14	25	0	0	11	0	44
5	2	0	0	0	0	1	10	18	37	45	0	1	32	0	55
6	11	0	0	1	7	10	13	16	18	47	0	10	17	0	59
7	20	0	0	0	11	18	26	47	59	63	0	18	57	0	77
8	20	0	0	5	16	20	25	32	57	76	0	20	37	0	93
9	22	2	5	7	16	21	31	41	59	93	7	21	47	0	98
10	41	1	8	18	30	40	43	50	54	71	16	40	53	0	84
11	39	0	2	11	26	38	55	84	93	107	4	38	86	0	129
12	36	2	7	15	25	35	38	46	54	73	10	35	51	0	91
13	30	2	6	19	22	29	37	50	66	73	11	29	57	0	78
14	47	7	18	27	41	45	51	64	89	105	25	45	68	0	110
15	52	10	20	29	40	49	63	75	95	114	23	49	86	2	138
16	55	14	22	38	46	54	62	76	95	112	33	54	85	7	145
17	53	18	28	36	42	52	58	69	80	113	33	52	74	2	133
18	58	17	24	32	44	57	66	83	95	109	27	57	92	8	132
19	52	6	17	37	45	52	59	86	102	135	24	52	99	0	150
20	54	0	17	34	48	53	64	71	91	126	24	53	82	0	142
21	64	6	19	25	45	63	82	99	127	137	24	63	107	3	157
22	32	1	9	12	16	31	46	65	83	94	10	31	73	0	102
23	42	0	3	17	31	40	53	79	87	101	9	40	86	0	111
24	64	13	32	44	52	63	71	84	96	137	40	63	89	10	146
25	52	10	17	30	39	51	64	80	98	119	24	51	88	4	133
26	60	15	27	35	49	57	70	82	103	124	31	57	92	3	140
27	67	16	29	40	51	62	73	91	97	109	37	62	95	5	114
28	52	12	23	31	43	51	55	68	77	102	24	51	73	7	114
29	34	8	13	19	26	32	52	64	75	112	17	32	71	3	118
30	19	0	2	7	12	19	25	49	58	74	4	19	50	0	82
31	9	0	0	0	4	8	14	19	24	36	0	8	22	0	49
32	1	0	0	0	0	1	3	9	20	38	0	1	15	0	55
33	0	0	0	0	0	0	0	16	26	36	0	0	20	0	37
34	0	0	0	0	0	0	4	11	21	26	0	0	16	0	41
35	0	0	0	0	0	0	0	4	10	16	0	0	6	0	24
36	0	0	0	0	0	0	0	1	4	15	0	0	2	0	28

VARIABLE : EVAPOTRANSPIRATION REELLE EN MM		EFFECTIF DE L ECHANTILLON 43 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	3	7	13	0	0	5	0	19
2	0	0	0	0	0	0	0	0	2	15	0	0	0	0	25
3	0	0	0	0	0	0	0	4	8	31	0	0	6	0	31
4	0	0	0	0	0	0	0	3	10	15	28	0	13	0	28
5	6	0	0	0	0	5	15	29	29	29	0	5	29	0	29
6	14	0	0	4	11	13	17	19	26	26	0	13	22	0	26
7	21	0	0	4	15	20	28	30	30	30	0	20	30	0	30
8	28	0	5	13	25	28	30	30	30	30	10	28	30	0	30
9	32	2	4	21	32	32	32	32	32	32	18	32	32	1	32
10	28	17	25	28	28	28	28	28	28	28	28	28	28	7	28
11	27	17	27	27	27	27	27	27	27	27	27	27	27	1	27
12	32	32	32	32	32	32	32	32	32	32	32	32	32	12	32
13	36	33	36	36	36	36	36	36	36	36	36	36	36	17	36
14	40	31	40	40	40	40	40	40	40	40	40	40	40	22	40
15	49	37	39	47	49	49	49	49	49	49	42	49	49	31	49
16	41	35	37	40	41	41	41	41	41	41	39	41	41	24	41
17	39	34	36	37	38	39	39	39	39	39	37	39	39	33	39
18	37	33	36	36	37	37	37	37	37	37	36	37	37	27	37
19	35	31	32	33	34	35	35	35	35	35	33	35	35	29	35
20	33	31	31	32	32	33	33	33	33	33	32	33	33	22	33
21	35	30	34	34	35	35	35	35	35	35	34	35	35	15	35
22	31	21	30	30	30	31	31	31	31	31	30	31	31	5	31
23	30	22	28	29	29	30	30	30	30	30	29	30	30	10	30
24	34	30	32	33	34	34	34	34	34	34	33	34	34	19	34
25	33	30	31	32	32	33	33	33	33	33	32	33	33	15	33
26	35	30	33	34	35	35	35	35	35	35	33	35	35	25	35
27	37	36	36	37	37	37	37	37	37	37	37	37	37	31	37
28	40	37	39	39	40	40	40	40	40	40	39	40	40	31	40
29	42	37	40	40	41	42	42	42	42	42	40	42	42	33	42
30	46	25	35	40	43	45	46	48	48	48	38	45	48	21	48
31	35	17	25	29	32	34	37	40	42	44	26	34	40	9	44
32	22	5	9	14	17	22	26	29	40	41	10	22	32	2	41
33	15	0	2	7	12	15	21	26	27	34	3	15	26	0	37
34	10	0	0	1	7	9	14	20	24	30	0	9	21	0	32
35	6	0	0	0	3	6	8	12	13	18	0	6	12	0	23
36	0	0	0	0	0	0	0	1	5	9	0	0	7	0	22

SOKODE

VARIABLE : PLUIE EN MM		EFFECTIF DE L ECHANTILLON 42 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	4	0	0	0	0	25
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	5
3	0	0	0	0	0	0	0	0	1	15	0	0	0	0	26
4	0	0	0	0	0	0	0	0	1	12	0	0	0	0	28
5	0	0	0	0	0	0	0	7	14	19	0	0	11	0	32
6	0	0	0	0	0	0	0	4	11	16	0	0	6	0	20
7	2	0	0	0	0	2	5	14	18	25	0	2	17	0	37
8	10	0	0	0	2	10	14	17	35	44	0	10	28	0	52
9	17	0	3	5	7	17	24	33	46	56	4	17	40	0	68
10	17	1	5	11	14	17	24	38	48	53	8	17	41	0	76
11	24	3	11	13	16	24	28	39	52	71	12	24	46	1	85
12	35	4	9	17	25	35	40	44	71	82	13	35	66	0	96
13	39	11	20	26	33	39	46	55	69	93	22	39	66	0	94
14	35	14	19	23	30	35	42	53	65	81	21	35	59	10	90
15	64	17	29	36	47	64	70	78	88	116	33	64	85	11	122
16	46	14	25	35	40	46	50	55	75	88	29	46	67	2	102
17	51	21	32	36	45	51	67	75	91	126	34	51	78	8	137
18	65	15	35	47	49	65	80	85	100	120	38	65	96	7	139
19	73	21	25	35	62	73	84	88	98	112	27	73	93	7	115
20	84	19	41	52	63	84	101	108	115	133	43	84	110	4	140
21	78	15	35	41	56	78	85	92	101	124	36	78	96	6	139
22	65	19	35	43	50	65	74	84	116	169	41	65	96	7	180
23	65	10	17	29	39	65	71	89	96	153	22	65	93	0	186
24	95	32	52	71	82	95	106	119	156	173	63	95	136	15	191
25	89	34	60	68	79	89	107	136	148	166	64	89	145	17	197
26	77	24	45	51	61	77	91	110	134	140	48	77	118	14	170
27	70	13	28	38	50	70	80	91	99	113	36	70	97	2	116
28	53	20	34	38	42	53	62	66	81	88	36	53	74	2	97
29	24	0	2	8	14	24	36	52	59	78	4	24	55	0	105
30	22	0	3	7	15	22	29	39	47	65	5	22	44	0	97
31	2	0	0	0	0	2	6	16	24	36	0	2	21	0	44
32	0	0	0	0	0	0	0	0	13	24	0	0	5	0	36
33	0	0	0	0	0	0	0	0	7	21	0	0	2	0	26
34	0	0	0	0	0	0	0	0	0	15	0	0	0	0	36
35	0	0	0	0	0	0	0	0	0	10	0	0	0	0	27
36	0	0	0	0	0	0	0	0	2	11	0	0	0	0	15

VARIABLE : EVAPOTRANSPIRATION REELLE EN MM		EFFECTIF DE L ECHANTILLON 42 ANNEES													
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	4	0	0	0	0	23
2	0	0	0	0	0	0	0	0	0	4	0	0	0	0	12
3	0	0	0	0	0	0	0	0	1	18	0	0	1	0	26
4	0	0	0	0	0	0	0	0	4	22	0	0	1	0	26
5	0	0	0	0	0	0	5	14	20	25	0	0	17	0	26
6	0	0	0	0	0	0	0	7	12	20	0	0	9	0	22
7	3	0	0	0	0	3	7	16	19	26	0	3	18	0	27
8	12	0	0	0	7	12	15	28	28	28	0	12	28	0	28
9	24	0	4	6	14	24	30	30	30	30	5	24	30	0	30
10	26	1	9	15	20	26	26	26	26	26	13	26	26	0	26
11	25	12	19	25	25	25	25	25	25	25	25	25	25	2	25
12	29	19	29	29	29	29	29	29	29	29	29	29	29	7	29
13	34	32	34	34	34	34	34	34	34	34	34	34	34	21	34
14	38	36	38	38	38	38	38	38	38	38	38	38	38	26	38
15	46	35	45	46	46	46	46	46	46	46	46	46	46	20	46
16	39	36	38	38	39	39	40	40	40	40	38	39	40	33	40
17	37	34	36	37	37	37	37	37	37	37	36	37	37	31	37
18	35	33	34	35	35	35	35	35	35	35	35	35	35	30	35
19	34	32	33	33	34	34	34	34	34	34	33	34	34	25	34
20	32	31	32	32	32	32	32	32	32	32	32	32	32	19	32
21	34	33	34	34	34	34	34	34	34	34	34	34	34	27	34
22	31	30	31	31	31	31	31	31	31	31	31	31	31	28	31
23	30	29	30	30	30	30	30	30	30	30	30	30	30	28	30
24	34	33	34	34	34	34	34	34	34	34	34	34	34	32	34
25	32	32	32	32	32	32	32	32	32	32	32	32	32	31	32
26	33	32	33	33	33	33	33	33	33	33	33	33	33	32	33
27	35	34	35	35	35	35	35	35	35	35	35	35	35	33	35
28	38	36	38	38	38	38	38	38	38	38	38	38	38	35	38
29	40	38	38	39	39	40	41	41	41	41	39	40	41	33	41
30	43	31	33	38	40	43	44	44	44	44	35	43	44	25	44
31	32	17	22	25	27	32	35	36	36	36	24	32	36	15	36
32	22	3	7	11	15	22	28	30	32	32	9	22	32	0	32
33	13	0	0	0	4	13	15	19	28	28	0	13	27	0	28
34	2	0	0	0	0	2	8	14	18	23	0	2	16	0	23
35	0	0	0	0	0	0	1	2	11	23	0	0	6	0	23
36	0	0	0	0	0	0	0	7	12	15	0	0	9	0	19

SENEGAL - Analyse fréquentielle des principaux
termes du bilan hydrique.

SENEGAL - Frequential analysis of main waterbalance
parameters.

Stations Pluviométriques faisant l'objet de traitement -

Rainfall stations for which data were processed -

Bakel

Dakar

Kaolack

Kedougou

Kolda

Koungheul

Linguère

Matam

Podor

St. Louis

Tambacounda

Zinguinchor

ST. LOUIS

VARIABLE :		EFFECTIF DE L ECHANTILLON 50 ANNEES													
PLUIE FM MM															
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	3	0	0	0	0	0
16	0	0	0	0	0	0	0	1	1	8	0	0	1	0	15
17	0	0	0	0	0	0	0	0	1	15	0	0	0	0	32
18	0	0	0	0	0	0	0	3	16	29	0	0	6	0	36
19	2	0	0	0	0	2	5	11	22	39	0	2	14	0	47
20	9	0	0	1	3	9	14	22	28	38	0	9	25	0	58
21	18	0	4	7	10	18	25	31	46	58	5	18	34	0	60
22	32	0	4	13	24	32	42	62	68	107	8	32	67	0	124
23	43	2	5	15	34	43	53	58	81	126	9	43	73	0	166
24	51	4	27	34	42	51	76	101	125	159	30	51	112	1	172
25	28	2	13	19	25	28	43	56	71	112	16	28	59	0	144
26	19	0	4	10	14	19	27	35	45	81	7	19	39	0	92
27	20	0	3	9	13	20	34	43	51	78	4	20	48	0	99
28	5	0	0	1	3	5	10	18	24	38	0	5	21	0	47
29	0	0	0	0	0	0	0	3	6	21	0	0	4	0	58
30	0	0	0	0	0	0	0	0	0	4	0	0	0	0	12
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
34	0	0	0	0	0	0	0	0	0	4	0	0	0	0	9
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1

VARIABLE :		EFFECTIF DE L ECHANTILLON 50 ANNEES													
EVAPOTRANSPIRATION REELLE EN MM															
PERIODE	MEDIANE	DEC 1	DEC 2	DEC 3	DEC 4	DEC 5	DEC 6	DEC 7	DEC 8	DEC 9	QUA 1	QUA 2	QUA 3	VIN 1	VIN 19
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	4	0	0	0	0	9
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
12	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
15	0	0	0	0	0	0	0	0	0	3	0	0	0	0	7
16	0	0	0	0	0	0	0	1	1	9	0	0	1	0	15
17	0	0	0	0	0	0	0	0	2	21	0	0	0	0	28
18	0	0	0	0	0	0	0	6	17	28	0	0	11	0	29
19	4	0	0	0	1	4	8	16	29	30	0	4	18	0	30
20	14	0	0	2	7	14	18	27	30	30	0	14	28	0	30
21	22	0	5	9	14	22	28	38	39	39	7	22	39	0	39
22	37	2	11	19	26	37	41	41	41	41	14	37	41	0	41
23	45	3	12	40	45	45	45	45	45	45	30	45	45	0	45
24	58	24	38	46	55	58	58	58	58	58	40	58	58	2	58
25	44	10	21	25	40	44	47	52	52	52	22	44	52	0	52
26	34	3	12	17	28	34	37	41	48	51	14	34	42	0	51
27	30	1	5	13	16	30	36	44	47	49	7	30	45	0	49
28	13	0	1	4	6	13	21	28	34	42	3	13	30	0	44
29	0	0	0	0	0	0	1	5	16	29	0	0	7	0	39
30	0	0	0	0	0	0	0	0	2	19	0	0	0	0	28
31	0	0	0	0	0	0	0	0	0	2	0	0	0	0	7
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2
34	0	0	0	0	0	0	0	0	0	4	0	0	0	0	9
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	12
36	0	0	0	0	0	0	0	0	0	3	0	0	0	0	13

ANNEXE DU CHAPITRE 4

APPENDIX TO CHAPTER 4

STATIONS HYDROMETRIQUES ET DONNEES HYDROLOGIQUES

GAUGING STATIONS AND HYDROLOGIC DATA

Bassin - Basin

Chari

Logone

Niger

Volta

Sénégal - Senegal

Gambie - Gambia

GAUGING STATION/STATION DE JAUGEAGE..... AM TIMAN
 RIVER/COURS D EAU..... BAHR AZOUM
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 80000.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1953-54	0.0	0.0	8.8	266.0	214.0	25.2	0.2	0.0	0.0	0.0	0.0	0.0	42.8
1954-55	0.0	0.0	38.2	298.0	216.0	57.3	4.6	0.0	0.0	0.0	0.0	0.0	51.1
1955-56	0.0	0.0	0.0	134.0	181.0	59.6	0.3	0.0	0.0	0.0	0.0	0.0	31.2
1956-57	0.0	0.0	28.8	264.0	258.0	40.9	1.6	0.0	0.0	0.0	0.0	0.0	49.4
1957-58	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1958-59	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1959-60	0.0	0.0	0.0	148.0	282.0	58.0	0.0	0.0	0.0	0.0	0.0	0.0	40.6
1960-61	0.0	0.0	22.2	86.2	69.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	15.0
1961-62	0.0	0.0	51.3	256.0	199.0	9.4	0.0	0.0	0.0	0.0	0.0	0.0	42.9
1962-63	0.0	0.0	0.0	128.0	205.0	40.7	0.3	0.0	0.0	0.0	0.0	0.0	31.1
1963-64	0.0	0.0	0.0	143.0	119.0	5.5	0.0	0.0	0.0	0.0	0.0	0.0	22.2
1964-65	0.0	0.0	7.9	228.0	182.0	9.1	0.0	0.0	0.0	0.0	0.0	0.0	35.5
1965-66	-1.0	-1.0	-1.0	49.1	74.8	0.5	0.0	0.0	0.0	0.0	0.0	0.0	-1.0
1966-67	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1967-68	0.0	0.0	0.0	45.0	240.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1968-69	0.0	0.0	10.1	131.0	66.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	17.3
1969-70	0.0	0.0	0.0	142.0	189.0	12.5	0.0	0.0	0.0	0.0	0.0	0.0	28.6
1970-71	-1.0	-1.0	-1.0	305.0	340.0	17.8	0.0	0.0	0.0	0.0	0.0	0.0	-1.0
1971-72	-1.0	-1.0	-1.0	195.0	160.0	3.7	0.0	0.0	0.0	0.0	0.0	0.0	-1.0
1972-73	0.0	0.0	1.3	57.0	23.8	0.1	0.0	0.0	0.0	0.0	0.0	0.0	6.8
1973-74	-1.0	-1.0	-1.0	142.0	27.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1974-75	0.0	0.0	20.0	261.0	168.0	17.0	0.0	0.0	0.0	0.0	0.0	0.0	38.8
1975-76	0.0	0.0	1.4	199.0	243.0	17.0	0.0	0.0	0.0	0.0	0.0	0.0	38.3
AVG/MOYEN	0.0	0.0	11.9	173.8	172.8	21.0	0.3	0.0	0.0	0.0	0.0	0.0	31.6

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... AM TIMAN
 RIVER/COURS D EAU..... BAHR AZOUM
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 80000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1953-54	42.8	1351.3	17.	0.54	324.0	4.1	0.0
1954-55	51.1	1613.8	20.	0.64	321.0	4.0	0.0
1955-56	31.2	985.2	12.	0.39	251.0	3.1	0.0
1956-57	49.4	1559.1	19.	0.62	289.0	3.6	0.0
1957-58	----	----	----	----	-1.0	-1.0	0.0
1958-59	----	----	----	----	-1.0	-1.0	0.0
1959-60	40.6	1282.4	16.	0.51	291.0	3.6	0.0
1960-61	15.0	475.9	6.	0.19	169.0	2.1	0.0
1961-62	42.9	1355.2	17.	0.54	274.0	3.4	0.0
1962-63	31.1	982.8	12.	0.39	239.0	3.0	0.0
1963-64	22.2	702.9	9.	0.28	251.0	3.1	0.0
1964-65	35.5	1122.1	14.	0.44	252.0	3.2	0.0
1965-66	----	----	----	----	171.0	2.1	0.0
1966-67	----	----	----	----	175.0	2.2	0.0
1967-68	----	----	----	----	265.0	3.3	0.0
1968-69	17.3	545.8	7.	0.22	183.0	2.3	0.0
1969-70	28.6	902.7	11.	0.36	314.0	3.9	0.0
1970-71	----	----	----	----	410.0	5.1	0.0
1971-72	----	----	----	----	346.0	4.3	0.0
1972-73	6.8	217.3	3.	0.09	199.0	2.5	0.0
1973-74	----	----	----	----	229.0	2.9	0.0
1974-75	38.8	1224.6	15.	0.49	267.0	3.3	0.0
1975-76	38.3	1209.9	15.	0.48	269.0	3.4	0.0

GAUGING STATION/STATION DE JAUGEAGE.... BAMINGUI
 RIVER/COURS D EAU..... BAMINGUI
 COUNTRY/PAYS..... ECA
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 4380.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1952-53	0.5	1.0	5.2	22.0	40.2	77.2	24.7	7.2	3.3	1.5	0.6	0.3	15.3
1953-54	0.6	2.3	11.0	16.0	76.7	80.0	40.5	12.0	-1.0	-1.0	-1.0	-1.0	-1.0
1954-55	1.4	6.0	6.1	29.1	52.5	99.7	37.4	10.8	4.8	3.1	2.0	1.3	21.1
1955-56	1.7	3.8	13.8	34.1	121.0	125.0	63.8	14.3	7.4	4.6	5.2	3.2	33.1
1956-57	1.6	3.2	11.1	42.5	69.3	97.6	26.1	9.8	3.1	1.7	1.0	1.4	22.5
1957-58	1.8	4.8	18.2	38.6	46.4	50.6	-1.0	-1.0	7.7	5.0	3.1	2.7	-1.0
1958-59	4.0	17.2	40.2	34.6	64.3	60.8	33.5	17.5	11.5	8.4	6.9	6.6	25.4
1959-60	10.1	11.4	8.2	17.2	31.7	41.6	28.7	11.9	6.6	5.0	4.0	3.5	14.9
1960-61	6.5	6.3	19.6	37.6	137.0	140.0	82.7	26.3	13.0	7.4	6.0	4.4	40.5
1961-62	4.2	6.1	17.1	32.4	85.0	147.0	68.4	24.4	14.5	10.8	9.2	7.7	35.5
1962-63	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1963-64	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1964-65	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1965-66	-1.0	-1.0	-1.0	25.0	38.9	105.0	51.7	17.9	10.0	5.0	2.0	1.8	-1.0
1966-67	4.3	9.4	18.7	59.0	99.3	91.4	44.6	11.7	7.8	5.3	4.1	3.4	29.9
1967-68	-1.0	2.8	9.6	20.0	48.5	49.9	31.0	10.4	4.9	2.5	1.3	1.2	-1.0
1968-69	2.2	4.9	9.0	17.0	25.1	18.0	11.3	4.5	1.8	1.0	0.8	0.6	8.0
1969-70	0.9	2.6	4.8	17.2	27.3	24.5	11.6	3.2	1.5	0.7	0.5	2.6	8.1
1970-71	2.2	2.0	11.1	37.0	82.4	42.6	11.4	3.6	1.4	0.6	0.5	0.5	16.2
1971-72	0.5	1.1	4.5	17.5	48.4	76.9	26.7	5.9	2.2	0.9	0.5	0.6	15.4
1972-73	0.8	2.8	7.1	26.1	27.0	28.2	24.5	5.9	2.3	0.9	0.4	-1.0	-1.0
AVG/MOYEN	2.7	5.1	12.6	29.0	62.2	75.3	36.5	11.6	6.1	3.7	2.8	2.6	20.8

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... BAMINGUI
 RIVER/COURS D EAU..... BAMINGUI
 COUNTRY/PAYS..... ECA
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 4380.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1952-53	15.3	482.9	110.	3.50	102.0	23.3	0.2
1953-54	----	----	----	----	102.0	23.3	
1954-55	21.1	668.0	153.	4.84	120.0	27.4	1.1
1955-56	33.1	1045.8	239.	7.57	149.0	34.0	1.0
1956-57	22.5	710.7	162.	5.15	123.0	28.1	0.7
1957-58	----	----	----	----	57.2	13.1	2.4
1958-59	25.4	802.8	183.	5.81	82.6	18.9	5.9
1959-60	14.9	472.7	108.	3.42	45.9	10.5	2.4
1960-61	40.5	1279.5	292.	9.26	185.0	42.2	
1961-62	35.5	1121.6	256.	8.12	182.0	41.6	
1962-63	----	----	----	----	-1.0	-1.0	
1963-64	----	----	----	----	-1.0	-1.0	
1964-65	----	----	----	----	-1.0	-1.0	
1965-66	----	----	----	----	128.0	29.2	0.9
1966-67	29.9	943.4	215.	6.83	107.0	24.4	
1967-68	----	----	----	----	76.5	17.5	0.6
1968-69	8.0	252.8	58.	1.83	31.1	7.1	0.6
1969-70	8.1	256.1	58.	1.85	43.2	9.9	
1970-71	16.2	513.3	117.	3.72	96.1	21.9	
1971-72	15.4	488.0	111.	3.53	81.3	18.6	
1972-73	----	----	----	----	37.2	8.5	

GAUGING STATION/STATION DE JAUGEAGE.... BATANGAFO
 RIVER/COURS D EAU..... OUHAM
 COUNTRY/PAYS..... ECA
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 44700.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1951-52	80.0	90.3	131.0	564.0	809.0	926.0	467.0	194.0	120.0	89.9	64.9	63.9	308.3
1952-53	82.5	94.5	207.0	662.0	1010.0	818.0	480.0	216.0	132.0	97.1	94.1	75.6	330.7
1953-54	77.3	82.3	278.0	356.0	644.0	635.0	273.0	126.0	61.6	47.2	46.2	43.0	222.4
1954-55	54.2	163.0	333.0	487.0	1010.0	1210.0	687.0	286.0	158.0	84.6	75.0	104.0	387.6
1955-56	126.0	218.0	566.0	875.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1956-57	100.0	168.0	396.0	759.0	1100.0	1220.0	524.0	283.0	186.0	143.0	112.0	142.0	427.7
1957-58	172.0	211.0	292.0	638.0	906.0	663.0	514.0	256.0	150.0	109.0	88.1	94.6	341.1
1958-59	79.0	106.0	263.0	-1.0	-1.0	-1.0	-1.0	200.0	125.0	73.3	44.2	54.0	-1.0
1959-60	106.0	87.4	306.0	745.0	1400.0	1160.0	578.0	302.0	198.0	128.0	84.9	82.2	431.4
1960-61	99.7	98.8	310.0	624.0	982.0	1270.0	742.0	330.0	220.0	142.0	89.4	46.0	412.8
1961-62	40.5	109.0	395.0	986.0	-1.0	1370.0	763.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1964-65	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	77.1	54.3	-1.0
1965-66	58.0	80.2	189.0	631.0	780.0	659.0	365.0	125.0	80.0	50.0	38.3	36.8	257.6
1966-67	73.7	128.0	264.0	605.0	940.0	638.0	432.0	181.0	116.0	78.8	49.8	34.6	295.0
AVG/MOYEN	88.3	125.8	302.3	669.3	958.1	960.8	529.5	227.1	140.6	94.8	71.9	69.2	353.1

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... BATANGAFO
 RIVER/COURS D EAU..... OUHAM
 COUNTRY/PAYS..... ECA
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 44700.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1951-52	308.3	9723.5	218.	6.90	-1.0	-1.0	51.1
1952-53	330.7	10430.0	233.	7.40	-1.0	-1.0	52.8
1953-54	222.4	7015.7	157.	4.98	840.0	18.8	35.1
1954-55	387.6	12224.9	273.	8.67	-1.0	-1.0	
1955-56	----	----	----	----	-1.0	-1.0	
1956-57	427.7	13489.5	302.	9.57	1690.0	37.8	94.0
1957-58	341.1	10758.2	241.	7.63	1020.0	22.8	60.6
1958-59	----	----	----	----	-1.0	-1.0	34.6
1959-60	431.4	13606.4	304.	9.65	-1.0	-1.0	70.8
1960-61	412.8	13018.8	291.	9.24	1570.0	35.1	25.0
1961-62	----	----	----	----	-1.0	-1.0	
1964-65	----	----	----	----	-1.0	-1.0	
1965-66	257.6	8126.5	182.	5.76	876.0	19.6	30.3
1966-67	295.0	9305.4	208.	6.60	1100.0	24.6	26.3

GAUGING STATION/STATION DE JAUGEAGE.... BOSSANGOA
 RIVER/COURS D EAU..... OUHAM
 COUNTRY/PAYS..... ECA
 BASIN/BASSIN..... CHARI
 KM² AREA OF WATER SHED/BASSIN VERSANT. 22800.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M³/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1951-52	79.3	71.8	120.0	535.0	520.0	578.0	250.0	124.0	86.5	66.6	40.3	52.4	210.3
1952-53	61.2	61.6	158.0	625.0	834.0	546.0	279.0	149.0	91.8	69.0	45.6	36.3	246.3
1953-54	46.3	73.1	185.0	515.0	616.0	460.0	211.0	119.0	75.5	63.5	52.1	38.1	204.5
1954-55	54.8	122.0	246.0	383.0	776.0	839.0	368.0	167.0	106.0	80.9	56.6	57.9	271.4
1955-56	85.0	106.0	317.0	688.0	1110.0	1100.0	367.0	208.0	150.0	116.0	117.0	85.0	370.7
1956-57	73.9	145.0	241.0	479.0	683.0	940.0	314.0	188.0	142.0	96.1	68.4	64.9	286.2
1957-58	117.0	190.0	257.0	378.0	541.0	450.0	251.0	151.0	100.0	66.4	51.6	48.7	216.8
1958-59	56.7	70.4	-1.0	342.0	427.0	367.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1959-60	-1.0	-1.0	284.0	-1.0	1110.0	966.0	361.0	184.0	-1.0	-1.0	-1.0	-1.0	-1.0
1960-61	-1.0	-1.0	-1.0	539.0	662.0	860.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1961-62	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	118.0	-1.0
1962-63	143.0	145.0	263.0	381.0	1110.0	1090.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1963-64	-1.0	-1.0	-1.0	778.0	519.0	542.0	215.0	115.0	113.0	124.0	133.0	145.0	-1.0
1964-65	104.0	143.0	274.0	445.0	683.0	518.0	258.0	159.0	94.4	56.7	39.3	29.8	233.6
1965-66	37.2	72.2	182.0	504.0	579.0	458.0	247.0	83.6	54.4	38.9	24.8	45.7	193.8
1966-67	61.0	87.2	215.0	461.0	589.0	342.0	213.0	102.0	65.2	41.4	29.8	22.0	185.7
1967-68	66.0	85.0	232.0	458.0	760.0	581.0	237.0	111.0	68.1	41.4	30.1	26.6	224.6
1968-69	33.5	70.1	262.0	773.0	555.0	642.0	298.0	128.0	29.6	58.3	88.8	55.6	254.4
1969-70	79.3	69.8	270.0	837.0	682.0	539.0	302.0	140.0	97.6	61.6	45.8	37.6	263.4
1970-71	64.9	48.1	280.0	620.0	758.0	559.0	252.0	116.0	78.8	49.3	33.2	33.0	241.0
1971-72	27.0	36.0	141.0	393.0	983.0	494.0	164.0	98.0	56.0	32.0	23.0	27.0	206.1
1972-73	34.0	115.0	120.0	-1.0	346.0	350.0	128.0	60.0	37.0	22.0	19.0	-1.0	-1.0
AVG/MOYEN	68.0	95.0	224.8	533.3	706.8	629.5	261.9	133.4	88.5	63.7	52.8	54.3	242.7

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... BOSSANGO
 RIVER/COURS D EAU..... OUHAM
 COUNTRY/PAYS..... ECA
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 22800.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1951-52	210.3	6632.8	291.	9.22	797.0	35.0	
1952-53	246.3	7769.6	341.	10.81	1050.0	46.1	
1953-54	204.5	6450.6	283.	8.97	943.0	41.4	
1954-55	271.4	8559.9	375.	11.90	1300.0	57.0	
1955-56	370.7	11691.9	513.	16.26	2450.0	107.5	
1956-57	286.2	9027.9	396.	12.56	1170.0	51.3	
1957-58	216.8	6837.2	300.	9.51	559.0	24.5	
1958-59	----	----	----	----	481.0	21.1	
1959-60	----	----	----	----	1410.0	61.8	
1960-61	----	----	----	----	1120.0	49.1	
1961-62	----	----	----	----	-1.0	-1.0	
1962-63	----	----	----	----	1670.0	73.2	
1963-64	----	----	----	----	1160.0	50.9	
1964-65	233.6	7369.4	323.	10.25	876.0	38.4	
1965-66	193.8	6114.8	268.	8.50	768.0	33.7	
1966-67	185.7	5856.7	257.	8.15	721.0	31.6	
1967-68	224.6	7085.6	311.	9.85	995.0	43.6	
1968-69	254.4	8025.6	352.	11.16	957.0	42.0	
1969-70	263.4	8308.9	364.	11.56	-1.0	-1.0	
1970-71	241.0	7600.9	333.	10.57	1070.0	46.9	
1971-72	206.1	6501.6	285.	9.04	1417.0	62.1	
1972-73	----	----	----	----	487.0	21.4	

GAUGING STATION/STATION DE JAUGEAGE.... BOUCA
 RIVER/COURS D EAU..... FAFA
 COUNTRY/PAYS..... ECA
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 6750.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1958-59	-1.0	15.4	25.2	39.7	72.4	67.6	35.1	21.0	13.6	9.8	7.7	8.3	-1.0
1959-60	18.4	17.6	16.7	48.7	90.2	109.0	60.9	33.0	20.6	13.0	8.2	10.1	37.2
1960-61	15.0	15.7	55.5	78.9	121.0	156.0	131.0	76.7	44.7	24.3	10.4	12.5	61.8
1961-62	12.3	12.7	79.3	106.0	-1.0	-1.0	105.0	65.5	48.8	29.9	31.6	38.5	-1.0
1962-63	25.2	41.8	49.2	99.3	134.0	150.0	99.8	62.5	40.5	27.0	27.8	17.1	64.5
1963-64	23.0	30.3	62.0	110.0	135.0	128.0	68.8	42.2	23.5	14.1	12.6	17.0	55.5
1964-65	25.1	37.0	59.7	92.8	96.3	122.0	105.0	74.5	40.7	24.3	18.0	16.1	59.2
1965-66	11.3	17.1	24.8	75.5	81.1	91.7	46.4	29.7	21.1	13.1	9.4	12.7	36.1
1966-67	20.2	34.4	50.6	70.3	131.0	108.0	77.3	45.4	32.7	22.9	15.5	10.9	51.5
1967-68	11.4	14.3	28.2	69.9	111.0	160.0	78.5	42.1	30.1	20.5	17.9	15.1	49.9
1968-69	15.1	28.9	41.0	70.6	95.1	79.2	76.2	45.6	31.4	23.4	26.4	17.6	45.8
1969-70	15.1	13.8	26.4	48.6	65.5	66.1	46.0	27.5	19.4	12.6	10.2	8.4	29.9
1970-71	9.4	11.9	25.5	53.9	65.0	87.8	73.2	33.4	22.4	14.7	10.4	10.9	34.8
1971-72	7.5	9.7	29.0	54.0	89.6	64.4	31.2	22.2	13.5	9.5	7.7	7.7	28.8
1972-73	7.3	9.4	11.5	19.7	41.7	42.1	27.0	12.7	10.6	7.9	6.5	7.0	16.9
AVG/MOYEN	15.4	20.7	38.9	69.1	94.9	102.2	70.7	42.2	27.5	17.8	14.6	13.9	44.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... BOUCA
 RIVER/COURS D EAU..... Fafa
 COUNTRY/PAYS..... ECA
 BASIN/BASSIN..... CHARI
 KM² AREA OF WATER SHED/BASSIN VERSANT. 6750.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M ³ /SEC	ANNUAL VOLUME VOLUME ANNUEL M ³ *MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM ²)	MAX DAILY FLOOD CRUE MAX JOUR (M ³ /S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM ²)	ABS MIN DISCH. ETIAGE (M ³ /S)
1958-59	----	----	----	----	95.6	14.2	
1959-60	37.2	1173.2	174.	5.51	145.0	21.5	
1960-61	61.8	1949.1	289.	9.16	169.0	25.0	
1961-62	----	----	----	----	-1.0	-1.0	
1962-63	64.5	2034.5	301.	9.56	173.0	25.6	
1963-64	55.5	1752.8	260.	8.23	174.0	25.8	
1964-65	59.2	1869.8	277.	8.78	133.0	19.7	
1965-66	36.1	1140.3	169.	5.36	123.0	18.2	
1966-67	51.5	1627.2	241.	7.64	149.0	22.1	
1967-68	49.9	1574.1	233.	7.40	217.0	32.1	
1968-69	45.8	1446.7	214.	6.80	116.0	17.2	
1969-70	29.9	945.0	140.	4.44	83.6	12.4	
1970-71	34.8	1099.8	163.	5.17	147.0	21.8	
1971-72	28.8	909.5	135.	4.27	117.0	17.3	
1972-73	16.9	534.6	79.	2.51	57.6	8.5	

GAUGING STATION/STATION DE JAUGEAGE.... BOUSSO
 RIVER/COURS D EAU..... CHARI
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 450000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1936-37	-1.0	-1.0	-1.0	779.0	2220.0	3220.0	2380.0	1200.0	-1.0	-1.0	-1.0	-1.0	-1.0
1938-39	70.3	-1.0	179.0	784.0	2390.0	3370.0	2390.0	1080.0	450.0	260.0	169.0	157.0	-1.0
1939-40	-1.0	-1.0	204.0	615.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1940-41	58.7	-1.0	-1.0	-1.0	1250.0	1400.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1952-53	-1.0	-1.0	-1.0	819.0	1870.0	2410.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1953-54	140.0	160.0	300.0	907.0	1820.0	2630.0	2130.0	1130.0	480.0	245.0	155.0	110.0	850.5
1954-55	116.0	144.0	454.0	968.0	2030.0	3120.0	2910.0	1530.0	757.0	432.0	251.0	189.0	1075.0
1955-56	203.0	237.0	545.0	1280.0	2400.0	3460.0	2910.0	1660.0	819.0	466.0	352.0	266.0	1216.5
1956-57	186.0	223.0	458.0	1170.0	2130.0	2940.0	2610.0	1310.0	698.0	386.0	250.0	227.0	1049.0
1957-58	191.0	336.0	422.0	947.0	1660.0	1750.0	1590.0	999.0	496.0	282.0	199.0	161.0	756.0
1958-59	169.0	170.0	393.0	834.0	1720.0	1910.0	1640.0	907.0	485.0	264.0	188.0	146.0	735.5
1959-60	182.0	191.0	272.0	972.0	1850.0	2760.0	2300.0	1130.0	602.0	338.0	240.0	203.0	920.0
1960-61	203.0	202.0	383.0	902.0	1760.0	2410.0	2750.0	1650.0	634.0	457.0	273.0	219.0	986.9
1961-62	205.0	176.0	440.0	1260.0	2360.0	3700.0	2990.0	1510.0	796.0	482.0	307.0	272.0	1208.1
1962-63	279.0	271.0	498.0	877.0	2070.0	3350.0	2960.0	1660.0	910.0	543.0	302.0	208.0	1160.6
1963-64	245.0	265.0	328.0	1380.0	2380.0	2270.0	1600.0	870.0	485.0	263.0	175.0	140.0	866.7
1964-65	150.0	145.0	292.0	848.0	1190.0	2780.0	2410.0	1400.0	685.0	341.0	217.0	162.0	885.0
1965-66	140.0	137.0	230.0	753.0	1570.0	1690.0	1360.0	557.0	261.0	185.0	126.0	92.4	591.7
1966-67	124.0	198.0	327.0	848.0	1800.0	2150.0	1590.0	916.0	414.0	242.0	170.0	123.0	741.8
1967-68	103.0	101.0	240.0	729.0	1840.0	2560.0	2250.0	-1.0	407.0	271.0	186.0	138.0	-1.0
1968-69	157.0	170.0	363.0	1220.0	1730.0	1850.0	1380.0	718.0	342.0	225.0	187.0	165.0	708.9
1969-70	124.0	150.0	259.0	990.0	1600.0	1800.0	1430.0	733.0	337.0	195.0	133.0	103.0	654.5
1970-71	94.6	111.0	142.0	851.0	1801.0	2540.0	1820.0	767.0	350.0	199.0	111.0	96.5	740.2
1971-72	69.5	62.3	150.0	634.0	1860.0	2330.0	1550.0	601.0	270.0	160.0	85.9	53.6	652.1
1972-73	56.1	97.1	189.0	413.0	-1.0	-1.0	519.0	289.0	-1.0	-1.0	-1.0	30.0	-1.0
1973-74	34.8	46.4	95.8	460.0	1160.0	1310.0	678.0	322.0	162.0	67.9	36.9	30.5	367.0
1974-75	33.0	43.5	150.0	760.0	1910.0	2310.0	1730.0	753.0	327.0	179.0	108.0	90.0	694.4
AVG/MOYEN	138.9	165.2	304.7	882.3	1854.8	2482.4	1994.8	1030.0	507.5	294.6	191.9	147.0	832.8

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... BOUSSO
 RIVER/COURS D EAU..... CHARI
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 450000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1936-37	----	----	----	----	3330.0	7.4	
1938-39	----	----	----	----	3490.0	7.8	
1939-40	----	----	----	----	1480.0	3.3	
1940-41	----	----	----	----	-1.0	-1.0	
1952-53	----	----	----	----	2520.0	5.6	
1953-54	850.5	26823.9	60.	1.89	2810.0	6.2	
1954-55	1075.0	33903.8	75.	2.39	3370.0	7.5	171.0
1955-56	1216.5	38363.5	85.	2.70	3770.0	8.4	155.0
1956-57	1049.0	33021.2	74.	2.33	3260.0	7.2	171.0
1957-58	756.0	23843.8	53.	1.66	1870.0	4.2	143.0
1958-59	735.5	23194.7	52.	1.63	1940.0	4.3	139.0
1959-60	920.0	29013.1	64.	2.04	2880.0	6.4	192.0
1960-61	986.9	31123.4	69.	2.19	2870.0	6.4	163.0
1961-62	1208.1	38100.7	85.	2.68	3980.0	8.8	240.0
1962-63	1160.6	36602.7	81.	2.58	3530.0	7.8	169.0
1963-64	866.7	27333.8	61.	1.93	2610.0	5.8	135.0
1964-65	885.0	27909.3	62.	1.97	2940.0	6.5	125.0
1965-66	591.7	18662.4	41.	1.32	1740.0	3.9	88.0
1966-67	741.8	23394.4	52.	1.65	2300.0	5.1	103.0
1967-68	----	----	----	----	2750.0	6.1	120.0
1968-69	708.9	22356.3	50.	1.58	1918.0	4.3	110.0
1969-70	654.5	20640.3	46.	1.45	1840.0	4.1	80.0
1970-71	740.2	23344.7	52.	1.65	2710.0	6.0	53.4
1971-72	652.1	20567.5	46.	1.45	2487.0	5.5	45.4
1972-73	----	----	----	----	-1.0	-1.0	30.0
1973-74	367.0	11574.5	26.	0.62	1590.0	3.5	28.0
1974-75	694.4	21900.4	49.	1.54	2450.0	5.4	

GAUGING STATION/STATION DE JAUGEAGE.... BOZOOM
 RIVER/COURS D EAU..... OUHAM
 COUNTRY/PAYS..... ECA
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 8100.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1951-52	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	20.1	-1.0
1952-53	25.5	27.9	91.6	281.0	373.0	279.0	130.0	71.8	49.1	40.4	38.6	27.0	119.5
1953-54	31.6	41.6	105.0	121.0	236.0	212.0	93.1	52.4	38.1	30.2	29.9	30.3	85.0
1954-55	37.3	73.8	133.0	143.0	326.0	363.0	158.0	80.4	51.9	44.3	41.6	42.6	124.5
1955-56	44.5	54.2	91.3	264.0	426.0	368.0	167.0	78.6	57.2	47.2	45.6	42.7	140.5
1956-57	43.7	46.3	62.2	140.0	235.0	244.0	124.0	71.4	49.3	31.0	19.7	21.3	92.3
1957-58	30.2	45.1	64.5	97.8	190.0	138.0	81.7	47.3	27.4	25.9	32.5	35.6	67.9
1958-59	35.2	47.4	82.8	120.0	151.0	184.0	106.0	55.3	36.2	25.7	18.9	26.4	74.0
1959-60	31.0	29.2	81.4	203.0	462.0	320.0	145.0	78.4	55.0	38.2	28.1	26.9	124.8
1960-61	25.2	27.7	43.1	130.0	253.0	349.0	179.0	55.4	50.3	31.4	24.6	27.3	99.6
1961-62	27.5	30.9	103.0	131.0	413.0	300.0	103.0	61.0	46.5	34.5	36.4	35.5	110.1
1962-63	43.6	44.5	76.0	139.0	294.0	337.0	162.0	74.7	43.9	36.6	33.6	34.7	109.9
1963-64	65.8	47.3	77.9	261.0	201.0	260.0	139.0	52.7	51.3	49.9	45.2	44.8	107.9
1964-65	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1965-66	24.8	30.4	81.4	175.0	233.0	125.0	58.3	35.2	27.3	16.9	11.3	18.2	69.7
1966-67	30.3	36.6	93.4	261.0	273.0	176.0	92.9	44.3	28.6	20.0	11.9	12.0	89.9
1967-68	16.7	30.9	98.1	165.0	283.0	234.0	89.1	46.1	31.2	21.6	16.4	18.0	87.5
1968-69	23.4	45.4	134.0	217.0	203.0	214.0	94.4	47.4	32.6	22.2	33.1	17.9	90.3
1969-70	32.3	27.5	158.0	338.0	277.0	182.0	120.0	54.1	38.1	27.0	16.3	29.4	108.3
1970-71	40.8	28.1	134.0	240.0	240.0	230.0	265.0	126.0	42.4	18.2	16.8	16.6	116.4
1971-72	11.3	17.3	78.6	187.0	374.0	149.0	87.1	41.0	23.2	13.7	9.6	12.2	83.6
1972-73	25.6	58.7	55.2	188.0	160.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	32.3	39.5	93.2	190.0	280.1	245.4	126.0	61.7	41.0	30.2	26.8	26.6	99.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... BOZOOM
 RIVER/COURS D EAU..... OUHAM
 COUNTRY/PAYS..... ECA
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 8100.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1951-52	----	----	----	----	-1.0	-1.0	15.6
1952-53	119.5	3770.9	466.	14.76	438.0	54.1	
1953-54	85.0	2683.7	331.	10.51	369.0	45.6	
1954-55	124.5	3928.5	485.	15.38	315.0	38.9	
1955-56	140.5	4431.5	547.	17.35	610.0	75.3	
1956-57	92.3	2911.5	359.	11.40	303.0	37.4	
1957-58	67.9	2144.4	265.	8.40	223.0	27.5	
1958-59	74.0	2336.0	288.	9.15	315.0	38.9	
1959-60	124.8	3937.2	486.	15.41	610.0	75.3	
1960-61	99.6	3143.0	388.	12.30	389.0	48.0	
1961-62	110.1	3475.0	429.	13.60	610.0	75.3	
1962-63	109.9	3467.9	428.	13.58	463.0	57.2	
1963-64	107.9	3405.6	420.	13.33	423.0	52.2	
1964-65	----	----	----	----	-1.0	-1.0	
1965-66	69.7	2199.1	271.	8.61	301.0	37.2	
1966-67	89.9	2838.2	350.	11.11	394.0	48.6	
1967-68	87.5	2759.6	341.	10.80	354.0	43.7	
1968-69	90.3	2849.8	352.	11.16	350.0	43.2	
1969-70	108.3	3415.6	422.	13.37	517.0	63.8	
1970-71	116.4	3673.6	454.	14.38	389.0	48.0	
1971-72	83.6	2638.7	326.	10.33	534.0	65.9	
1972-73	----	----	----	----	275.0	34.0	

GAUGING STATION/STATION DE JAUGEAGE..... CRAMPEL
 RIVER/COURS D EAU..... GRIRINGUI
 COUNTRY/PAYS..... ECA
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 5680.0

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I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1952-53	5.9	11.0	20.0	28.0	47.5	102.0	67.0	22.3	14.5	10.0	6.9	10.9	28.8
1953-54	8.9	14.9	21.0	27.0	77.9	61.2	27.9	14.4	9.1	6.3	5.7	3.8	23.1
1954-55	5.0	13.8	17.4	25.8	39.7	74.0	51.4	23.1	14.1	9.4	7.9	6.6	24.0
1955-56	11.3	16.6	48.3	55.8	-1.0	-1.0	82.5	32.7	23.5	17.2	17.0	12.6	-1.0
1956-57	9.7	13.6	17.0	53.9	96.5	94.1	47.4	25.2	17.6	12.9	12.0	13.6	34.4
1957-58	17.2	25.4	31.8	64.6	51.4	42.8	29.2	18.5	14.4	11.0	7.9	7.4	26.8
1958-59	9.4	9.1	19.0	29.7	41.6	52.2	32.0	15.9	13.1	10.6	8.3	7.2	20.6
1959-60	15.6	-1.0	17.0	23.3	35.0	72.0	38.2	17.9	12.5	8.3	6.7	-1.0	-1.0
1960-61	12.3	12.2	31.0	60.7	79.2	112.0	77.0	30.6	23.0	15.3	12.9	13.0	39.9
1961-62	-1.0	13.3	28.9	59.1	114.0	115.0	61.3	31.2	22.6	16.4	-1.0	-1.0	-1.0
1962-63	16.6	18.0	20.6	45.3	87.5	90.0	49.9	27.7	21.1	14.9	9.9	12.7	34.5
1963-64	11.6	13.7	46.5	62.8	59.2	46.2	25.6	17.8	14.6	11.9	8.8	9.7	27.3
1964-65	8.9	10.1	21.5	25.4	54.4	77.1	57.9	20.7	13.2	8.9	7.0	5.8	25.9
1965-66	5.4	5.7	12.2	23.8	34.5	59.7	24.0	10.1	6.9	5.0	4.2	4.6	16.3
1966-67	8.9	20.1	29.1	65.0	108.0	101.0	50.4	21.7	14.3	9.9	6.8	4.8	36.6
AVG/MOYEN	10.5	14.1	25.4	43.3	66.1	78.5	48.1	21.9	15.6	11.2	8.7	8.6	29.3

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... CRAMPEL
 RIVER/COURS D EAU..... GRIBINGUI
 COUNTRY/PAYS..... ECA
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 5680.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1952-53	28.8	939.4	160.	5.08	-1.0	-1.0	4.3
1953-54	23.1	731.2	129.	4.08	130.0	22.9	
1954-55	24.0	757.7	133.	4.23	94.6	16.7	4.7
1955-56	----	----	----	----	130.0	22.9	7.2
1956-57	34.4	1086.8	191.	6.07	-1.0	-1.0	6.9
1957-58	26.8	845.4	149.	4.72	85.0	15.0	6.0
1958-59	20.6	652.6	115.	3.64	66.5	11.7	6.2
1959-60	----	----	----	----	105.0	18.5	6.0
1960-61	39.9	1259.3	222.	7.03	-1.0	-1.0	10.2
1961-62	----	----	----	----	137.0	24.1	
1962-63	34.5	1088.7	192.	6.08	101.0	17.8	7.6
1963-64	27.3	863.2	152.	4.82	79.6	14.0	7.8
1964-65	25.9	817.5	144.	4.56	87.4	15.4	4.1
1965-66	16.3	515.6	91.	2.88	72.5	12.8	3.9
1966-67	36.6	1156.6	204.	6.46	121.0	21.3	

GAUGING STATION/STATION DE JAUGEAGE.... GOLONGOSSO
 RIVER/COURS D EAU..... BAHU AOUK
 COUNTRY/PAYS..... ECA/TCHAD
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 96000.0

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I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1952-53	4.7	5.9	8.8	41.9	125.0	259.0	276.0	192.0	69.7	31.3	20.0	14.0	87.3
1954-55	6.2	14.0	16.4	40.0	109.0	177.0	269.0	190.0	96.0	41.0	23.0	15.0	83.0
1955-56	13.8	15.0	26.0	104.0	182.0	286.0	295.0	241.0	139.0	57.2	39.0	18.4	118.0
1956-57	10.7	10.3	16.7	53.8	140.0	278.0	289.0	155.0	60.9	33.4	23.1	17.0	90.6
1957-58	12.7	52.0	26.0	52.1	97.2	137.0	175.0	133.0	66.6	31.7	21.0	12.7	68.0
1958-59	6.8	7.6	21.8	57.2	145.0	212.0	171.0	89.0	51.0	32.8	22.8	16.0	69.4
1959-60	11.7	12.0	34.3	63.3	126.0	243.0	261.0	162.0	74.0	31.2	21.5	15.0	87.9
1960-61	9.1	7.5	12.0	23.8	55.8	146.0	248.0	210.0	103.0	33.3	16.8	12.5	73.1
1961-62	9.7	9.7	22.9	48.0	116.0	147.0	101.0	45.4	37.5	30.6	25.3	15.0	50.6
1962-63	-1.0	-1.0	-1.0	49.9	153.0	312.0	340.0	249.0	158.0	64.6	32.6	20.0	-1.0
1963-64	17.8	18.0	23.5	87.2	226.0	315.0	264.0	200.0	107.0	50.5	32.7	16.9	113.2
1964-65	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	25.2	17.4	-1.0
1965-66	15.0	15.1	16.7	30.8	60.3	114.0	155.0	96.4	46.1	16.5	11.3	10.0	48.9
1966-67	11.0	12.8	20.4	40.5	71.0	115.0	169.0	151.0	83.8	36.2	12.9	10.0	61.1
1967-68	10.0	10.5	13.8	-1.0	191.0	-1.0	-1.0	-1.0	-1.0	-1.0	13.5	-1.0	-1.0
1968-69	12.3	15.2	23.0	47.0	98.0	122.0	128.0	96.0	31.0	15.2	11.0	10.9	50.7
1969-70	9.0	10.5	15.0	3.2	70.0	128.0	229.0	164.0	62.0	18.3	11.5	9.5	60.8
1970-71	8.1	42.3	11.4	-1.0	-1.0	-1.0	21.7	19.2	13.8	11.9	11.0	-1.0	-1.0
1971-72	7.3	8.2	14.2	59.0	172.0	277.0	227.0	-1.0	34.0	16.5	11.5	8.9	-1.0
1972-73	9.0	9.0	10.0	18.5	54.0	-1.0	88.0	99.0	28.0	12.7	8.4	8.0	-1.0
1973-74	-1.0	7.0	11.0	-1.0	-1.0	69.0	116.0	152.0	115.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	10.2	14.8	18.1	48.2	121.7	196.2	201.1	146.8	72.4	31.3	19.7	13.7	74.5

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... GOLONGOSSO
 RIVER/COURS D EAU..... BAHR AOUK
 COUNTRY/PAYS..... ECA/TCHAD
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 96000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1952-53	87.3	2755.0	29.	0.91	303.0	3.2	
1954-55	83.0	2619.2	27.	0.87	-1.0	-1.0	
1955-56	118.0	3722.2	39.	1.23	-1.0	-1.0	
1956-57	90.6	2859.0	30.	0.94	322.0	3.4	14.3
1957-58	68.0	2147.0	22.	0.71	196.0	2.0	6.1
1958-59	69.4	2189.4	23.	0.72	223.0	2.3	14.3
1959-60	87.9	2772.5	29.	0.92	322.0	3.4	
1960-61	73.1	2307.2	24.	0.76	263.0	2.7	9.1
1961-62	50.6	1598.4	17.	0.53	175.0	1.8	9.1
1962-63	----	----	----	----	362.0	3.8	
1963-64	113.2	3570.4	37.	1.18	339.0	3.5	14.3
1964-65	----	----	----	----	-1.0	-1.0	11.7
1965-66	48.9	1543.1	16.	0.51	169.0	1.8	9.1
1966-67	61.1	1927.9	20.	0.64	186.0	1.9	8.6
1967-68	----	----	----	----	-1.0	-1.0	
1968-69	50.7	1602.0	17.	0.53	134.0	1.4	12.0
1969-70	60.3	1918.4	20.	0.63	252.0	2.6	9.0
1970-71	----	----	----	----	-1.0	-1.0	7.0
1971-72	----	----	----	----	290.0	3.0	6.0
1972-73	----	----	----	----	121.0	1.3	8.0
1973-74	----	----	----	----	159.0	1.7	6.0

GAUGING STATION/STATION DE JAUGEAGE.... GUELENDENG
 RIVER/COURS D EAU..... CHARI
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 470000.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1952-53	-1.0	-1.0	-1.0	687.0	1900.0	2480.0	-1.0	-1.0	607.0	300.0	160.0	-1.0	-1.0
1953-54	119.0	139.0	282.0	943.0	1760.0	2610.0	2250.0	1160.0	504.0	255.0	143.0	109.0	856.1
1954-55	92.8	122.0	340.0	933.0	1990.0	3020.0	2910.0	1610.0	807.0	477.0	245.0	160.0	1058.9
1955-56	162.0	205.0	510.0	1200.0	2220.0	3250.0	2960.0	1790.0	927.0	519.0	373.0	268.0	1198.6
1956-57	162.0	196.0	437.0	1090.0	2090.0	2820.0	2640.0	1390.0	741.0	454.0	243.0	180.0	1036.9
1957-58	149.0	330.0	445.0	902.0	1630.0	1810.0	1640.0	1070.0	545.0	294.0	170.0	134.0	759.9
1958-59	134.0	125.0	353.0	840.0	1720.0	1860.0	1650.0	942.0	536.0	282.0	174.0	140.0	729.6
1959-60	157.0	170.0	235.0	923.0	1840.0	2680.0	2290.0	1130.0	656.0	378.0	202.0	161.0	901.8
1960-61	157.0	164.0	318.0	840.0	1670.0	2250.0	2660.0	1660.0	818.0	452.0	265.0	177.0	952.5
1961-62	165.0	158.0	411.0	1240.0	2260.0	3510.0	3010.0	1620.0	892.0	594.0	389.0	327.0	1214.6
1962-63	292.0	295.0	431.0	888.0	1990.0	3260.0	2960.0	1750.0	905.0	588.0	320.0	182.0	1155.0
1963-64	193.0	225.0	280.0	1380.0	2370.0	2320.0	1740.0	933.0	500.0	280.0	180.0	130.0	877.5
1964-65	120.0	130.0	270.0	815.0	1150.0	2690.0	2390.0	1450.0	708.0	368.0	183.0	136.0	867.5
1965-66	111.0	103.0	192.0	744.0	1490.0	1630.0	1370.0	639.0	298.0	160.0	108.0	80.9	577.1
1966-67	97.9	111.0	310.0	810.0	1750.0	2150.0	1615.0	935.0	361.0	240.0	170.0	120.0	722.4
AVG/MOYEN	150.8	176.6	343.8	949.0	1855.3	2556.0	2291.7	1291.3	653.6	376.0	221.6	164.6	919.2

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... GUELENDENG
 RIVER/COURS D EAU..... CHARI
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 470000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1952-53	----	----	----	----	2560.0	5.4	118.0
1953-54	856.1	27000.0	57.	1.82	-1.0	-1.0	87.8
1954-55	1058.9	33393.4	71.	2.25	3240.0	6.9	143.0
1955-56	1198.6	37801.1	80.	2.55	3610.0	7.7	142.0
1956-57	1036.9	32700.2	70.	2.21	-1.0	-1.0	142.0
1957-58	759.9	23954.7	51.	1.62	1860.0	4.0	113.0
1958-59	729.6	23010.7	49.	1.55	1900.0	4.0	128.0
1959-60	901.8	28440.2	61.	1.92	2860.0	6.1	154.0
1960-61	952.5	30040.6	64.	2.03	2740.0	5.8	
1961-62	1214.6	38305.7	82.	2.58	-1.0	-1.0	
1962-63	1155.0	36426.7	78.	2.46	3420.0	7.3	143.0
1963-64	877.5	27675.4	59.	1.87	2650.0	5.6	
1964-65	867.5	27357.4	58.	1.85	-1.0	-1.0	96.1
1965-66	577.1	18201.2	39.	1.23	-1.0	-1.0	74.5
1966-67	722.4	22784.4	48.	1.54	-1.0	-1.0	73.3

GAUGING STATION/STATION DE JAUGEAGE.... MAILAO
 RIVER/COURS D EAU..... CHARI
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 500000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR-- ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1953-54	-1.0	172.0	298.0	892.0	1540.0	2480.0	2380.0	1100.0	535.0	302.0	177.0	124.0	-1.0
1954-55	-1.0	141.0	360.0	844.0	1810.0	3200.0	3450.0	1750.0	778.0	450.0	258.0	171.0	-1.0
1955-56	174.0	212.0	433.0	1030.0	2030.0	3460.0	3640.0	1960.0	956.0	574.0	377.0	278.0	1260.3
1956-57	179.0	185.0	377.0	954.0	1920.0	3010.0	3280.0	1470.0	739.0	446.0	270.0	215.0	1087.0
1957-58	172.0	338.0	439.0	810.0	1440.0	1600.0	1380.0	1040.0	581.0	343.0	218.0	157.0	709.8
1958-59	156.0	170.0	372.0	776.0	1640.0	2040.0	1570.0	901.0	520.0	285.0	163.0	99.5	724.3
1959-60	142.0	167.0	246.0	797.0	1690.0	2820.0	2610.0	1200.0	594.0	357.0	220.0	155.0	916.5
1960-61	154.0	171.0	313.0	750.0	1480.0	2180.0	2890.0	1840.0	832.0	473.0	291.0	183.0	963.0
1961-62	173.0	151.0	377.0	1100.0	2260.0	3830.0	3750.0	1770.0	848.0	532.0	362.0	252.0	1283.7
1962-63	226.0	232.0	402.0	702.0	1800.0	3510.0	3620.0	1970.0	932.0	552.0	331.0	222.0	1208.2
1963-64	239.0	266.0	296.0	1140.0	2370.0	2530.0	1820.0	899.0	502.0	272.0	167.0	130.0	885.9
1964-65	125.0	123.0	245.0	799.0	1770.0	2810.0	2870.0	1580.0	699.0	351.0	197.0	148.0	976.4
1965-66	121.0	110.0	184.0	600.0	1400.0	1610.0	1350.0	576.0	258.0	163.0	112.0	88.5	547.7
1966-67	97.7	164.0	287.0	711.0	1510.0	2180.0	1580.0	918.0	397.0	217.0	141.0	97.6	691.6
1967-68	68.0	57.6	177.0	619.0	1570.0	2470.0	2360.0	1190.0	525.0	302.0	180.0	123.0	803.4
1968-69	117.0	135.0	383.0	975.0	1590.0	1740.0	1270.0	765.0	391.0	245.0	179.0	168.0	663.1
1969-70	111.0	137.0	236.0	771.0	1600.0	1700.0	1360.0	729.0	382.0	233.0	151.0	108.0	626.5
1970-71	96.4	108.0	123.0	673.0	1570.0	2430.0	2010.0	790.0	421.0	252.0	161.0	141.0	731.2
1971-72	128.0	91.4	141.0	495.0	1410.0	2300.0	1590.0	642.0	340.0	219.0	143.0	104.0	633.6
1972-73	97.8	123.0	188.0	375.0	730.0	743.0	636.0	339.0	184.0	113.0	66.4	34.4	302.4
1973-74	34.6	42.5	88.3	359.0	895.0	1130.0	634.0	353.0	191.0	110.0	58.1	34.3	327.4
1974-75	31.2	42.7	129.0	502.0	1530.0	2120.0	1600.0	708.0	363.0	205.0	120.0	80.0	619.2
AVG/MOYEN	132.1	151.7	277.0	757.9	1616.1	2358.7	2165.9	1113.1	544.0	318.0	197.3	141.5	814.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... MAILAO
 RIVER/COURS D EAU..... CHARI
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 50000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1953-54	----	----	----	----	2870.0	5.7	68.2
1954-55	----	----	----	----	3680.0	7.4	152.0
1955-56	1260.3	39745.8	79.	2.52	4160.0	8.3	134.0
1956-57	1087.0	34282.2	69.	2.17	3680.0	7.4	156.0
1957-58	709.8	22385.3	45.	1.42	1680.0	3.4	134.0
1958-59	724.3	22843.8	46.	1.45	2150.0	4.3	80.7
1959-60	916.5	28902.7	58.	1.83	3040.0	6.1	139.0
1960-61	963.0	30371.7	61.	1.93	3050.0	6.1	134.0
1961-62	1283.7	40484.3	81.	2.57	4220.0	8.4	198.0
1962-63	1208.2	38103.3	76.	2.42	3930.0	7.9	206.0
1963-64	885.9	27936.2	56.	1.77	2760.0	5.5	112.0
1964-65	976.4	30792.2	62.	1.95	3200.0	6.4	99.9
1965-66	547.7	17272.5	35.	1.10	1640.0	3.3	82.8
1966-67	691.6	21813.1	44.	1.38	2320.0	4.6	51.9
1967-68	803.4	25338.1	51.	1.61	2720.0	5.4	97.6
1968-69	663.1	20913.6	42.	1.33	1810.0	3.6	97.6
1969-70	626.5	19757.3	40.	1.25	1756.0	3.5	85.9
1970-71	731.2	23061.7	46.	1.46	2605.0	5.2	41.3
1971-72	633.6	19981.7	40.	1.27	2490.0	5.0	91.7
1972-73	302.4	9538.5	19.	0.60	816.0	1.6	28.0
1973-74	327.4	10327.5	21.	0.65	1310.0	2.6	25.0
1974-75	619.2	19528.4	39.	1.24	2290.0	4.6	

GAUGING STATION/STATION DE JAUGEAGE.... MANDA
 RIVER/COURS D EAU..... BAHR SARA
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 79600.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR-- ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1951-52	52.0	133.0	174.0	753.0	1471.0	1519.0	895.0	297.0	166.0	100.0	55.0	60.0	472.9
1952-53	80.0	125.0	275.0	713.0	1711.0	1583.0	903.0	297.0	157.0	116.0	115.0	108.0	515.2
1953-54	100.0	89.0	280.0	806.0	1031.0	1286.0	608.0	194.0	108.0	74.0	61.0	58.0	391.2
1954-55	89.0	134.0	381.0	675.0	1689.0	2106.0	1579.0	483.0	238.0	147.0	131.0	122.0	647.8
1955-56	148.0	169.0	463.0	1142.0	2196.0	3419.0	1260.0	720.0	350.0	190.0	170.0	-1.0	-1.0
1956-57	205.0	286.0	667.0	1114.0	1958.0	2240.0	1285.0	557.0	405.0	240.0	120.0	70.0	762.4
1957-58	300.0	325.0	321.0	569.0	1075.0	1141.0	998.0	480.0	415.0	320.0	140.0	60.0	512.0
1958-59	100.0	144.0	365.0	758.0	1386.0	868.0	593.0	313.0	141.0	86.0	40.0	60.0	406.1
1959-60	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1960-61	40.0	70.0	335.0	270.0	1532.0	1844.0	1725.0	818.0	350.0	210.0	140.0	100.0	619.5
1961-62	70.0	104.0	245.0	757.0	1997.0	2898.0	1252.0	460.0	249.0	205.0	140.0	125.0	708.5
1962-63	227.0	287.0	412.0	821.0	1842.0	2461.0	1270.0	567.0	318.0	234.0	163.0	156.0	729.8
1963-64	275.0	213.0	482.0	1178.0	1610.0	1137.0	585.0	253.0	175.0	120.0	80.0	55.0	513.5
1964-65	-1.0	106.0	304.0	543.0	1265.0	1527.0	805.0	301.0	163.0	119.0	97.0	81.0	-1.0
1965-66	72.0	92.0	206.0	726.0	1250.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1966-67	89.0	140.0	256.0	673.0	-1.0	-1.0	-1.0	-1.0	135.0	80.0	51.0	40.0	-1.0
1967-68	52.0	59.0	228.0	626.0	-1.0	1857.0	-1.0	-1.0	172.0	111.0	72.0	49.0	-1.0
1968-69	82.0	114.0	290.0	1000.0	1127.0	1042.0	645.0	297.0	168.0	113.0	124.0	88.0	424.1
1969-70	82.0	84.0	256.0	927.0	1325.0	1133.0	727.0	302.0	172.0	114.0	75.0	60.0	438.0
1970-71	63.0	85.0	175.0	667.0	1518.0	1675.0	795.0	308.0	176.0	118.0	79.0	81.0	478.3
1971-72	44.0	44.0	157.0	585.0	1690.0	1390.0	438.0	175.0	109.0	70.0	36.0	28.0	397.1
1972-73	35.0	107.0	170.0	452.0	622.0	573.0	245.0	73.0	45.0	28.0	19.0	32.2	200.1
1973-74	26.2	50.4	94.0	520.0	783.0	495.0	165.0	56.4	31.4	21.0	16.0	14.9	189.4
1974-75	29.0	45.4	116.0	640.0	1410.0	1280.0	478.0	151.0	77.0	48.0	32.7	24.0	360.9
AVG/MOYEN	102.7	130.7	289.2	735.4	1451.8	1594.9	862.5	355.1	196.3	130.1	88.9	70.0	500.6

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... MANDA
 RIVER/COURS D EAU..... BAHR SARA
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... CHARI
 KM² AREA OF WATER SHED/BASSIN VERSANT. 79600.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M ³ /SEC	ANNUAL VOLUME VOLUME ANNUEL M ³ *MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM ²)	MAX DAILY FLOOD CRUE MAX JOUR (M ³ /S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM ²)	ABS MIN DISCH. ETIAGE (M ³ /S)
1951-52	472.9	14913.9	187.	5.94	1640.0	20.6	
1952-53	515.2	16248.9	204.	6.47	1950.0	24.5	
1953-54	391.2	12338.4	155.	4.92	1410.0	17.7	48.0
1954-55	647.8	20430.0	257.	8.14	2660.0	33.4	104.0
1955-56	----	----	----	----	3670.0	46.1	
1956-57	762.4	24043.5	302.	9.58	2640.0	33.2	
1957-58	512.0	16146.4	203.	6.43	1260.0	15.8	
1958-59	406.1	12808.8	161.	5.10	1490.0	18.7	
1959-60	----	----	----	----	-1.0	-1.0	
1960-61	619.5	19536.5	245.	7.78	2350.0	29.5	
1961-62	708.5	22343.2	281.	8.90	3170.0	39.8	
1962-63	729.8	23016.0	289.	9.17	2840.0	35.7	136.0
1963-64	513.5	16196.3	203.	6.45	1830.0	23.0	
1964-65	----	----	----	----	1960.0	24.6	49.0
1965-66	----	----	----	----	1320.0	16.6	39.0
1966-67	----	----	----	----	1700.0	21.4	32.0
1967-68	----	----	----	----	2145.0	26.9	31.9
1968-69	424.1	13376.5	168.	5.33	1241.0	15.6	
1969-70	438.0	13815.3	174.	5.50	1415.0	17.8	48.0
1970-71	478.3	15084.7	190.	6.01	2206.0	27.7	33.0
1971-72	397.1	12525.0	157.	4.99	2360.0	29.6	22.0
1972-73	200.1	6310.3	79.	2.51	851.0	10.7	17.4
1973-74	189.4	5974.2	75.	2.38	870.0	10.9	14.0
1974-75	360.9	11382.1	143.	4.53	1580.0	19.8	

GAUGING STATION/STATION DE JAUGEAGE.... MOISSALA
 RIVER/COURS D EAU..... BAHRSARA
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 67000.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR-- ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1951-52	57.0	97.0	151.0	925.0	1290.0	1248.0	869.0	375.0	162.0	103.0	59.0	64.0	450.0
1952-53	84.0	126.0	273.0	688.0	1633.0	1303.0	806.0	301.0	160.0	113.0	91.0	74.0	471.0
1953-54	70.0	79.0	226.0	733.0	1144.0	912.0	399.0	209.0	142.0	98.0	60.0	49.0	343.4
1954-55	48.0	160.0	482.0	1005.0	1760.0	2350.0	1532.0	612.0	265.0	192.0	138.0	-1.0	-1.0
1955-56	178.0	162.0	477.0	1534.0	3032.0	2568.0	1221.0	701.0	341.0	186.0	172.0	-1.0	-1.0
1956-57	203.0	353.0	678.0	1142.0	1742.0	1973.0	1190.0	741.0	396.0	239.0	122.0	72.0	737.5
1957-58	189.0	388.0	770.0	1045.0	1372.0	1053.0	793.0	638.0	383.0	228.0	140.0	66.0	588.7
1958-59	104.0	100.0	345.0	875.0	1382.0	950.0	520.0	256.0	170.0	115.0	46.0	62.0	410.4
1959-60	125.0	106.0	403.0	1108.0	2050.0	1630.0	835.0	392.0	227.0	150.0	95.0	75.0	599.6
1960-61	45.0	75.0	330.0	553.0	772.0	1182.0	1616.0	524.0	322.0	230.0	155.0	100.0	492.0
1961-62	70.0	105.0	331.0	951.0	2120.0	2641.0	1459.0	583.0	277.0	203.0	140.0	125.0	750.4
1962-63	191.0	285.0	405.0	833.0	1261.0	1742.0	1445.0	824.0	442.0	254.0	149.0	213.0	670.3
1963-64	303.0	417.0	555.0	905.0	912.0	605.0	398.0	262.0	175.0	120.0	85.0	65.0	400.1
1964-65	75.0	66.0	298.0	579.0	1436.0	1339.0	623.0	270.0	171.0	114.0	87.0	61.0	426.5
1965-66	60.0	76.0	207.0	877.0	1275.0	978.0	405.0	193.0	121.0	78.0	47.0	43.0	363.3
1966-67	79.0	142.0	281.0	741.0	1503.0	993.0	501.0	233.0	146.0	102.0	67.0	45.0	402.7
1967-68	55.0	61.3	275.0	735.0	1789.0	1557.0	616.0	268.0	166.0	102.0	64.0	55.0	478.6
1968-69	74.0	112.0	307.0	1180.0	1065.0	1014.0	563.0	280.0	175.0	-1.0	-1.0	-1.0	-1.0
1969-70	92.0	80.0	-1.0	-1.0	-1.0	1103.0	647.0	268.0	169.0	107.0	65.0	51.0	-1.0
1970-71	63.0	-1.0	-1.0	1055.0	1655.0	1365.0	-1.0	-1.0	-1.0	100.0	59.0	62.2	-1.0
1971-72	40.1	39.5	131.0	-1.0	-1.0	1150.0	382.0	194.0	103.0	56.3	36.3	30.6	-1.0
1972-73	34.7	106.0	152.0	469.0	558.0	534.0	247.0	84.2	48.4	28.4	19.3	27.0	192.3
1973-74	22.3	38.7	105.0	615.0	759.0	430.0	184.0	57.7	33.2	20.1	16.5	15.7	191.4
1974-75	26.6	46.5	132.0	880.0	1530.0	1190.0	446.0	180.0	87.1	48.6	32.3	26.0	385.4
AVG/MOYEN	95.3	140.0	332.4	883.0	1456.3	1325.4	769.4	367.2	203.5	129.8	84.5	65.7	487.7

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... MOISSALA
 RIVER/COURS D EAU..... BAHRSARA
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 67000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1951-52	450.0	14191.2	212.	6.72	1840.0	27.5	39.0
1952-53	471.0	14853.4	222.	7.03	1840.0	27.5	59.0
1953-54	343.4	10829.9	162.	5.13	1210.0	18.1	36.0
1954-55	----	----	----	----	2800.0	41.8	
1955-56	----	----	----	----	3680.0	54.9	154.0
1956-57	737.5	23260.4	347.	11.01	2440.0	36.4	48.0
1957-58	588.7	18566.8	277.	8.79	1460.0	21.8	51.0
1958-59	410.4	12942.9	193.	6.13	1620.0	24.2	31.0
1959-60	599.6	18911.0	282.	8.95	2530.0	37.8	
1960-61	492.0	15515.7	232.	7.34	1950.0	29.1	
1961-62	750.4	23665.1	353.	11.20	2960.0	44.2	
1962-63	670.3	21139.6	316.	10.00	1920.0	28.7	129.0
1963-64	400.1	12619.6	188.	5.97	1120.0	16.7	
1964-65	426.5	13452.7	201.	6.37	1950.0	29.1	42.0
1965-66	363.3	11458.0	171.	5.42	1400.0	20.9	34.0
1966-67	402.7	12701.1	190.	6.01	1730.0	25.8	36.0
1967-68	478.6	15093.3	225.	7.14	2080.0	31.0	30.2
1968-69	----	----	----	----	-1.0	-1.0	
1969-70	----	----	----	----	1356.0	20.2	47.1
1970-71	----	----	----	----	2169.0	32.4	33.0
1971-72	----	----	----	----	-1.0	-1.0	26.1
1972-73	192.3	6065.4	91.	2.87	897.0	13.4	15.6
1973-74	191.4	6037.0	90.	2.86	885.0	13.2	14.0
1974-75	385.4	12154.7	161.	5.75	1790.0	26.7	

GAUGING STATION/STATION DE JAUGEAGE..... NDJAMENA
 RIVER/COURS D EAU..... CHARI
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 60000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR-- ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1932-33	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1933-34	170.0	235.0	470.0	913.0	2446.0	3827.0	3751.0	2441.0	1047.0	683.0	402.0	278.0	1388.5
1934-35	242.0	450.0	967.0	1989.0	3165.0	3951.0	3495.0	1710.0	905.0	588.0	358.0	282.0	1508.5
1935-36	258.0	308.0	738.0	1350.0	2236.0	3057.0	2980.0	1765.0	1024.0	657.0	407.0	284.0	1255.3
1936-37	270.0	210.0	520.0	1350.0	2806.0	4134.0	4058.0	2277.0	960.0	550.0	330.0	210.0	1472.9
1937-38	220.0	300.0	600.0	1116.0	2000.0	2290.0	2413.0	1200.0	635.0	388.0	238.0	153.0	962.7
1938-39	144.0	218.0	478.0	1228.0	2742.0	4242.0	4165.0	1857.0	750.0	420.0	250.0	150.0	1387.0
1939-40	160.0	250.0	483.0	1016.0	1860.0	3026.0	3378.0	1959.0	940.0	544.0	322.0	209.0	1178.9
1940-41	183.0	262.0	479.0	1148.0	1804.0	2141.0	1835.0	869.0	440.0	246.0	136.0	90.0	802.7
1941-42	120.0	408.0	530.0	984.0	1881.0	1976.0	1454.0	728.0	357.0	200.0	124.0	84.0	737.1
1942-43	103.0	183.0	329.0	1217.0	2280.0	3193.0	2720.0	1155.0	562.0	301.0	168.0	122.0	1027.7
1943-44	107.0	186.0	401.0	1036.0	2386.0	3237.0	3312.0	1870.0	847.0	450.0	264.0	236.0	1194.3
1944-45	211.0	189.0	349.0	733.0	1926.0	2804.0	2865.0	1432.0	662.0	348.0	199.0	127.0	987.0
1945-46	150.0	190.0	359.0	1189.0	2180.0	3244.0	3209.0	1566.0	714.0	360.0	190.0	116.0	1122.2
1946-47	160.0	250.0	539.0	1554.0	2545.0	3792.0	4437.0	3122.0	1178.0	590.0	350.0	210.0	1560.5
1947-48	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1948-49	-1.0	-1.0	-1.0	-1.0	2837.0	3850.0	-1.0	-1.0	930.0	560.0	360.0	220.0	-1.0
1949-50	-1.0	-1.0	-1.0	-1.0	-1.0	3207.0	3244.0	1740.0	730.0	440.0	280.0	160.0	-1.0
1950-51	-1.0	-1.0	-1.0	-1.0	3040.0	4032.0	-1.0	-1.0	1070.0	660.0	410.0	260.0	-1.0
1951-52	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1952-53	-1.0	-1.0	-1.0	-1.0	-1.0	3382.0	3360.0	1630.0	750.0	420.0	240.0	140.0	-1.0
1953-54	-1.0	255.0	514.0	1389.0	2259.0	3319.0	3515.0	1528.0	738.0	402.0	240.0	140.0	-1.0
1954-55	108.0	323.0	745.0	1435.0	2657.0	3909.0	4356.0	2837.0	1099.0	634.0	334.0	212.0	1554.0
1955-56	270.0	358.0	779.0	1570.0	2816.0	4098.0	4551.0	3132.0	1363.0	765.0	514.0	364.0	1715.0
1956-57	229.0	278.0	715.0	1515.0	2718.0	3808.0	4275.0	2558.0	1000.0	603.0	338.0	223.0	1521.6
1957-58	208.0	553.0	812.0	1269.0	2204.0	2639.0	2475.0	1571.0	747.0	420.0	240.0	144.0	1106.8
1958-59	171.0	313.0	754.0	1428.0	2443.0	2746.0	2594.0	1294.0	646.0	342.0	174.0	111.0	1084.6
1959-60	160.0	230.0	483.0	1260.0	2433.0	3612.0	3725.0	1805.0	772.0	446.0	219.0	132.0	1273.0
1960-61	204.0	240.0	576.0	1270.0	2299.0	3154.0	3875.0	2962.0	1144.0	603.0	334.0	174.0	1402.9
1961-62	182.0	190.0	703.0	1743.0	3043.0	4462.0	4846.0	2653.0	1066.0	638.0	399.0	353.0	1689.8
1962-63	355.0	392.0	796.0	1199.0	2458.0	4057.0	4518.0	2949.0	1283.0	785.0	490.0	320.0	1633.5
1963-64	424.0	460.0	615.0	1702.0	3126.0	3613.0	2984.0	1509.0	777.0	458.0	261.0	176.0	1342.0
1964-65	230.0	288.0	589.0	1393.0	2520.0	3576.0	3873.0	2280.0	994.0	566.0	323.0	213.0	1403.7
1965-66	186.0	237.0	590.0	1190.0	2191.0	2541.0	2173.0	904.0	442.0	266.0	148.0	96.0	913.6
1966-67	160.0	327.0	623.0	1186.0	2147.0	3071.0	2562.0	1474.0	645.0	365.0	220.0	130.0	1075.8
1967-68	115.0	145.0	464.0	1155.0	2292.0	3370.0	3569.0	1700.0	732.0	408.0	240.0	159.0	1195.7
1968-69	200.0	297.0	703.0	1502.0	2376.0	2686.0	2235.0	1047.0	532.0	305.0	217.0	213.0	1026.0
1969-70	156.0	273.0	592.0	1341.0	2256.0	2770.0	2549.0	1415.0	635.0	357.0	199.0	131.0	1056.1
1970-71	162.0	214.0	419.0	1264.0	2483.0	3628.0	3323.0	1320.0	634.0	344.0	183.0	131.0	1175.4
1971-72	115.0	126.0	403.0	1080.0	2200.0	3250.0	2490.0	956.0	491.0	265.0	143.0	99.9	968.2
1972-73	123.0	227.0	450.0	787.0	1330.0	1370.0	1120.0	527.0	254.0	132.0	76.2	51.6	537.3
1973-74	69.7	114.0	224.0	766.0	1550.0	1960.0	1190.0	521.0	247.0	116.0	65.4	43.3	572.2
1974-75	73.4	129.0	358.0	1020.0	2290.0	3090.0	2580.0	1060.0	506.0	258.0	135.0	90.0	965.7
AVG/MOYEN	182.8	266.8	559.6	1257.9	2374.3	3252.8	3159.3	1719.0	781.2	447.0	263.0	175.9	1203.3

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... NDJAMENA
 RIVER/COURS D EAU..... CHARI
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 60000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1932-33	----	----	----	----	3970.0	6.6	
1933-34	1388.5	43790.3	73.	2.31	4141.0	6.9	
1934-35	1508.5	47572.0	79.	2.51	4018.0	6.7	
1935-36	1255.3	39588.1	66.	2.09	3165.0	5.3	
1936-37	1472.9	46449.9	77.	2.45	4410.0	7.3	
1937-38	962.7	30361.2	51.	1.60	2592.0	4.3	131.0
1938-39	1387.0	43740.4	73.	2.31	4500.0	7.5	
1939-40	1178.9	37178.3	62.	1.96	3524.0	5.9	169.0
1940-41	802.7	25315.5	42.	1.34	2262.0	3.8	80.0
1941-42	737.1	23247.2	39.	1.23	2190.0	3.7	79.0
1942-43	1027.7	32411.1	54.	1.71	3403.0	5.7	102.0
1943-44	1194.3	37664.4	63.	1.99	3608.0	6.0	160.0
1944-45	987.0	31128.6	52.	1.65	3123.0	5.2	87.0
1945-46	1122.2	35391.2	59.	1.87	3524.0	5.9	96.0
1946-47	1560.5	49214.5	82.	2.60	4510.0	7.5	
1947-48	----	----	----	----	3714.0	6.2	
1948-49	----	----	----	----	4046.0	6.7	
1949-50	----	----	----	----	3448.0	5.7	
1950-51	----	----	----	----	4400.0	7.3	
1951-52	----	----	----	----	3170.0	5.3	
1952-53	----	----	----	----	3524.0	5.9	
1953-54	----	----	----	----	3775.0	6.3	96.0
1954-55	1554.0	49009.5	82.	2.59	4450.0	7.4	171.0
1955-56	1715.0	54084.2	90.	2.86	4702.0	7.8	160.0
1956-57	1521.6	47987.2	80.	2.54	4440.0	7.4	176.0
1957-58	1106.8	34905.0	58.	1.84	2688.0	4.5	136.0
1958-59	1084.6	34206.0	57.	1.81	2802.0	4.7	106.0
1959-60	1273.0	40147.9	67.	2.12	3907.0	6.5	124.0
1960-61	1402.9	44242.3	74.	2.34	4008.0	6.7	151.0
1961-62	1689.8	53290.5	89.	2.82	5160.0	8.6	308.0
1962-63	1633.5	51514.0	86.	2.72	4607.0	7.7	288.0
1963-64	1342.0	42323.9	71.	2.24	3668.0	6.1	157.0
1964-65	1403.7	44268.6	74.	2.34	4065.0	6.8	153.0
1965-66	913.6	28813.3	48.	1.52	2566.0	4.3	90.0
1966-67	1075.8	33927.4	57.	1.79	3228.0	5.4	109.0
1967-68	1195.7	37709.1	63.	1.99	3826.0	6.4	129.0
1968-69	1026.0	32358.5	54.	1.71	2774.0	4.6	
1969-70	1056.1	33307.2	56.	1.76	2853.0	4.8	128.0
1970-71	1175.4	37067.9	62.	1.96	3944.0	6.6	149.0
1971-72	968.2	30534.4	51.	1.61	3410.0	5.7	90.0
1972-73	537.3	16944.8	28.	0.90	1430.0	2.4	47.7
1973-74	572.2	18044.8	30.	0.95	2130.0	3.5	38.6
1974-75	965.7	30456.9	51.	1.61	3270.0	5.5	

GAUGING STATION/STATION DE JAUGEAGE..... SARH
 RIVER/COURS D EAU..... CHARI
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 193000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1937-38	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	157.0	85.0	53.0	38.0	-1.0
1938-39	35.0	35.0	56.0	232.0	981.0	1398.0	790.0	363.0	167.0	85.0	54.0	40.0	353.0
1939-40	40.0	50.0	74.0	208.0	494.0	936.0	763.0	424.0	225.0	107.0	66.0	53.0	286.6
1940-41	43.0	50.0	76.0	225.0	335.0	444.0	423.0	219.0	144.0	110.0	67.0	56.0	182.6
1941-42	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	133.0	107.0	73.0	57.0	-1.0
1942-43	67.0	98.0	107.0	216.0	519.0	773.0	538.0	299.0	137.0	82.0	70.0	56.0	246.8
1943-44	47.0	65.0	101.0	183.0	478.0	705.0	570.0	374.0	207.0	115.0	94.0	99.0	253.1
1944-45	99.0	101.0	143.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1946-47	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1950-51	-1.0	-1.0	-1.0	-1.0	697.0	1455.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1951-52	-1.0	58.0	76.0	184.0	416.0	540.0	626.0	377.0	198.0	106.0	55.0	35.0	-1.0
1952-53	30.0	40.0	60.0	239.0	525.0	876.0	946.0	465.0	226.0	106.0	72.0	48.0	302.7
1953-54	-1.0	109.0	181.0	323.0	790.0	1367.0	924.0	405.0	209.0	111.0	72.0	50.0	-1.0
1954-55	-1.0	68.0	110.0	309.0	732.0	1401.0	1060.0	490.0	246.0	128.0	81.0	59.0	-1.0
1955-56	63.0	72.0	163.0	349.0	748.0	1392.0	1163.0	619.0	335.0	193.0	123.0	88.0	442.3
1956-57	57.0	60.0	104.0	263.0	645.0	1311.0	1014.0	454.0	232.0	126.0	82.0	76.0	368.6
1957-58	59.0	110.0	163.0	359.0	519.0	593.0	574.0	387.0	209.0	114.0	72.0	50.0	267.4
1958-59	49.0	46.0	118.0	270.0	471.0	603.0	514.0	339.0	184.0	78.0	48.0	35.0	229.5
1959-60	47.0	49.0	73.0	206.0	505.0	885.0	726.0	349.0	146.0	70.0	46.0	34.0	261.3
1960-61	39.0	43.0	96.0	271.0	473.0	880.0	1035.0	564.0	293.0	150.0	81.0	55.0	331.6
1961-62	47.0	51.0	170.0	395.0	935.0	1912.0	1160.0	492.0	255.0	150.0	97.0	76.0	478.3
1962-63	73.0	78.0	139.0	283.0	687.0	1517.0	1171.0	580.0	320.0	180.0	120.0	74.0	435.1
1963-64	78.0	80.0	149.0	434.0	790.0	795.0	528.0	338.0	199.0	103.0	57.0	44.0	299.5
1964-65	47.0	44.0	140.0	297.0	558.0	1168.0	977.5	47.0	304.0	164.0	85.0	54.0	323.7
1965-66	48.0	39.0	89.0	202.0	405.0	536.0	525.0	258.0	109.0	63.0	41.0	32.0	195.5
1966-67	41.0	79.0	172.0	331.0	582.0	750.0	647.0	408.0	205.0	99.0	56.0	35.0	283.7
1967-68	31.0	31.0	77.0	190.0	496.0	980.0	826.0	425.0	-1.0	-1.0	-1.0	-1.0	-1.0
1968-69	43.0	63.0	166.0	346.0	495.0	550.0	416.0	256.0	113.0	66.0	48.0	38.0	216.6
1969-70	33.0	42.0	76.0	227.0	379.0	475.0	492.0	298.0	124.0	57.0	35.0	28.0	188.8
1970-71	26.0	28.0	36.0	155.0	469.0	863.0	518.0	268.0	96.0	40.0	24.0	17.0	211.6
1971-72	14.9	16.8	55.9	243.0	529.0	758.0	552.0	243.0	82.0	41.8	26.2	17.3	214.9
1972-73	17.5	22.0	41.4	124.0	246.0	280.0	289.0	158.0	54.5	28.7	17.4	13.6	107.6
1973-74	12.7	14.3	24.6	91.7	354.0	428.0	320.0	172.0	57.7	27.3	17.5	13.9	127.8
1974-75	14.0	17.1	78.7	-1.0	-1.0	-1.0	586.0	314.0	131.0	61.5	29.8	-1.0	-1.0
AVG/MOYEN	44.4	55.3	103.8	255.5	560.4	916.2	712.8	358.1	183.2	98.4	62.0	47.3	283.1

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... SARH
 RIVER/COURS D EAU..... CHARI
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... CHARI
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 193000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG.AN.DISCH. DEBITS MOY.AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1937-38	----	----	----	----	-1.0	-1.0	34.0
1938-39	353.0	11132.2	58.	1.83	1505.0	7.8	
1939-40	286.6	9040.3	47.	1.49	1031.0	5.3	38.0
1940-41	182.6	5760.5	30.	0.95	479.0	2.5	
1941-42	----	----	----	----	-1.0	-1.0	53.0
1942-43	246.8	7784.1	40.	1.28	790.0	4.1	45.0
1943-44	253.1	7983.8	41.	1.31	760.0	3.9	89.0
1944-45	----	----	----	----	-1.0	-1.0	
1946-47	----	----	----	----	1876.0	9.7	
1950-51	----	----	----	----	1580.0	8.2	
1951-52	----	----	----	----	667.0	3.5	
1952-53	302.7	9547.5	49.	1.57	1109.0	5.7	
1953-54	----	----	----	----	1440.0	7.5	
1954-55	----	----	----	----	1466.0	7.6	51.0
1955-56	442.3	13949.4	72.	2.29	1591.0	8.2	48.0
1956-57	368.6	11626.2	60.	1.91	1460.0	7.6	52.0
1957-58	267.4	8433.2	44.	1.39	626.0	3.2	44.0
1958-59	229.5	7240.1	38.	1.19	623.0	3.2	
1959-60	261.3	8241.4	43.	1.35	987.0	5.1	
1960-61	331.6	10459.4	54.	1.72	1132.0	5.9	41.0
1961-62	478.3	15084.7	78.	2.48	2088.0	10.8	64.0
1962-63	435.1	13723.4	71.	2.25	1640.0	8.5	70.0
1963-64	299.5	9447.6	49.	1.55	960.0	5.0	42.0
1964-65	323.7	10211.0	53.	1.68	1273.0	6.6	36.0
1965-66	195.5	6167.9	32.	1.01	590.0	3.1	30.0
1966-67	283.7	8948.3	46.	1.47	786.0	4.1	31.0
1967-68	----	----	----	----	1080.0	5.6	30.0
1968-69	216.6	6832.8	35.	1.12	588.0	3.0	29.7
1969-70	188.8	5955.0	31.	0.98	524.0	2.7	25.2
1970-71	211.6	6675.1	35.	1.10	937.0	4.9	13.8
1971-72	214.9	6779.9	35.	1.11	802.0	4.2	15.8
1972-73	107.6	3395.6	18.	0.56	319.0	1.7	11.7
1973-74	127.8	4030.5	21.	0.66	511.0	2.6	
1974-75	----	----	----	----	910.0	4.7	

GAUGING STATION/STATION DE JAUGEAGE.... BEGOULADJE
 RIVER/COURS D EAU..... PENDE
 COUNTRY/PAYS..... ECA
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 5640.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1951-52	-1.0	-1.0	-1.0	153.0	165.0	164.0	56.0	-1.0	-1.0	10.0	6.0	7.0	-1.0
1952-53	8.0	9.0	56.0	248.0	241.0	121.0	40.0	19.0	13.0	9.0	6.0	7.0	64.7
1953-54	7.0	9.0	132.0	167.0	250.0	184.0	51.0	22.0	11.0	7.0	5.0	5.0	70.8
1954-55	9.0	-1.0	-1.0	196.0	292.0	274.0	79.0	29.0	16.0	10.0	5.0	8.0	-1.0
1955-56	8.0	22.0	61.0	216.0	322.0	290.0	74.0	38.0	19.0	12.0	10.0	7.0	89.9
1956-57	-1.0	15.0	72.0	345.0	332.0	300.0	56.0	26.0	16.0	10.0	7.0	9.0	-1.0
1957-58	19.0	31.0	122.0	-1.0	224.0	137.0	-1.0	-1.0	10.0	6.0	-1.0	-1.0	-1.0
1958-59	-1.0	41.0	155.0	263.0	328.0	144.0	49.0	16.0	9.0	6.0	-1.0	-1.0	-1.0
1959-60	-1.0	9.0	30.0	147.0	404.0	167.0	49.0	24.0	14.0	9.0	5.0	6.0	-1.0
1960-61	9.0	9.0	70.0	140.0	279.0	356.0	101.0	43.0	23.0	13.0	7.0	10.0	88.3
1961-62	7.0	21.0	137.0	239.0	282.0	246.0	51.0	23.0	15.0	10.0	9.0	14.0	87.8
1962-63	10.0	15.0	47.0	70.0	372.0	243.0	44.0	23.0	13.0	8.0	5.0	11.0	71.7
1963-64	21.0	13.0	126.0	415.0	241.0	167.0	45.0	22.0	15.0	10.0	7.0	8.0	90.8
1964-65	11.0	19.0	77.0	131.0	259.0	96.0	40.0	14.0	8.0	5.0	8.0	8.0	56.3
1965-66	9.0	13.0	61.0	217.0	171.0	81.0	19.0	7.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	10.7	17.3	88.1	210.5	277.4	198.0	53.8	23.5	14.0	8.9	6.6	8.3	76.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... BEGOULADJE
 RIVER/COURS D EAU..... PENDE
 COUNTRY/PAYS..... ECA
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 5640.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1951-52	----	----	----	----	287.0	50.9	4.0
1952-53	64.7	2041.9	362.	11.48	438.0	77.7	4.0
1953-54	70.8	2233.8	396.	12.56	406.0	72.0	4.0
1954-55	----	----	----	----	530.0	94.0	4.0
1955-56	89.9	2835.6	503.	15.94	586.0	103.9	5.0
1956-57	----	----	----	----	600.0	106.4	6.0
1957-58	----	----	----	----	-1.0	-1.0	5.0
1958-59	----	----	----	----	485.0	86.0	
1959-60	----	----	----	----	636.0	112.8	5.0
1960-61	88.3	2785.6	494.	15.66	498.0	88.3	5.0
1961-62	87.8	2769.9	491.	15.57	448.0	79.4	7.0
1962-63	71.7	2262.7	401.	12.72	590.0	104.6	4.0
1963-64	90.8	2864.5	508.	16.11	736.0	130.5	6.0
1964-65	56.3	1776.5	315.	9.99	421.0	74.6	
1965-66	----	----	----	----	375.0	66.5	

GAUGING STATION/STATION DE JAUGEAGE.... BAIBOKOUM
 RIVER/COURS D EAU..... LOGONE
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 21360.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1951-52	60.0	97.0	222.0	652.0	570.0	566.0	263.0	122.0	74.0	51.0	25.0	24.0	227.1
1952-53	92.0	98.0	270.0	-1.0	-1.0	-1.0	277.0	137.0	-1.0	-1.0	-1.0	20.0	-1.0
1953-54	57.0	73.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	20.0	-1.0
1954-55	20.0	154.0	550.0	912.0	1388.0	-1.0	-1.0	-1.0	-1.0	-1.0	33.0	36.0	-1.0
1955-56	-1.0	-1.0	444.0	-1.0	1536.0	1234.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1956-57	60.0	127.0	310.0	666.0	1094.0	-1.0	-1.0	-1.0	-1.0	47.0	30.0	33.0	-1.0
1957-58	99.0	201.0	470.0	-1.0	1517.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1958-59	74.0	265.0	487.0	619.0	995.0	566.0	274.0	-1.0	74.0	52.0	33.0	-1.0	-1.0
1959-60	-1.0	172.0	351.0	925.0	1663.0	779.0	319.0	-1.0	-1.0	-1.0	-1.0	45.0	-1.0
1960-61	104.0	107.0	316.0	953.0	1736.0	1400.0	520.0	317.0	-1.0	-1.0	-1.0	-1.0	-1.0
1961-62	15.0	87.0	328.0	482.0	906.0	586.0	423.0	302.0	-1.0	-1.0	-1.0	-1.0	-1.0
1962-63	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1963-64	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1964-65	-1.0	-1.0	382.0	791.0	2557.0	696.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1965-66	-1.0	182.0	559.0	777.0	866.0	622.0	162.0	94.0	-1.0	-1.0	-1.0	-1.0	-1.0
1966-67	101.0	165.0	372.0	1148.0	1293.0	616.0	262.0	101.0	66.0	42.0	29.0	19.0	351.1
1967-68	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1968-69	65.0	188.0	362.0	1233.0	1281.0	429.0	134.0	51.0	23.0	14.0	46.0	39.0	322.0
1969-70	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1970-71	91.0	151.0	461.0	1571.0	1672.0	444.0	164.0	97.0	63.0	42.0	40.0	57.0	404.4
1971-72	59.7	131.0	473.0	598.0	899.0	363.0	161.0	111.0	78.3	45.5	23.8	20.0	246.9
1972-73	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	31.1	-1.0
1973-74	111.0	138.0	266.0	477.0	818.0	404.0	117.0	62.5	31.0	14.0	8.3	33.3	206.6
1974-75	118.0	151.0	299.0	1510.0	811.0	650.0	156.0	700.0	45.0	24.2	8.9	20.0	374.4
AVG/MOYEN	75.1	146.2	384.5	887.6	1270.7	668.2	248.6	190.4	56.7	36.8	27.7	30.5	335.2

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... BAIBOKOUM
 RIVER/COURS D EAU..... LOGONE
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 21360.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1951-52	227.1	7163.9	335.	10.64	1251.0	58.6	
1952-53	----	----	----	----	-1.0	-1.0	17.0
1953-54	----	----	----	----	-1.0	-1.0	15.0
1954-55	----	----	----	----	1539.0	72.1	
1955-56	----	----	----	----	-1.0	-1.0	
1956-57	----	----	----	----	-1.0	-1.0	22.0
1957-58	----	----	----	----	-1.0	-1.0	
1958-59	----	----	----	----	1879.0	88.0	17.0
1959-60	----	----	----	----	3345.0	156.6	
1960-61	----	----	----	----	3368.0	157.7	13.0
1961-62	----	----	----	----	1279.0	59.9	
1962-63	----	----	----	----	-1.0	-1.0	
1963-64	----	----	----	----	-1.0	-1.0	
1964-65	----	----	----	----	4438.0	207.8	
1965-66	----	----	----	----	-1.0	-1.0	
1966-67	351.1	11074.3	518.	16.44	-1.0	-1.0	
1967-68	----	----	----	----	-1.0	-1.0	
1968-69	322.0	10157.2	476.	15.08	3215.0	150.5	16.0
1969-70	----	----	----	----	-1.0	-1.0	
1970-71	404.4	12753.6	597.	18.93	3150.0	147.5	27.0
1971-72	246.9	7787.5	365.	11.56	1850.0	86.6	16.3
1972-73	----	----	----	----	-1.0	-1.0	
1973-74	206.6	6517.7	305.	9.68	3240.0	151.7	5.5
1974-75	374.4	11807.8	553.	17.53	4040.0	189.1	

GAUGING STATION/STATION DE JAUGEAGE.... BONGOR
 RIVER/COURS D EAU..... LOGONE
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 73700.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1948-49	-1.0	-1.0	600.0	1227.0	1836.0	1678.0	528.0	210.0	-1.0	-1.0	-1.0	-1.0	-1.0
1949-50	-1.0	-1.0	-1.0	1180.0	1692.0	1763.0	681.0	226.0	134.0	-1.0	-1.0	-1.0	-1.0
1950-51	-1.0	-1.0	303.0	1097.0	1830.0	1802.0	529.0	213.0	-1.0	-1.0	-1.0	-1.0	-1.0
1951-52	-1.0	90.0	210.0	875.0	1490.0	1517.0	779.0	212.0	-1.0	-1.0	-1.0	-1.0	-1.0
1952-53	-1.0	107.0	249.0	1014.0	1799.0	-1.0	-1.0	-1.0	147.0	83.0	60.0	-1.0	-1.0
1953-54	61.0	96.0	314.0	932.0	-1.0	1490.0	469.0	192.0	116.0	79.0	55.0	50.0	-1.0
1954-55	61.0	223.0	638.0	1006.0	1785.0	1880.0	1068.0	333.0	190.0	124.0	92.0	-1.0	-1.0
1955-56	130.0	149.0	509.0	1216.0	1752.0	2314.0	1326.0	350.0	190.0	-1.0	-1.0	-1.0	-1.0
1956-57	-1.0	136.0	459.0	1152.0	1768.0	1961.0	687.0	215.0	127.0	92.0	58.0	58.0	-1.0
1957-58	97.0	248.0	513.0	1101.0	1632.0	1426.0	568.0	218.0	107.0	71.0	52.0	46.0	506.5
1958-59	58.0	211.0	746.0	913.0	1619.0	1595.0	619.0	204.0	129.0	92.0	64.0	65.0	526.2
1959-60	89.0	117.0	323.0	1033.0	1835.0	1759.0	504.0	183.0	123.0	92.0	68.0	62.0	515.6
1960-61	117.0	115.0	526.0	1285.0	1816.0	1967.0	1210.0	312.0	160.0	106.0	72.0	70.0	646.3
1961-62	74.0	129.0	789.0	1269.0	-1.0	1962.0	-1.0	242.0	138.0	100.0	-1.0	99.0	-1.0
1962-63	107.0	132.0	404.0	751.0	1605.0	2118.0	771.0	294.0	133.0	91.0	69.0	70.0	545.4
1963-64	131.0	111.0	492.0	1493.0	2015.0	1677.0	669.0	211.0	129.0	81.0	62.0	60.0	594.2
1964-65	-1.0	125.0	407.0	1038.0	1699.0	1571.0	613.0	203.0	128.0	90.0	-1.0	-1.0	-1.0
1965-66	-1.0	131.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1966-67	38.0	79.0	337.0	848.0	1817.0	1475.0	778.0	224.0	123.0	57.0	21.0	17.0	484.5
1967-68	21.0	46.0	431.0	1227.0	1691.0	1761.0	459.0	107.0	51.0	26.0	19.0	17.0	488.0
1968-69	-1.0	130.0	670.0	1278.0	1857.0	1232.0	340.0	87.0	-1.0	-1.0	-1.0	-1.0	-1.0
1969-70	51.0	102.0	603.0	1473.0	2159.0	1917.0	681.0	194.0	97.0	61.0	36.0	30.0	617.0
1970-71	54.0	77.0	485.0	1309.0	2424.0	1876.0	558.0	194.0	99.0	66.0	44.0	39.8	602.1
1971-72	38.2	67.1	541.0	1300.0	1810.0	1300.0	359.0	120.0	80.0	55.3	32.2	33.6	478.0
1972-73	54.8	131.0	178.0	718.0	879.0	802.0	287.0	102.0	74.9	57.7	37.0	27.4	279.0
1973-74	58.6	84.9	177.0	746.0	1190.0	986.0	257.0	94.7	59.8	38.1	26.4	23.8	311.8
1974-75	68.1	109.0	328.0	1080.0	1580.0	1210.0	435.0	156.0	84.9	54.5	37.3	28.0	430.8
AVG/MOYEN	72.7	122.7	449.2	1098.5	1732.5	1641.5	632.2	203.8	119.1	75.8	50.2	46.8	520.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... BONGOR
 RIVER/COURS D EAU..... LOGONE
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 73700.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG.AN.DISCH. DEBITS MOY.AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1948-49	----	----	----	----	2135.0	29.0	
1949-50	----	----	----	----	1895.0	25.7	
1950-51	----	----	----	----	2015.0	27.3	
1951-52	----	----	----	----	1606.0	21.8	49.0
1952-53	----	----	----	----	-1.0	-1.0	
1953-54	----	----	----	----	-1.0	-1.0	
1954-55	----	----	----	----	2039.0	27.7	
1955-56	----	----	----	----	2633.0	35.7	
1956-57	----	----	----	----	2111.0	28.6	49.0
1957-58	506.5	15975.6	217.	6.87	1740.0	23.6	45.0
1958-59	526.2	16595.8	225.	7.14	1855.0	25.2	51.0
1959-60	515.6	16262.0	221.	7.00	2234.0	30.3	51.0
1960-61	646.3	20382.7	277.	8.77	2015.0	27.3	57.0
1961-62	----	----	----	----	-1.0	-1.0	
1962-63	545.4	17200.2	233.	7.40	2366.0	32.1	
1963-64	594.2	18740.2	254.	8.06	2135.0	29.0	
1964-65	----	----	----	----	1943.0	26.4	
1965-66	----	----	----	----	-1.0	-1.0	
1966-67	484.5	15279.1	207.	6.57	2127.0	28.9	14.0
1967-68	488.0	15389.5	209.	6.62	2040.0	27.7	15.0
1968-69	----	----	----	----	2015.0	27.3	12.0
1969-70	617.0	19457.7	264.	8.37	2400.0	32.6	22.0
1970-71	602.1	18989.4	258.	8.17	2741.0	37.2	34.0
1971-72	478.0	15075.2	205.	6.49	2140.0	29.0	21.9
1972-73	279.0	8800.6	119.	3.79	1210.0	16.4	25.5
1973-74	311.8	9834.7	133.	4.23	1500.0	20.4	20.5
1974-75	430.8	13588.8	184.	5.85	1680.0	22.8	

GAUGING STATION/STATION DE JAUGEAGE.... DOBA COTONTC
 RIVER/COURS D EAU..... PENDE
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 14300.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1947-48	-1.0	-1.0	32.0	364.0	518.0	312.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1948-49	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1949-50	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1950-51	-1.0	-1.0	-1.0	373.0	614.0	366.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1951-52	-1.0	10.0	21.0	228.0	415.0	338.0	137.0	39.0	-1.0	-1.0	-1.0	-1.0	-1.0
1952-53	-1.0	-1.0	52.0	350.0	555.0	378.0	88.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1953-54	-1.0	13.0	119.0	365.0	545.0	431.0	98.0	35.0	-1.0	-1.0	-1.0	-1.0	-1.0
1954-55	10.0	26.0	-1.0	250.0	642.0	593.0	201.0	55.0	26.0	17.0	10.0	10.0	-1.0
1955-56	13.0	18.0	87.0	271.0	555.0	647.0	174.0	50.0	25.0	16.0	10.0	10.0	156.3
1956-57	10.0	14.0	121.0	387.0	620.0	508.0	121.0	42.0	20.0	10.0	6.0	5.0	155.3
1957-58	19.0	50.0	112.0	307.0	-1.0	-1.0	-1.0	42.0	16.0	9.0	5.0	6.0	-1.0
1958-59	9.0	41.0	211.0	301.0	587.0	372.0	-1.0	-1.0	22.0	12.0	7.0	5.0	-1.0
1959-60	9.0	11.0	40.0	248.0	640.0	426.0	136.0	35.0	19.0	-1.0	-1.0	-1.0	-1.0
1960-61	-1.0	-1.0	147.0	242.0	560.0	661.0	308.0	82.0	40.0	24.0	11.0	9.0	-1.0
1961-62	8.0	21.0	160.0	334.0	678.0	492.0	160.0	69.0	-1.0	-1.0	16.0	18.0	-1.0
1962-63	14.0	15.0	75.0	14.5	518.0	592.0	145.0	78.0	-1.0	-1.0	-1.0	-1.0	-1.0
1963-64	28.0	14.0	147.0	577.0	567.0	349.0	117.0	54.0	24.0	-1.0	-1.0	-1.0	-1.0
1964-65	16.0	17.0	112.0	255.0	-1.0	-1.0	-1.0	-1.0	-1.0	20.0	10.0	7.0	-1.0
1965-66	10.0	-1.0	-1.0	299.0	399.0	163.0	52.0	14.0	-1.0	-1.0	-1.0	-1.0	-1.0
1966-67	2.7	8.8	50.0	184.0	704.0	272.0	100.0	25.0	10.2	4.8	2.5	1.9	113.8
1967-68	6.1	17.0	92.0	400.0	660.0	353.0	74.0	27.0	11.6	5.5	3.0	2.1	137.6
1968-69	5.0	38.0	146.0	403.0	451.0	207.0	49.0	15.0	6.0	3.0	3.8	2.6	110.7
1969-70	14.0	6.0	73.0	411.0	793.0	407.0	98.0	32.0	15.0	7.0	3.1	11.0	155.8
1970-71	10.0	7.0	55.0	405.0	928.0	442.0	81.0	29.0	14.0	6.0	2.9	5.1	165.4
1971-72	6.7	8.1	92.5	261.0	602.0	215.0	54.6	19.6	8.6	4.4	2.3	1.8	106.3
1972-73	3.1	25.0	27.9	127.0	116.0	104.0	31.8	9.6	5.1	3.0	1.9	2.9	38.1
1973-74	4.3	7.7	26.5	152.0	233.0	159.0	30.5	8.0	3.3	2.0	1.8	0.9	52.4
1974-75	5.1	30.9	83.5	282.0	411.0	229.0	55.1	16.0	6.2	3.4	2.2	2.0	93.8
AVG/MOYEN	10.1	18.9	90.5	299.6	554.6	375.6	110.0	36.9	15.9	9.1	5.7	5.8	127.7

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... DOBA COTONTIC
 RIVER/COURS D EAU..... PENDE
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 14300.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG-AN-DISCH. DEBITS MOY-AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1947-48	----	----	----	----	610.0	42.7	
1948-49	----	----	----	----	-1.0	-1.0	
1949-50	----	----	----	----	-1.0	-1.0	
1950-51	----	----	----	----	708.0	49.5	
1951-52	----	----	----	----	473.0	33.1	
1952-53	----	----	----	----	720.0	50.3	
1953-54	----	----	----	----	633.0	44.3	
1954-55	----	----	----	----	744.0	52.0	
1955-56	156.3	4930.1	345.	10.93	900.0	62.9	
1956-57	155.3	4898.5	343.	10.86	768.0	53.7	5.0
1957-58	----	----	----	----	-1.0	-1.0	5.0
1958-59	----	----	----	----	708.0	49.5	5.0
1959-60	----	----	----	----	780.0	54.5	
1960-61	----	----	----	----	820.0	57.3	7.0
1961-62	----	----	----	----	812.0	56.8	11.0
1962-63	----	----	----	----	720.0	50.3	7.0
1963-64	----	----	----	----	928.0	64.9	6.0
1964-65	----	----	----	----	-1.0	-1.0	
1965-66	----	----	----	----	466.0	32.6	
1966-67	113.8	3589.5	251.	7.96	880.0	61.5	0.7
1967-68	137.6	4339.6	303.	9.62	756.0	52.9	1.6
1968-69	110.7	3493.6	244.	7.75	730.0	51.0	2.0
1969-70	155.8	4914.6	344.	10.90	1072.0	75.0	1.9
1970-71	165.4	5216.5	365.	11.57	1090.0	76.2	1.9
1971-72	106.3	3354.9	235.	7.44	898.0	62.8	1.4
1972-73	38.1	1201.7	84.	2.66	179.0	12.5	1.2
1973-74	52.4	1653.0	116.	3.67	320.0	22.4	0.7
1974-75	93.8	2960.1	207.	6.56	496.0	34.7	

GAUGING STATION/STATION DE JAUGEAGE.... GORE
 RIVER/COURS D EAU..... PENDE
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 12020.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1956-57	3.0	7.0	130.0	439.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1957-58	20.0	53.0	116.0	392.0	387.0	232.0	96.0	22.0	-1.0	-1.0	-1.0	-1.0	-1.0
1958-59	5.0	33.0	228.0	480.0	532.0	295.0	-1.0	25.0	14.0	7.0	5.0	5.0	-1.0
1959-60	6.0	7.0	52.0	305.0	660.0	340.0	91.0	35.0	18.0	11.0	7.0	8.0	128.3
1960-61	8.0	18.0	179.0	361.0	585.0	620.0	213.0	64.0	31.0	8.0	7.0	8.0	175.1
1961-62	7.0	33.0	262.0	476.0	529.0	433.0	108.0	26.0	31.0	7.0	5.0	4.0	160.0
1962-63	5.0	33.0	311.0	484.0	627.0	340.0	177.0	107.0	55.0	16.0	5.0	5.0	180.4
1963-64	5.0	35.0	224.0	472.0	502.0	279.0	175.0	106.0	30.0	7.0	3.0	4.0	153.5
1964-65	7.0	15.0	126.0	305.0	523.0	220.0	63.0	10.0	4.0	3.0	2.0	3.0	106.7
1971-72	13.8	17.7	118.0	299.0	499.0	177.0	49.7	14.4	10.1	7.7	5.8	5.9	101.5
1972-73	7.0	29.4	22.9	130.0	93.8	90.7	14.8	4.9	2.1	0.8	0.3	5.5	33.5
1973-74	7.5	8.8	34.1	169.0	257.0	139.0	23.9	7.0	2.2	0.5	0.2	0.8	54.1
1974-75	8.8	35.5	100.0	424.0	400.0	199.0	45.7	13.5	6.3	2.9	0.6	1.0	103.1
AVG/MOYEN	7.9	25.0	146.3	364.3	466.2	280.3	96.0	36.2	18.5	6.4	3.7	4.5	121.3

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... GORE
 RIVER/COURS D EAU..... PENDE
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 12020.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG.AN.DISCH. DEBITS MOY.AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1956-57	----	----	----	----	-1.0	-1.0	
1957-58	----	----	----	----	519.0	43.2	3.0
1958-59	----	----	----	----	633.0	52.7	
1959-60	128.3	4047.1	337.	10.68	875.0	72.8	6.0
1960-61	175.1	5524.0	460.	14.57	773.0	64.3	5.0
1961-62	160.0	5048.3	420.	13.32	712.0	59.2	4.0
1962-63	180.4	5689.6	473.	15.01	656.0	54.6	
1963-64	153.5	4840.7	403.	12.77	649.0	54.0	3.0
1964-65	106.7	3366.4	280.	8.88	638.0	53.1	
1971-72	101.5	3201.1	266.	8.44	762.0	63.4	4.4
1972-73	33.5	1056.9	88.	2.79	195.0	16.2	0.3
1973-74	54.1	1708.1	142.	4.51	373.0	31.0	0.1
1974-75	103.1	3251.6	271.	8.58	732.0	60.9	

GAUGING STATION/STATION DE JAUERGE.... LAI
 RIVER/COURS D EAU..... LOGONE
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 56700.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1948-49	-1.0	156.0	589.0	1310.0	2405.0	1324.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1949-50	-1.0	-1.0	-1.0	1140.0	1764.0	1406.0	477.0	157.0	-1.0	-1.0	-1.0	-1.0	-1.0
1950-51	104.0	131.0	375.0	1260.0	2380.0	1446.0	381.0	161.0	-1.0	-1.0	-1.0	-1.0	-1.0
1951-52	-1.0	-1.0	273.0	972.0	1360.0	1279.0	-1.0	204.0	-1.0	-1.0	-1.0	-1.0	-1.0
1952-53	-1.0	90.0	340.0	1001.0	1962.0	1673.0	449.0	183.0	-1.0	-1.0	-1.0	-1.0	-1.0
1953-54	-1.0	-1.0	380.0	921.0	1565.0	1188.0	377.0	157.0	97.0	72.0	54.0	52.0	-1.0
1954-55	65.0	274.0	678.0	969.0	2379.0	2051.0	757.0	276.0	155.0	100.0	62.0	55.0	651.7
1955-56	123.0	152.0	547.0	1234.0	1938.0	2792.0	933.0	303.0	176.0	119.0	95.0	89.0	708.4
1956-57	79.0	149.0	468.0	1089.0	2000.0	1962.0	482.0	197.0	117.0	83.0	60.0	58.0	562.0
1957-58	801.0	276.0	532.0	1056.0	1549.0	1110.0	493.0	198.0	108.0	76.0	53.0	53.0	525.4
1958-59	76.0	268.0	777.0	913.0	1818.0	1376.0	496.0	189.0	122.0	90.0	59.0	56.0	520.0
1959-60	94.0	132.0	350.0	1038.0	2375.0	1486.0	389.0	170.0	115.0	83.0	60.0	62.0	529.5
1960-61	124.0	117.0	535.0	1262.0	2104.0	2090.0	878.0	260.0	158.0	103.0	71.0	64.0	647.1
1961-62	78.0	153.0	776.0	1080.0	2049.0	1639.0	473.0	219.0	145.0	101.0	74.0	106.0	574.4
1962-63	102.0	163.0	404.0	706.0	1847.0	1973.0	524.0	245.0	159.0	113.0	84.0	72.0	532.6
1963-64	155.0	127.0	508.0	1765.0	-1.0	-1.0	502.0	218.0	141.0	100.0	70.0	74.0	-1.0
1964-65	118.0	157.0	462.0	1038.0	2135.0	-1.0	429.0	194.0	120.0	84.0	59.0	48.0	-1.0
1965-66	85.0	156.0	522.0	1212.0	1404.0	928.0	292.0	133.0	-1.0	-1.0	-1.0	-1.0	-1.0
1971-72	55.1	89.6	532.0	1050.0	1740.0	798.0	268.0	123.0	77.5	55.4	40.9	49.4	406.5
1972-73	70.5	181.0	240.0	659.0	638.0	604.0	213.0	88.7	60.7	43.7	30.6	29.1	238.1
1973-74	58.7	75.5	196.0	657.0	1060.0	739.0	183.0	73.4	40.4	28.0	22.1	24.9	263.1
1974-75	71.0	128.0	315.0	1010.0	1450.0	956.0	319.0	141.0	83.6	53.6	36.2	35.0	383.1
AVG/MOYEN	132.8	156.5	466.6	1061.0	1805.8	1441.0	465.7	185.2	117.1	81.5	58.1	57.9	502.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... LAI
 RIVER/COURS D EAU..... LOGONE
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 56700.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1948-49	----	----	----	----	2855.0	50.4	
1949-50	----	----	----	----	2111.0	37.2	
1950-51	----	----	----	----	2581.0	45.5	
1951-52	----	----	----	----	1518.0	26.8	
1952-53	----	----	----	----	2474.0	43.6	
1953-54	----	----	----	----	1750.0	30.9	
1954-55	651.7	20553.5	362.	11.49	2855.0	50.4	47.0
1955-56	708.4	22340.6	394.	12.49	3730.0	65.8	72.0
1956-57	562.0	17723.2	313.	9.91	3256.0	57.4	49.0
1957-58	525.4	16569.5	292.	9.27	1788.0	31.5	44.0
1958-59	520.0	16398.7	289.	9.17	2131.0	37.6	
1959-60	529.5	16698.3	295.	9.34	3119.0	55.0	51.0
1960-61	647.1	20409.0	360.	11.41	2423.0	42.7	56.0
1961-62	574.4	18114.8	319.	10.13	2372.0	41.8	66.0
1962-63	532.6	16798.1	296.	9.39	3256.0	57.4	55.0
1963-64	----	----	----	----	3185.0	56.2	57.0
1964-65	----	----	----	----	2611.0	46.0	42.0
1965-66	----	----	----	----	1640.0	28.9	
1971-72	406.5	12821.7	226.	7.17	2320.0	40.9	35.0
1972-73	238.1	7511.6	132.	4.20	964.0	17.0	25.3
1973-74	263.1	8299.2	146.	4.64	1420.0	25.0	21.2
1974-75	383.1	12084.5	213.	6.76	1610.0	28.4	

GAUGING STATION/STATION DE JAUGEAGE..... LOGONE GAMA
 RIVER/COURS D EAU..... LOGONE
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 75000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1953-54	-1.0	128.0	263.0	566.0	767.0	889.0	798.0	309.0	-1.0	-1.0	55.0	-1.0	-1.0
1954-55	-1.0	-1.0	-1.0	-1.0	822.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1955-56	-1.0	-1.0	401.0	563.0	775.0	943.0	1030.0	714.0	305.0	190.0	105.0	-1.0	-1.0
1956-57	74.0	130.0	-1.0	601.0	821.0	917.0	924.0	484.0	195.0	116.0	-1.0	-1.0	-1.0
1957-58	78.0	244.0	418.0	552.0	762.0	881.0	807.0	-1.0	154.0	-1.0	-1.0	-1.0	-1.0
1958-59	-1.0	-1.0	476.0	677.0	786.0	897.0	896.0	407.0	141.0	84.0	50.0	-1.0	-1.0
1959-60	68.0	104.0	292.0	539.0	799.0	-1.0	901.0	384.0	150.0	85.0	50.0	38.0	-1.0
1960-61	101.0	114.0	357.0	624.0	870.0	1009.0	1030.0	727.0	244.0	123.0	69.0	47.0	442.9
1961-62	59.0	91.0	409.0	714.0	928.0	1095.0	1028.0	557.0	227.0	82.0	67.0	82.0	444.9
1962-63	88.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	66.0	41.0	-1.0
1963-64	116.0	119.0	293.0	631.0	895.0	1001.0	895.0	426.0	170.0	93.0	53.0	45.0	394.7
1964-65	85.0	151.0	355.0	-1.0	940.0	1017.0	866.0	398.0	164.0	88.0	52.0	36.0	-1.0
1965-66	62.0	116.0	384.0	613.0	840.0	860.0	672.0	199.0	99.0	52.0	29.0	23.0	329.0
1966-67	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1967-68	-1.0	-1.0	-1.0	580.0	-1.0	-1.0	789.0	316.0	128.0	73.0	49.0	37.0	-1.0
1968-69	57.0	142.0	369.0	607.0	761.0	875.0	746.0	234.0	100.0	57.0	48.0	58.0	337.8
1969-70	62.0	127.0	251.0	388.0	783.0	948.0	908.0	587.0	175.0	102.0	58.0	46.0	369.5
1970-71	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	52.6	-1.0
1971-72	46.1	75.3	290.0	627.0	795.0	886.0	625.0	179.0	99.8	56.3	34.9	33.2	312.2
1972-73	57.6	139.0	253.0	430.0	586.0	575.0	388.0	125.0	61.5	38.6	25.8	21.3	225.0
1973-74	33.4	70.2	147.0	378.0	609.0	711.0	444.0	108.0	55.4	33.2	22.9	19.2	219.2
1974-75	53.8	107.0	258.0	510.0	777.0	917.0	694.0	195.0	91.4	56.8	34.6	27.0	310.1
AVG/MOYEN	69.3	123.8	326.0	564.7	795.3	901.3	802.2	373.4	150.5	83.1	51.1	40.4	356.7

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... LOGONE GANA
 RIVER/COURS D EAU..... LOGONE
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 75000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1953-54	----	----	----	----	896.0	11.9	
1954-55	----	----	----	----	947.0	12.6	
1955-56	----	----	----	----	-1.0	-1.0	
1956-57	----	----	----	----	971.0	12.9	
1957-58	----	----	----	----	892.0	11.9	
1958-59	----	----	----	----	930.0	12.4	
1959-60	----	----	----	----	-1.0	-1.0	33.0
1960-61	442.9	13967.8	186.	5.91	1045.0	13.9	
1961-62	444.9	14030.8	187.	5.93	1140.0	15.2	
1962-63	----	----	----	----	-1.0	-1.0	
1963-64	394.7	12448.8	166.	5.26	-1.0	-1.0	39.0
1964-65	----	----	----	----	-1.0	-1.0	30.0
1965-66	329.0	10377.9	138.	4.39	896.0	11.9	
1966-67	----	----	----	----	-1.0	-1.0	
1967-68	----	----	----	----	-1.0	-1.0	
1968-69	337.8	10653.9	142.	4.50	891.0	11.9	27.0
1969-70	369.5	11655.1	155.	4.93	969.0	12.9	38.0
1970-71	----	----	----	----	-1.0	-1.0	
1971-72	312.2	9848.6	131.	4.16	918.0	12.2	25.4
1972-73	225.0	7097.7	95.	3.00	619.0	8.3	19.4
1973-74	219.2	6915.0	92.	2.92	736.0	9.8	17.3
1974-75	310.1	9780.3	130.	4.14	934.0	12.5	25.0

GAUGING STATION/STATION DE JAUGEAGE.... MBERE
 RIVER/COURS D EAU..... MBERE
 COUNTRY/PAYS..... CAM-ECA
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 7430.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1951-52	-1.0	-1.0	-1.0	227.0	178.0	218.0	104.0	52.0	34.0	27.0	17.0	15.0	-1.0
1952-53	46.0	45.0	94.0	357.0	353.0	266.0	88.0	44.0	27.0	20.0	19.0	14.0	114.4
1953-54	23.0	25.0	85.0	108.0	254.0	135.0	40.0	18.0	11.0	9.0	9.0	14.0	60.9
1954-55	40.0	120.0	149.0	172.0	291.0	290.0	116.0	66.0	46.0	30.0	24.0	23.0	113.9
1955-56	55.0	86.0	174.0	328.0	422.0	543.0	143.0	83.0	57.0	40.0	38.0	38.0	167.2
1956-57	44.0	91.0	146.0	181.0	272.0	364.0	94.0	59.0	39.0	24.0	16.0	27.0	113.0
1957-58	55.0	89.0	124.0	152.0	285.0	174.0	100.0	52.0	32.0	21.0	15.0	24.0	93.5
1958-59	47.0	171.0	187.0	146.0	230.0	180.0	92.0	49.0	32.0	-1.0	-1.0	-1.0	-1.0
1959-60	40.0	69.0	149.0	281.0	418.0	189.0	82.0	50.0	34.0	-1.0	-1.0	27.0	-1.0
1960-61	54.0	-1.0	118.0	211.0	313.0	-1.0	114.0	62.0	37.0	22.0	13.0	10.0	-1.0
1961-62	21.0	79.0	158.0	172.0	321.0	255.0	76.0	46.0	30.0	19.0	20.0	38.0	102.9
1962-63	45.0	86.0	115.0	168.0	493.0	220.0	79.0	52.0	-1.0	-1.0	-1.0	-1.0	-1.0
1963-64	51.0	38.0	123.0	865.0	413.0	389.0	99.0	55.0	35.0	20.0	15.0	31.0	177.8
1964-65	69.0	92.0	167.0	208.0	574.0	167.0	80.0	43.0	26.0	13.0	9.0	22.0	122.5
1965-66	35.0	104.0	246.0	233.0	181.0	179.0	53.0	29.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	44.6	84.2	145.3	253.9	333.2	254.9	90.6	50.6	33.8	22.2	17.7	23.5	112.9

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... MBERE
 RIVER/COURS D EAU..... MBERE
 COUNTRY/PAYS..... CAM-ECA
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 7430.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1951-52	----	----	----	----	479.0	64.5	14.0
1952-53	114.4	3608.2	486.	15.40	947.0	127.5	11.0
1953-54	60.9	1921.0	259.	8.20	609.0	82.0	7.0
1954-55	113.9	3592.4	484.	15.33	835.0	112.4	17.0
1955-56	167.2	5274.3	710.	22.51	1114.0	149.9	24.0
1956-57	113.0	3566.1	480.	15.22	1083.0	145.8	13.0
1957-58	93.5	2951.2	397.	12.60	663.0	89.2	13.0
1958-59	----	----	----	----	479.0	64.5	
1959-60	----	----	----	----	1021.0	137.4	
1960-61	----	----	----	----	-1.0	-1.0	9.0
1961-62	102.9	3245.5	437.	13.85	609.0	82.0	
1962-63	----	----	----	----	1052.0	141.6	
1963-64	177.8	5608.1	755.	23.93	1870.0	251.7	12.0
1964-65	122.5	3863.1	520.	16.49	1925.0	259.1	6.0
1965-66	----	----	----	----	445.0	59.9	

GAUGING STATION/STATION DE JAUGEAGE.... MOUNDOU
 RIVER/COURS D EAU..... LOGONE
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 33970.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1935-36	-1.0	-1.0	596.0	1425.0	1902.0	1233.0	329.0	171.0	94.0	-1.0	-1.0	-1.0	-1.0
1936-37	-1.0	-1.0	321.0	1209.0	1680.0	829.0	882.0	151.0	105.0	-1.0	-1.0	-1.0	-1.0
1937-38	-1.0	-1.0	220.0	736.0	1062.0	1447.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1940-41	-1.0	-1.0	-1.0	1123.0	1363.0	551.0	144.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1941-42	-1.0	-1.0	325.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1942-43	-1.0	-1.0	323.0	1310.0	1696.0	732.0	167.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1943-44	-1.0	-1.0	355.0	1175.0	1645.0	1491.0	742.0	141.0	-1.0	-1.0	-1.0	-1.0	-1.0
1944-45	-1.0	-1.0	-1.0	377.0	945.0	662.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1945-46	-1.0	-1.0	232.0	2036.0	1164.0	1313.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1946-47	-1.0	-1.0	-1.0	651.0	1500.0	1499.0	361.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1947-48	-1.0	-1.0	201.0	1750.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1948-49	-1.0	-1.0	336.0	1175.0	1389.0	742.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1949-50	-1.0	-1.0	600.0	907.0	1438.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1950-51	-1.0	-1.0	303.0	1047.0	1539.0	868.0	263.0	173.0	116.0	-1.0	-1.0	-1.0	-1.0
1951-52	-1.0	95.0	209.0	858.0	908.0	877.0	-1.0	-1.0	-1.0	-1.0	55.0	46.0	-1.0
1952-53	94.0	95.0	263.0	853.0	1273.0	987.0	278.0	135.0	87.0	54.0	35.0	26.0	348.3
1953-54	58.0	-1.0	300.0	604.0	1159.0	643.0	233.0	154.0	89.0	-1.0	-1.0	-1.0	-1.0
1954-55	81.0	222.0	495.0	767.0	1616.0	1312.0	442.0	198.0	100.0	76.0	34.0	43.0	448.8
1955-56	112.0	130.0	385.0	1009.0	1497.0	1804.0	587.0	233.0	-1.0	-1.0	-1.0	-1.0	-1.0
1956-57	77.0	151.0	365.0	807.0	1316.0	1473.0	327.0	151.0	99.0	70.0	43.0	62.0	411.7
1957-58	135.0	251.0	440.0	866.0	1183.0	790.0	297.0	133.0	74.0	42.0	31.0	56.0	358.1
1958-59	80.0	268.0	581.0	667.0	1414.0	999.0	269.0	125.0	84.0	69.0	47.0	59.0	388.5
1959-60	101.0	129.0	380.0	973.0	1808.0	874.0	271.0	-1.0	-1.0	-1.0	-1.0	44.0	-1.0
1960-61	50.0	68.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	80.0	54.0	38.0	42.0	-1.0
1961-62	50.0	112.0	738.0	1200.0	1339.0	-1.0	192.0	80.0	-1.0	-1.0	-1.0	-1.0	-1.0
1962-63	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1963-64	105.0	105.0	434.0	1465.0	1207.0	1082.0	328.0	-1.0	-1.0	59.0	43.0	-1.0	-1.0
1964-65	113.0	163.0	-1.0	947.0	1693.0	837.0	329.0	-1.0	71.0	45.0	30.0	30.0	-1.0
1965-66	49.0	159.0	615.0	1171.0	1085.0	763.0	219.0	105.0	-1.0	-1.0	-1.0	-1.0	-1.0
1966-67	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1967-68	45.0	102.0	577.0	899.0	1265.0	923.0	234.0	109.0	69.0	51.0	47.0	52.0	364.4
1968-69	83.0	199.0	555.0	1405.0	1285.0	649.0	137.0	59.0	41.0	31.0	52.0	34.0	377.5
1969-70	81.0	151.0	560.0	1517.0	1794.0	855.0	274.0	163.0	61.0	44.0	33.0	41.0	464.5
1970-71	51.0	80.0	456.0	1424.0	1887.0	657.0	117.0	49.0	32.0	20.0	13.0	18.0	400.3
1971-72	40.3	73.1	548.0	707.0	1280.0	520.0	133.0	66.8	39.1	29.3	22.9	61.2	293.3
1972-73	61.2	199.0	258.0	658.0	544.0	561.0	130.0	44.5	29.1	20.1	13.7	16.9	211.2
1973-74	75.5	92.1	264.0	664.0	1020.0	547.0	93.8	44.2	26.0	14.2	9.5	19.8	239.1
1974-75	56.1	101.0	281.0	986.0	1120.0	703.0	185.0	77.5	42.7	31.1	22.5	25.0	302.5
AVG/MOYEN	76.0	140.2	403.7	1040.2	1364.1	942.6	294.9	122.0	70.4	44.3	33.5	39.7	381.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... MOUNDOU
 RIVER/COURS D EAU..... LOGONE
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 33970.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3* MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1935-36	----	----	----	----	2970.0	87.4	
1936-37	----	----	----	----	2370.0	69.8	
1937-38	----	----	----	----	1820.0	53.6	
1940-41	----	----	----	----	1524.0	44.9	
1941-42	----	----	----	----	-1.0	-1.0	
1942-43	----	----	----	----	2595.0	76.4	
1943-44	----	----	----	----	2895.0	85.2	
1944-45	----	----	----	----	1445.0	42.5	
1945-46	----	----	----	----	2670.0	78.6	
1946-47	----	----	----	----	2295.0	67.6	
1947-48	----	----	----	----	-1.0	-1.0	
1948-49	----	----	----	----	3288.0	96.8	
1949-50	----	----	----	----	-1.0	-1.0	
1950-51	----	----	----	----	1916.0	56.4	
1951-52	----	----	----	----	1337.0	39.4	42.0
1952-53	348.3	10985.0	323.	10.25	1754.0	51.6	20.0
1953-54	----	----	----	----	1385.0	40.8	
1954-55	448.8	14154.4	417.	13.21	2220.0	65.4	26.0
1955-56	----	----	----	----	2805.0	82.6	
1956-57	411.7	12984.9	382.	12.12	3640.0	107.2	35.0
1957-58	358.1	11295.1	333.	10.54	1540.0	45.3	29.0
1958-59	388.5	12251.7	361.	11.44	1763.0	51.9	34.0
1959-60	----	----	----	----	2670.0	78.6	
1960-61	----	----	----	----	-1.0	-1.0	
1961-62	----	----	----	----	-1.0	-1.0	
1962-63	----	----	----	----	-1.0	-1.0	
1963-64	----	----	----	----	2360.0	69.5	
1964-65	----	----	----	----	2251.0	66.3	
1965-66	----	----	----	----	1534.0	45.2	21.0
1966-67	----	----	----	----	-1.0	-1.0	
1967-68	364.4	11492.2	338.	10.73	1610.0	47.4	
1968-69	377.5	11904.8	350.	11.11	2600.0	76.5	
1969-70	464.5	14648.4	431.	13.67	2410.0	70.9	26.0
1970-71	400.3	12624.9	372.	11.78	2444.0	71.9	
1971-72	293.3	9252.3	272.	8.64	1760.0	51.8	19.1
1972-73	211.2	6663.2	196.	6.22	996.0	29.3	11.9
1973-74	239.1	7542.6	222.	7.04	1660.0	48.9	7.7
1974-75	302.5	9542.0	281.	8.91	1400.0	41.2	

GAUGING STATION/STATION DE JAUGEAGE.... TCHOA
 RIVER/COURS D EAU..... TANDIILE
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 5870.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1954-55	0.0	0.4	2.9	11.9	71.9	65.3	19.1	6.2	3.6	2.4	1.6	1.0	15.5
1955-56	0.6	1.0	1.7	15.6	55.7	55.4	16.7	5.3	2.8	1.9	1.4	0.8	13.2
1956-57	0.2	0.1	1.2	4.9	81.0	71.5	15.9	5.7	2.9	1.8	1.3	0.9	15.6
1957-58	0.5	0.2	2.9	10.6	75.7	53.6	20.1	6.8	4.2	2.1	1.4	1.0	14.9
1958-59	1.0	1.9	3.7	15.3	33.7	46.7	12.5	6.2	3.1	1.9	1.3	0.6	10.6
1959-60	1.1	1.3	1.4	7.1	56.6	40.1	13.3	6.5	4.1	2.3	1.4	0.8	11.3
1960-61	0.2	1.1	5.2	31.5	96.5	108.0	28.2	9.6	6.0	4.5	3.4	2.1	24.6
1961-62	1.7	2.0	7.0	34.6	134.0	52.4	17.7	8.0	5.7	4.7	3.3	2.7	22.8
1962-63	1.9	1.8	2.6	6.6	67.7	77.3	27.3	10.9	6.7	4.9	3.6	2.1	17.7
1963-64	3.6	3.5	5.0	22.5	34.0	25.0	18.3	6.1	3.9	2.4	1.8	1.4	10.6
1964-65	1.2	1.8	4.4	21.2	81.9	64.6	31.4	10.2	6.1	4.2	2.7	1.8	19.2
1965-66	1.5	2.0	3.8	20.0	49.6	26.5	9.4	5.0	-1.0	-1.0	-1.0	-1.0	-1.0
1970-71	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1971-72	2.0	2.2	4.5	13.3	58.0	34.1	15.4	7.6	5.2	3.3	2.1	1.7	12.4
1972-73	1.8	2.4	5.0	14.2	40.0	39.2	16.3	9.5	5.7	4.3	2.1	1.5	11.8
1973-74	1.4	1.4	2.9	10.4	18.8	19.6	7.2	3.7	2.2	1.5	1.1	0.8	5.9
1974-75	1.0	1.1	3.8	8.3	27.5	31.2	9.6	3.9	2.1	1.4	0.9	0.8	7.6
AVG/MOYEN	1.2	1.5	3.6	15.4	61.4	50.6	17.3	6.9	4.2	2.9	1.9	1.3	14.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUAGE..... TCHOA
 RIVER/COURS D EAU..... TANDILE
 COUNTRY/PAYS..... TCHAD
 BASIN/BASSIN..... LOGONE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 5870.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1954-55	15.5	489.5	83.	2.64	101.0	17.2	0.0
1955-56	13.2	417.5	71.	2.26	77.0	13.1	0.3
1956-57	15.6	492.4	84.	2.66	113.0	19.3	0.0
1957-58	14.9	470.6	80.	2.54	97.0	16.5	0.0
1958-59	10.6	336.1	57.	1.82	54.0	9.2	0.7
1959-60	11.3	357.4	61.	1.93	73.0	12.4	0.4
1960-61	24.6	778.6	133.	4.21	186.0	31.7	0.0
1961-62	22.8	719.5	123.	3.89	200.0	34.1	1.5
1962-63	17.7	560.8	96.	3.03	120.0	20.4	1.6
1963-64	10.6	335.0	57.	1.81	37.0	6.3	1.8
1964-65	19.2	608.3	104.	3.29	121.0	20.6	1.1
1965-66	----	----	----	----	64.0	10.9	1.4
1970-71	----	----	----	----	-1.0	-1.0	
1971-72	12.4	392.6	67.	2.12	74.1	12.6	1.3
1972-73	11.8	373.1	64.	2.02	55.0	9.4	1.5
1973-74	5.9	186.5	32.	1.01	25.0	4.3	0.7
1974-75	7.6	240.7	41.	1.30	55.9	9.5	

GAUGING STATION/STATION DE JAUGEAGE.... KIRANGO
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 137000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1925-26	-1.0	-1.0	1400.0	3547.0	5735.0	7109.0	4271.0	-1.0	-1.0	-1.0	112.0	55.0	-1.0
1926-27	45.0	308.0	1959.0	3368.0	5164.0	4233.0	1711.0	830.0	315.0	162.0	80.0	46.0	1518.4
1927-28	66.0	155.0	1373.0	2896.0	5034.0	5894.0	3940.0	1351.0	551.0	233.0	112.0	74.0	1806.5
1928-29	91.0	266.0	1021.0	4099.0	6698.0	6007.0	2962.0	1114.0	525.0	238.0	124.0	86.0	1935.9
1929-30	85.0	533.0	2130.0	3790.0	5599.0	6110.0	2705.0	1022.0	458.0	243.0	133.0	76.0	1907.0
1930-31	61.0	729.0	1540.0	4151.0	5647.0	5777.0	2753.0	987.0	470.0	206.0	99.0	75.0	1874.5
1931-32	158.0	675.0	1551.0	3570.0	4972.0	4825.0	1738.0	764.0	307.0	120.0	86.0	82.0	1570.6
1932-33	108.0	350.0	1505.0	2994.0	5748.0	4864.0	2326.0	990.0	416.0	187.0	113.0	67.0	1639.0
1933-34	59.0	278.0	1834.0	3394.0	5737.0	3580.0	1544.0	878.0	363.0	154.0	75.0	5.0	1491.7
1934-35	34.0	68.0	698.0	3034.0	4765.0	3892.0	2163.0	782.0	305.0	147.0	62.0	36.0	1332.1
1935-36	27.0	38.0	854.0	3362.0	4838.0	4070.0	1593.0	568.0	221.0	97.0	51.0	24.0	1311.9
1936-37	192.0	531.0	1243.0	2773.0	4634.0	5451.0	2139.0	1052.0	373.0	162.0	70.0	53.0	1556.0
1937-38	57.0	128.0	627.0	2064.0	4223.0	3806.0	1875.0	-1.0	-1.0	-1.0	-1.0	46.0	-1.0
1938-39	31.0	97.0	615.0	2568.0	4767.0	4628.0	2162.0	845.0	293.0	116.0	59.0	35.0	1351.3
1939-40	-1.0	150.0	500.0	1848.0	4126.0	4718.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1940-41	20.0	60.0	570.0	2199.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1950-51	30.0	75.0	650.0	2229.0	4583.0	5334.0	2438.0	753.0	341.0	140.0	65.0	37.0	1389.5
1951-52	91.0	431.0	1346.0	3270.0	4690.0	5060.0	5140.0	1979.0	807.0	363.0	154.0	77.0	1950.6
1952-53	50.0	105.0	967.0	2829.0	4642.0	5340.0	2404.0	977.0	471.0	210.0	118.0	52.0	1513.7
1953-54	29.0	423.0	1994.0	3712.0	5973.0	5019.0	2398.0	1068.0	557.0	239.0	125.0	105.0	1803.5
1954-55	102.0	537.0	1698.0	3693.0	5590.0	4948.0	3149.0	1750.0	766.0	415.0	195.0	164.0	1917.2
1955-56	130.0	459.0	1828.0	3473.0	5379.0	5748.0	2768.0	1299.0	667.0	381.0	182.0	104.0	1868.1
1956-57	59.0	112.0	908.0	1955.0	4002.0	4466.0	1739.0	799.0	517.0	247.0	59.0	22.0	1240.4
1957-58	19.0	186.0	1123.0	3218.0	5504.0	6382.0	3760.0	1375.0	629.0	340.0	97.0	87.0	1893.3
AVG/MOYEN	70.1	291.0	1247.2	3084.8	5132.6	5098.3	2621.7	1059.1	467.6	220.0	103.3	64.0	1621.6

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... KIRANGO
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 137000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3-MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1925-26	----	----	----	----	7416.0	54.1	41.0
1926-27	1518.4	47884.7	350.	11.08	6253.0	45.6	39.0
1927-28	1806.5	56972.4	416.	13.19	6284.0	45.9	67.0
1928-29	1935.9	61051.0	446.	14.13	7105.0	51.9	74.0
1929-30	1907.0	60139.1	439.	13.92	6652.0	48.6	50.0
1930-31	1874.5	59116.8	432.	13.68	6268.0	45.8	59.0
1931-32	1570.6	49532.5	362.	11.46	5958.0	43.5	74.0
1932-33	1639.0	51687.5	377.	11.96	6700.0	48.9	47.0
1933-34	1491.7	47043.8	343.	10.89	6392.0	46.7	26.0
1934-35	1332.1	42011.2	307.	9.72	5420.0	39.6	22.0
1935-36	1311.9	41372.6	302.	9.58	5225.0	38.1	13.0
1936-37	1556.0	49072.6	358.	11.36	6346.0	46.3	49.0
1937-38	----	----	----	----	4610.0	33.6	22.0
1938-39	1351.3	42615.6	311.	9.86	5741.0	41.9	
1939-40	----	----	----	----	5180.0	37.8	
1940-41	----	----	----	----	-1.0	-1.0	
1950-51	1389.5	43821.9	320.	10.14	5695.0	41.6	16.0
1951-52	1950.6	61516.2	449.	14.24	5695.0	41.6	13.0
1952-53	1513.7	47737.6	348.	11.05	5788.0	42.2	11.0
1953-54	1803.5	56875.1	415.	13.16	6299.0	46.0	44.0
1954-55	1917.2	60462.3	441.	13.99	5958.0	43.5	71.0
1955-56	1868.1	58914.5	430.	13.64	6486.0	47.3	40.0
1956-57	1240.4	39117.7	286.	9.05	5571.0	40.7	19.0
1957-58	1893.3	59708.1	436.	13.82	6500.0	47.4	29.0

GAUGING STATION/STATION DE JAUGEAGE.... KOULIKORO
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 120000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
19 7- 8	52.0	274.0	823.0	1900.0	3808.0	3126.0	1983.0	920.0	352.0	160.0	73.0	36.0	1125.5
19 8- 9	34.0	205.0	668.0	2315.0	4300.0	4000.0	1664.0	793.0	314.0	163.0	93.0	60.0	1217.4
19 9-10	184.0	897.0	1921.0	4902.0	6294.0	4569.0	2712.0	1128.0	515.0	191.0	87.0	52.0	1954.3
1910-11	47.0	192.0	848.0	3058.0	4542.0	3713.0	1432.0	573.0	248.0	90.0	48.0	32.0	1235.2
1911-12	53.0	306.0	1194.0	4133.0	6257.0	4147.0	1754.0	783.0	364.0	163.0	84.0	38.0	1606.3
1912-13	28.0	84.0	936.0	2315.0	4599.0	4704.0	1679.0	677.0	366.0	154.0	50.0	24.0	1301.3
1913-14	28.0	131.0	656.0	1284.0	3120.0	2335.0	1383.0	515.0	203.0	59.0	42.0	53.0	817.4
1914-15	89.0	286.0	602.0	1206.0	3689.0	3196.0	1162.0	587.0	199.0	67.0	31.0	29.0	928.5
1915-16	105.0	614.0	1586.0	2908.0	4878.0	3788.0	1481.0	656.0	345.0	165.0	67.0	38.0	1385.9
1916-17	45.0	147.0	1428.0	3382.0	5106.0	4182.0	1244.0	486.0	235.0	118.0	75.0	24.0	1372.6
1917-18	43.0	250.0	784.0	3621.0	5936.0	3756.0	1496.0	957.0	464.0	232.0	121.0	124.0	1482.0
1918-19	173.0	898.0	1685.0	4030.0	4632.0	4186.0	1832.0	857.0	398.0	192.0	120.0	48.0	1587.5
1919-20	58.0	597.0	1605.0	3268.0	4757.0	3790.0	1430.0	637.0	292.0	124.0	65.0	46.0	1389.0
1920-21	71.0	381.0	1518.0	2657.0	4434.0	3185.0	1454.0	629.0	264.0	118.0	74.0	43.0	1235.6
1921-22	42.0	104.0	709.0	2393.0	4058.0	2867.0	1227.0	586.0	220.0	106.0	46.0	32.0	1032.5
1922-23	95.0	219.0	622.0	2293.0	4535.0	5695.0	2406.0	1113.0	470.0	187.0	88.0	138.0	1488.4
1923-24	99.0	328.0	1388.0	3032.0	5051.0	4283.0	2451.0	1009.0	472.0	259.0	115.0	44.0	1544.2
1924-25	36.0	235.0	1883.0	5093.0	7344.0	7088.0	2616.0	1069.0	546.0	272.0	134.0	72.0	2199.0
1925-26	88.0	477.0	1595.0	4134.0	6859.0	8558.0	3918.0	1358.0	675.0	358.0	152.0	78.0	2354.1
1926-27	61.0	559.0	2192.0	3820.0	5929.0	4054.0	1795.0	937.0	457.0	195.0	83.0	43.0	1677.0
1927-28	96.0	291.0	1564.0	3230.0	5651.0	6234.0	4107.0	1332.0	617.0	286.0	120.0	61.0	1965.7
1928-29	131.0	411.0	1289.0	5107.0	7709.0	6054.0	2964.0	1126.0	608.0	260.0	163.0	107.0	2160.7
1929-30	120.0	784.0	2353.0	4261.0	6228.0	6385.0	2542.0	1022.0	519.0	293.0	153.0	93.0	2062.7
1930-31	88.0	925.0	1825.0	4674.0	6118.0	5884.0	2657.0	1013.0	558.0	271.0	127.0	166.0	2025.5
1931-32	327.0	947.0	1702.0	3877.0	5584.0	4731.0	1676.0	889.0	553.0	271.0	136.0	118.0	1734.2
1932-33	166.0	570.0	1769.0	3250.0	6599.0	4782.0	2187.0	971.0	485.0	229.0	142.0	88.0	1769.8
1933-34	94.0	500.0	2020.0	3978.0	6214.0	3523.0	1476.0	893.0	430.0	201.0	102.0	62.0	1624.4
1934-35	52.0	145.0	957.0	3642.0	5056.0	4194.0	2057.0	809.0	362.0	187.0	77.0	54.0	1466.0
1935-36	39.0	97.0	1124.0	4037.0	5224.0	4160.0	1478.0	612.0	266.0	127.0	76.0	44.0	1440.3
1936-37	357.0	694.0	1381.0	3023.0	5514.0	5836.0	2104.0	998.0	424.0	197.0	112.0	93.0	1727.7
1937-38	98.0	206.0	864.0	2310.0	4786.0	4033.0	1828.0	655.0	290.0	130.0	83.0	58.0	1278.4
1938-39	55.0	183.0	751.0	3107.0	5322.0	4780.0	2171.0	720.0	312.0	138.0	67.0	39.0	1470.4
1939-40	73.0	260.0	669.0	2262.0	4613.0	4925.0	2023.0	838.0	370.0	158.0	84.0	45.0	1360.0
1940-41	47.0	180.0	909.0	2671.0	3516.0	3657.0	1867.0	657.0	297.0	142.0	59.0	32.0	1169.5
1941-42	42.0	218.0	942.0	2420.0	5368.0	3093.0	1487.0	709.0	324.0	150.0	65.0	46.0	1238.6
1942-43	121.0	290.0	753.0	2251.0	4104.0	2155.0	1213.0	596.0	233.0	108.0	47.0	44.0	992.9
1943-44	72.0	165.0	667.0	2159.0	4762.0	3988.0	1479.0	539.0	245.0	106.0	43.0	28.0	1187.7
1944-45	49.0	111.0	472.0	1798.0	4445.0	2828.0	1333.0	528.0	199.0	93.0	39.0	23.0	993.1
1945-46	34.0	117.0	434.0	2772.0	4592.0	4266.0	1631.0	592.0	217.0	101.0	41.0	41.0	1236.5
1946-47	79.0	287.0	957.0	3034.0	4825.0	5275.0	2460.0	854.0	371.0	154.0	62.0	25.0	1531.9
1947-48	30.0	165.0	911.0	2599.0	5002.0	4333.0	1231.0	482.0	183.0	85.0	47.0	31.0	1258.2
1948-49	51.0	322.0	1643.0	3882.0	6086.0	4516.0	2088.0	757.0	365.0	190.0	108.0	98.0	1675.5

1949-50	82.0	122.0	619.0	3332.0	6281.0	3478.0	1433.0	656.0	286.0	145.0	74.0	42.0	1379.1
1950-51	65.0	128.0	730.0	2518.0	5198.0	5547.0	2391.0	768.0	374.0	207.0	142.0	87.0	1512.9
1951-52	221.0	544.0	1583.0	3753.0	5349.0	5431.0	5433.0	1814.0	751.0	419.0	208.0	116.0	2135.1
1952-53	100.0	186.0	1208.0	3221.0	5134.0	5513.0	2316.0	906.0	508.0	238.0	143.0	81.0	1629.5
1953-54	97.0	560.0	2174.0	4436.0	6575.0	5152.0	2373.0	1069.0	608.0	325.0	195.0	188.0	1979.3
1954-55	208.0	642.0	1947.0	4284.0	6127.0	5148.0	3280.0	1674.0	760.0	432.0	289.0	207.0	2083.1
1955-56	222.0	677.0	2037.0	4076.0	6095.0	5985.0	2763.0	1286.0	659.0	377.0	238.0	174.0	2049.0
1956-57	127.0	198.0	980.0	2272.0	4807.0	4561.0	1733.0	769.0	394.0	186.0	108.0	56.0	1349.2
1957-58	71.0	323.0	1333.0	3850.0	6495.0	6915.0	3851.0	1253.0	627.0	376.0	163.0	140.0	2116.4
1958-59	267.0	824.0	1489.0	2221.0	4521.0	4440.0	2241.0	1387.0	610.0	332.0	171.0	85.0	1549.0
1959-60	101.0	320.0	1402.0	3044.0	5759.0	4500.0	1858.0	767.0	368.0	170.0	81.0	55.0	1535.4
1960-61	78.0	295.0	1422.0	3816.0	5958.0	4941.0	2246.0	851.0	371.0	162.0	75.0	30.0	1687.0
1961-62	67.0	90.0	967.0	3028.0	5432.0	3374.0	1299.0	493.0	199.0	87.0	35.0	30.0	1258.4
1962-63	120.0	204.0	1117.0	3366.0	7257.0	6094.0	2839.0	1189.0	500.0	261.0	163.0	63.0	1931.0
1963-64	123.0	129.0	658.0	2482.0	4895.0	6010.0	2830.0	877.0	351.0	163.0	68.0	37.0	1551.9
1964-65	37.0	397.0	1150.0	3570.0	5270.0	4950.0	1750.0	901.0	493.0	243.0	138.0	87.0	1582.1
1965-66	83.0	326.0	1740.0	2650.0	4640.0	4450.0	1850.0	664.0	284.0	168.0	94.0	75.0	1418.6
1966-67	71.0	185.0	584.0	2690.0	4460.0	4920.0	2360.0	840.0	461.0	290.0	127.0	51.0	1419.9
1967-68	102.0	137.0	895.0	3210.0	5850.0	7910.0	2930.0	1030.0	-1.0	-1.0	-1.0	-1.0	-1.0
1968-69	114.0	702.0	1096.0	3020.0	4384.0	3740.0	1737.0	865.0	402.0	190.0	112.0	80.0	1370.1
1969-70	56.0	284.0	1770.0	3610.0	6690.0	5640.0	4250.0	1190.0	576.0	265.0	138.0	90.0	2046.5
1970-71	76.0	176.0	502.0	2391.0	5108.0	2822.0	1131.0	595.0	228.0	101.0	51.0	35.0	1101.3
1971-72	46.4	99.6	692.0	3291.0	5359.0	3473.0	1092.0	631.0	251.0	108.0	46.7	39.5	1260.7
1972-73	161.0	642.0	1240.0	2330.0	3570.0	2645.0	1313.0	615.0	254.0	108.0	41.0	21.0	1078.3
1973-74	22.0	136.0	341.0	2641.0	3539.0	2137.0	1172.0	397.0	170.0	59.0	32.0	27.0	889.4
AVG/MOYEN	95.0	348.9	1198.1	3152.0	5256.7	4546.7	2084.3	855.9	395.6	191.8	98.9	65.8	1524.1

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... KOULIKORO
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 120000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG.AN.DISCH. DEBITS MOY.AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
19 7- 8	1125.5	35496.3	296.	9.38	4290.0	35.8	23.0
19 8- 9	1217.4	38392.4	320.	10.15	4980.0	41.5	37.0
19 9-10	1954.3	61631.8	514.	16.29	6960.0	58.0	34.0
1910-11	1235.2	38954.8	325.	10.29	4830.0	40.3	23.0
1911-12	1606.3	50657.3	422.	13.39	6740.0	56.2	26.0
1912-13	1301.3	41038.8	342.	10.84	5610.0	46.8	19.5
1913-14	817.4	25778.0	215.	6.81	3646.0	30.4	36.0
1914-15	928.5	29283.8	244.	7.74	4467.0	37.2	21.0
1915-16	1385.9	43706.2	364.	11.55	5285.0	44.0	36.0
1916-17	1372.6	43288.4	361.	11.44	6002.0	50.0	18.0
1917-18	1482.0	46736.3	389.	12.35	6900.0	57.5	85.0
1918-19	1587.5	50066.0	417.	13.23	4980.0	41.5	35.0
1919-20	1389.0	43806.1	365.	11.58	5375.0	44.8	37.0
1920-21	1235.6	38967.9	325.	10.30	4980.0	41.5	36.0
1921-22	1032.5	32560.9	271.	8.60	5375.0	44.8	19.0
1922-23	1488.4	46938.7	391.	12.40	6360.0	53.0	48.0
1923-24	1544.2	48699.4	406.	12.87	5505.0	45.9	27.0
1924-25	2199.0	69347.6	578.	18.33	9500.0	79.2	48.0
1925-26	2354.1	74241.0	619.	19.62	9700.0	80.8	51.0
1926-27	1677.0	52888.5	441.	13.98	7020.0	58.5	26.0
1927-28	1965.7	61991.8	517.	16.38	6980.0	58.2	39.0
1928-29	2160.7	68141.4	568.	18.01	7640.0	63.7	89.0
1929-30	2062.7	65050.8	542.	17.19	7560.0	63.0	66.0
1930-31	2025.5	63876.1	532.	16.88	6840.0	57.0	66.0
1931-32	1734.2	54691.3	456.	14.45	6440.0	53.7	105.0
1932-33	1769.8	55813.4	465.	14.75	7740.0	64.5	64.0
1933-34	1624.4	51227.6	427.	13.54	7400.0	61.7	39.0
1934-35	1466.0	46231.7	385.	12.22	5910.0	49.3	36.0
1935-36	1440.3	45422.3	379.	12.00	5790.0	48.3	38.0
1936-37	1727.7	54486.3	454.	14.40	7610.0	63.4	73.0
1937-38	1278.4	40316.1	336.	10.65	5140.0	42.8	31.0
1938-39	1470.4	46371.0	386.	12.25	6380.0	53.2	27.0
1939-40	1360.0	42888.9	357.	11.33	5670.0	47.3	34.0
1940-41	1169.5	36881.3	307.	9.75	4010.0	33.4	23.0
1941-42	1238.6	39062.5	326.	10.32	6170.0	51.4	32.0
1942-43	992.9	31312.6	261.	8.27	4880.0	40.7	30.0
1943-44	1187.7	37456.8	312.	9.90	5220.0	43.5	25.0
1944-45	993.1	31320.5	261.	8.28	4920.0	41.0	19.0
1945-46	1236.5	38994.2	325.	10.30	5240.0	43.7	28.0
1946-47	1531.9	48310.5	403.	12.77	5580.0	46.5	21.0
1947-48	1258.2	39680.1	331.	10.49	6220.0	51.8	26.0
1948-49	1675.5	52838.5	440.	13.96	6540.0	54.5	61.0
1949-50	1379.1	43493.4	362.	11.49	6940.0	57.8	34.0

1950-51	1512.9	47711.3	398.	12.61	6440.0	53.7	69.0
1951-52	2135.1	67334.6	561.	17.79	5910.0	49.3	78.0
1952-53	1629.5	51387.9	428.	13.58	6280.0	52.3	60.0
1953-54	1979.3	62420.2	520.	16.49	6960.0	58.0	130.0
1954-55	2083.1	65694.7	547.	17.36	6480.0	54.0	137.0
1955-56	2049.0	64619.8	538.	17.08	7456.0	62.1	107.0
1956-57	1349.2	42549.9	355.	11.24	6210.0	51.8	36.0
1957-58	2116.4	66743.3	556.	17.64	7590.0	63.3	114.0
1958-59	1549.0	48849.2	407.	12.91	5437.0	45.3	67.0
1959-60	1535.4	48420.9	404.	12.80	6945.0	57.9	36.0
1960-61	1687.0	53203.8	443.	14.06	6550.0	54.6	
1961-62	1258.4	39685.4	331.	10.49	6172.0	51.4	
1962-63	1931.0	60898.6	507.	16.09	7817.0	65.1	51.0
1963-64	1551.9	48941.2	408.	12.93	7228.0	60.2	
1964-65	1582.1	49895.2	416.	13.18	6640.0	55.3	
1965-66	1418.6	44739.0	373.	11.82	5750.0	47.9	
1966-67	1419.9	44778.4	373.	11.83	5620.0	46.8	
1967-68	-----	-----	-----	-----	9310.0	77.6	
1968-69	1370.1	43209.5	360.	11.42	5186.0	43.2	69.0
1969-70	2046.5	64541.0	538.	17.05	7722.0	64.4	
1970-71	1101.3	34731.6	289.	9.18	-1.0	-1.0	
1971-72	1260.7	39759.5	331.	10.51	5488.0	45.7	24.8
1972-73	1078.3	34006.3	283.	8.99	-1.0	-1.0	
1973-74	889.4	28048.6	234.	7.41	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE.... KOUROUSSA
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... GUINEE
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 18000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1923-24	-1.0	-1.0	-1.0	383.0	899.0	669.0	540.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1925-26	-1.0	-1.0	-1.0	652.0	1220.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1926-27	-1.0	-1.0	345.0	644.0	1775.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1945-46	-1.0	-1.0	-1.0	366.0	459.0	753.0	225.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1946-47	-1.0	-1.0	-1.0	395.0	620.0	675.0	274.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1947-48	-1.0	-1.0	160.0	287.0	629.0	452.0	110.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1948-49	-1.0	-1.0	260.0	427.0	972.0	791.0	315.0	115.0	-1.0	-1.0	-1.0	-1.0	-1.0
1949-50	-1.0	-1.0	130.0	495.0	930.0	462.0	235.0	65.0	-1.0	-1.0	-1.0	-1.0	-1.0
1950-51	-1.0	-1.0	94.0	160.0	549.0	673.0	242.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1951-52	-1.0	-1.0	334.0	539.0	781.0	728.0	947.0	207.0	-1.0	-1.0	-1.0	-1.0	-1.0
1952-53	-1.0	-1.0	180.0	354.0	-1.0	773.0	263.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1953-54	-1.0	-1.0	400.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1954-55	34.0	111.0	231.0	356.0	724.0	690.0	553.0	300.0	133.0	71.0	37.0	27.0	272.2
1955-56	36.0	180.0	363.0	492.0	1151.0	1018.0	497.0	272.0	132.0	87.0	45.0	27.0	358.3
1956-57	23.0	76.0	214.0	312.0	577.0	444.0	218.0	106.0	46.0	21.0	12.0	7.0	171.3
1957-58	8.0	47.0	221.0	497.0	1074.0	1096.0	509.0	199.0	111.0	58.0	27.0	22.0	322.4
1958-59	40.0	123.0	140.0	196.0	644.0	802.0	411.0	274.0	125.0	48.0	25.0	9.0	236.4
1959-60	12.0	99.0	229.0	323.0	698.0	441.0	284.0	115.0	55.0	21.0	10.0	-1.0	-1.0
1960-61	9.0	57.0	-1.0	-1.0	-1.0	-1.0	283.0	117.0	51.0	24.0	13.0	7.0	-1.0
1961-62	6.0	7.0	242.0	525.0	784.0	384.0	195.0	88.0	39.0	22.0	11.0	7.0	192.5
1962-63	13.0	-1.0	123.0	-1.0	-1.0	-1.0	365.0	180.0	93.0	51.0	23.0	11.0	-1.0
1963-64	16.0	117.0	172.0	443.0	703.0	940.0	354.0	-1.0	68.0	27.0	12.0	7.0	-1.0
1964-65	-1.0	-1.0	-1.0	419.0	799.0	812.0	298.0	147.0	78.0	32.0	13.0	8.0	-1.0
1965-66	10.0	54.0	331.0	688.0	1182.0	1208.0	452.0	129.0	36.0	24.0	17.0	12.0	345.2
1966-67	9.0	53.0	148.0	316.0	607.0	810.0	380.0	226.0	150.0	45.0	14.0	8.0	230.5
1967-68	12.0	81.0	162.0	434.0	945.0	1107.0	369.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	17.5	83.7	223.9	421.8	851.0	748.9	361.6	169.3	85.9	40.8	19.9	12.6	253.1

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... KOUROUSSA
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... GUINEE
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 18000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1923-24	----	----	----	----	1057.0	58.7	
1925-26	----	----	----	----	1415.0	78.6	
1926-27	----	----	----	----	1415.0	78.6	
1945-46	----	----	----	----	1126.0	62.6	
1946-47	----	----	----	----	991.0	55.1	
1947-48	----	----	----	----	816.0	45.3	
1948-49	----	----	----	----	1510.0	83.9	
1949-50	----	----	----	----	1057.0	58.7	
1950-51	----	----	----	----	844.0	46.9	
1951-52	----	----	----	----	1643.0	91.3	
1952-53	----	----	----	----	1073.0	59.6	
1953-54	----	----	----	----	-1.0	-1.0	
1954-55	272.2	8585.6	477.	15.13	887.0	49.3	19.0
1955-56	358.3	11300.4	628.	19.91	1710.0	95.0	15.0
1956-57	171.3	5403.1	300.	9.52	867.0	48.2	6.0
1957-58	322.4	10167.7	565.	17.91	1339.0	74.4	
1958-59	236.4	7455.6	414.	13.13	-1.0	-1.0	
1959-60	----	----	----	----	-1.0	-1.0	
1960-61	----	----	----	----	-1.0	-1.0	
1961-62	192.5	6070.6	337.	10.69	-1.0	-1.0	
1962-63	----	----	----	----	-1.0	-1.0	
1963-64	----	----	----	----	-1.0	-1.0	
1964-65	----	----	----	----	-1.0	-1.0	
1965-66	345.2	10887.8	605.	19.18	-1.0	-1.0	
1966-67	230.5	7269.0	404.	12.81	-1.0	-1.0	
1967-68	----	----	----	----	1545.0	85.8	

GAUGING STATION/STATION DE JAUGEAGE.... KOUTO
 RIVER/COURS D EAU..... BAGOE
 COUNTRY/PAYS..... C.I
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 4740.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1960-61	-1.0	-1.0	42.0	54.8	223.5	167.0	34.3	11.3	4.7	1.9	0.8	0.3	-1.0
1961-62	0.2	0.2	8.1	60.8	191.1	82.8	20.9	6.3	2.2	0.9	0.3	0.1	31.1
1962-63	0.2	0.3	5.4	43.0	251.0	157.0	53.4	26.6	8.9	4.4	2.1	0.5	46.0
1963-64	0.4	0.6	29.1	106.0	223.0	194.0	69.0	20.3	8.0	3.5	1.2	0.3	54.6
1964-65	0.2	0.4	25.1	163.0	322.0	158.0	47.3	22.1	15.6	7.6	3.7	1.6	63.8
1965-66	1.2	5.4	66.8	206.2	257.2	161.3	50.6	16.7	8.0	4.2	1.9	1.3	65.0
1966-67	1.3	0.7	2.8	68.0	191.0	231.0	73.8	23.7	9.5	5.2	2.4	1.3	50.8
1967-68	2.9	3.1	18.9	131.0	274.0	150.0	42.3	15.0	6.6	3.7	2.1	1.4	54.2
1968-69	0.9	10.2	23.9	63.9	118.0	86.4	28.5	15.5	6.5	3.4	1.5	0.5	29.9
1969-70	0.3	0.5	26.1	154.0	193.0	165.0	62.9	17.4	6.3	27.7	1.1	0.4	54.5
1970-71	0.2	0.8	2.6	130.0	207.0	85.8	17.1	5.9	2.6	1.3	0.6	0.3	37.8
1971-72	1.0	1.7	2.0	59.5	151.0	87.4	16.6	8.2	3.3	1.5	0.6	1.1	27.8
1972-73	2.2	18.0	16.5	81.3	106.0	67.7	39.1	6.1	1.9	0.7	0.3	-1.0	-1.0
1973-74	-1.0	-1.0	0.7	81.5	119.0	35.8	11.8	2.9	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	0.9	3.4	19.2	100.2	201.9	130.6	40.5	14.1	6.4	5.0	1.4	0.7	43.7

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... KOUTO
 RIVER/COURS D EAU..... BAGOE
 COUNTRY/PAYS..... C.I
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 4740.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1960-61	----	----	----	----	396.0	83.5	
1961-62	31.1	982.6	207.	6.57	240.0	50.6	0.2
1962-63	46.0	1452.7	306.	9.72	392.0	82.7	0.1
1963-64	54.6	1722.3	363.	11.52	353.0	74.5	0.2
1964-65	63.8	2014.6	425.	13.48	506.0	106.8	0.1
1965-66	65.0	2051.9	433.	13.73	433.0	91.4	0.8
1966-67	50.8	1604.9	339.	10.74	310.0	65.4	0.5
1967-68	54.2	1710.8	361.	11.45	396.0	83.5	0.9
1968-69	29.9	943.9	199.	6.32	466.0	98.3	0.6
1969-70	54.5	1720.5	363.	11.51	232.0	48.9	0.3
1970-71	37.8	1193.6	252.	7.99	258.0	54.4	0.3
1971-72	27.8	877.4	185.	5.87	148.0	31.2	0.3
1972-73	----	----	----	----	117.0	24.7	0.0
1973-74	----	----	----	----	186.0	39.2	

GAUGING STATION/STATION DE JAUGEAGE.... MADAROUNFA
 RIVER/COURS D EAU..... G.MARADI
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 5400.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1956-57	-1.0	-1.0	17.4	45.0	24.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	-1.0
1957-58	0.6	0.0	3.5	21.8	12.1	1.8	0.0	0.0	0.0	0.0	0.0	0.0	3.3
1958-59	0.0	0.0	6.6	57.5	8.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	6.0
1960-61	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1961-62	0.0	2.5	10.8	87.0	61.0	1.2	0.3	0.0	0.0	0.0	0.0	0.0	13.5
1962-63	0.0	0.8	11.1	11.6	15.1	0.3	0.0	0.0	0.0	0.0	0.0	0.0	3.2
1963-64	0.0	2.0	11.1	38.3	3.7	0.5	0.0	0.0	0.0	0.0	0.0	0.0	4.6
1964-65	0.0	1.3	20.0	55.6	42.9	0.4	0.0	0.0	0.0	0.0	0.0	0.0	10.0
1965-66	0.0	0.0	7.7	29.1	13.8	0.3	0.0	0.0	0.0	0.0	0.0	0.0	4.2
1966-67	0.0	0.1	7.2	12.9	28.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	4.1
1967-68	0.0	9.1	19.1	43.3	29.1	1.0	0.0	0.0	0.0	0.0	0.0	0.0	8.4
1968-69	0.0	1.9	14.7	10.1	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.4
1969-70	0.0	6.7	11.9	17.8	8.6	1.6	0.0	0.0	0.0	0.0	0.0	0.0	3.8
1970-71	0.0	0.0	34.2	60.8	33.6	0.2	0.0	0.0	0.0	0.0	0.0	0.0	10.7
1971-72	0.0	0.1	12.2	33.3	13.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	4.9
1972-73	2.1	4.2	8.1	14.6	3.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.7
AVG/MOYEN	0.1	2.0	13.0	35.9	20.0	0.6	0.0	0.0	0.0	0.0	0.0	0.0	5.9

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... MOPTI
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 281600.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1922-23	----	----	----	----	3030.0	10.8	
1923-24	----	----	----	----	2775.0	9.9	
1924-25	1457.2	45955.8	163.	5.17	3100.0	11.0	
1925-26	----	----	----	----	3065.0	10.9	
1926-27	----	----	----	----	2730.0	9.7	
1927-28	1379.5	43506.5	154.	4.90	2975.0	10.6	
1928-29	1391.5	43882.3	156.	4.94	3065.0	10.9	
1929-30	----	----	----	----	2830.0	10.0	
1933-34	----	----	----	----	-1.0	-1.0	
1934-35	----	----	----	----	2735.0	9.7	
1935-36	----	----	----	----	2830.0	10.0	
1936-37	----	----	----	----	2950.0	10.5	
1943-44	----	----	----	----	2650.0	9.4	
1944-45	756.0	23843.8	85.	2.68	2380.0	8.5	46.0
1945-46	1063.7	33546.4	119.	3.78	2810.0	10.0	40.0
1946-47	1158.0	36518.6	130.	4.11	2800.0	9.9	61.0
1947-48	860.7	27144.6	96.	3.06	2610.0	9.3	47.0
1948-49	985.9	31091.8	110.	3.50	2610.0	9.3	43.0
1949-50	----	----	----	----	2860.0	10.2	53.0
1950-51	1141.6	36003.6	128.	4.05	2910.0	10.3	47.0
1951-52	1430.2	45104.3	160.	5.08	2955.0	10.5	65.0
1952-53	1328.6	41900.8	149.	4.72	3070.0	10.9	72.0
1953-54	1404.2	44284.4	157.	4.99	3070.0	10.9	74.0
1954-55	1516.1	47813.8	170.	5.38	3070.0	10.9	136.0
1955-56	1448.8	45690.4	162.	5.15	3070.0	10.9	136.0
1956-57	1071.0	33777.6	120.	3.80	2780.0	9.9	102.0
1957-58	1393.8	43955.9	156.	4.95	3220.0	11.4	54.0
1958-59	1328.0	41882.4	149.	4.72	2985.0	10.6	114.0
1959-60	1114.0	35133.7	125.	3.96	2830.0	10.0	48.0
1960-61	1182.4	37288.6	132.	4.20	2832.0	10.1	42.0
1961-62	1053.4	33220.5	118.	3.74	2850.0	10.1	30.0
1962-63	1220.8	38500.2	137.	4.34	2925.0	10.4	35.0
1963-64	1094.1	34505.6	123.	3.89	2815.0	10.0	57.0
1964-65	1303.7	41115.0	146.	4.63	3010.0	10.7	39.0
1965-66	1166.4	36784.1	131.	4.14	2820.0	10.0	66.0
1966-67	1061.3	33470.2	119.	3.77	2820.0	10.0	30.0
1967-68	1271.0	40084.8	142.	4.51	3070.0	10.9	41.0
1968-69	----	----	----	----	2750.0	9.8	39.0
1969-70	----	----	----	----	3314.0	11.8	
1970-71	----	----	----	----	-1.0	-1.0	35.0

GAUGING STATION/STATION DE JAUGEAGE.... NIAMEY
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 70000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1928-29	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	1754.0	1979.0	1942.0	1632.0	-1.0
1929-30	864.0	334.0	297.0	860.0	1190.0	1365.0	1523.0	1671.0	1835.0	2003.0	1927.0	1539.0	1284.0
1930-31	809.0	360.0	410.0	777.0	1192.0	1329.0	1501.0	1677.0	1861.0	1927.0	1750.0	1302.0	1241.2
1931-32	558.0	272.0	347.0	681.0	1057.0	1290.0	1492.0	1647.0	1719.0	1737.0	1490.0	795.0	1090.4
1932-33	316.0	120.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1933-34	-1.0	-1.0	100.0	600.0	1029.0	1220.0	1410.0	1636.0	1763.0	1802.0	1599.0	1026.0	-1.0
1934-35	416.0	145.0	99.0	279.0	879.0	1205.0	1363.0	1579.0	1725.0	1719.0	1308.0	584.0	941.7
1935-36	210.0	71.0	50.0	330.0	921.0	1266.0	1423.0	1600.0	1742.0	1788.0	1496.0	784.0	973.4
1936-37	280.0	108.0	300.0	751.0	1444.0	1336.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1937-38	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1938-39	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1939-40	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1940-41	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	1440.0	1305.0	885.0	437.0	-1.0
1941-42	99.0	33.0	31.0	340.0	726.0	980.0	1202.0	1403.0	1487.0	1353.0	814.0	278.0	728.8
1942-43	77.0	30.0	77.0	400.0	851.0	1039.0	1216.0	1387.0	1406.0	1225.0	626.0	156.0	707.5
1943-44	45.0	28.0	32.0	381.0	1128.0	1221.0	1272.0	1481.0	1610.0	1452.0	859.0	266.0	814.5
1944-45	66.0	29.0	18.0	128.0	586.0	947.0	1178.0	1383.0	1457.0	1158.0	520.0	146.0	634.6
1945-46	42.0	28.0	24.0	50.0	910.0	1276.0	1440.0	1625.0	1775.0	1657.0	1299.0	505.0	885.9
1946-47	111.0	34.0	48.0	459.0	1025.0	1208.0	1355.0	1540.0	1680.0	1788.0	1544.0	834.0	968.8
1947-48	210.0	70.0	29.0	249.0	803.0	1045.0	1201.0	1397.0	1491.0	1278.0	615.0	202.0	715.8
1948-49	51.0	23.0	18.0	491.0	957.0	1170.0	1359.0	1520.0	1657.0	1552.0	1000.0	361.0	846.5
1949-50	97.0	51.0	38.0	143.0	818.0	1105.0	1294.0	1471.0	1579.0	1399.0	819.0	272.0	757.1
1950-51	74.0	31.0	22.0	491.0	1303.0	1360.0	1504.0	1666.0	1835.0	1895.0	1699.0	961.0	1070.0
1951-52	274.0	75.0	185.0	582.0	966.0	1203.0	1393.0	1557.0	1756.0	1885.0	1885.0	1598.0	1113.2
1952-53	863.0	264.0	108.0	449.0	1395.0	1548.0	1571.0	1684.0	1863.0	1953.0	1830.0	1303.0	1235.9
1953-54	541.0	204.0	186.0	822.0	1345.0	1449.0	1574.0	1718.0	1941.0	2016.0	1855.0	1346.0	1249.7
1954-55	577.0	220.0	300.0	794.0	1162.0	1370.0	1555.0	1727.0	1944.0	2065.0	1977.0	1618.0	1275.7
1955-56	898.0	304.0	275.0	792.0	1235.0	1443.0	1624.0	1791.0	2003.0	2133.0	1930.0	1465.0	1324.4
1956-57	667.0	223.0	123.0	456.0	1063.0	1262.0	1396.0	1559.0	1692.0	1692.0	1399.0	650.0	1015.1
1957-58	197.0	78.0	72.0	525.0	1005.0	1263.0	1485.0	1662.0	1879.0	2033.0	1466.0	1614.0	1106.5
1958-59	764.0	281.0	349.0	889.0	1511.0	1348.0	1463.0	1639.0	1797.0	1871.0	1722.0	1159.0	1232.7
1959-60	421.0	106.0	78.0	544.0	1247.0	1290.0	1452.0	1654.0	1796.0	1815.0	1435.0	636.0	1039.5
1960-61	161.0	48.0	53.0	514.0	1029.0	1279.0	1470.0	1665.0	1826.0	1829.0	1528.0	827.0	1019.0
1961-62	250.0	76.2	70.6	458.0	1304.0	1294.0	1422.0	1612.0	1744.0	1647.0	1130.0	374.0	948.4
1962-63	119.0	40.7	52.6	512.0	1234.0	1319.0	1481.0	1667.0	1805.0	2039.0	1745.0	1128.0	1095.1
1963-64	404.0	135.0	106.0	300.0	838.0	1135.0	1325.0	1558.0	1761.0	1828.0	1532.0	686.0	967.3
1964-65	201.0	96.4	97.0	696.0	1394.0	1405.0	1528.0	1738.0	1980.0	2059.0	1787.0	1125.0	1175.5
1965-66	383.0	126.0	84.3	677.0	1516.0	1494.0	1585.0	1739.0	1899.0	1882.0	1402.0	570.0	1113.1
1966-67	166.0	67.0	48.4	168.0	732.0	1170.0	1433.0	1704.0	1914.0	1935.0	1437.0	556.0	944.2
1967-68	163.0	58.0	55.0	427.0	1392.0	1413.0	1609.0	1879.0	2166.0	2306.0	1975.0	1139.0	1215.1
1968-69	357.0	114.0	184.0	648.0	1009.0	1294.0	1549.0	1763.0	1896.0	1702.0	1017.0	321.0	987.8
1969-70	-1.0	-1.0	53.0	581.0	1222.0	1467.0	1648.0	1904.0	2236.0	2285.0	1844.0	847.0	-1.0

GAUGING STATION/STATION DE JAUGEAGE.... MADAROUNFA
 RIVER/COURS D EAU..... G.MARADI
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 5400.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1956-57	----	----	----	----	110.0	20.4	0.0
1957-58	3.3	104.6	19.	0.61	95.0	17.6	0.0
1958-59	6.0	191.0	35.	1.12	220.0	40.7	0.0
1960-61	----	----	----	----	80.0	14.8	0.0
1961-62	13.5	427.8	79.	2.51	450.0	83.3	0.0
1962-63	3.2	102.2	19.	0.60	195.0	36.1	0.0
1963-64	4.6	146.1	27.	0.86	350.0	64.8	0.0
1964-65	10.0	315.8	58.	1.85	254.0	47.0	0.0
1965-66	4.2	133.7	25.	0.79	104.0	19.3	0.0
1966-67	4.1	132.4	25.	0.78	105.0	19.4	0.0
1967-68	8.4	267.0	49.	1.57	200.0	37.0	0.0
1968-69	2.4	76.2	14.	0.45	117.0	21.7	0.0
1969-70	3.8	122.4	23.	0.72	158.0	29.3	0.0
1970-71	10.7	338.4	63.	1.99	413.0	76.5	0.0
1971-72	4.9	155.3	29.	0.91	270.0	50.0	0.0
1972-73	2.7	85.1	16.	0.50	115.0	21.3	0.0

GAUGING STATION/STATION DE JAUERGE.... MOPTI
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 281600.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1922-23	-1.0	162.0	416.0	1247.0	2581.0	2948.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1923-24	-1.0	-1.0	622.0	1810.0	2550.0	2742.0	2571.0	1952.0	779.0	320.0	150.0	70.0	-1.0
1924-25	50.0	350.0	918.0	2300.0	2881.0	3064.0	2935.0	2546.0	1484.0	529.0	270.0	160.0	1457.2
1925-26	100.0	-1.0	792.0	1876.0	2754.0	3009.0	3041.0	2677.0	1813.0	722.0	285.0	120.0	-1.0
1926-27	80.0	-1.0	1151.0	2035.0	2566.0	2680.0	2241.0	1274.0	510.0	230.0	100.0	70.0	-1.0
1927-28	65.0	100.0	878.0	1820.0	2659.0	2939.0	2916.0	2557.0	1690.0	571.0	230.0	130.0	1379.5
1928-29	90.0	270.0	715.0	1775.0	2752.0	3031.0	2976.0	2542.0	1505.0	607.0	285.0	150.0	1391.5
1929-30	105.0	-1.0	1430.0	2372.0	2792.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1933-34	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	1200.0	-1.0	-1.0	-1.0	-1.0
1934-35	-1.0	-1.0	-1.0	1631.0	2529.0	2696.0	2457.0	1580.0	-1.0	-1.0	-1.0	-1.0	-1.0
1935-36	-1.0	50.0	478.0	1726.0	2624.0	2809.0	2680.0	2122.0	998.0	263.0	154.0	95.0	-1.0
1936-37	70.0	279.0	941.0	2069.0	2776.0	2923.0	2834.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1943-44	-1.0	80.0	386.0	1308.0	2293.0	2609.0	2619.0	1237.0	389.0	181.0	103.0	66.0	-1.0
1944-45	52.0	51.0	228.0	899.0	2094.0	2262.0	1998.0	900.0	293.0	151.0	87.0	58.0	756.0
1945-46	43.0	54.0	193.0	1441.0	2550.0	2796.0	2675.0	1932.0	622.0	262.0	125.0	72.0	1063.7
1946-47	77.0	150.0	499.0	1618.0	2556.0	2810.0	2727.0	2053.0	839.0	320.0	159.0	88.0	1158.0
1947-48	60.0	55.0	358.0	1372.0	2186.0	2556.0	2178.0	990.0	279.0	143.0	94.0	58.0	860.7
1948-49	46.0	88.0	758.0	1727.0	2453.0	2578.0	2202.0	1194.0	391.0	195.0	111.0	88.0	985.9
1949-50	67.0	67.0	98.0	-1.0	-1.0	-1.0	-1.0	-1.0	362.0	187.0	107.0	61.0	-1.0
1950-51	49.0	38.0	306.0	1482.0	2527.0	2818.0	2763.0	2167.0	933.0	343.0	171.0	103.0	1141.6
1951-52	73.0	317.0	678.0	1738.0	2535.0	2821.0	2900.0	2718.0	1997.0	888.0	336.0	162.0	1430.2
1952-53	95.0	105.0	514.0	1929.0	2657.0	2906.0	2895.0	2483.0	1467.0	526.0	234.0	133.0	1328.6
1953-54	87.0	236.0	1228.0	2167.0	2803.0	3030.0	2849.0	2289.0	1242.0	506.0	238.0	176.0	1404.2
1954-55	155.0	359.0	1043.0	2208.0	2809.0	3030.0	2951.0	2586.0	1767.0	750.0	328.0	208.0	1516.1
1955-56	161.0	290.0	1198.0	2146.0	2812.0	2993.0	2929.0	2418.0	1435.0	552.0	284.0	168.0	1448.8
1956-57	129.0	128.0	467.0	1386.0	2419.0	2748.0	2545.0	1796.0	707.0	278.0	155.0	95.0	1071.0
1957-58	81.0	118.0	723.0	1944.0	2680.0	2958.0	2991.0	2554.0	1587.0	685.0	270.0	135.0	1393.8
1958-59	145.0	384.0	1070.0	1686.0	2525.0	2950.0	2777.0	2285.0	1264.0	503.0	231.0	117.0	1328.0
1959-60	59.0	160.0	579.0	1627.0	2531.0	2808.0	2593.0	1869.0	671.0	275.0	127.0	70.0	1114.0
1960-61	51.0	110.0	777.0	1858.0	2596.0	2827.0	2627.0	1988.0	802.0	317.0	158.0	78.0	1182.4
1961-62	40.0	52.0	433.0	1853.0	2590.0	2831.0	2484.0	1536.0	451.0	205.0	106.0	60.0	1053.4
1962-63	41.0	109.0	583.0	1672.0	2461.0	2899.0	2782.0	2234.0	1108.0	433.0	225.0	103.0	1220.8
1963-64	91.0	94.0	335.0	1344.0	2374.0	2749.0	2713.0	2052.0	851.0	306.0	140.0	81.0	1094.1
1964-65	41.0	118.0	640.0	1962.0	2732.0	2988.0	2802.0	2258.0	1272.0	482.0	225.0	125.0	1303.7
1965-66	73.0	128.0	975.0	1966.0	2572.0	2795.0	2541.0	1781.0	673.0	291.0	134.0	68.0	1166.4
1966-67	43.0	33.0	340.0	1052.0	2388.0	2774.0	2588.0	2253.0	772.0	293.0	122.0	78.0	1061.3
1967-68	46.0	87.0	460.0	1633.0	2652.0	3030.0	2905.0	2381.0	1240.0	443.0	274.0	102.0	1271.0
1968-69	60.0	320.0	850.0	1736.0	2489.0	2757.0	2243.0	1385.0	-1.0	-1.0	-1.0	-1.0	-1.0
1969-70	-1.0	90.0	781.0	1971.0	2673.0	3173.0	3216.0	2353.0	889.0	352.0	167.0	102.0	-1.0
1970-71	73.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	75.6	152.4	671.3	1740.1	2578.9	2842.6	2689.8	2027.7	1008.2	397.2	187.4	104.5	1206.3

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

1970-71	225.0	79.0	51.0	252.0	838.0	1197.0	1434.0	1680.0	1795.0	1435.0	617.0	179.0	815.1
1971-72	53.0	18.0	47.0	258.0	921.0	1216.0	1478.0	1749.0	1790.0	1302.0	493.0	140.0	788.7
1972-73	43.0	20.0	121.0	690.0	1044.0	1245.0	1399.0	1613.0	1407.0	841.0	296.0	55.0	731.1
1973-74	17.0	8.0	42.0	332.0	892.0	1154.0	1400.0	1463.0	1146.0	556.0	158.0	36.0	600.3
1974-75	12.0	4.5	138.0	366.0	1154.0	1342.0	1593.0	1816.0	1874.0	1329.0	448.0	112.0	849.0
1975-76	40.0	10.0	72.2	542.0	1227.0	1391.0	1586.0	1872.0	2011.0	1686.0	755.0	192.0	948.6
1976-77	62.7	30.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	290.0	106.0	116.4	492.4	1083.1	1270.3	1443.5	1636.4	1761.3	1700.9	1298.9	738.5	994.8

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... NIAMEY
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 70000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1928-29	----	----	----	----	2040.0	2.9	204.0
1929-30	1284.0	40492.2	58.	1.83	2056.0	2.9	305.0
1930-31	1241.2	39144.0	56.	1.77	1945.0	2.8	242.0
1931-32	1090.4	34387.3	49.	1.56	1765.0	2.5	
1932-33	----	----	----	----	-1.0	-1.0	
1933-34	----	----	----	----	1833.0	2.6	69.0
1934-35	941.7	29699.0	42.	1.35	1758.0	2.5	49.0
1935-36	973.4	30697.6	44.	1.39	1810.0	2.6	
1936-37	----	----	----	----	-1.0	-1.0	
1937-38	----	----	----	----	-1.0	-1.0	
1938-39	----	----	----	----	-1.0	-1.0	
1939-40	----	----	----	----	-1.0	-1.0	
1940-41	----	----	----	----	1460.0	2.1	22.0
1941-42	728.8	22984.4	33.	1.04	1510.0	2.2	24.0
1942-43	707.5	22311.7	32.	1.01	1428.0	2.0	18.0
1943-44	814.5	25688.7	37.	1.16	1630.0	2.3	13.0
1944-45	634.6	20014.8	29.	0.91	1488.0	2.1	16.0
1945-46	885.9	27938.2	40.	1.27	1818.0	2.6	
1946-47	968.8	30553.1	44.	1.38	1818.0	2.6	20.0
1947-48	715.8	22574.5	32.	1.02	1510.0	2.2	14.0
1948-49	846.5	26697.8	38.	1.21	1683.0	2.4	
1949-50	757.1	23878.0	34.	1.08	1615.0	2.3	14.0
1950-51	1070.0	33746.1	48.	1.53	1915.0	2.7	
1951-52	1113.2	35107.4	50.	1.59	1923.0	2.7	78.0
1952-53	1235.9	38975.8	56.	1.77	1968.0	2.8	103.0
1953-54	1249.7	39412.1	56.	1.79	2040.0	2.9	146.0
1954-55	1275.7	40232.0	57.	1.82	2088.0	3.0	207.0
1955-56	1324.4	41766.8	60.	1.89	2152.0	3.1	88.0
1956-57	1015.1	32014.2	46.	1.45	1735.0	2.5	44.0
1957-58	1106.5	34897.2	50.	1.58	2056.0	2.9	197.0
1958-59	1232.7	38876.0	56.	1.76	1893.0	2.7	45.0
1959-60	1039.5	32781.6	47.	1.49	1855.0	2.7	32.0
1960-61	1019.0	32137.8	46.	1.46	1880.0	2.7	
1961-62	948.4	29911.3	43.	1.35	1775.0	2.5	23.0
1962-63	1095.1	34537.9	49.	1.56	2056.0	2.9	
1963-64	967.3	30505.8	44.	1.38	1855.0	2.7	54.0
1964-65	1175.5	37071.6	53.	1.68	2072.0	3.0	63.0
1965-66	1113.1	35102.9	50.	1.59	1945.0	2.8	31.0
1966-67	944.2	29776.2	43.	1.35	1968.0	2.8	31.0
1967-68	1215.1	38321.4	55.	1.74	2330.0	3.3	32.0
1968-69	987.8	31152.3	45.	1.41	1923.0	2.7	28.0
1969-70	----	----	----	----	2365.0	3.4	22.0
1970-71	815.1	25707.0	37.	1.16	1825.0	2.6	14.0

1971-72	788.7	24874.0	36.	1.13	1824.0	2.6	14.0
1972-73	731.1	23058.0	33.	1.04	1700.0	2.4	3.0
1973-74	600.3	18932.1	27.	0.86	1512.0	2.2	1.8
1974-75	849.0	26775.3	38.	1.21	1918.0	2.7	0.5
1975-76	948.6	29917.6	43.	1.36	2042.0	2.9	5.7
1976-77	-----	-----	-----	-----	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE.... PANKOUROU
 RIVER/COURS D EAU..... BAGOE
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 31800.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1956-57	4.0	10.4	32.5	404.0	907.0	686.0	225.0	88.0	38.7	21.7	9.3	3.7	202.5
1957-58	3.8	16.4	138.0	768.0	1270.0	1300.0	541.0	185.0	92.0	59.4	19.1	6.7	366.6
1958-59	4.0	17.0	181.0	937.0	1320.0	834.0	296.0	158.0	72.7	36.6	22.6	5.1	323.6
1959-60	5.4	7.4	10.4	562.0	1260.0	986.0	278.0	96.9	42.2	19.0	7.4	5.9	273.3
1960-61	5.6	9.3	165.0	668.0	1190.0	1160.0	310.0	95.8	47.1	21.7	8.4	4.1	307.0
1961-62	5.0	8.1	115.0	670.0	1330.0	582.0	171.0	74.1	24.3	10.0	4.9	3.1	249.7
1962-63	4.9	8.3	53.1	354.0	1080.0	786.0	270.0	142.0	54.3	18.8	9.4	5.9	232.2
1963-64	5.7	9.1	61.5	345.0	886.0	824.0	413.0	117.0	45.2	22.7	10.4	5.4	228.7
1964-65	5.7	7.3	59.7	745.0	-1.0	1150.0	236.0	-1.0	80.0	50.0	26.8	7.6	-1.0
1965-66	4.1	57.4	237.0	579.0	969.0	973.0	393.0	114.0	49.5	17.0	3.1	6.7	283.5
1966-67	8.2	7.6	12.1	177.0	47.0	1010.0	410.0	115.0	50.0	25.0	9.0	0.0	155.9
1967-68	3.5	4.5	61.9	863.0	1590.0	1110.0	310.0	106.0	49.5	30.7	10.6	7.3	345.5
1968-69	10.6	26.2	158.0	568.0	942.0	587.0	248.0	130.0	58.0	24.1	9.0	4.0	230.4
1969-70	-1.0	-1.0	127.0	549.0	-1.0	724.0	426.0	134.0	53.8	19.0	6.1	1.8	-1.0
1970-71	2.1	5.4	46.5	622.0	1410.0	-1.0	-1.0	-1.0	20.0	10.0	5.2	3.0	-1.0
1971-72	2.0	5.5	40.7	374.0	855.0	447.0	114.0	45.7	17.7	7.2	3.6	2.4	159.5
1972-73	7.6	47.9	53.8	208.0	442.0	228.0	96.1	30.4	15.0	9.9	2.0	1.8	95.2
1973-74	1.7	3.4	13.0	306.0	383.0	151.0	57.0	12.7	4.8	1.8	1.9	0.2	78.0
1974-75	3.1	9.8	77.1	371.0	581.0	327.0	94.9	26.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	4.8	14.4	86.4	530.0	968.3	770.2	271.6	98.2	45.2	22.4	9.3	4.1	235.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... PANKOUROU
 RIVER/COURS D EAU..... BAGOE
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 31800.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1956-57	202.5	6386.8	201.	6.37	975.0	30.7	2.0
1957-58	366.6	11561.6	364.	11.53	1453.0	45.7	3.4
1958-59	323.6	10207.1	321.	10.18	1463.0	46.0	3.4
1959-60	273.3	8621.4	271.	8.60	1321.0	41.5	4.0
1960-61	307.0	9684.1	305.	9.66	1444.0	45.4	2.5
1961-62	249.7	7877.4	248.	7.86	1502.0	47.2	1.2
1962-63	232.2	7323.4	230.	7.30	1203.0	37.8	3.4
1963-64	228.7	7213.8	227.	7.19	1019.0	32.0	2.1
1964-65	----	----	----	----	2030.0	63.8	3.4
1965-66	283.5	8942.5	281.	8.92	1181.0	37.1	3.4
1966-67	155.9	4916.7	155.	4.90	1263.0	39.7	0.8
1967-68	345.5	10898.3	343.	10.87	1674.0	52.6	4.4
1968-69	230.4	7266.1	228.	7.25	1000.0	31.4	
1969-70	----	----	----	----	-1.0	-1.0	0.9
1970-71	----	----	----	----	1515.0	47.6	0.9
1971-72	159.5	5032.0	158.	5.02	905.0	28.5	1.8
1972-73	95.2	3002.4	94.	2.99	520.0	16.4	1.0
1973-74	78.0	2461.1	77.	2.45	517.0	16.3	
1974-75	----	----	----	----	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE..... PONONDOUGOU
 RIVER/COURS D EAU..... NIANGBOUE
 COUNTRY/PAYS..... C.I
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 706.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1956-57	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1957-58	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1958-59	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1959-60	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1960-61	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.7	0.2	0.1	0.0	-1.0
1961-62	0.0	0.0	0.4	4.3	19.1	8.6	3.1	1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1962-63	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	2.8	2.0	0.3	0.0	-1.0
1963-64	0.0	0.0	2.5	14.1	23.4	19.0	7.2	3.0	1.1	0.7	0.1	0.0	5.9
1964-65	0.0	0.0	0.0	12.5	23.6	19.0	7.0	2.6	1.6	0.2	0.0	0.0	5.5
1965-66	0.0	0.0	6.9	9.6	11.1	14.0	12.5	3.5	0.2	0.0	0.0	0.1	4.8
1966-67	0.9	2.3	3.7	7.9	10.5	15.5	13.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1967-68	0.0	5.6	6.0	10.8	16.0	10.2	5.7	2.8	-1.0	-1.0	-1.0	-1.0	-1.0
1968-69	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1969-70	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.6	0.3	0.1	0.0	-1.0
1970-71	0.0	0.0	0.1	5.2	15.3	10.6	4.5	1.7	-1.0	-1.0	0.0	0.0	-1.0
1971-72	0.0	0.0	0.0	9.1	19.2	-1.0	-1.0	-1.0	0.4	0.2	0.0	-1.0	-1.0
1972-73	0.1	0.2	0.8	5.0	3.5	3.9	2.1	0.6	0.4	0.2	0.1	0.0	1.4
1973-74	0.0	0.0	-1.0	-1.0	-1.0	5.6	3.2	0.7	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	0.1	0.8	2.2	8.7	15.7	11.8	6.5	1.9	0.9	0.4	0.0	0.0	4.1

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... POMONDOUNGOU
 RIVER/COURS D EAU..... NIANGBOUE
 COUNTRY/PAYS..... C.I
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 706.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1956-57	----	----	----	----	20.5	29.0	0.1
1957-58	----	----	----	----	35.4	50.1	0.2
1958-59	----	----	----	----	10.1	14.3	0.1
1959-60	----	----	----	----	30.3	42.9	0.0
1960-61	----	----	----	----	37.7	53.4	0.0
1961-62	----	----	----	----	32.8	46.5	0.0
1962-63	----	----	----	----	37.7	53.4	0.0
1963-64	5.9	186.8	265.	8.39	36.1	51.1	0.0
1964-65	5.5	174.7	248.	7.85	35.0	49.6	0.0
1965-66	4.8	152.1	216.	6.83	21.5	30.5	0.0
1966-67	----	----	----	----	16.6	23.5	0.0
1967-68	----	----	----	----	22.3	31.6	0.0
1968-69	----	----	----	----	-1.0	-1.0	
1969-70	----	----	----	----	-1.0	-1.0	0.0
1970-71	----	----	----	----	-1.0	-1.0	0.0
1971-72	----	----	----	----	23.8	33.7	
1972-73	1.4	44.4	63.	1.99	9.9	14.0	0.0
1973-74	----	----	----	----	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE.... SELINGUE
 RIVER/COURS D EAU..... SANKARANI
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 34200.0

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I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1964-65	35.0	95.0	232.0	1047.0	1292.0	980.0	372.0	234.0	149.0	83.0	46.0	28.0	382.7
1965-66	32.0	118.0	539.0	641.0	1064.0	859.0	325.0	141.0	74.0	40.0	25.0	27.0	323.7
1966-67	28.0	46.0	99.0	676.0	1126.0	1129.0	469.0	179.0	89.0	44.0	25.0	15.0	327.0
1967-68	51.0	54.0	251.0	976.0	1414.0	1676.0	537.0	220.0	120.0	75.0	49.0	38.0	455.0
1968-69	42.0	131.0	212.0	888.0	1196.0	935.0	448.0	199.0	101.0	53.0	37.0	32.0	356.1
1969-70	22.0	72.0	484.0	1169.0	1732.0	1173.0	779.0	272.0	140.0	78.0	47.0	36.0	500.3
1970-71	31.0	72.0	132.0	568.0	1347.0	659.0	249.0	115.0	56.0	41.0	27.0	31.0	277.3
1971-72	35.0	40.0	116.0	566.0	1288.0	941.0	245.0	128.0	63.0	37.0	26.0	39.0	293.6
1972-73	69.0	183.0	258.0	683.0	911.0	-1.0	212.0	226.0	49.0	24.0	18.0	15.0	-1.0
1973-74	10.0	30.0	43.0	955.0	1053.0	493.0	267.0	79.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	35.5	84.1	236.6	816.9	1242.3	982.7	390.3	179.3	93.4	52.7	33.3	29.0	348.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... SELINGUE
 RIVER/COURS D EAU..... SANKARANI
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 34200.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG.AN.DISCH. DEBITS MOY.AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1964-65	382.7	12070.4	353.	11.19	-1.0	-1.0	
1965-66	323.7	10209.7	299.	9.47	-1.0	-1.0	
1966-67	327.0	10314.9	302.	9.56	-1.0	-1.0	
1967-68	455.0	14351.5	420.	13.31	2050.0	59.9	
1968-69	356.1	11232.0	328.	10.41	1395.0	40.8	22.0
1969-70	500.3	15778.5	461.	14.63	-1.0	-1.0	
1970-71	277.3	8745.9	256.	8.11	-1.0	-1.0	
1971-72	293.6	9261.0	271.	8.59	-1.0	-1.0	
1972-73	----	----	----	----	-1.0	-1.0	
1973-74	----	----	----	----	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE.... SIGUIRI
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 70000.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1952-53	55.0	145.0	845.0	1882.0	2905.0	3213.0	1172.0	489.0	286.0	135.0	89.0	52.0	939.0
1953-54	65.5	499.0	1306.0	2811.0	3873.0	3225.0	1209.0	593.0	343.0	187.0	105.0	113.0	1194.1
1954-55	146.0	466.0	1209.0	2401.0	4054.0	2979.0	1747.0	917.0	435.0	228.0	157.0	107.0	1237.1
1955-56	159.0	588.0	1342.0	2630.0	4274.0	3824.0	1577.0	733.0	400.0	216.0	124.0	87.0	1329.5
1956-57	50.0	163.0	717.0	1342.0	3144.0	2608.0	942.0	472.0	223.0	91.0	46.0	58.0	821.3
1957-58	40.0	251.0	957.0	2190.0	4004.0	4211.0	1942.0	674.0	364.0	180.0	62.5	73.5	1245.7
1958-59	221.0	654.0	798.0	890.0	2848.0	3000.0	1300.0	758.0	366.0	171.0	66.0	32.0	925.3
1959-60	65.0	310.0	1013.0	1702.0	4002.0	2286.0	1054.0	461.0	211.0	80.0	37.0	26.0	937.2
1960-61	48.0	258.0	862.0	2564.0	3991.0	-1.0	1208.0	495.0	223.0	90.0	34.5	21.0	-1.0
1961-62	38.0	68.0	621.0	1775.0	2976.0	1340.0	657.0	274.0	102.0	38.0	20.0	19.0	660.6
1962-63	49.0	185.0	782.0	2257.0	4836.0	3590.0	1477.0	626.0	-1.0	-1.0	-1.0	49.0	-1.0
1963-64	-1.0	-1.0	569.0	1546.0	2902.0	3607.0	1348.0	464.0	-1.0	-1.0	-1.0	49.0	-1.0
1964-65	-1.0	392.0	867.0	1855.0	3275.0	3101.0	896.0	563.0	-1.0	-1.0	-1.0	-1.0	-1.0
1965-66	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1966-67	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1967-68	-1.0	-1.0	-1.0	1902.0	4032.0	5225.0	1593.0	1266.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	85.1	331.5	914.4	1981.9	3651.1	3246.8	1294.4	627.5	295.3	141.6	74.1	57.2	1058.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... SIGUIRI
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 70000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1952-53	939.0	29612.3	423.	13.41	3942.0	56.3	
1953-54	1194.1	37657.9	538.	17.06	4265.0	60.9	
1954-55	1237.1	39015.2	557.	17.67	4420.0	63.1	
1955-56	1329.5	41927.1	599.	18.99	5460.0	78.0	
1956-57	821.3	25901.5	370.	11.73	4404.0	62.9	
1957-58	1245.7	39285.9	561.	17.80	4692.0	67.0	
1958-59	925.3	29181.3	417.	13.22	-1.0	-1.0	
1959-60	937.2	29557.1	422.	13.39	-1.0	-1.0	
1960-61	----	----	----	----	-1.0	-1.0	
1961-62	660.6	20834.7	298.	9.44	-1.0	-1.0	
1962-63	----	----	----	----	-1.0	-1.0	
1963-64	----	----	----	----	-1.0	-1.0	
1964-65	----	----	----	----	-1.0	-1.0	
1965-66	----	----	----	----	-1.0	-1.0	
1966-67	----	----	----	----	-1.0	-1.0	
1967-68	----	----	----	----	6700.0	95.7	

GAUGING STATION/STATION DE JAUGEAGE.... TAMOU
 RIVER/COURS D EAU..... DIAMANGOU
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 4030.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1962-63	-1.0	-1.0	-1.0	-1.0	47.0	3.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1963-64	0.0	0.0	1.5	9.9	10.1	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1.8
1964-65	0.0	0.0	4.1	30.6	44.7	4.1	0.0	0.0	0.0	0.0	0.0	0.0	6.9
1965-66	0.0	0.6	1.8	2.4	7.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.0
1966-67	0.0	2.8	1.3	10.1	13.8	6.6	0.3	0.0	0.0	0.0	0.0	0.0	2.9
1967-68	0.0	0.2	1.6	5.0	22.0	3.3	0.0	0.0	0.0	0.0	0.0	0.0	2.6
1968-69	0.0	3.1	1.6	0.2	0.3	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.4
1969-70	0.0	0.2	5.4	12.0	8.7	1.7	0.0	0.0	0.0	0.0	0.0	0.0	2.3
1970-71	-1.0	-1.0	4.0	41.5	7.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1971-72	-1.0	-1.0	41.1	27.1	14.4	0.7	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1972-73	0.0	0.0	3.0	1.3	1.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.5
1973-74	0.0	3.0	20.7	22.4	3.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	4.1
1974-75	0.0	0.0	4.7	25.9	7.0	0.8	0.0	0.0	0.0	0.0	0.0	0.0	3.1
1975-76	1.2	0.2	3.7	5.4	12.4	2.6	0.1	0.0	0.0	0.0	0.0	0.0	2.1
AVG/MOYEN	0.1	0.9	7.2	14.9	14.3	1.8	0.0	0.0	0.0	0.0	0.0	0.0	3.2

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... TAMOU
 RIVER/COURS D EAU..... DIAMANGOU
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 4030.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1962-63	----	----	----	----	79.6	19.8	
1963-64	1.8	57.5	14.	0.45	17.9	4.4	0.0
1964-65	6.9	219.4	54.	1.73	81.1	20.1	0.0
1965-66	1.0	31.7	8.	0.25	15.4	3.8	0.0
1966-67	2.9	91.7	23.	0.72	36.6	9.1	0.0
1967-68	2.6	84.3	21.	0.66	35.3	8.8	0.0
1968-69	0.4	14.1	4.	0.11	9.7	2.4	0.0
1969-70	2.3	73.5	18.	0.58	27.7	6.9	0.0
1970-71	----	----	----	----	85.9	21.3	0.0
1971-72	----	----	----	----	101.0	25.1	0.0
1972-73	0.5	16.0	4.	0.13	8.9	2.2	0.0
1973-74	4.1	132.1	33.	1.04	48.4	12.0	0.0
1974-75	3.1	100.9	25.	0.79	61.4	15.2	0.0
1975-76	2.1	67.2	17.	0.53	27.7	6.9	0.0

GAUGING STATION/STATION DE JAUGEAGE..... TERA
 RIVER/COURS D EAU..... DARGOL
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 2750.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

**

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1961-62	0.0	0.0	4.4	51.7	27.6	1.1	0.0	0.0	0.0	0.0	0.0	0.0	7.0
1962-63	0.0	1.1	1.3	10.6	12.2	2.7	0.0	0.0	0.0	0.0	0.0	0.0	2.3
1963-64	0.0	11.5	12.6	13.9	5.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	3.6
1964-65	0.0	5.0	16.0	42.5	32.7	0.7	0.0	0.0	0.0	0.0	0.0	0.0	8.0
1965-66	0.0	0.0	1.5	8.6	13.3	1.0	0.3	0.0	0.0	0.0	0.0	0.0	2.0
1966-67	0.0	0.0	1.1	2.8	12.1	2.6	0.2	0.0	0.0	0.0	0.0	0.0	1.5
1967-68	0.0	0.1	1.0	23.4	23.0	1.7	0.1	0.0	0.0	0.0	0.0	0.0	4.1
1968-69	0.0	0.6	4.3	5.2	1.0	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.9
1969-70	0.0	0.0	3.0	36.8	9.8	2.7	0.3	0.0	0.0	0.0	0.0	0.0	4.3
1970-71	0.0	0.4	1.3	19.9	9.4	2.9	0.1	0.0	0.0	0.0	0.0	0.0	2.8
1971-72	0.0	0.9	12.0	5.6	7.5	0.6	0.0	0.0	0.0	0.0	0.0	0.0	2.2
1972-73	0.0	3.3	7.9	5.2	5.4	0.4	0.0	0.0	0.0	0.0	0.0	0.0	1.8
1973-74	0.0	0.5	6.2	24.4	1.9	0.5	0.0	0.0	0.0	0.0	0.0	0.0	2.7
1974-75	0.0	0.0	23.0	10.8	4.5	0.4	0.0	0.0	0.0	0.0	0.0	0.0	3.2
1975-76	0.0	0.0	6.1	4.5	12.6	1.5	0.0	0.0	0.0	0.0	0.0	0.0	2.0
AVG/MOYEN	0.0	1.5	6.7	17.7	11.8	1.2	0.0	0.0	0.0	0.0	0.0	0.0	3.2

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... TERA
 RIVER/COURS D EAU..... DARGOL
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 2750.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1961-62	7.0	222.8	81.	2.57	126.0	45.8	0.0
1962-63	2.3	73.3	27.	0.85	46.6	16.9	0.0
1963-64	3.6	114.8	42.	1.32	70.5	25.6	0.0
1964-65	8.0	254.6	93.	2.94	136.0	49.5	0.0
1965-66	2.0	64.9	24.	0.75	43.8	15.9	0.0
1966-67	1.5	49.4	18.	0.57	43.0	15.6	0.0
1967-68	4.1	129.5	47.	1.49	96.0	34.9	0.0
1968-69	0.9	29.6	11.	0.34	16.0	5.8	0.0
1969-70	4.3	138.2	50.	1.59	160.0	58.2	0.0
1970-71	2.8	89.3	32.	1.03	77.1	28.0	0.0
1971-72	2.2	69.9	25.	0.81	21.5	7.8	0.0
1972-73	1.8	58.3	21.	0.67	37.5	13.6	0.0
1973-74	2.7	88.0	32.	1.02	74.2	27.0	0.0
1974-75	3.2	101.7	37.	1.17	65.1	23.7	0.0
1975-76	2.0	64.9	24.	0.75	34.3	12.5	0.0

GAUGING STATION/STATION DE JAUGEAGE..... TILEMBEYA
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 144000.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M³/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1922-23	-1.0	120.0	390.0	1136.0	2670.0	3272.0	2051.0	881.0	430.0	224.0	120.0	107.0	-1.0
1923-24	129.0	154.0	591.0	1694.0	2955.0	2942.0	1814.0	910.0	345.0	185.0	73.0	38.0	985.8
1924-25	37.0	62.0	857.0	2631.0	3406.0	3403.0	2171.0	982.0	422.0	247.0	198.0	154.0	1214.1
1925-26	130.0	200.0	1039.0	2264.0	3343.0	3443.0	2896.0	1142.0	569.0	356.0	209.0	144.0	1311.2
1926-27	118.0	285.0	1212.0	2220.0	3141.0	2870.0	1354.0	717.0	401.0	241.0	137.0	79.0	1064.5
1927-28	96.0	181.0	865.0	1860.0	3093.0	3380.0	3031.0	1152.0	533.0	324.0	186.0	107.0	1234.0
1928-29	170.0	304.0	679.0	2369.0	3406.0	3420.0	2306.0	946.0	513.0	341.0	230.0	178.0	1238.5
1939-40	150.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	382.0	239.0	142.0	98.0	-1.0
1940-41	83.0	121.0	499.0	1450.0	2129.0	2274.0	1454.0	583.0	319.0	211.0	135.0	93.0	779.2
1941-42	81.0	169.0	545.0	1208.0	2800.0	2516.0	1260.0	565.0	311.0	201.0	123.0	96.0	822.9
1942-43	124.0	223.0	428.0	1246.0	2504.0	1493.0	981.0	498.0	261.0	160.0	99.0	64.0	673.4
1943-44	61.0	149.0	424.0	1065.0	2817.0	2841.0	1610.0	570.0	270.0	158.0	92.0	61.0	843.1
1944-45	58.0	88.0	287.0	962.0	2518.0	2132.0	1008.0	446.0	266.0	137.0	82.0	52.0	669.6
1945-46	35.0	101.0	247.0	1455.0	2773.0	2877.0	1407.0	501.0	247.0	148.0	82.0	58.0	827.5
1946-47	89.0	191.0	527.0	1536.0	2957.0	3251.0	2039.0	715.0	347.0	213.0	127.0	66.0	1004.8
1947-48	55.0	57.0	459.0	1479.0	2720.0	2905.0	973.0	411.0	189.0	122.0	71.0	46.0	790.5
1948-49	34.0	154.0	899.0	2030.0	3319.0	3042.0	1530.0	592.0	300.0	195.0	108.0	98.0	1025.0
1949-50	81.0	134.0	264.0	1634.0	3288.0	2634.0	1056.0	512.0	290.0	150.0	80.0	55.0	848.1
1950-51	45.0	60.0	381.0	1400.0	2997.0	3396.0	1933.0	603.0	301.0	172.0	60.0	50.0	949.8
1952-53	90.0	116.0	563.0	1783.0	2933.0	3233.0	1855.0	755.0	378.0	213.0	133.0	88.0	1011.6
1953-54	69.0	248.0	1225.0	2333.0	3335.0	3270.0	1802.0	812.0	426.0	241.0	154.0	129.0	1170.3
1954-55	115.0	343.0	1008.0	2424.0	3309.0	3254.0	2371.0	1317.0	558.0	312.0	177.0	154.0	1278.5
1955-56	128.0	265.0	1164.0	2246.0	3273.0	3389.0	2106.0	949.0	474.0	260.0	167.0	119.0	1211.6
1956-57	84.0	107.0	501.0	1235.0	2685.0	3031.0	1371.0	582.0	309.0	149.0	86.0	57.0	849.7
1957-58	48.0	112.0	692.0	2094.0	3246.0	3411.0	2694.0	1062.0	454.0	269.0	113.0	91.0	1190.5
1958-59	115.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	89.0	164.3	656.0	1739.7	2984.0	2986.6	1794.7	758.4	371.8	218.7	127.3	91.2	998.5

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... TILEMBEYA
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 144000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1922-23	----	----	----	----	3316.0	23.0	87.0
1923-24	985.8	31089.2	216.	6.85	3401.0	23.6	35.0
1924-25	1214.1	38289.9	266.	8.43	3435.0	23.9	
1925-26	1311.2	41351.5	287.	9.11	3469.0	24.1	113.0
1926-27	1064.5	33572.7	233.	7.39	3350.0	23.3	72.0
1927-28	1234.0	38915.4	270.	8.57	3401.0	23.6	
1928-29	1238.5	39057.3	271.	8.60	3435.0	23.9	
1939-40	----	----	----	----	-1.0	-1.0	80.0
1940-41	779.2	24574.4	171.	5.41	2396.0	16.6	73.0
1941-42	822.9	25951.5	180.	5.71	3197.0	22.2	80.0
1942-43	673.4	21236.8	147.	4.68	2933.0	20.4	52.0
1943-44	843.1	26590.1	185.	5.86	3180.0	22.1	50.0
1944-45	669.6	21118.6	147.	4.65	3032.0	21.1	32.0
1945-46	827.5	26098.6	181.	5.75	3197.0	22.2	47.0
1946-47	1004.8	31688.4	220.	6.98	3282.0	22.8	44.0
1947-48	790.5	24931.8	173.	5.49	3316.0	23.0	30.0
1948-49	1025.0	32327.0	224.	7.12	3418.0	23.7	68.0
1949-50	848.1	26747.7	186.	5.89	3367.0	23.4	
1950-51	949.8	29953.9	208.	6.60	3418.0	23.7	
1952-53	1011.6	31903.9	222.	7.03	3350.0	23.3	51.0
1953-54	1170.3	36907.6	256.	8.13	3384.0	23.5	85.0
1954-55	1278.5	40318.7	280.	8.88	3401.0	23.6	91.0
1955-56	1211.6	38211.1	265.	8.41	3435.0	23.9	63.0
1956-57	849.7	26797.7	186.	5.90	3333.0	23.1	41.0
1957-58	1190.5	37543.6	261.	8.27	3418.0	23.7	79.0
1958-59	----	----	----	----	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE.... TOMBOUGOU
 RIVER/COURS D EAU..... BAGOE
 COUNTRY/PAYS..... C.I
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 2580.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1955-56	2.7	24.0	111.5	192.0	-1.0	-1.0	-1.0	10.5	4.0	2.0	2.0	3.2	-1.0
1956-57	2.6	2.5	2.9	35.6	141.5	77.6	15.6	4.2	3.2	2.7	2.1	2.0	24.3
1957-58	2.1	3.4	19.6	123.0	197.0	117.0	42.3	14.6	8.1	5.1	2.5	2.1	44.7
1958-59	2.4	4.3	13.8	45.1	76.0	54.8	15.7	7.3	2.6	1.7	0.5	0.3	18.7
1959-60	2.4	10.3	64.4	159.5	58.6	11.7	3.5	3.5	0.9	0.2	0.1	0.5	26.2
1960-61	0.4	0.7	39.3	41.0	181.5	77.5	15.7	4.2	1.6	0.4	0.1	0.0	30.1
1961-62	0.0	0.0	8.7	58.5	138.0	39.5	9.6	2.6	8.0	6.3	5.7	4.5	23.4
1962-63	7.3	7.1	10.0	37.3	194.4	74.0	30.0	12.9	4.4	3.7	-1.0	-1.0	-1.0
1963-64	-1.0	-1.0	16.9	74.5	125.0	124.0	36.3	9.3	4.1	6.1	8.4	7.4	-1.0
1964-65	6.9	7.9	12.7	126.4	146.6	70.8	21.6	10.1	8.2	3.4	7.6	6.3	35.7
1965-66	5.8	7.3	16.0	125.4	132.8	107.3	47.4	7.9	3.2	2.3	6.4	9.1	39.2
1966-67	14.7	20.7	29.5	91.4	168.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1967-68	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1968-69	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1969-70	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	26.7	19.6	17.7	16.2	-1.0
1970-71	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	4.3	3.9	4.4	-1.0
1971-72	5.9	6.9	6.3	90.5	215.0	55.0	15.4	10.1	0.9	0.3	0.1	0.4	33.8
1972-73	0.6	7.6	8.8	36.5	58.5	20.5	6.3	2.3	0.6	0.2	0.0	0.0	11.8
1973-74	0.0	-1.0	0.5	59.3	-1.0	7.4	3.8	1.7	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	3.8	7.8	24.0	86.3	141.0	64.3	20.2	7.2	5.4	3.8	4.0	4.0	31.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... TOMBOUGOU
 RIVER/COURS D EAU..... BAGOE
 COUNTRY/PAYS..... C.I
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 2580.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG.AN.DISCH. DEBITS MOY.AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1955-56	----	----	----	----	-1.0	-1.0	
1956-57	24.3	768.6	298.	9.45	230.0	89.1	1.9
1957-58	44.7	1410.7	547.	17.34	365.0	141.5	
1958-59	18.7	589.9	229.	7.25	148.0	57.4	
1959-60	26.2	829.3	321.	10.19	192.0	74.4	
1960-61	30.1	952.3	369.	11.71	395.0	153.1	
1961-62	23.4	739.5	287.	9.09	185.0	71.7	
1962-63	----	----	----	----	355.0	137.6	
1963-64	----	----	----	----	270.0	104.7	
1964-65	35.7	1126.0	436.	13.84	196.0	76.0	2.4
1965-66	39.2	1237.5	480.	15.21	141.0	54.7	2.1
1966-67	----	----	----	----	321.0	124.4	
1967-68	----	----	----	----	-1.0	-1.0	
1968-69	----	----	----	----	-1.0	-1.0	
1969-70	----	----	----	----	240.0	93.0	
1970-71	----	----	----	----	-1.0	-1.0	3.8
1971-72	33.8	1069.0	414.	13.14	324.0	125.6	0.0
1972-73	11.8	372.9	145.	4.58	98.8	38.3	0.0
1973-74	----	----	----	----	121.0	46.9	

GAUGING STATION/STATION DE JAUGEAGE.... TOSSAYE
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 355000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1948-49	-1.0	-1.0	100.0	631.0	1185.0	1517.0	1744.0	1893.0	1915.0	1490.0	792.0	237.0	-1.0
1949-50	80.0	50.0	50.0	265.0	945.0	1710.0	1640.0	1795.0	1756.0	1251.0	540.0	146.0	852.3
1950-51	55.0	45.0	45.0	380.0	1185.0	1577.0	1824.0	1984.0	2142.0	2044.0	1489.0	666.0	1119.6
1951-52	161.0	85.0	257.0	700.0	1232.0	1662.0	1780.0	1937.0	2095.0	2180.0	1975.0	1443.0	1292.2
1952-53	630.0	178.0	126.0	597.0	1332.0	1670.0	1856.0	2013.0	2187.0	2143.0	1733.0	1064.0	1294.0
1953-54	354.0	129.0	303.0	1020.0	1467.0	1716.0	1897.0	2072.0	2224.0	2160.0	1742.0	1085.0	1347.4
1954-55	406.0	201.0	358.0	908.0	1410.0	1693.0	1904.0	2093.0	2290.0	2289.0	1944.0	1358.0	1404.5
1955-56	697.0	267.0	361.0	988.0	1445.0	1715.0	1922.0	2119.0	2283.0	2232.0	1757.0	1169.0	1412.9
1956-57	476.0	170.0	143.0	487.0	1067.0	1483.0	1720.0	1879.0	1945.0	1705.0	1148.0	457.0	1056.6
1957-58	148.0	77.0	170.0	651.0	1253.0	1567.0	1765.0	1955.0	2142.0	2169.0	1897.0	1308.0	1258.5
1958-59	546.0	236.0	412.0	919.0	1315.0	1581.0	1777.0	1941.0	2057.0	1993.0	1501.0	890.0	1264.0
1959-60	279.0	90.0	157.0	593.0	1214.0	1562.0	1779.0	1837.0	2020.0	1753.0	1150.0	425.0	1071.5
1960-61	124.0	60.0	173.0	682.0	1263.0	1565.0	1774.0	1979.0	2066.0	1866.0	1309.0	571.0	1119.3
1961-62	199.0	100.0	97.8	495.0	1184.0	1536.0	1781.0	1933.0	1923.0	1504.0	818.0	773.0	1028.6
1962-63	157.0	130.0	150.0	558.0	1242.0	1565.0	1815.0	2023.0	2183.0	2042.0	1577.0	839.0	1190.0
1963-64	279.0	144.0	116.0	369.0	1015.0	1436.0	1687.0	1903.0	2033.0	1830.0	1242.0	449.0	1041.9
1964-65	175.0	106.0	185.0	665.0	1292.0	1632.0	1870.0	2120.0	2203.0	2074.0	1607.0	818.0	1228.9
1965-66	267.0	141.0	198.0	806.0	1444.0	1698.0	1916.0	2082.0	2118.0	1761.0	1090.0	385.0	1158.8
1966-67	167.0	107.0	124.0	308.0	860.0	1802.0	1815.0	2043.0	2100.0	1828.0	1101.0	375.0	1052.5
1967-68	166.0	60.0	98.6	468.0	1237.0	1689.0	1939.0	2227.0	2375.0	2211.0	1632.0	790.0	1241.0
1968-69	265.0	112.0	345.0	763.0	1320.0	1675.0	1878.0	2030.0	1958.0	1460.0	716.0	266.0	1065.6
1969-70	188.0	119.0	153.0	778.0	1495.0	1712.0	1922.0	2197.0	2349.0	2063.0	1453.0	604.0	1252.7
1970-71	212.0	127.0	69.0	376.0	1139.0	1616.0	1887.0	2034.0	1837.0	1157.0	465.0	190.0	925.7
1971-72	75.0	23.0	53.6	438.0	1146.0	1577.0	1805.0	1932.0	1682.0	1063.0	380.0	142.0	859.7
1972-73	61.2	40.3	382.0	838.0	1348.0	1673.0	1853.0	1751.0	1307.0	679.0	291.0	112.0	861.2
1973-74	36.0	11.0	10.0	183.0	850.0	1359.0	1504.0	1328.0	894.0	395.0	138.0	43.0	562.5
1974-75	13.0	4.0	3.5	363.0	1184.0	1588.0	1803.0	1917.0	1641.0	922.0	287.0	85.2	817.5
1975-76	27.5	7.6	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	231.2	104.4	171.8	601.0	1224.7	1613.9	1809.5	1963.5	1989.8	1713.4	1176.8	618.1	1101.5

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... TOSSAYE
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 355000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1948-49	----	----	----	----	1964.0	5.5	
1949-50	852.3	26879.1	76.	2.40	1845.0	5.2	
1950-51	1119.6	35309.8	99.	3.15	2156.0	6.1	50.0
1951-52	1292.2	40752.3	115.	3.64	2196.0	6.2	105.0
1952-53	1294.0	40810.2	115.	3.65	2220.0	6.3	110.0
1953-54	1347.4	42492.1	120.	3.80	2252.0	6.3	183.0
1954-55	1404.5	44292.3	125.	3.96	2332.0	6.6	213.0
1955-56	1412.9	44557.7	126.	3.98	2305.0	6.5	103.0
1956-57	1056.6	33323.0	94.	2.98	1971.0	5.6	74.0
1957-58	1258.5	39688.0	112.	3.55	2204.0	6.2	
1958-59	1264.0	39861.5	112.	3.56	2092.0	5.9	68.0
1959-60	1071.5	33793.4	95.	3.02	2052.0	5.8	60.0
1960-61	1119.3	35299.2	99.	3.15	-1.0	-1.0	
1961-62	1028.6	32439.5	91.	2.90	-1.0	-1.0	
1962-63	1190.0	37530.4	106.	3.35	-1.0	-1.0	
1963-64	1041.9	32857.8	93.	2.93	-1.0	-1.0	
1964-65	1228.9	38755.1	109.	3.46	-1.0	-1.0	
1965-66	1158.8	36544.9	103.	3.26	-1.0	-1.0	
1966-67	1052.5	33191.6	93.	2.96	-1.0	-1.0	
1967-68	1241.0	39137.7	110.	3.50	2370.0	6.7	
1968-69	1065.6	33606.8	95.	3.00	-1.0	-1.0	
1969-70	1252.7	39506.7	111.	3.53	2340.0	6.6	
1970-71	925.7	29194.4	82.	2.61	-1.0	-1.0	
1971-72	859.7	27112.0	76.	2.42	-1.0	-1.0	
1972-73	861.2	27161.6	77.	2.43	-1.0	-1.0	
1973-74	562.5	17741.6	50.	1.56	-1.0	-1.0	
1974-75	817.5	25782.5	73.	2.30	-1.0	-1.0	
1975-76	----	----	----	----	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE.... TSERNAOUA
 RIVER/COURS D EAU..... MAGGIA
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 2525.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1960-61	0.0	0.3	1.7	0.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1964-65	0.0	3.3	17.0	9.4	9.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2
1966-67	0.0	0.3	0.3	4.6	4.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	0.8
1967-68	0.0	2.0	5.4	5.8	4.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.4
1968-69	0.0	0.1	1.4	3.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
1969-70	-1.0	-1.0	6.5	10.6	3.1	0.2	0.0	0.0	0.0	0.0	0.0	0.0	-1.0
1970-71	0.0	2.4	14.2	8.5	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	2.2
1971-72	0.0	0.0	1.3	6.8	1.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
1972-73	0.0	6.2	0.6	3.6	2.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.0
1973-74	0.0	0.2	7.0	11.5	1.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.6
1974-75	0.0	0.0	25.4	32.2	9.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	5.6
AVG/MOYEN	0.0	1.4	7.3	8.8	3.6	0.1	0.0	0.0	0.0	0.0	0.0	0.0	1.7

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... TSERNAOUA
 RIVER/COURS D EAU..... MAGGIA
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 2525.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1960-61	0.2	7.3	3.	0.09	-1.0	-1.0	
1964-65	3.2	103.5	41.	1.30	77.4	30.7	
1966-67	0.8	26.8	11.	0.34	11.3	4.5	
1967-68	1.4	46.2	18.	0.58	33.1	13.1	
1968-69	0.4	14.4	6.	0.18	12.5	5.0	
1969-70	---	---	---	---	29.5	11.7	
1970-71	2.2	72.0	29.	0.90	70.0	27.7	
1971-72	0.7	24.7	10.	0.31	20.3	8.0	
1972-73	1.0	34.4	14.	0.43	24.0	9.5	
1973-74	1.6	53.6	21.	0.67	38.0	15.0	
1974-75	5.6	178.9	71.	2.25	140.0	55.4	

GAUGING STATION/STATION DE JAUAGE..... W
 RIVER/COURS D EAU..... TAPOA
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 5330.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1963-64	0.1	0.2	0.5	1.3	1.0	0.2	0.1	0.1	0.0	0.0	0.0	0.0	0.2
1964-65	0.2	0.3	1.7	5.8	13.2	11.1	0.6	0.2	0.0	0.0	0.0	0.0	2.7
1965-66	0.0	0.1	0.8	2.2	2.5	0.9	0.3	0.1	0.0	0.0	0.0	0.0	0.5
1966-67	0.0	0.0	0.4	1.6	1.3	0.6	0.5	0.2	0.0	0.0	0.0	0.0	0.3
1967-68	0.0	0.0	1.3	3.0	3.5	3.7	0.8	0.3	0.1	0.0	0.0	0.0	1.0
1968-69	0.2	1.5	1.1	0.3	0.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1969-70	0.0	0.3	1.4	2.9	2.7	0.5	1.0	0.0	0.0	0.0	0.0	0.0	0.7
1970-71	0.0	0.7	1.2	13.3	8.3	2.7	0.1	0.0	0.0	0.0	0.0	0.0	2.1
1971-72	-1.0	7.0	3.9	3.9	1.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1972-73	0.0	0.4	1.3	3.3	2.3	2.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
1973-74	0.7	0.9	5.2	12.5	4.0	1.7	0.1	0.0	0.0	0.0	0.0	0.0	2.0
1974-75	0.0	0.0	0.7	3.1	4.1	1.4	0.4	0.0	0.0	0.0	0.0	0.0	0.8
1975-76	0.0	0.6	0.9	1.5	3.9	3.6	2.3	0.2	0.0	0.0	0.0	0.0	1.0
AVG/MOYEN	0.1	0.9	1.5	4.2	3.7	2.3	0.5	0.0	0.0	0.0	0.0	0.0	1.1

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... W
 RIVER/COURS D EAU..... TAPOA
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 5330.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1963-64	0.2	9.1	2.	0.05	2.9	0.5	0.0
1964-65	2.7	86.9	16.	0.52	24.0	4.5	0.0
1965-66	0.5	18.1	3.	0.11	7.9	1.5	0.0
1966-67	0.3	12.0	2.	0.07	4.2	0.8	0.0
1967-68	1.0	33.3	6.	0.20	12.5	2.3	0.0
1968-69	0.2	9.1	2.	0.05	5.1	1.0	0.0
1969-70	0.7	23.1	4.	0.14	5.4	1.0	0.0
1970-71	2.1	69.1	13.	0.41	32.6	6.1	0.0
1971-72	----	----	----	----	17.4	3.3	
1972-73	0.7	24.4	5.	0.15	6.2	1.2	0.0
1973-74	2.0	65.9	12.	0.39	25.3	4.7	0.0
1974-75	0.8	25.4	5.	0.15	4.9	0.9	0.0
1975-76	1.0	34.1	6.	0.20	5.1	1.0	0.0

GAUGING STATION/STATION DE JAUGEAGE.... ANSONGO
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 455000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR-- ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1933-34	-1.0	-1.0	100.0	500.0	991.0	1197.0	1401.0	1557.0	1650.0	1622.0	1391.0	808.0	-1.0
1934-35	230.0	90.0	90.0	258.0	801.0	1188.0	1406.0	1562.0	1670.0	1697.0	-1.0	-1.0	-1.0
1935-36	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1936-37	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1937-38	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1939-40	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1941-42	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1942-43	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1943-44	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1944-45	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1945-46	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1946-47	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1947-48	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1948-49	-1.0	-1.0	90.0	438.0	959.0	1249.0	1464.0	1612.0	1686.0	1494.0	909.0	255.0	-1.0
1949-50	80.0	50.0	50.0	150.0	688.0	1137.0	1365.0	1527.0	1570.0	1316.0	636.0	140.0	725.7
1950-51	55.0	45.0	50.0	205.0	924.0	1286.0	1526.0	1688.0	1840.0	1845.0	1557.0	831.0	987.6
1951-52	145.0	75.0	195.0	539.0	984.0	1257.0	1462.0	1621.0	1781.0	1872.0	1805.0	1450.0	1098.8
1952-53	734.0	135.0	80.0	390.0	1038.0	1360.0	1556.0	1711.0	1863.0	1880.0	1715.0	1197.0	1138.2
1953-54	397.0	75.0	145.0	760.0	1162.0	1381.0	1584.0	1736.0	1848.0	1853.0	1723.0	1200.0	1155.3
1954-55	424.0	151.0	250.0	724.0	1154.0	1383.0	1583.0	1777.0	1946.0	2009.0	1892.0	1520.0	1234.4
1955-56	785.0	242.0	242.0	775.0	1172.0	1418.0	1622.0	1787.0	1937.0	1959.0	1758.0	1311.0	1250.6
1956-57	510.0	145.0	90.0	345.0	830.0	1202.0	1431.0	1599.0	1715.0	1642.0	1309.0	489.0	942.2
1957-58	115.0	60.0	85.0	493.0	1057.0	1302.0	1503.0	1661.0	1839.0	1910.0	1788.0	1443.0	1104.6
1958-59	635.0	224.0	316.0	830.0	1159.0	1372.0	1563.0	1704.0	1779.0	1776.0	1642.0	1034.0	1169.5
1959-60	301.0	75.0	110.0	446.0	1021.0	1293.0	1457.0	1671.0	1777.0	1717.0	1344.0	546.0	979.8
1960-61	110.0	60.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	1761.0	1712.0	1418.0	702.0	-1.0
1961-62	221.0	-1.0	-1.0	-1.0	860.0	1298.0	1445.0	1619.0	1708.0	1617.0	1358.0	683.0	-1.0
1962-63	-1.0	-1.0	-1.0	-1.0	979.0	1236.0	-1.0	-1.0	1810.0	1817.0	1503.0	993.0	-1.0
1963-64	-1.0	-1.0	-1.0	-1.0	819.0	1170.0	1344.0	1540.0	1691.0	1693.0	1360.0	512.0	-1.0
1964-65	-1.0	-1.0	-1.0	512.0	1031.0	1305.0	1540.0	1787.0	1899.0	1895.0	1671.0	928.0	-1.0
1965-66	-1.0	-1.0	-1.0	647.0	1219.0	1383.0	1584.0	-1.0	-1.0	1786.0	1277.0	397.0	-1.0
1966-67	-1.0	-1.0	-1.0	-1.0	655.0	1148.0	1404.0	1613.0	1739.0	1727.0	-1.0	-1.0	-1.0
1967-68	-1.0	-1.0	-1.0	-1.0	-1.0	1342.0	1576.0	1773.0	1938.0	1901.0	1643.0	937.0	-1.0
1968-69	-1.0	-1.0	-1.0	587.0	1058.0	1286.0	1498.0	1661.0	-1.0	1467.0	862.0	-1.0	-1.0
1969-70	-1.0	-1.0	50.0	563.0	1158.0	1503.0	1642.0	1843.0	2011.0	1922.0	1525.0	613.0	-1.0
1970-71	157.0	61.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	326.6	106.2	129.5	509.0	987.2	1291.1	1498.0	1669.0	1793.5	1755.3	1458.4	856.6	1031.7

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... ANSONGO
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 455000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1933-34	----	----	----	----	1699.0	3.7	----
1934-35	----	----	----	----	1745.0	3.8	----
1935-36	----	----	----	----	-1.0	-1.0	----
1936-37	----	----	----	----	-1.0	-1.0	----
1937-38	----	----	----	----	-1.0	-1.0	----
1939-40	----	----	----	----	-1.0	-1.0	----
1941-42	----	----	----	----	-1.0	-1.0	----
1942-43	----	----	----	----	-1.0	-1.0	----
1943-44	----	----	----	----	-1.0	-1.0	----
1944-45	----	----	----	----	-1.0	-1.0	----
1945-46	----	----	----	----	-1.0	-1.0	----
1946-47	----	----	----	----	-1.0	-1.0	----
1947-48	----	----	----	----	-1.0	-1.0	----
1948-49	----	----	----	----	1710.0	3.8	----
1949-50	725.7	22887.2	50.	1.60	1611.0	3.5	----
1950-51	987.6	31147.0	68.	2.17	1883.0	4.1	----
1951-52	1098.8	34652.8	76.	2.42	1883.0	4.1	----
1952-53	1138.2	35895.8	79.	2.50	1906.0	4.2	----
1953-54	1155.3	36434.5	80.	2.54	1883.0	4.1	----
1954-55	1234.4	38928.5	86.	2.71	2035.0	4.5	----
1955-56	1250.6	39441.0	87.	2.75	1981.0	4.4	----
1956-57	942.2	29714.7	65.	2.07	1733.0	3.8	----
1957-58	1104.6	34836.7	77.	2.43	1917.0	4.2	----
1958-59	1169.5	36881.3	81.	2.57	1791.0	3.9	----
1959-60	979.8	30900.0	68.	2.15	1802.0	4.0	----
1960-61	----	----	----	----	1797.0	3.9	----
1961-62	----	----	----	----	1709.0	3.8	----
1962-63	----	----	----	----	1863.0	4.1	----
1963-64	----	----	----	----	1742.0	3.8	----
1964-65	----	----	----	----	1907.0	4.2	----
1965-66	----	----	----	----	1830.0	4.0	----
1966-67	----	----	----	----	1786.0	3.9	----
1967-68	----	----	----	----	1830.0	4.0	----
1968-69	----	----	----	----	-1.0	-1.0	----
1969-70	----	----	----	----	2037.0	4.5	----
1970-71	----	----	----	----	-1.0	-1.0	----

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 Bamako, Mali

GAUGING STATION/STATION DE JAUGEAGE.... DJIRILA
 RIVER/COURS D EAU..... BAOULE
 COUNTRY/PAYS..... C. I
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 3970.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1962-63	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	2.7	1.0	0.3	-1.0
1963-64	0.8	1.0	-1.0	85.8	171.0	131.0	75.0	17.7	7.3	2.2	0.7	0.2	-1.0
1964-65	0.3	0.9	13.2	122.0	303.0	136.0	53.8	31.2	17.4	9.7	3.3	0.9	57.6
1965-66	0.4	7.1	46.4	84.4	143.3	179.2	66.0	15.7	4.0	2.2	0.9	0.4	45.8
1966-67	0.8	0.6	6.7	85.7	265.0	171.8	95.5	24.2	8.1	3.7	1.4	0.5	55.3
1967-68	0.4	0.7	16.2	71.6	169.2	159.0	122.5	52.8	8.2	4.1	2.1	0.8	52.2
1968-69	1.4	3.0	11.5	73.0	210.0	146.0	99.3	49.0	6.2	3.2	2.8	2.0	50.6
1969-70	0.7	0.9	4.6	77.0	227.0	147.0	106.0	26.4	7.5	-1.0	-1.0	-1.0	-1.0
1970-71	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	41.6	14.0	-1.0	1.7	0.7	0.2	-1.0
1971-72	0.2	0.2	1.2	39.2	185.0	114.0	73.2	18.4	4.0	1.4	0.8	0.2	36.4
1972-73	0.3	3.4	5.2	42.1	127.0	107.0	25.1	11.9	3.8	1.9	0.6	0.2	27.3
1973-74	0.1	0.3	3.7	90.2	120.0	60.4	18.4	5.6	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	0.5	1.8	12.0	77.0	194.0	135.1	70.5	24.2	7.3	3.2	1.4	0.5	44.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... DJIRILA
 RIVER/COURS D EAU..... BAoule
 COUNTRY/PAYS..... C. I
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 3970.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1962-63	----	----	----	----	-1.0	-1.0	
1963-64	----	----	----	----	270.0	68.0	0.1
1964-65	57.6	1817.7	458.	14.52	450.0	113.4	0.1
1965-66	45.8	1445.3	364.	11.54	-1.0	-1.0	0.3
1966-67	55.3	1744.9	440.	13.94	-1.0	-1.0	0.3
1967-68	52.2	1649.3	415.	13.17	303.0	76.3	0.2
1968-69	50.6	1596.2	402.	12.75	302.0	76.1	0.7
1969-70	----	----	----	----	301.0	75.8	0.3
1970-71	----	----	----	----	-1.0	-1.0	0.1
1971-72	36.4	1150.5	290.	9.19	366.0	92.2	0.0
1972-73	27.3	863.2	217.	6.90	163.0	41.1	0.1
1973-74	----	----	----	----	139.0	35.0	

GAUGING STATION/STATION DE JAUGEAGE.... ALCONGUI
 RIVER/COURS D EAU..... GOROUOL
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 44850.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1957-58	0.1	2.8	2.8	14.2	16.5	1.7	0.2	0.0	0.0	0.0	0.0	0.0	3.1
1958-59	0.0	2.6	5.5	27.0	55.0	12.4	3.1	0.5	0.1	0.0	0.0	0.0	8.8
1959-60	0.0	0.2	2.6	24.8	45.0	5.3	0.5	0.1	0.0	0.0	0.0	0.0	6.5
1960-61	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1961-62	0.0	0.3	10.6	14.8	56.1	7.5	0.6	0.2	0.0	0.0	0.0	0.0	7.5
1962-63	0.0	0.1	1.6	14.9	16.6	2.3	0.3	0.1	0.0	0.0	0.0	0.0	2.9
1963-64	0.0	2.2	8.8	23.6	10.1	3.1	0.2	0.0	0.0	0.0	0.0	0.0	3.9
1964-65	0.1	2.7	6.6	26.6	48.7	4.9	1.6	0.7	0.2	0.0	0.0	0.0	7.6
1965-66	0.0	2.0	4.2	12.7	19.4	5.8	1.8	0.5	0.0	0.0	0.0	0.0	3.8
1966-67	0.7	1.5	5.2	8.2	58.6	16.1	1.6	0.5	0.0	0.0	0.0	0.0	7.6
1967-68	0.0	0.1	2.1	14.1	48.9	4.9	0.9	0.9	0.1	0.0	0.0	0.0	5.9
1968-69	0.0	1.8	14.2	17.4	14.8	1.2	0.1	0.0	0.0	0.0	0.0	0.0	4.1
1969-70	0.0	3.3	17.4	42.0	27.7	12.7	49.0	0.1	0.0	0.0	0.0	0.0	12.6
1970-71	0.0	0.2	6.5	48.2	25.1	14.9	0.6	0.2	0.0	0.0	0.0	0.0	7.9
1971-72	0.0	1.5	10.8	36.9	23.8	1.1	0.3	0.1	0.0	0.0	0.0	0.0	6.2
1972-73	0.0	2.6	17.6	11.8	22.1	1.0	0.2	0.0	0.0	0.0	0.0	0.0	4.6
1973-74	0.0	0.1	4.9	60.3	23.6	7.9	0.3	0.1	0.0	0.0	0.0	0.0	8.0
1974-75	0.0	0.3	16.3	58.5	33.0	2.5	0.2	0.0	0.0	0.0	0.0	0.0	9.2
1975-76	0.2	0.5	7.8	31.6	48.2	5.6	0.4	0.1	0.0	0.0	0.0	0.0	7.8
AVG/MOYEN	0.0	1.3	8.0	27.0	32.9	6.1	3.4	0.2	0.0	0.0	0.0	0.0	6.6

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... ALCONGUI
 RIVER/COURS D EAU..... GOROUL
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 44850.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1957-58	3.1	100.6	2.	0.07	28.0	0.6	0.0
1958-59	8.8	279.0	6.	0.20	-1.0	-1.0	0.0
1959-60	6.5	206.2	5.	0.15	75.0	1.7	0.0
1960-61	---	---	---	---	-1.0	-1.0	0.0
1961-62	7.5	236.7	5.	0.17	100.0	2.2	0.0
1962-63	2.9	94.3	2.	0.07	33.0	0.7	0.0
1963-64	3.9	126.1	3.	0.09	33.0	0.7	0.0
1964-65	7.6	242.0	5.	0.17	79.2	1.8	0.0
1965-66	3.8	121.9	3.	0.09	25.9	0.6	0.0
1966-67	7.6	242.8	5.	0.17	104.0	2.3	0.0
1967-68	5.9	189.2	4.	0.13	90.0	2.0	0.0
1968-69	4.1	130.0	3.	0.09	27.9	0.6	0.0
1969-70	12.6	399.9	9.	0.28	70.0	1.6	0.0
1970-71	7.9	251.4	6.	0.18	65.8	1.5	0.0
1971-72	6.2	195.7	4.	0.14	68.2	1.5	0.0
1972-73	4.6	145.3	3.	0.10	26.9	0.6	0.0
1973-74	8.0	255.4	6.	0.18	83.2	1.9	0.0
1974-75	9.2	291.1	6.	0.21	95.6	2.1	0.0
1975-76	7.8	248.0	6.	0.18	92.0	2.1	0.0

GAUGING STATION/STATION DE JAUGEAGE.... BARGAYA
 RIVER/COURS D EAU..... G. GALBI
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 700.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1962-63	0.0	0.0	1.3	0.8	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1963-64	0.0	0.3	1.5	4.0	0.8	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.5
1964-65	0.0	0.0	0.5	4.4	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
1965-66	0.0	0.6	0.7	1.8	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
1966-67	0.0	0.0	1.4	0.3	1.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1968-69	0.0	0.0	1.2	0.3	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.1
1969-70	0.0	0.4	1.1	0.7	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
1970-71	0.0	0.0	1.1	4.0	1.4	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
1971-72	0.0	0.0	0.6	3.9	1.1	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
1972-73	0.0	0.3	1.3	1.5	0.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2
AVG/MOYEN	0.0	0.1	1.0	2.1	0.9	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... BARGAYA
 RIVER/COURS D EAU..... G. GALBI
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 700.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1962-63	0.2	9.1	13.	0.42	-1.0	-1.0	
1963-64	0.5	17.8	26.	0.81	-1.0	-1.0	
1964-65	0.5	15.7	23.	0.71	-1.0	-1.0	
1965-66	0.3	11.0	16.	0.50	-1.0	-1.0	
1966-67	0.2	9.1	13.	0.42	-1.0	-1.0	
1968-69	0.1	4.7	7.	0.21	-1.0	-1.0	
1969-70	0.2	6.5	9.	0.30	-1.0	-1.0	
1970-71	0.5	17.0	24.	0.77	-1.0	-1.0	
1971-72	0.4	14.7	21.	0.67	-1.0	-1.0	
1972-73	0.2	8.6	12.	0.39	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE..... BARO
 RIVER/COURS D EAU..... NIANDAN
 COUNTRY/PAYS..... GUINEE
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 12600.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1913-14	-1.0	-1.0	-1.0	307.0	652.0	496.0	250.0	101.0	-1.0	-1.0	-1.0	-1.0	-1.0
1926-27	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1947-48	19.1	96.1	336.0	437.0	815.0	508.0	172.0	72.0	-1.0	-1.0	-1.0	-1.0	-1.0
1948-49	50.0	200.0	372.0	640.0	821.0	459.0	276.0	104.0	53.0	33.6	24.5	16.4	254.1
1949-50	15.7	26.0	98.0	390.0	-1.0	383.0	25.2	99.0	35.2	42.8	26.3	23.6	-1.0
1950-51	26.0	42.3	135.0	326.0	783.0	565.0	252.0	96.0	62.3	27.5	35.4	20.9	197.6
1951-52	106.8	186.0	486.0	733.0	680.0	848.0	738.0	190.0	106.0	42.0	38.6	23.7	348.1
1952-53	31.6	80.3	273.0	580.0	809.0	804.0	352.0	129.0	38.8	20.8	24.2	23.4	263.8
1953-54	36.6	292.0	445.0	738.0	920.0	698.0	365.0	172.0	115.0	62.0	39.5	62.5	328.7
1954-55	77.0	188.0	378.0	509.0	846.0	669.0	530.0	271.0	130.0	70.0	76.0	52.0	316.3
1955-56	93.0	245.0	520.0	726.0	1069.0	728.0	377.0	199.0	107.0	64.0	47.7	44.1	351.6
1956-57	39.0	89.0	339.0	295.0	-1.0	-1.0	250.0	132.0	65.0	35.4	29.1	12.7	-1.0
1957-58	32.0	155.0	497.0	607.0	980.0	849.0	422.0	174.0	101.0	56.0	37.0	58.0	330.6
1958-59	130.0	357.0	296.0	217.0	794.0	648.0	471.0	256.0	113.0	58.0	30.0	22.0	282.6
1959-60	50.0	161.0	409.0	515.0	877.0	518.0	339.0	140.0	73.0	38.4	25.0	14.2	263.2
1960-61	32.4	147.0	354.0	748.0	907.0	573.0	345.0	130.0	67.0	37.0	13.0	7.2	280.0
1961-62	33.0	45.0	251.0	487.0	469.0	368.0	175.0	66.0	34.0	8.6	1.5	2.2	161.6
1962-63	45.0	99.0	207.0	831.0	1209.0	-1.0	385.0	209.0	97.0	65.0	32.0	31.0	-1.0
1963-64	49.0	51.0	224.0	404.0	625.0	745.0	257.0	96.0	42.0	22.0	4.0	2.0	210.0
1964-65	21.0	144.0	311.0	531.0	787.0	566.0	270.0	169.0	84.0	57.0	-1.0	-1.0	-1.0
1965-66	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1966-67	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	14.0	39.0	-1.0
1967-68	26.0	51.0	183.0	370.0	807.0	895.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	48.0	139.7	321.7	519.5	825.0	628.8	329.0	147.6	77.8	43.5	29.2	26.7	261.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... BARO
 RIVER/COURS D EAU..... NIANDAN
 COUNTRY/PAYS..... GUINEE
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 12600.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1913-14	----	----	----	----	809.0	64.2	
1926-27	----	----	----	----	1396.0	110.8	
1947-48	----	----	----	----	919.0	72.9	
1948-49	254.1	8014.0	636.	20.17	973.0	77.2	
1949-50	----	----	----	----	-1.0	-1.0	13.7
1950-51	197.6	6232.0	495.	15.68	1015.0	80.6	16.6
1951-52	348.1	10980.0	871.	27.63	1320.0	104.8	16.6
1952-53	263.8	8320.5	660.	20.94	1045.0	82.9	16.6
1953-54	328.7	10369.0	823.	26.10	1130.0	89.7	19.4
1954-55	316.3	9975.8	792.	25.11	1040.0	82.5	26.2
1955-56	351.6	11089.6	880.	27.91	1490.0	118.3	37.0
1956-57	----	----	----	----	-1.0	-1.0	
1957-58	330.6	10427.9	828.	26.24	1210.0	96.0	5.2
1958-59	282.6	8914.1	707.	22.43	-1.0	-1.0	
1959-60	263.2	8303.4	659.	20.90	-1.0	-1.0	
1960-61	280.0	8831.6	701.	22.23	-1.0	-1.0	
1961-62	161.6	5099.1	405.	12.83	-1.0	-1.0	
1962-63	----	----	----	----	-1.0	-1.0	
1963-64	210.0	6625.1	526.	16.67	-1.0	-1.0	
1964-65	----	----	----	----	-1.0	-1.0	
1965-66	----	----	----	----	-1.0	-1.0	
1966-67	----	----	----	----	-1.0	-1.0	
1967-68	----	----	----	----	1500.0	119.0	

GAUGING STATION/STATION DE JAUGEAGE.... BAROU
 RIVER/COURS D EAU..... MEKROU
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 10500.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1961-62	0.0	1.4	19.3	57.8	123.3	56.6	7.3	1.0	0.0	0.0	0.0	0.0	22.2
1962-63	0.0	5.6	28.6	86.3	316.0	141.0	30.0	9.7	2.3	0.3	0.0	0.0	51.6
1963-64	-1.0	-1.0	-1.0	-1.0	182.0	131.0	35.4	9.5	2.3	0.0	0.0	0.0	-1.0
1964-65	0.0	5.0	29.3	86.0	230.0	76.0	17.0	3.1	0.0	0.0	0.0	0.0	37.2
1965-66	-1.0	2.6	6.6	35.9	147.0	46.0	13.0	3.9	1.0	0.1	0.0	0.0	-1.0
1966-67	-1.0	-1.0	21.0	53.0	108.0	104.0	26.5	6.0	0.7	0.9	0.0	0.0	-1.0
1967-68	-1.0	-1.0	6.9	67.0	233.0	173.0	27.0	7.0	1.2	-1.0	-1.0	-1.0	-1.0
1968-69	0.0	15.3	29.6	111.0	197.0	116.0	26.5	7.5	2.3	0.6	0.1	0.0	42.1
1969-70	0.0	5.8	28.3	93.7	308.0	190.0	71.6	20.5	5.9	2.1	0.5	0.0	60.5
1970-71	-1.0	-1.0	9.3	94.7	168.0	199.0	24.1	4.7	1.4	0.3	-1.0	-1.0	-1.0
1971-72	0.2	1.0	18.0	72.4	115.0	41.8	7.1	1.1	0.0	0.0	0.0	0.0	21.3
1972-73	-1.0	-1.0	7.2	40.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1973-74	0.0	0.4	9.1	46.4	58.6	42.1	5.3	0.5	0.0	0.0	0.0	0.0	13.5
1974-75	0.8	1.3	13.0	56.2	112.0	95.5	23.0	1.4	0.6	0.0	0.0	0.0	25.3
1975-76	1.0	0.8	14.4	49.9	116.0	67.4	10.6	2.8	0.4	0.0	0.0	0.0	21.9
AVG/MOYEN	0.2	3.9	17.1	67.8	172.4	105.6	23.1	5.6	1.2	0.3	0.0	0.0	33.1

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... BAROU
 RIVER/COURS D EAU..... MEKROU
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 10500.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1961-62	22.2	700.8	67.	2.12	178.6	17.0	0.0
1962-63	51.6	1628.8	155.	4.92	405.0	38.6	
1963-64	----	----	----	----	215.0	20.5	0.0
1964-65	37.2	1173.1	112.	3.54	281.0	26.8	0.0
1965-66	----	----	----	----	190.0	18.1	0.0
1966-67	----	----	----	----	200.0	19.0	0.0
1967-68	----	----	----	----	269.0	25.6	0.0
1968-69	42.1	1329.5	127.	4.02	226.0	21.5	
1969-70	60.5	1908.9	182.	5.77	256.0	24.4	0.0
1970-71	----	----	----	----	387.0	36.9	0.0
1971-72	21.3	674.3	64.	2.04	156.0	14.9	0.0
1972-73	----	----	----	----	-1.0	-1.0	
1973-74	13.5	426.7	41.	1.29	88.0	8.4	0.0
1974-75	25.3	798.3	76.	2.41	-1.0	-1.0	0.0
1975-76	21.9	691.9	66.	2.09	172.0	16.4	0.0

GAUGING STATION/STATION DE JAUGEAGE.... BOUGOUNI
 RIVER/COURS D EAU..... BAOULE
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 15700.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1956-57	2.6	3.3	27.6	294.0	422.0	315.0	110.0	43.0	20.0	91.0	5.3	1.5	111.2
1957-58	1.2	6.7	71.0	535.0	685.0	761.0	323.0	103.0	45.0	27.2	11.4	2.6	214.3
1958-59	1.9	10.2	103.0	515.0	525.0	374.0	200.0	107.0	43.0	23.2	10.7	3.7	159.7
1959-60	1.6	2.5	10.7	231.0	530.0	453.0	124.0	45.0	18.4	8.0	3.2	1.3	119.0
1960-61	1.3	3.9	100.0	391.0	503.0	388.0	162.0	55.0	21.2	11.3	5.1	4.3	137.1
1961-62	1.0	3.4	44.9	332.0	663.0	266.0	67.0	21.0	9.4	4.9	1.8	0.8	117.9
1962-63	1.3	-1.0	54.0	194.0	535.0	450.0	195.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1963-64	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	24.0	10.0	-1.0	-1.0	-1.0
1964-65	1.5	9.2	81.4	372.0	666.0	525.0	170.0	79.0	44.0	20.0	8.0	2.0	164.8
1965-66	1.5	9.4	69.0	207.0	365.0	422.0	181.0	47.0	18.9	8.5	3.9	1.4	111.2
1966-67	0.7	2.3	65.0	190.0	623.0	579.0	265.0	69.0	27.0	11.9	4.9	1.7	153.2
1967-68	3.0	1.7	19.5	260.0	540.0	435.0	203.0	62.0	22.8	11.5	5.6	2.0	130.5
1968-69	1.8	6.9	50.9	280.0	427.0	342.0	167.0	56.8	22.5	8.1	4.6	1.4	114.0
1969-70	0.9	3.0	96.2	349.0	492.0	325.0	195.0	57.0	22.4	10.0	4.7	1.4	129.7
1970-71	1.4	2.4	5.9	176.0	662.0	397.0	85.0	25.0	9.7	6.5	2.7	0.6	114.5
AVG/MOYEN	1.5	4.9	57.0	309.0	545.5	430.8	174.7	59.2	24.8	18.0	5.5	1.8	136.1

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... BOUGOUNI
 RIVER/COURS D EAU..... BAOULE
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 15700.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1956-57	111.2	3509.1	224.	7.09	498.0	31.7	
1957-58	214.3	6759.4	431.	13.65	891.0	56.8	0.9
1958-59	159.7	5037.0	321.	10.17	-1.0	-1.0	
1959-60	119.0	3754.6	239.	7.58	-1.0	-1.0	
1960-61	137.1	4325.9	276.	8.74	-1.0	-1.0	
1961-62	117.9	3719.1	237.	7.51	-1.0	-1.0	
1962-63	----	----	----	----	-1.0	-1.0	
1963-64	----	----	----	----	-1.0	-1.0	
1964-65	164.8	5198.4	331.	10.50	-1.0	-1.0	
1965-66	111.2	3507.3	223.	7.08	-1.0	-1.0	
1966-67	153.2	4834.2	308.	9.76	-1.0	-1.0	
1967-68	130.5	4115.7	262.	8.31	-1.0	-1.0	
1968-69	114.0	3597.7	229.	7.27	467.0	29.7	1.0
1969-70	129.7	4090.7	261.	8.26	535.0	34.1	0.7
1970-71	114.5	3611.3	230.	7.29	696.0	44.3	0.1

GAUGING STATION/STATION DE JAUGEAGE.... COUBERI
 RIVER/COURS D EAU..... SOTA
 COUNTRY/PAYS..... BENIN
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 13200.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1953-54	5.5	28.1	37.3	105.1	198.5	109.5	24.1	9.1	5.7	5.4	4.9	4.1	44.7
1954-55	6.8	15.0	12.0	91.0	273.0	102.0	21.0	8.9	6.6	6.3	5.7	4.8	46.0
1955-56	8.4	11.4	68.0	252.0	273.0	228.0	47.0	18.0	6.4	6.1	6.0	5.5	77.4
1956-57	6.7	10.0	17.0	63.0	134.0	91.0	18.0	8.1	11.6	11.5	10.4	7.5	32.3
1957-58	9.3	17.0	23.0	192.0	331.0	149.0	42.0	15.0	6.3	5.7	5.2	5.5	66.7
1958-59	7.0	10.2	9.6	13.1	20.0	22.0	8.0	5.0	9.8	8.3	7.7	8.0	10.7
1959-60	8.4	5.9	17.0	68.0	323.0	163.0	25.0	11.0	4.8	4.8	4.6	4.4	53.3
1960-61	7.4	18.0	38.0	58.0	222.0	188.0	38.0	15.0	8.4	7.4	6.7	6.6	51.1
1962-63	6.2	11.8	54.0	210.0	368.0	140.0	33.0	11.2	5.3	4.7	4.5	4.2	71.0
1961-62	6.9	8.7	11.0	33.4	87.0	28.4	7.2	5.8	10.8	8.6	7.0	7.3	18.5
1963-64	8.0	10.1	9.8	81.0	177.0	106.0	28.8	7.7	7.9	6.8	6.2	5.8	37.9
1964-65	4.8	11.8	15.4	81.0	222.0	67.0	13.0	6.8	5.3	4.7	4.5	4.4	36.7
1965-66	6.7	8.6	13.6	39.0	82.0	23.8	5.8	4.1	5.8	5.6	5.1	5.5	17.1
1966-67	4.3	6.6	7.9	25.0	133.0	91.0	12.9	5.7	3.9	3.9	3.5	3.3	25.0
1967-68	3.8	6.4	10.5	90.0	300.0	128.0	-1.0	-1.0	4.6	4.3	3.9	3.7	-1.0
1968-69	7.7	12.4	40.0	98.0	186.0	93.0	15.5	6.8	5.1	4.8	4.0	5.0	39.8
1969-70	5.0	5.0	20.4	101.0	201.0	75.0	52.0	12.3	6.5	6.1	5.4	4.6	41.1
1971-72	4.8	9.7	46.5	69.0	141.0	29.9	6.8	4.9	4.3	3.8	3.4	3.5	27.2
AVG/MOYEN	6.5	11.4	25.0	92.7	203.9	101.9	23.4	9.1	6.6	6.0	5.4	5.2	41.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... COUBERI
 RIVER/COURS D EAU..... SOTA
 COUNTRY/PAYS..... BENIN
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 13200.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG.AN.DISCH. DEBITS MOY.AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1953-54	44.7	1412.0	107.	3.39	319.0	24.2	3.8
1954-55	46.0	1453.5	110.	3.49	351.0	26.6	4.4
1955-56	77.4	2443.5	185.	5.87	351.0	26.6	
1956-57	32.3	1021.7	77.	2.45	164.0	12.4	4.2
1957-58	66.7	2105.0	159.	5.06	381.0	28.9	5.2
1958-59	10.7	338.2	26.	0.81	44.0	3.3	3.4
1959-60	53.3	1681.6	127.	4.04	388.0	29.4	
1960-61	51.1	1612.2	122.	3.87	336.0	25.5	6.5
1962-63	71.0	2241.4	170.	5.38	481.0	36.4	
1961-62	18.5	583.6	44.	1.40	135.0	10.2	4.4
1963-64	37.9	1196.0	91.	2.87	247.0	18.7	3.8
1964-65	36.7	1158.1	88.	2.78	312.0	23.6	4.2
1965-66	17.1	540.3	41.	1.30	119.0	9.0	
1966-67	25.0	791.0	60.	1.90	271.0	20.5	
1967-68	----	----	----	----	460.0	34.8	
1968-69	39.8	1256.9	95.	3.02	266.0	20.2	
1969-70	41.1	1299.0	98.	3.12	260.0	19.7	
1971-72	27.2	860.9	65.	2.07	230.0	17.4	

GAUGING STATION/STATION DE JAUGEAGE..... DIONGORE
 RIVER/COURS D EAU..... GOROUBI
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 15350.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1962-63	0.0	2.0	3.0	12.9	99.0	32.1	5.4	0.1	0.0	0.0	0.0	0.0	12.8
1963-64	0.0	6.0	11.0	5.3	11.5	13.0	1.0	0.0	0.0	0.0	0.0	0.0	3.9
1964-65	0.0	2.0	3.3	20.4	81.0	51.0	9.1	0.1	0.0	0.0	0.0	0.0	13.9
1965-66	0.0	2.0	6.6	3.8	18.8	21.9	1.2	0.0	0.0	0.0	0.0	0.0	4.5
1966-67	0.0	5.6	10.8	6.3	10.1	14.9	5.0	0.1	0.0	0.0	0.0	0.0	4.4
1967-68	0.0	0.2	5.6	23.4	66.9	28.2	3.4	0.1	0.0	0.0	0.0	0.0	10.6
1968-69	0.0	0.2	2.6	2.7	4.6	2.9	0.3	0.0	0.0	0.0	0.0	0.0	1.1
1969-70	0.0	7.1	9.2	15.7	26.7	17.9	1.6	0.0	0.0	0.0	0.0	0.0	6.5
1970-71	-1.0	-1.0	17.1	24.2	42.8	8.2	1.2	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1971-72	0.0	1.6	5.8	11.1	42.6	14.0	0.2	0.0	0.0	0.0	0.0	0.0	6.2
1972-73	-1.0	-1.0	2.5	5.8	-1.0	-1.0	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1973-74	-1.0	-1.0	15.2	53.6	32.5	2.4	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1974-75	0.0	0.0	4.3	37.0	20.0	2.7	0.0	0.0	0.0	0.0	0.0	0.0	5.3
AVG/MOYEN	0.0	2.6	7.4	17.0	38.0	17.4	2.3	0.0	0.0	0.0	0.0	0.0	7.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... DIONGORE
 RIVER/COURS D EAU..... GOROUBI
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 15350.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1962-63	12.8	406.0	26.	0.84	127.0	8.3	0.0
1963-64	3.9	125.6	8.	0.26	18.0	1.2	0.0
1964-65	13.9	438.6	29.	0.91	48.6	3.2	0.0
1965-66	4.5	142.7	9.	0.29	35.2	2.3	0.0
1966-67	4.4	138.7	9.	0.29	-1.0	-1.0	0.0
1967-68	10.6	335.8	22.	0.69	-1.0	-1.0	0.0
1968-69	1.1	34.9	2.	0.07	-1.0	-1.0	0.0
1969-70	6.5	205.5	13.	0.42	-1.0	-1.0	0.0
1970-71	----	----	----	----	-1.0	-1.0	0.0
1971-72	6.2	197.8	13.	0.41	55.0	3.6	0.0
1972-73	----	----	----	----	18.7	1.2	0.0
1973-74	----	----	----	----	79.2	5.2	0.0
1974-75	5.3	168.1	11.	0.35	57.6	3.8	0.0

GAUGING STATION/STATION DE JAUGEAGE.... DIRE
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 340000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1924-25	-1.0	-1.0	255.0	1038.0	1891.0	2096.0	2397.0	2584.0	2486.0	2135.0	1505.0	819.0	-1.0
1925-26	293.0	118.0	379.0	1021.0	1678.0	2076.0	2309.0	2557.0	2658.0	2335.0	1744.0	1048.0	1518.0
1926-27	425.0	147.0	470.0	1113.0	1634.0	1945.0	2185.0	2245.0	1755.0	1182.0	634.0	208.0	1161.9
1927-28	78.0	73.0	273.0	912.0	1540.0	1949.0	2242.0	2483.0	2535.0	2149.0	1567.0	877.0	1389.8
1928-29	314.0	152.0	302.0	864.0	1588.0	2022.0	2328.0	2599.0	2523.0	2161.0	1538.0	853.0	1437.0
1929-30	321.0	161.0	590.0	1322.0	1835.0	2144.0	2393.0	2621.0	2614.0	2213.0	1574.0	890.0	1556.5
1930-31	333.0	155.0	541.0	1053.0	1596.0	1957.0	2201.0	2401.0	2263.0	1756.0	1149.0	572.0	1331.4
1931-32	193.0	214.0	522.0	1039.0	1568.0	1933.0	2177.0	2272.0	1948.0	1370.0	805.0	314.0	1196.2
1932-33	106.0	98.0	328.0	880.0	1463.0	1855.0	2154.0	2345.0	2271.0	1744.0	1138.0	567.0	1245.7
1933-34	179.0	77.0	377.0	1063.0	1594.0	1939.0	2223.0	2362.0	2130.0	1583.0	1002.0	439.0	1247.3
1934-35	114.0	30.0	90.0	584.0	1291.0	1761.0	2044.0	2168.0	1767.0	1211.0	668.0	211.0	994.9
1935-36	73.0	50.0	106.0	679.0	1410.0	1864.0	2144.0	2292.0	2010.0	1421.0	802.0	281.0	1094.3
1936-37	70.0	178.0	428.0	975.0	1586.0	1962.0	2218.0	2403.0	2284.0	1772.0	1167.0	552.0	1299.5
1937-38	164.0	64.0	121.0	595.0	1268.0	1726.0	1994.0	2137.0	1690.0	1104.0	560.0	175.0	966.5
1938-39	57.0	50.0	115.0	555.0	1284.0	1805.0	2120.0	2305.0	2065.0	1464.0	868.0	326.0	1084.5
1939-40	80.0	56.0	145.0	561.0	1226.0	1720.0	2003.0	2180.0	2012.0	1404.0	833.0	302.0	1043.5
1940-41	85.0	40.0	116.0	570.0	1176.0	1624.0	1870.0	1958.0	1457.0	912.0	421.0	113.0	861.8
1941-42	50.0	40.0	175.0	736.0	1312.0	1712.0	1973.0	2040.0	1499.0	910.0	367.0	80.0	907.8
1942-43	50.0	50.0	135.0	654.0	1309.0	1693.0	1698.0	1739.0	1140.0	619.0	197.0	56.0	795.0
1943-44	35.0	35.0	103.0	649.0	1277.0	1748.0	2025.0	2001.0	1510.0	1050.0	530.0	170.0	927.7
1944-45	50.0	40.0	58.0	368.0	1102.0	1605.0	1867.0	1829.0	1184.0	624.0	185.0	50.0	746.8
1945-46	30.0	20.0	52.0	503.0	1375.0	1812.0	2074.0	2209.0	1926.0	1273.0	644.0	153.0	1005.9
1946-47	50.0	50.0	188.0	802.0	1450.0	1856.0	2119.0	2281.0	2118.0	1541.0	910.0	295.0	1138.3
1947-48	64.0	40.0	97.0	655.0	1277.0	1676.0	1940.0	1996.0	1357.0	745.0	236.0	58.0	845.0
1948-49	40.0	30.0	269.0	992.0	1540.0	1877.0	2104.0	2158.0	1550.0	1100.0	550.0	170.0	1031.6
1949-50	55.0	50.0	58.0	535.0	1326.0	1783.0	2141.0	2043.0	1487.0	1096.0	686.0	207.0	955.5
1950-51	85.0	56.0	74.0	718.0	1494.0	1950.0	2188.0	2370.0	2222.0	1684.0	1018.0	372.0	1185.9
1951-52	87.0	129.0	423.0	971.0	1588.0	1946.0	2211.0	2430.0	2534.0	2279.0	1717.0	1002.0	1443.0
1952-53	351.0	86.0	177.0	921.0	1688.0	2070.0	2284.0	2474.0	2431.0	1981.0	1360.0	684.0	1375.5
1953-54	167.0	79.0	571.0	1338.0	1767.0	2114.0	2366.0	2551.0	2455.0	1985.0	1359.0	696.0	1454.0
1954-55	238.0	169.0	593.0	1236.0	1769.0	2102.0	2363.0	2570.0	2582.0	2242.0	1677.0	980.0	1543.4
1955-56	431.0	195.0	640.0	1319.0	1796.0	2138.0	2391.0	2589.0	2550.0	2106.0	1442.0	799.0	1533.0
1956-57	276.0	89.0	186.0	786.0	1433.0	1870.0	2136.0	2276.0	1931.0	1384.0	781.0	252.0	1116.6
1957-58	66.0	50.0	293.0	1032.0	1684.0	2034.0	2285.0	2519.0	2579.0	2211.0	1647.0	900.0	1441.6
1958-59	331.0	230.0	683.0	1223.0	1647.0	1981.0	2200.0	2379.0	2352.0	1810.0	1257.0	605.0	1391.5
1959-60	143.0	60.0	239.0	913.0	1546.0	1946.0	2190.0	2342.0	2123.0	1515.0	792.0	237.0	1170.5
1960-61	50.0	30.0	262.0	1024.0	1624.0	1976.0	2206.0	2371.0	2104.0	1515.0	882.0	349.0	1199.4
1961-62	81.0	35.0	89.0	819.0	1558.0	1901.0	2154.0	2210.0	1698.0	1032.0	504.0	170.0	1020.9
1962-63	40.0	30.0	165.0	856.0	1554.0	1926.0	2213.0	2404.0	2303.0	1740.0	1070.0	535.0	1236.3
1963-64	110.0	60.0	87.0	634.0	1357.0	1767.0	2033.0	2203.0	1897.0	1464.0	820.0	238.0	1055.8
1964-65	63.0	37.0	324.0	958.0	1620.0	2022.0	2258.0	2343.0	2147.0	1764.0	1166.0	504.0	1267.1
1965-66	166.0	45.0	348.0	1151.0	1723.0	2004.0	2185.0	2138.0	1860.0	1338.0	710.0	190.0	1154.8

1966-67	50.0	25.0	90.0	506.0	1234.0	1765.0	2014.0	2120.0	1755.0	1339.0	718.0	201.0	984.7
1967-68	50.0	30.0	115.0	806.0	1558.0	1949.0	2200.0	2382.0	2208.0	1774.0	1126.0	484.0	1223.5
1968-69	102.0	78.0	553.0	1030.0	1565.0	1896.0	2075.0	1939.0	1520.0	1003.0	457.0	96.0	1026.1
1969-70	36.0	45.0	240.0	1093.0	1664.0	1974.0	2185.0	2308.0	2082.0	1590.0	922.0	308.0	1203.9
1970-71	74.0	35.0	84.9	586.0	1334.0	1770.0	1980.0	1748.0	1265.0	715.0	243.0	61.1	824.6
1971-72	31.1	26.5	65.1	686.0	1355.0	1803.0	1969.0	1638.0	1194.0	612.0	171.0	44.3	799.5
1972-73	26.0	54.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0

AVG/MOYEN	132.5	76.9	262.3	860.9	1503.2	1896.7	2150.6	2260.6	2000.6	1499.1	919.1	406.1	1164.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... DIRE
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 340000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1924-25	----	----	----	----	2625.0	7.7	
1925-26	1518.0	47871.6	141.	4.46	2677.0	7.9	
1926-27	1161.9	36642.2	108.	3.42	2279.0	6.7	
1927-28	1389.8	43829.7	129.	4.09	2572.0	7.6	
1928-29	1437.0	45317.2	133.	4.23	2655.0	7.8	
1929-30	1556.5	49085.7	144.	4.58	2677.0	7.9	
1930-31	1331.4	41987.5	123.	3.92	2447.0	7.2	
1931-32	1196.2	37724.9	111.	3.52	2321.0	6.8	
1932-33	1245.7	39285.9	116.	3.66	2384.0	7.0	
1933-34	1247.3	39335.9	116.	3.67	2384.0	7.0	
1934-35	994.9	31375.6	92.	2.93	2199.0	6.5	
1935-36	1094.3	34510.8	102.	3.22	2314.0	6.8	
1936-37	1299.5	40983.6	121.	3.82	2440.0	7.2	
1937-38	966.5	30479.5	90.	2.84	2157.0	6.3	
1938-39	1084.5	34200.7	101.	3.19	2335.0	6.9	
1939-40	1043.5	32907.8	97.	3.07	2217.0	6.5	
1940-41	861.8	27178.7	80.	2.53	2001.0	5.9	
1941-42	907.8	28629.4	84.	2.67	2061.0	6.1	
1942-43	795.0	25071.1	74.	2.34	1947.0	5.7	
1943-44	927.7	29257.5	86.	2.73	2139.0	6.3	
1944-45	746.8	23552.1	69.	2.20	1965.0	5.8	
1945-46	1005.9	31722.5	93.	2.96	2223.0	6.5	
1946-47	1138.3	35898.4	106.	3.35	2314.0	6.8	
1947-48	845.0	26650.5	78.	2.49	2061.0	6.1	
1948-49	1031.6	32534.6	96.	3.03	2205.0	6.5	
1949-50	955.5	30135.2	89.	2.81	2145.0	6.3	
1950-51	1185.9	37399.0	110.	3.49	2405.0	7.1	
1951-52	1443.0	45509.0	134.	4.24	2557.0	7.5	
1952-53	1375.5	43380.3	128.	4.05	2535.0	7.5	
1953-54	1454.0	45853.3	135.	4.28	2595.0	7.6	
1954-55	1543.4	48673.1	143.	4.54	2647.0	7.8	
1955-56	1533.0	48344.6	142.	4.51	2640.0	7.8	
1956-57	1116.6	35215.2	104.	3.28	2300.0	6.8	
1957-58	1441.6	45464.4	134.	4.24	2632.0	7.7	
1958-59	1391.5	43882.3	129.	4.09	2410.0	7.1	
1959-60	1170.5	36912.8	109.	3.44	2355.0	6.9	
1960-61	1199.4	37824.8	111.	3.53	2410.0	7.1	
1961-62	1020.9	32195.6	95.	3.00	2270.0	6.7	
1962-63	1236.3	38989.0	115.	3.64	2440.0	7.2	
1963-64	1055.8	33296.7	98.	3.11	-1.0	-1.0	
1964-65	1267.1	39961.3	118.	3.73	-1.0	-1.0	
1965-66	1154.8	36418.8	107.	3.40	-1.0	-1.0	
1966-67	984.7	31055.0	91.	2.90	-1.0	-1.0	

1967-68	1223.5	38584.2	113.	3.60	2405.0	7.1
1968-69	1026.1	32361.1	95.	3.02	2120.0	6.2
1969-70	1203.9	37966.7	112.	3.54	2335.0	6.9
1970-71	824.6	26006.6	76.	2.43	-1.0	-1.0
1971-72	799.5	25215.6	74.	2.35	-1.0	-1.0
1972-73	----	----	----	----	-1.0	-1.0

GAUGING STATION/STATION DE JAUGEAGE.... DOLBEL
 RIVER/COURS D EAU..... GOROUL
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 7500.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1961-62	0.0	6.7	24.6	50.0	73.5	1.9	0.0	0.0	0.0	0.0	0.0	0.0	13.0
1962-63	0.0	0.5	3.8	45.0	23.8	0.4	0.0	0.0	0.0	0.0	0.0	0.0	6.1
1963-64	0.1	15.6	22.1	49.8	9.3	1.8	0.0	0.0	0.0	0.0	0.0	0.0	8.2
1964-65	0.0	3.8	20.9	31.3	47.6	0.9	0.0	0.0	0.0	0.0	0.0	0.0	8.7
1965-66	0.0	4.3	6.0	0.0	36.3	30.3	1.1	0.0	0.0	0.0	0.0	0.0	6.4
1966-67	1.4	2.7	15.9	21.5	76.1	9.4	0.3	0.0	0.0	0.0	0.0	0.0	10.6
1967-68	0.0	0.8	9.4	43.8	48.9	1.2	0.0	0.0	0.0	0.0	0.0	0.0	8.6
1968-69	0.0	3.9	27.1	8.7	12.9	0.3	0.0	0.0	0.0	0.0	0.0	0.0	4.4
1969-70	0.0	13.5	19.9	66.0	19.5	10.6	0.0	0.0	0.0	0.0	0.0	0.0	10.7
1970-71	0.0	0.1	12.1	49.4	23.4	2.9	0.0	0.0	0.0	0.0	0.0	0.0	7.3
1971-72	0.0	6.6	13.7	44.5	9.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	6.1
1972-73	0.3	9.0	25.0	17.0	18.3	0.1	0.0	0.0	0.0	0.0	0.0	0.0	5.8
1973-74	0.0	1.3	16.6	63.6	12.4	4.9	0.0	0.0	0.0	0.0	0.0	0.0	8.2
1974-75	0.0	2.3	26.8	39.2	25.1	0.5	0.0	0.0	0.0	0.0	0.0	0.0	7.8
1975-76	0.4	8.6	17.9	44.9	37.5	0.9	0.0	0.0	0.0	0.0	0.0	0.0	9.1
AVG/MOYEN	0.1	5.3	17.4	38.3	31.5	4.4	0.0	0.0	0.0	0.0	0.0	0.0	8.1

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... DOLBEL
 RIVER/COURS D EAU..... GOROUOL
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 7500.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG.AN.DISCH. DEBITS MOY.AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1961-62	13.0	411.8	55.	1.74	118.0	15.7	
1962-63	6.1	193.1	26.	0.82	73.0	9.7	
1963-64	8.2	259.3	35.	1.10	96.1	12.8	0.0
1964-65	6.7	274.6	37.	1.16	92.0	12.3	0.0
1965-66	6.4	204.9	27.	0.87	72.0	9.6	0.0
1966-67	10.6	334.5	45.	1.41	117.0	15.6	0.0
1967-68	8.6	273.5	36.	1.16	104.0	13.9	0.0
1968-69	4.4	139.0	19.	0.59	59.1	7.9	0.0
1969-70	10.7	340.3	45.	1.44	113.0	15.1	0.0
1970-71	7.3	231.0	31.	0.98	88.0	11.7	0.0
1971-72	6.1	194.4	26.	0.82	84.2	11.2	0.0
1972-73	5.8	153.1	24.	0.77	54.4	7.3	0.0
1973-74	8.2	259.6	35.	1.10	83.8	11.2	0.0
1974-75	7.8	246.7	33.	1.04	73.8	9.8	0.0
1975-76	9.1	289.6	39.	1.22	105.2	14.0	0.0

GAUGING STATION/STATION DE JAUGEAGE.... DOUNA
 RIVER/COURS D EAU..... BANI
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 101600.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1922-23	-1.0	39.0	86.0	775.0	2379.0	3173.0	1633.0	449.0	163.0	85.0	68.0	51.0	-1.0
1923-24	54.0	46.0	97.0	795.0	1834.0	1620.0	730.0	281.0	141.0	93.0	55.0	33.0	481.5
1924-25	23.0	32.0	379.0	1840.0	3028.0	3700.0	1595.0	416.0	187.0	112.0	68.0	46.0	952.1
1925-26	40.0	43.0	51.0	1144.0	2512.0	2719.0	1935.0	602.0	227.0	137.0	73.0	44.0	793.9
1926-27	43.0	50.0	153.0	991.0	1456.0	1113.0	486.0	230.0	125.0	91.0	64.0	45.0	403.9
1927-28	39.0	51.0	214.0	1181.0	2780.0	2594.0	1611.0	639.0	287.0	170.0	98.0	50.0	809.5
1928-29	30.0	37.0	101.0	1286.0	2958.0	2844.0	1651.0	673.0	258.0	127.0	67.0	41.0	839.4
1929-30	25.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1930-31	-1.0	55.0	163.0	1105.0	2770.0	2050.0	890.0	350.0	54.0	33.0	22.0	15.0	-1.0
1931-32	23.0	40.0	197.0	1806.0	2405.0	2450.0	737.0	147.0	61.0	30.0	35.0	29.0	663.3
1932-33	19.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1933-34	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	92.0	89.0	74.0	-1.0	-1.0
1934-35	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1935-36	-1.0	-1.0	138.0	-1.0	-1.0	-1.0	-1.0	-1.0	133.0	94.0	88.0	71.0	-1.0
1936-37	50.0	70.0	184.0	1550.0	2811.0	2556.0	899.0	347.0	155.0	97.0	71.0	-1.0	-1.0
1949-50	-1.0	-1.0	-1.0	-1.0	-1.0	1650.0	348.0	156.0	72.0	38.0	20.0	15.0	-1.0
1950-51	10.0	15.0	73.0	987.0	2595.0	2568.0	1356.0	356.0	136.0	84.0	45.0	18.0	686.9
1951-52	13.0	11.0	100.0	866.0	2259.0	2783.0	2283.0	988.0	294.0	151.0	85.0	40.0	822.7
1952-53	25.0	23.0	174.0	946.0	2214.0	3334.0	2063.0	527.0	236.0	129.0	76.0	44.0	815.9
1953-54	33.0	89.0	338.0	1829.0	3154.0	2614.0	1100.0	405.0	213.0	125.0	75.0	48.0	835.2
1954-55	35.0	69.0	289.0	1504.0	3164.0	2944.0	1768.0	692.0	283.0	167.0	107.0	71.0	924.4
1955-56	46.0	77.0	297.0	2129.0	2786.0	2588.0	1331.0	570.0	262.0	148.0	92.0	61.0	865.5
1956-57	40.0	41.0	64.0	791.0	2171.0	1995.0	835.0	312.0	148.0	91.0	59.0	36.0	548.5
1957-58	28.2	50.7	199.0	1346.0	2674.0	3015.0	1739.0	474.0	228.0	146.0	75.0	38.8	834.4
1958-59	26.3	38.6	285.0	1494.0	2933.0	2474.0	1129.0	471.0	229.0	156.0	93.0	47.6	781.3
1959-60	13.3	31.8	49.1	863.0	2550.0	2553.0	883.0	264.0	138.0	78.2	42.6	24.4	624.1
1960-61	29.0	27.0	269.0	1074.0	1931.0	2441.0	874.0	294.0	135.0	82.1	46.4	25.3	602.3
1961-62	19.0	25.1	173.0	1391.0	2963.0	2179.0	630.0	205.0	105.0	61.0	37.3	22.5	650.9
1962-63	24.1	37.7	109.0	651.0	2177.0	2301.0	935.0	339.0	162.0	90.0	51.0	28.0	575.4
1963-64	27.0	28.0	91.0	601.0	1850.0	1996.0	1120.0	303.0	147.0	79.0	46.0	29.0	526.4
1964-65	35.0	55.0	189.0	1494.0	3202.0	3198.0	1189.0	386.0	243.0	150.0	91.0	54.0	857.1
1965-66	34.0	68.0	293.0	1051.0	1962.0	2206.0	879.0	277.0	141.0	82.0	49.0	34.0	589.6
1966-67	22.0	24.0	41.0	416.0	1916.0	2566.0	1214.0	310.0	146.0	89.0	54.0	33.0	569.2
1967-68	24.0	24.0	85.0	215.0	2985.0	2630.0	1223.0	320.0	-1.0	-1.0	-1.0	-1.0	-1.0
1968-69	20.0	20.0	-1.0	200.0	888.0	1724.0	1391.0	630.0	249.0	130.0	60.0	34.0	-1.0
1969-70	13.6	30.0	257.0	1082.0	2138.0	1672.0	930.0	287.0	130.0	71.0	35.0	19.0	555.3
1970-71	14.8	29.8	89.0	854.0	2417.0	2110.0	527.0	173.0	81.0	47.0	29.0	17.0	532.3
1971-72	11.5	14.4	136.0	642.0	1801.0	1232.0	294.0	120.0	64.0	34.0	17.4	11.0	364.7
1972-73	11.1	54.5	88.0	307.0	717.0	504.0	190.0	77.0	35.0	18.0	8.0	4.0	167.8
1973-74	4.0	12.0	132.0	501.0	809.0	336.0	109.0	45.0	18.0	8.0	3.0	2.0	164.9
AVG/MOYEN	26.6	39.9	164.2	1050.2	2329.0	2298.0	1100.1	374.7	160.5	94.7	57.7	34.7	644.2

GAUGING STATION/STATION DE JAUGEAGE..... DOUNA
 RIVER/COURS D EAU..... BANI
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 101600.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1922-23	----	----	----	----	3310.0	32.6	28.0
1923-24	481.5	15187.2	149.	4.74	2000.0	19.7	33.0
1924-25	952.1	30027.5	296.	9.37	3840.0	37.8	17.0
1925-26	793.9	25036.9	246.	7.81	2770.0	27.3	37.0
1926-27	403.9	12737.9	125.	3.98	1540.0	15.2	37.0
1927-28	809.5	25528.3	251.	7.97	2990.0	29.4	37.0
1928-29	839.4	26471.8	261.	8.26	3065.0	30.2	25.0
1929-30	----	----	----	----	-1.0	-1.0	21.0
1930-31	----	----	----	----	2955.0	29.1	15.0
1931-32	663.3	20918.8	206.	6.53	3410.0	33.6	12.0
1932-33	----	----	----	----	-1.0	-1.0	15.0
1933-34	----	----	----	----	-1.0	-1.0	
1934-35	----	----	----	----	-1.0	-1.0	
1935-36	----	----	----	----	-1.0	-1.0	
1936-37	----	----	----	----	2970.0	29.2	
1949-50	----	----	----	----	-1.0	-1.0	
1950-51	686.9	21662.6	213.	6.76	2778.0	27.3	10.0
1951-52	822.7	25946.2	255.	8.10	2982.0	29.4	20.0
1952-53	815.9	25730.7	253.	8.03	3433.0	33.8	28.0
1953-54	835.2	26340.4	259.	8.22	3270.0	32.2	29.0
1954-55	924.4	29152.4	287.	9.10	3439.0	33.8	36.0
1955-56	865.5	27297.0	269.	8.52	2886.0	28.4	31.0
1956-57	548.5	17300.1	170.	5.40	2460.0	24.2	25.0
1957-58	834.4	26316.0	259.	8.21	3070.0	30.2	24.0
1958-59	781.3	24641.4	243.	7.69	2965.0	29.2	24.0
1959-60	624.1	19684.7	194.	6.14	2630.0	25.9	21.0
1960-61	602.3	16994.6	187.	5.93	3225.0	31.7	17.0
1961-62	650.9	20527.0	202.	6.41	2572.0	25.3	19.0
1962-63	575.4	18145.8	179.	5.66	2075.0	20.4	19.0
1963-64	526.4	16601.0	163.	5.18	3549.0	34.9	
1964-65	857.1	27031.6	266.	8.44	2410.0	23.7	
1965-66	589.6	18595.7	183.	5.80	2773.0	27.3	
1966-67	569.2	17951.8	177.	5.60	3243.0	31.9	
1967-68	----	----	----	----	3230.0	31.8	17.0
1968-69	----	----	----	----	2344.0	23.1	8.0
1969-70	555.3	17514.5	172.	5.47	2804.0	27.6	10.0
1970-71	532.3	16789.2	165.	5.24	1981.0	19.5	8.0
1971-72	364.7	11503.5	113.	3.59	864.0	8.5	8.0
1972-73	167.8	5291.7	52.	1.65	-1.0	-1.0	
1973-74	164.9	5200.8	51.	1.62	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE.... GARBE-KOUROU
 RIVER/COURS D EAU..... SIRBA
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 38750.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1956-57	0.0	0.5	15.7	50.0	136.0	118.0	30.0	4.3	0.0	0.0	0.0	0.0	29.5
1957-58	0.0	9.3	3.2	12.5	17.3	15.5	3.4	0.0	0.0	0.0	0.0	0.0	5.0
1958-59	0.0	1.8	14.0	51.0	301.0	98.0	26.0	10.4	0.0	0.0	0.0	0.0	41.8
1962-63	25.2	78.0	240.0	94.2	12.8	2.5	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1963-64	0.0	0.4	6.2	14.3	34.0	17.9	1.6	0.2	0.1	0.0	0.0	0.0	6.2
1964-65	0.0	0.2	10.6	62.8	225.0	124.0	11.0	0.6	0.0	0.0	0.0	0.0	36.1
1965-66	-1.0	-1.0	17.4	55.3	295.0	141.0	10.6	1.0	0.0	0.0	0.0	0.0	-1.0
1966-67	0.0	7.8	10.1	12.5	23.2	28.8	6.2	0.1	0.0	0.0	0.0	0.0	7.3
1967-68	0.0	1.6	22.5	12.9	30.4	91.7	9.0	1.1	0.1	0.0	0.0	0.0	14.1
1968-69	0.0	0.0	3.4	6.6	10.0	11.8	2.3	0.0	0.0	0.0	0.0	0.0	2.8
1969-70	0.0	0.3	7.4	37.3	11.0	55.7	6.5	0.2	0.0	0.0	0.0	0.0	9.8
1970-71	0.1	0.9	13.6	28.6	54.7	27.1	4.9	0.0	0.0	0.0	0.0	0.0	10.8
1971-72	0.0	2.9	13.2	47.0	63.9	37.0	3.7	0.3	0.0	0.0	0.0	0.0	13.9
1972-73	0.0	0.0	10.1	23.1	28.0	17.3	1.0	0.0	0.0	0.0	0.0	0.0	6.6
1973-74	0.0	6.0	37.5	139.5	78.3	17.0	1.3	0.0	0.0	0.0	0.0	0.0	23.3
1974-75	0.0	0.0	104.0	135.0	134.0	21.6	2.3	0.2	0.0	0.0	0.0	0.0	33.0
1975-76	0.1	1.6	42.9	158.0	109.0	28.2	2.1	0.1	0.0	0.0	0.0	0.0	28.4
AVG/MOYEN	1.5	6.9	33.6	55.3	91.9	50.1	7.6	1.1	0.0	0.0	0.0	0.0	20.7

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... GARBE-KOUROU
 RIVER/COURS D EAU..... SIRBA
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 38750.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1956-57	29.5	931.6	24.	0.76	178.0	4.6	0.0
1957-58	5.0	160.8	4.	0.13	20.0	0.5	0.0
1958-59	41.8	1319.7	34.	1.08	491.0	12.7	0.0
1962-63	----	----	----	----	324.0	8.4	0.0
1963-64	6.2	196.3	5.	0.16	39.3	1.0	0.0
1964-65	36.1	1141.0	29.	0.93	369.0	9.5	0.0
1965-66	----	----	----	----	469.0	12.1	0.0
1966-67	7.3	233.1	6.	0.19	46.0	1.2	0.0
1967-68	14.1	444.9	11.	0.36	430.0	11.1	0.0
1968-69	2.8	89.6	2.	0.07	24.0	0.6	0.0
1969-70	9.8	311.1	8.	0.25	133.0	3.4	0.0
1970-71	10.8	341.3	9.	0.28	65.0	1.7	0.0
1971-72	13.9	441.5	11.	0.36	77.8	2.0	0.0
1972-73	6.6	208.9	5.	0.17	39.0	1.0	0.0
1973-74	23.3	734.7	19.	0.60	180.0	4.6	0.0
1974-75	33.0	1043.5	27.	0.85	344.0	8.9	0.0
1975-76	28.4	898.7	23.	0.74	346.0	8.9	0.0

GAUGING STATION/STATION DE JAUGEAGE.... GAYA
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 100000.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1951-52	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1952-53	-1.0	-1.0	160.0	446.0	1475.0	1958.0	1579.0	1674.0	1941.0	2167.0	2138.0	1549.0	-1.0
1953-54	678.0	332.0	293.0	1032.0	1934.0	1831.0	1636.0	1760.0	2041.0	2285.0	2188.0	1560.0	1464.1
1954-55	674.0	314.0	308.0	1020.0	1789.0	1551.0	1502.0	1679.0	2014.0	2315.0	2334.0	1969.0	1455.7
1955-56	1100.0	460.0	411.0	1357.0	1923.0	2186.0	1687.0	1780.0	2114.0	2423.0	2325.0	1762.0	1627.3
1956-57	789.0	312.0	199.0	685.0	1434.0	1530.0	1406.0	1569.0	1770.0	1863.0	1505.0	735.0	1149.7
1957-58	268.0	142.0	105.0	933.0	1837.0	1598.0	1456.0	1584.0	1867.0	2144.0	2197.0	1770.0	1325.0
1958-59	880.0	346.0	340.0	902.0	1477.0	1429.0	1378.0	1553.0	1872.0	2005.0	1954.0	1330.0	1288.8
1959-60	540.0	159.0	115.0	791.0	2259.0	1706.0	1390.0	1594.0	1813.0	1982.0	1632.0	766.0	1228.9
1960-61	246.0	78.0	140.0	652.0	1543.0	1689.0	1398.0	1595.0	1863.0	2030.0	1750.0	964.0	1162.3
1961-62	351.0	145.0	130.0	594.0	1644.0	1455.0	1333.0	1528.0	1726.0	1770.0	1242.0	476.0	1032.8
1962-63	154.0	73.0	206.0	918.0	2423.0	1753.0	1446.0	1593.0	1822.0	2107.0	1965.0	1246.0	1308.8
1963-64	507.0	195.0	144.0	536.0	1252.0	1341.0	1283.0	1413.0	1681.0	1870.0	1681.0	784.0	1057.2
1964-65	329.0	258.0	280.0	920.0	1945.0	1631.0	1314.0	1586.0	1896.0	2169.0	2001.0	1350.0	1306.5
1965-66	500.0	350.0	300.0	800.0	1590.0	1539.0	1492.0	1538.0	1896.0	2169.0	2001.0	825.0	1250.0
1966-67	300.0	250.0	100.0	280.0	1045.0	1370.0	1336.0	1539.0	1900.0	2091.0	1611.0	665.0	1040.5
1967-68	205.0	65.0	80.0	600.0	1950.0	1750.0	1545.0	1829.0	2297.0	2622.0	2480.0	1379.0	1400.1
1968-69	550.0	220.0	300.0	920.0	1382.0	1432.0	1397.0	1691.0	1931.0	1883.0	1153.0	450.0	1109.0
1969-70	203.0	106.0	53.0	581.0	1222.0	1467.0	1648.0	1904.0	2236.0	2285.0	1844.0	847.0	1199.6
1970-71	225.0	79.0	120.0	585.0	1471.0	1522.0	1398.0	1605.0	1848.0	1620.0	738.0	252.0	955.2
1971-72	90.0	53.0	207.0	421.0	1248.0	1250.0	1346.0	1664.0	1847.0	1499.0	610.0	191.0	868.8
1972-73	65.0	55.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1973-74	-1.0	-1.0	204.0	321.0	920.0	1111.0	1214.0	1300.0	1089.0	523.0	186.0	60.0	-1.0
1974-75	26.0	20.0	174.0	527.0	1282.0	1319.0	1379.0	1606.0	1701.0	1450.0	546.0	138.0	847.3
1975-76	35.8	15.0	166.0	564.0	1301.0	1274.0	1464.0	1631.0	1907.0	1778.0	883.0	251.0	939.1
1976-77	70.0	57.4	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	381.9	177.5	197.1	712.3	1580.2	1551.8	1435.9	1618.0	1872.6	1958.6	1607.1	926.9	1168.3

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... GAYA
 RIVER/COURS D EAU..... NIGER
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 100000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1951-52	----	----	----	----	-1.0	-1.0	134.0
1952-53	----	----	----	----	2218.0	2.2	170.0
1953-54	1464.1	46173.9	46.	1.46	2330.0	2.3	215.0
1954-55	1455.7	45908.5	46.	1.46	2360.0	2.4	263.0
1955-56	1627.3	51319.5	51.	1.63	2684.0	2.7	143.0
1956-57	1149.7	36258.5	36.	1.15	1907.0	1.9	56.0
1957-58	1325.0	41787.8	42.	1.33	2260.0	2.3	236.0
1958-59	1288.8	40644.6	41.	1.29	2060.0	2.1	56.0
1959-60	1228.9	38755.1	39.	1.23	2828.0	2.8	56.0
1960-61	1162.3	36655.3	37.	1.16	2060.0	2.1	
1961-62	1032.8	32571.4	33.	1.03	1916.0	1.9	53.0
1962-63	1308.8	41275.3	41.	1.31	2780.0	2.8	114.0
1963-64	1057.2	33341.4	33.	1.06	1918.0	1.9	245.0
1964-65	1306.5	41204.4	41.	1.31	2260.0	2.3	
1965-66	1250.0	39420.0	39.	1.25	1929.0	1.9	
1966-67	1040.5	32815.8	33.	1.04	2099.0	2.1	
1967-68	1400.1	44155.6	44.	1.40	2691.0	2.7	
1968-69	1109.0	34976.0	35.	1.11	2012.0	2.0	86.0
1969-70	1199.6	37832.6	38.	1.20	2810.0	2.8	100.0
1970-71	955.2	30124.7	30.	0.96	1896.0	1.9	42.0
1971-72	868.8	27399.5	27.	0.87	1918.0	1.9	48.0
1972-73	----	----	----	----	-1.0	-1.0	
1973-74	----	----	----	----	1320.0	1.3	10.0
1974-75	847.3	26721.5	27.	0.85	1800.0	1.8	6.0
1975-76	939.1	29617.0	30.	0.94	1987.0	2.0	36.0
1976-77	----	----	----	----	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE.... GOUNDAM
 RIVER/COURS D EAU..... M.GOUNDAM
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 25547.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1931-32	-1.0	-1.0	1.0	9.9	36.0	58.0	75.0	-1.0	-1.0	-1.0	-1.0	2.1	-1.0
1932-33	0.1	0.1	1.0	4.6	21.0	35.0	55.0	130.0	202.0	120.0	47.0	8.0	51.9
1933-34	0.3	0.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1934-35	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	59.0	33.0	6.6	0.3	-1.0
1935-36	0.0	0.0	0.2	0.2	3.0	11.5	21.0	64.0	87.0	46.0	10.4	0.5	20.3
1936-37	0.0	0.0	0.0	2.7	8.0	22.0	39.0	96.0	161.0	109.0	37.0	3.8	39.8
1937-38	0.1	0.0	0.0	0.2	4.7	21.0	33.0	53.0	59.0	30.0	3.6	0.1	17.0
1938-39	0.0	0.0	0.0	0.1	4.6	17.9	27.0	55.0	80.0	47.0	14.8	0.7	20.5
1939-40	0.0	0.0	0.0	0.0	0.7	6.7	16.1	33.0	62.0	50.0	10.9	0.2	14.9
1940-41	0.0	0.0	0.0	0.0	0.1	4.1	13.9	22.0	-1.0	-1.0	-1.0	-1.0	-1.0
1941-42	-1.0	-1.0	0.0	0.0	2.0	9.6	16.9	31.0	32.0	11.6	1.0	0.0	-1.0
1942-43	0.0	0.0	0.0	2.0	6.8	16.6	29.0	39.0	30.0	7.1	0.1	0.0	10.8
1943-44	0.0	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1945-46	-1.0	-1.0	0.0	0.0	4.1	12.8	22.0	44.0	70.0	32.0	5.8	0.0	-1.0
1946-47	0.0	0.0	-1.0	-1.0	-1.0	23.0	36.0	-1.0	-1.0	74.0	25.0	1.4	-1.0
1947-48	0.1	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1951-52	-1.0	-1.0	0.0	0.0	10.5	27.0	43.0	113.0	265.0	254.0	121.0	57.0	-1.0
1952-53	19.0	0.4	0.1	1.7	28.0	50.0	65.0	154.0	271.0	200.0	81.0	39.0	75.7
1953-54	2.7	0.2	0.0	11.2	45.0	62.0	85.0	224.0	294.0	181.0	69.0	29.0	83.5
1954-55	10.4	3.4	0.5	18.7	44.0	59.0	88.0	239.0	342.0	280.0	145.0	54.0	107.0
1955-56	21.0	6.4	3.6	7.1	45.0	76.0	115.0	250.0	310.0	231.0	132.0	79.0	106.3
1956-57	46.0	20.0	9.4	5.0	23.0	37.0	55.0	87.0	104.0	60.0	41.0	17.9	42.1
1957-58	1.4	0.0	0.0	0.1	4.2	21.0	45.0	160.0	279.0	230.0	95.0	19.0	71.2
1958-59	0.5	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1968-69	-1.0	-1.0	0.0	5.1	34.7	59.9	70.0	86.2	22.8	39.0	5.5	0.0	-1.0
1969-70	0.0	0.0	5.4	16.3	49.0	76.0	104.0	208.0	282.0	161.0	58.0	20.1	81.6
1970-71	6.2	0.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	5.1	1.4	1.0	4.2	18.7	33.6	50.1	109.9	158.5	109.7	45.4	15.8	46.1

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... GOUNDAM
 RIVER/COURS D EAU..... M. GOUNDAM
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 25547.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1931-32	----	----	----	----	-1.0	-1.0	
1932-33	51.9	1639.3	64.	2.03	216.0	8.5	
1933-34	----	----	----	----	-1.0	-1.0	
1934-35	----	----	----	----	62.0	2.4	
1935-36	20.3	640.7	25.	0.80	94.0	3.7	
1936-37	39.8	1257.4	49.	1.56	170.0	6.7	
1937-38	17.0	537.9	21.	0.67	-1.0	-1.0	
1938-39	20.5	649.3	25.	0.81	87.0	3.4	
1939-40	14.9	471.9	18.	0.59	74.0	2.9	
1940-41	----	----	----	----	-1.0	-1.0	
1941-42	----	----	----	----	39.0	1.5	
1942-43	10.8	343.2	13.	0.43	41.0	1.6	
1943-44	----	----	----	----	-1.0	-1.0	
1945-46	----	----	----	----	77.0	3.0	
1946-47	----	----	----	----	-1.0	-1.0	
1947-48	----	----	----	----	-1.0	-1.0	
1951-52	----	----	----	----	313.0	12.3	
1952-53	75.7	2389.3	94.	2.97	299.0	11.7	
1953-54	83.5	2636.1	103.	3.27	305.0	11.9	
1954-55	107.0	3374.3	132.	4.19	359.0	14.1	
1955-56	106.3	3353.5	131.	4.16	320.0	12.5	
1956-57	42.1	1327.9	52.	1.65	114.0	4.5	
1957-58	71.2	2246.1	88.	2.79	306.0	12.0	
1958-59	----	----	----	----	-1.0	-1.0	
1968-69	----	----	----	----	-1.0	-1.0	
1969-70	81.6	2574.9	101.	3.20	322.0	12.6	
1970-71	----	----	----	----	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE.... GUINGUERINI
 RIVER/COURS D EAU..... BAGOE
 COUNTRY/PAYS..... C.I
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 1042.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1954-55	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	5.0	3.2	2.8	1.5	-1.0
1955-56	0.9	10.8	31.1	59.2	50.8	19.8	15.0	6.1	3.4	2.2	1.3	0.2	16.7
1956-57	0.0	0.6	2.6	15.0	45.2	27.4	6.6	2.9	1.3	0.7	0.1	0.1	8.5
1957-58	0.4	2.9	15.9	47.0	72.0	37.2	15.1	6.2	6.1	2.6	0.8	0.4	17.2
1958-59	1.0	3.6	6.5	19.0	31.3	27.1	6.9	3.5	1.4	0.4	0.1	0.0	8.3
1959-60	0.1	2.1	10.7	27.8	65.4	16.6	5.0	1.7	-1.0	-1.0	-1.0	-1.0	-1.0
1960-61	0.1	0.9	27.4	20.8	65.9	25.9	6.6	2.1	0.5	0.1	0.0	0.0	12.5
1961-62	0.0	0.0	4.3	34.8	49.9	18.0	5.2	1.5	0.3	0.1	0.0	0.0	9.5
1962-63	0.0	0.0	2.7	21.4	72.0	32.8	13.0	5.4	1.7	0.8	0.1	0.0	12.4
1963-64	0.1	0.5	11.4	33.6	53.0	52.4	17.3	4.1	1.3	0.3	0.0	0.0	14.4
1964-65	0.0	0.2	3.2	76.4	71.1	25.9	8.1	4.2	2.7	1.1	0.1	0.0	16.0
1965-66	0.0	0.4	28.6	52.1	101.0	53.7	14.0	4.4	1.1	0.2	0.4	0.6	21.3
1966-67	1.5	1.0	2.5	43.7	71.0	106.0	52.4	4.1	-1.0	-1.0	-1.0	-1.0	-1.0
1967-68	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	1.0	0.8	0.7	-1.0
1968-69	0.5	0.5	1.0	-1.0	-1.0	27.0	4.6	4.1	-1.0	-1.0	-1.0	-1.0	-1.0
1969-70	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1970-71	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	0.3	1.8	11.3	37.5	62.3	36.1	13.0	3.8	2.2	1.0	0.5	0.2	14.2

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... GINGUERINI
 RIVER/COURS D EAU..... BAGOE
 COUNTRY/PAYS..... C.I
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 1042.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1954-55	----	----	----	----	-1.0	-1.0	
1955-56	16.7	527.7	506.	16.06	92.0	88.3	
1956-57	8.5	269.3	259.	8.20	67.0	64.3	
1957-58	17.2	542.9	521.	16.52	100.0	96.0	
1958-59	8.3	264.9	254.	8.06	67.0	64.3	
1959-60	----	----	----	----	125.0	120.0	
1960-61	12.5	394.9	379.	12.02	185.0	177.5	0.0
1961-62	9.5	299.8	288.	9.13	120.0	115.2	0.0
1962-63	12.4	393.9	378.	11.99	190.0	182.3	0.0
1963-64	14.4	457.2	439.	13.92	103.0	98.8	0.0
1964-65	16.0	507.2	487.	15.44	-1.0	-1.0	0.0
1965-66	21.3	674.0	647.	20.51	150.0	144.0	0.0
1966-67	----	----	----	----	137.0	131.5	
1967-68	----	----	----	----	-1.0	-1.0	0.0
1968-69	----	----	----	----	-1.0	-1.0	
1969-70	----	----	----	----	-1.0	-1.0	
1970-71	----	----	----	----	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE..... IRADOUYOU
 RIVER/COURS D EAU..... KOUROU-KELLE
 COUNTRY/PAYS..... C-I
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 1990.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1962-63	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	7.4	4.4	2.1	0.8	-1.0
1963-64	0.8	2.3	7.1	76.8	105.4	81.7	33.9	14.2	6.1	2.9	0.8	0.4	27.6
1964-65	0.5	2.2	6.3	91.9	103.9	52.3	20.2	13.9	9.4	4.4	2.0	0.8	25.6
1965-66	0.9	5.1	38.8	48.6	84.1	56.5	20.8	8.7	4.1	1.3	0.7	0.6	22.5
1966-67	0.5	0.5	2.6	36.1	68.7	68.5	23.9	10.5	5.1	2.5	0.8	0.3	18.3
1967-68	0.5	0.7	9.7	75.9	112.0	88.3	26.5	11.2	5.8	3.3	1.5	0.8	28.0
1968-69	0.7	3.9	8.1	49.7	109.9	69.9	30.2	14.1	6.9	3.8	1.9	0.8	24.9
1969-70	0.4	1.7	21.4	96.9	90.7	70.7	38.4	12.4	5.6	2.4	0.8	0.4	28.4
1970-71	0.4	2.0	5.9	34.6	105.0	40.4	12.4	23.6	2.0	0.8	0.3	0.2	18.9
1971-72	0.1	0.3	2.5	37.1	109.0	68.5	15.2	8.1	3.3	1.2	0.6	1.2	20.5
1972-73	4.2	14.3	13.6	44.4	50.9	22.4	9.8	5.3	1.6	0.7	0.2	-1.0	-1.0
1973-74	-1.0	-1.0	3.4	47.8	72.0	20.3	11.7	3.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	0.8	3.2	10.8	58.1	91.9	58.1	22.0	11.3	5.2	2.5	1.0	0.6	22.1

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... IRADOUGOU
 RIVER/COURS D EAU..... KOUROU-KELLE
 COUNTRY/PAYS..... C.I
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 1990.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1962-63	----	----	----	----	129.0	64.8	
1963-64	27.6	873.5	439.	13.92	133.0	66.8	
1964-65	25.6	808.8	406.	12.89	113.0	56.8	
1965-66	22.5	710.0	357.	11.31	97.0	48.7	
1966-67	18.3	578.1	291.	9.21	98.0	49.2	
1967-68	28.0	883.5	444.	14.08	126.0	63.3	
1968-69	24.7	788.1	396.	12.56	137.0	68.8	2.5
1969-70	28.4	898.2	451.	14.31	117.0	58.8	
1970-71	18.9	598.1	301.	9.53	120.0	60.3	0.1
1971-72	20.5	649.3	326.	10.35	117.0	58.8	0.3
1972-73	----	----	----	----	62.2	31.3	
1973-74	----	----	----	----	88.7	44.6	

GAUGING STATION/STATION DE JAUGEAGE..... KAKASSI
 RIVER/COURS D EAU..... DARGOL
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 6940.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1957-58	0.0	0.2	2.0	10.7	16.4	0.5	0.0	0.0	0.0	0.0	0.0	0.0	2.4
1958-59	0.0	0.0	0.0	36.0	28.6	1.6	0.3	0.0	0.0	0.0	0.0	0.0	5.5
1959-60	0.0	0.0	5.7	31.6	29.8	1.3	0.3	0.0	0.0	0.0	0.0	0.0	5.7
1960-61	0.0	0.0	2.8	4.3	14.7	2.8	0.0	0.0	0.0	0.0	0.0	0.0	2.0
1961-62	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1962-63	0.0	0.0	7.2	20.8	28.1	1.1	0.0	0.0	0.0	0.0	0.0	0.0	4.7
1963-64	0.0	1.4	8.7	30.5	15.1	0.8	0.0	0.0	0.0	0.0	0.0	0.0	4.7
1964-65	0.0	4.0	21.0	46.5	78.4	1.9	0.1	0.0	0.0	0.0	0.0	0.0	12.6
1965-66	0.0	0.3	4.8	11.9	46.6	2.9	0.2	0.0	0.0	0.0	0.0	0.0	5.5
1966-67	0.0	0.3	0.1	5.0	14.8	4.5	0.1	0.0	0.0	0.0	0.0	0.0	2.0
1967-68	0.0	0.2	2.6	13.2	53.4	22.0	0.2	0.0	0.0	0.0	0.0	0.0	7.6
1968-69	0.0	0.0	1.6	5.5	4.5	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.9
1969-70	0.0	0.1	1.5	28.6	13.0	4.7	0.0	0.0	0.0	0.0	0.0	0.0	3.9
1970-71	0.0	0.6	3.0	30.6	9.8	6.4	0.0	0.0	0.0	0.0	0.0	0.0	4.1
1971-72	0.0	0.4	18.0	26.0	9.6	0.7	0.0	0.0	0.0	0.0	0.0	0.0	4.5
1972-73	0.1	3.1	12.9	9.7	14.9	0.2	0.0	0.0	0.0	0.0	0.0	0.0	3.4
1973-74	0.0	0.0	10.6	38.0	2.7	0.1	0.0	0.0	0.0	0.0	0.0	0.0	4.2
1974-75	0.0	0.2	24.4	35.3	14.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	6.3
1975-76	0.0	1.1	13.5	18.9	23.7	5.1	0.0	0.0	0.0	0.0	0.0	0.0	5.1
AVG/MOYEN	0.0	0.6	7.7	22.3	23.2	3.2	0.0	0.0	0.0	0.0	0.0	0.0	4.7

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... KAKASSI
 RIVER/COURS D EAU..... DARGOL
 COUNTRY/PAYS..... NIGER
 BASIN/BASSIN..... NIGER
 KM² AREA OF WATER SHED/BASSIN VERSANT. 6940.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M ³ /SEC	ANNUAL VOLUME VOLUME ANNUEL M ³ *MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM ²)	MAX DAILY FLOOD CRUE MAX JOUR (M ³ /S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM ²)	ABS MIN DISCH. ETIAGE (M ³ /S)
1957-58	2.4	78.3	11.	0.36	33.0	4.8	0.0
1958-59	5.5	174.7	25.	0.80	111.0	16.0	0.0
1959-60	5.7	180.5	26.	0.82	76.0	11.0	0.0
1960-61	2.0	64.6	9.	0.30	22.0	3.2	0.0
1961-62	----	----	----	----	-1.0	-1.0	
1962-63	4.7	150.3	22.	0.69	28.1	4.0	0.0
1963-64	4.7	148.4	21.	0.68	46.3	6.7	0.0
1964-65	12.6	399.1	58.	1.82	140.2	20.2	
1965-66	5.5	175.2	25.	0.80	107.2	15.4	0.0
1966-67	2.0	65.1	9.	0.30	26.0	3.7	0.0
1967-68	7.6	240.7	35.	1.10	115.0	16.6	0.0
1968-69	0.9	30.7	4.	0.14	9.2	1.3	0.0
1969-70	3.9	125.8	18.	0.58	56.0	8.1	0.0
1970-71	4.1	132.4	19.	0.61	79.9	11.5	0.0
1971-72	4.5	143.7	21.	0.66	48.0	6.9	0.0
1972-73	3.4	107.4	15.	0.49	27.7	4.0	0.0
1973-74	4.2	135.0	19.	0.62	54.3	7.8	0.0
1974-75	6.3	201.0	29.	0.92	76.9	11.1	0.0
1975-76	5.1	163.7	24.	0.75	47.9	6.9	0.0

GAUGING STATION/STATION DE JAUGEAGE.... KANDI-BANIKO
 RIVER/COURS D EAU..... ALIBORI
 COUNTRY/PAYS..... BENIN
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 8150.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1952-53	-1.0	-1.0	3.1	22.0	105.0	87.0	4.9	1.0	0.0	0.0	0.0	0.0	-1.0
1953-54	14.6	21.2	83.0	125.0	281.0	73.0	6.4	1.1	0.0	0.0	0.0	0.0	50.4
1954-55	37.2	7.7	10.4	87.0	216.0	60.0	5.0	1.0	0.7	0.0	0.0	0.0	35.4
1955-56	1.0	1.6	68.0	316.0	266.0	176.0	11.0	1.1	0.2	0.3	0.0	0.0	70.0
1956-57	0.0	6.4	29.0	127.0	187.0	98.0	4.8	0.8	0.5	0.2	0.0	0.0	37.8
1957-58	8.1	24.5	30.1	276.0	407.0	119.0	11.9	2.5	0.7	0.3	0.0	0.0	73.3
1958-59	1.9	1.7	2.1	7.1	39.6	15.6	0.9	0.4	0.9	0.5	0.3	0.4	5.9
1959-60	3.0	7.0	21.0	57.0	320.0	77.0	3.3	0.6	0.2	0.0	0.0	0.0	40.7
1960-61	1.0	8.5	28.2	106.0	296.0	134.0	12.2	0.9	0.4	0.2	0.0	0.0	48.9
1961-62	0.0	1.9	24.0	52.0	201.0	24.8	3.1	0.7	0.0	0.0	0.0	0.0	25.6
1962-63	3.3	9.3	67.0	285.0	405.0	83.0	5.7	2.2	0.0	0.0	0.0	0.0	71.7
1963-64	0.0	3.7	21.6	157.0	178.0	67.0	7.3	2.5	0.7	0.1	0.0	0.0	36.4
1964-65	0.0	1.6	7.3	126.0	160.0	18.1	3.3	1.0	0.7	0.0	0.0	0.0	26.4
1965-66	3.9	3.3	20.8	107.0	189.0	24.8	3.2	1.2	0.0	0.0	0.0	0.0	29.4
1966-67	0.0	2.9	8.3	32.3	180.0	92.0	5.8	1.7	0.0	0.0	0.0	0.0	26.9
1967-68	3.0	1.3	13.9	119.0	301.0	118.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1969-70	0.0	1.1	13.4	186.0	232.0	93.0	29.8	3.8	1.1	0.0	0.0	0.0	46.6
1971-72	1.9	3.3	17.3	46.3	104.0	18.7	0.9	0.0	0.0	0.0	0.0	0.0	16.0
AVG/MOYEN	4.6	6.2	26.0	124.0	225.9	76.6	7.0	1.3	0.3	0.0	0.0	0.0	39.3

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... KANDI-BANIKO
 RIVER/COURS D EAU..... ALIBORI
 COUNTRY/PAYS..... BENIN
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 8150.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1952-53	----	----	----	----	229.0	28.1	0.0
1953-54	50.4	1590.7	195.	6.19	553.0	67.9	0.0
1954-55	35.4	1116.9	137.	4.35	384.0	47.1	0.0
1955-56	70.0	2210.6	271.	8.60	424.0	52.0	0.0
1956-57	37.8	1192.3	146.	4.64	286.0	35.1	0.0
1957-58	73.3	2312.9	284.	9.00	519.0	63.7	0.0
1958-59	5.9	187.6	23.	0.73	146.0	17.9	0.2
1959-60	40.7	1285.3	158.	5.00	485.0	59.5	0.0
1960-61	48.9	1543.6	189.	6.01	420.0	51.5	0.0
1961-62	25.6	808.1	99.	3.14	434.0	53.3	0.0
1962-63	71.7	2261.3	277.	8.80	635.0	77.9	0.0
1963-64	36.4	1150.8	141.	4.48	271.0	33.3	0.0
1964-65	26.4	835.7	103.	3.25	298.0	36.6	0.0
1965-66	29.4	928.2	114.	3.61	331.0	40.6	0.0
1966-67	26.9	848.8	104.	3.30	363.0	44.5	0.0
1967-68	----	----	----	----	431.0	52.9	0.0
1969-70	46.6	1472.2	181.	5.73	489.0	60.0	0.0
1971-72	16.0	505.6	62.	1.97	153.0	18.8	0.0

GAUGING STATION/STATION DE JAUGEAGE.... KANKAN
 RIVER/COURS D EAU..... MILO
 COUNTRY/PAYS..... GUINEE
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 9900.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR-- ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1938-39	40.0	76.0	167.0	461.0	725.0	528.0	199.0	78.0	44.0	46.0	10.0	8.0	200.1
1939-40	76.0	120.0	182.0	373.0	858.0	595.0	222.0	139.0	-1.0	-1.0	-1.0	-1.0	-1.0
1940-41	-1.0	92.0	278.0	484.0	470.0	460.0	193.0	97.0	-1.0	-1.0	-1.0	-1.0	-1.0
1941-42	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1942-43	79.0	95.0	255.0	415.0	590.0	315.0	236.0	184.0	-1.0	-1.0	-1.0	-1.0	-1.0
1943-44	-1.0	-1.0	229.0	500.0	611.0	514.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1944-45	-1.0	63.0	156.0	512.0	866.0	359.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1946-47	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	46.0	22.0	19.0	8.0	-1.0
1947-48	18.0	108.0	294.0	447.0	774.0	383.0	124.0	60.0	35.0	15.0	9.0	12.0	189.9
1948-49	32.0	127.0	401.0	562.0	611.0	262.0	185.0	7.5	40.0	24.0	26.0	37.0	192.8
1949-50	34.0	38.0	229.0	596.0	798.0	342.0	161.0	70.0	52.0	36.0	20.0	13.0	199.0
1950-51	30.0	49.0	205.0	274.0	530.0	542.0	203.0	78.0	50.0	36.0	33.0	34.0	172.0
1951-52	81.0	146.0	396.0	603.0	632.0	688.0	529.0	152.0	77.0	46.0	36.0	30.0	284.8
1952-53	37.0	74.0	241.0	598.0	663.0	571.0	219.0	94.0	65.0	30.0	29.0	19.0	220.0
1953-54	27.0	170.0	343.0	580.0	672.0	458.0	198.0	105.0	61.0	42.0	35.0	50.0	228.4
1954-55	61.0	154.0	401.0	584.0	656.0	608.0	374.0	150.0	80.0	44.0	49.0	46.0	267.2
1955-56	70.0	203.0	407.0	590.0	756.0	636.0	236.0	125.0	68.0	46.0	44.0	47.0	269.0
1956-57	39.0	65.0	165.0	307.0	496.0	360.0	138.0	76.0	39.0	21.0	19.0	15.0	145.0
1957-58	29.0	87.0	273.0	462.0	709.0	629.0	241.0	104.0	56.0	36.0	17.0	39.0	223.5
1958-59	98.0	269.0	283.0	189.0	570.0	506.0	215.0	133.0	57.0	30.0	17.0	13.0	198.3
1959-60	32.0	73.0	343.0	321.0	815.0	324.0	188.0	74.0	34.0	16.0	10.0	19.0	187.4
1960-61	51.0	121.0	264.0	719.0	866.0	490.0	217.0	91.0	45.0	25.0	12.0	11.0	242.6
1961-62	34.0	50.0	180.0	360.0	472.0	293.0	123.0	54.0	28.0	14.0	12.0	25.0	137.0
1962-63	43.0	71.0	250.0	446.0	782.0	553.0	264.0	111.0	53.0	45.0	32.0	30.0	223.3
1963-64	56.0	70.0	190.0	396.0	648.0	509.0	181.0	68.0	32.0	17.0	10.0	11.0	182.3
1964-65	16.0	102.0	164.0	495.0	499.0	448.0	166.0	121.0	-1.0	-1.0	-1.0	-1.0	-1.0
1966-67	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	10.0	9.0	10.0	-1.0
1967-68	25.0	42.0	247.0	507.0	764.0	769.0	214.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	45.8	102.7	262.5	471.2	673.3	485.6	218.5	98.7	50.6	30.0	22.4	23.8	207.1

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... KANKAN
 RIVER/COURS D EAU..... MILO
 COUNTRY/PAYS..... GUINEE
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 9900.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1938-39	200.1	6312.4	638.	20.22	1021.0	103.1	7.0
1939-40	----	----	----	----	1106.0	111.7	
1940-41	----	----	----	----	622.0	62.8	
1941-42	----	----	----	----	-1.0	-1.0	
1942-43	----	----	----	----	614.0	62.0	
1943-44	----	----	----	----	837.0	84.5	
1944-45	----	----	----	----	1106.0	111.7	
1946-47	----	----	----	----	-1.0	-1.0	8.0
1947-48	189.9	5989.2	605.	19.18	979.0	98.9	7.0
1948-49	192.8	6082.5	614.	19.48	748.0	75.6	12.0
1949-50	199.0	6278.2	634.	20.11	958.0	96.8	7.0
1950-51	172.0	5424.1	548.	17.37	650.0	65.7	26.0
1951-52	284.8	8982.5	907.	28.77	732.0	73.9	29.0
1952-53	220.0	6937.9	701.	22.22	760.0	76.8	10.0
1953-54	228.4	7203.3	728.	23.07	833.0	84.1	24.0
1954-55	267.2	8427.9	851.	26.99	748.0	75.6	30.0
1955-56	269.0	8483.1	857.	27.17	1021.0	103.1	30.0
1956-57	145.0	4572.7	462.	14.65	624.0	63.0	10.0
1957-58	223.5	7048.2	712.	22.58	887.0	89.6	
1958-59	198.3	6254.6	632.	20.03	-1.0	-1.0	
1959-60	187.4	5910.3	597.	18.93	-1.0	-1.0	
1960-61	242.6	7652.7	773.	24.51	-1.0	-1.0	
1961-62	137.0	4323.0	437.	13.85	-1.0	-1.0	
1962-63	223.3	7043.0	711.	22.56	-1.0	-1.0	
1963-64	182.3	5750.0	581.	18.42	-1.0	-1.0	
1964-65	----	----	----	----	-1.0	-1.0	
1966-67	----	----	----	----	1210.0	122.2	
1967-68	----	----	----	----	-1.0	-1.0	

GAUGING STATION/STATION DE JAUAGE.... KARA
 RIVER/COURS D EAU..... DIAKA
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 143000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1939-40	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	138.0	64.0	19.0	5.0	-1.0
1940-41	1.0	13.0	199.0	795.0	1246.0	1331.0	803.0	243.0	107.0	54.0	17.0	4.0	401.0
1941-42	0.0	34.0	223.0	637.0	1543.0	1407.0	725.0	234.0	104.0	48.0	13.0	4.0	414.3
1942-43	14.0	60.0	166.0	661.0	1425.0	835.0	486.0	188.0	79.0	27.0	3.0	0.0	328.6
1943-44	0.0	24.0	159.0	554.0	1552.0	1558.0	913.0	240.0	83.0	25.0	4.0	0.0	426.0
1944-45	0.0	5.0	90.0	484.0	1412.0	1210.0	501.0	170.0	66.0	17.0	1.0	0.0	329.6
1945-46	0.0	7.0	71.0	798.0	1521.0	1575.0	768.0	199.0	72.0	21.0	2.0	0.0	419.5
1946-47	3.0	49.0	216.0	846.0	1615.0	1709.0	1139.0	317.0	122.0	55.0	14.0	1.0	507.1
1947-48	0.0	1.0	182.0	818.0	1497.0	1565.0	483.0	153.0	42.0	13.0	2.0	0.0	396.3
1948-49	0.0	29.0	429.0	1151.0	1732.0	1629.0	857.0	223.0	81.0	32.0	4.0	5.0	514.3
1949-50	0.0	26.0	86.0	909.0	1722.0	1446.0	529.0	206.0	95.0	20.0	0.0	0.0	419.9
1950-51	0.0	0.0	151.0	771.0	1621.0	1758.0	1079.0	254.0	99.0	34.0	0.0	0.0	480.5
1952-53	0.0	17.0	252.0	1006.0	1540.0	1667.0	1001.0	334.0	142.0	59.0	15.0	3.0	503.0
1953-54	1.0	87.0	657.0	1279.0	1666.0	1640.0	982.0	382.0	175.0	84.0	28.0	22.0	583.5
1954-55	12.0	139.0	529.0	1342.0	1661.0	1642.0	1277.0	687.0	233.0	121.0	50.0	35.0	644.0
1955-56	23.0	101.0	621.0	1242.0	1651.0	1686.0	1144.0	453.0	191.0	91.0	41.0	13.0	604.7
1956-57	4.0	12.0	208.0	650.0	1443.0	1551.0	707.0	233.0	100.0	22.0	3.0	0.0	411.0
1957-58	0.0	17.0	309.0	1154.0	1637.0	1696.0	1405.0	503.0	170.0	79.0	12.0	2.0	582.0
1958-59	10.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1968-69	-1.0	-1.0	-1.0	1006.0	1438.0	1427.0	618.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1969-70	0.0	8.3	380.0	1129.0	1616.0	1636.0	1478.0	446.0	123.0	23.0	6.8	0.2	570.5
1970-71	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	3.4	34.9	273.7	906.9	1554.6	1524.6	889.2	303.6	116.9	46.7	12.3	4.9	472.6

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... KARA
 RIVER/COURS D EAU..... DIAKA
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... NIGER
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 143000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1939-40	----	----	----	----	-1.0	-1.0	
1940-41	401.0	12648.5	88.	2.80	1371.0	9.6	0.0
1941-42	414.3	13066.4	91.	2.90	1691.0	11.8	0.0
1942-43	328.6	10364.8	72.	2.30	1603.0	11.2	0.0
1943-44	426.0	13434.3	94.	2.98	1685.0	11.8	0.0
1944-45	329.6	10396.3	73.	2.31	1636.0	11.4	0.0
1945-46	419.5	13229.3	93.	2.93	1691.0	11.8	0.0
1946-47	507.1	15994.0	112.	3.55	1720.0	12.0	0.0
1947-48	396.3	12498.7	87.	2.77	1731.0	12.1	0.0
1948-49	514.3	16220.0	113.	3.60	1766.0	12.3	0.0
1949-50	419.9	13242.4	93.	2.94	1748.0	12.2	0.0
1950-51	480.5	15155.6	106.	3.36	1766.0	12.3	0.0
1952-53	503.0	15862.6	111.	3.52	1680.0	11.7	0.0
1953-54	583.5	18403.8	129.	4.08	1685.0	11.8	0.0
1954-55	644.0	20309.1	142.	4.50	1691.0	11.8	2.0
1955-56	604.7	19071.3	133.	4.23	1708.0	11.9	7.0
1956-57	411.0	12963.9	91.	2.87	1663.0	11.6	0.0
1957-58	582.0	18353.9	128.	4.07	1697.0	11.9	0.0
1958-59	----	----	----	----	-1.0	-1.0	
1968-69	----	----	----	----	-1.0	-1.0	
1969-70	570.5	17992.0	126.	3.99	1655.0	11.6	
1970-71	----	----	----	----	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE.... BAMBOI
 RIVER/COURS D EAU..... BLACK VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... BLACK VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 134200.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1949-50	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	24.5	39.3	-1.0
1950-51	62.2	67.0	159.0	325.0	628.0	533.0	157.0	79.4	48.8	36.1	37.0	33.5	180.4
1951-52	89.3	66.8	230.0	392.0	1350.0	1630.0	1160.0	247.0	139.0	61.8	37.1	44.1	453.9
1952-53	58.2	43.3	159.0	310.0	1010.0	1670.0	520.0	175.0	144.0	92.5	67.3	41.7	357.5
1953-54	60.4	195.0	267.0	336.0	828.0	636.0	187.0	91.6	-1.0	-1.0	-1.0	-1.0	-1.0
1954-55	-1.0	-1.0	-1.0	228.0	946.0	948.0	341.0	164.0	120.0	77.6	65.5	30.2	-1.0
1955-56	60.9	123.0	305.0	574.0	1130.0	1620.0	455.0	138.0	98.0	57.0	45.2	44.2	387.5
1956-57	73.9	-1.0	144.0	152.0	569.0	706.0	157.0	-1.0	82.2	63.2	45.7	43.3	-1.0
1957-58	90.7	255.0	313.0	576.0	966.0	1300.0	465.0	200.0	151.0	110.0	55.2	55.7	378.1
1958-59	43.1	81.6	90.1	161.0	349.0	-1.0	-1.0	116.0	-1.0	48.7	42.4	35.0	-1.0
1959-60	61.2	-1.0	149.0	215.0	802.0	667.0	161.0	98.8	53.3	37.2	29.4	53.8	-1.0
1960-61	68.2	132.0	210.0	436.0	775.0	737.0	181.0	110.0	56.6	36.1	28.7	42.8	234.4
1961-62	62.3	138.0	128.0	191.0	491.0	363.0	108.0	83.2	73.6	55.7	41.9	60.3	149.6
1962-63	89.6	198.0	304.0	443.0	1020.0	1030.0	364.0	144.0	-1.0	21.1	14.1	15.7	-1.0
1963-64	50.9	47.7	414.0	1300.0	2320.0	1580.0	-1.0	160.0	92.1	44.3	39.3	33.9	-1.0
1964-65	40.4	135.0	133.0	240.0	1020.0	825.0	241.0	130.0	-1.0	-1.0	35.2	31.7	-1.0
1965-66	47.3	165.0	637.0	684.0	1020.0	847.0	231.0	124.0	58.4	27.5	18.3	20.8	323.3
1966-67	-1.0	97.0	124.0	330.0	582.0	-1.0	233.0	88.5	-1.0	20.9	8.7	10.4	-1.0
1967-68	22.7	30.1	79.6	165.0	512.0	504.0	151.0	70.8	29.3	16.4	11.9	22.7	134.6
1968-69	59.4	255.0	484.0	991.0	1940.0	1180.0	425.0	160.0	71.7	32.2	22.1	25.2	470.4
1969-70	32.5	54.9	254.0	470.0	1040.0	941.0	441.0	124.0	54.2	24.5	15.2	8.4	288.3
1970-71	28.9	38.3	61.5	403.0	950.0	666.0	160.0	103.0	60.6	37.5	29.0	18.3	213.0
1971-72	37.7	62.9	153.0	466.0	882.0	599.0	124.0	58.6	27.5	14.1	9.8	14.5	204.0
1972-73	38.6	163.0	116.0	172.0	-1.0	231.0	76.2	19.4	7.7	3.9	3.4	10.8	-1.0
1973-74	23.1	46.6	103.0	355.0	531.0	250.0	53.6	8.3	4.3	2.6	-1.0	-1.0	-1.0
AVG/MOYEN	54.6	114.0	218.1	413.1	941.7	884.6	290.5	117.1	72.2	41.8	31.6	32.0	267.6

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... BAMBOI
 RIVER/COURS D EAU..... BLACK VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... BLACK VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 134200.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1949-50	----	----	----	----	-1.0	-1.0	
1950-51	180.4	5692.2	42.	1.35	735.0	5.5	20.8
1951-52	453.9	14314.9	107.	3.38	1880.0	14.0	22.8
1952-53	357.5	11276.7	84.	2.66	-1.0	-1.0	26.8
1953-54	----	----	----	----	1020.0	7.6	35.3
1954-55	----	----	----	----	1240.0	9.2	
1955-56	387.5	12220.9	91.	2.89	1860.0	13.9	
1956-57	----	----	----	----	1240.0	9.2	
1957-58	378.1	11924.8	89.	2.82	1800.0	13.4	26.8
1958-59	----	----	----	----	-1.0	-1.0	18.9
1959-60	----	----	----	----	1610.0	12.0	7.4
1960-61	234.4	7393.6	55.	1.75	1260.0	9.4	28.9
1961-62	149.6	4719.8	35.	1.12	623.0	4.6	26.8
1962-63	----	----	----	----	1410.0	10.5	26.8
1963-64	----	----	----	----	3050.0	22.7	7.4
1964-65	----	----	----	----	1310.0	9.8	11.5
1965-66	323.3	10197.4	76.	2.41	1270.0	9.5	
1966-67	----	----	----	----	-1.0	-1.0	
1967-68	134.6	4245.5	32.	1.00	670.0	5.0	7.4
1968-69	470.4	14836.6	111.	3.51	2420.0	18.0	7.4
1969-70	288.3	9092.0	68.	2.15	1230.0	9.2	
1970-71	213.0	6717.4	50.	1.59	1180.0	8.8	5.8
1971-72	204.0	6436.2	48.	1.52	1170.0	8.7	
1972-73	----	----	----	----	-1.0	-1.0	3.4
1973-74	----	----	----	----	686.0	5.1	2.5

GAUGING STATION/STATION DE JAUGEAGE..... BOROMO
 RIVER/COURS D EAU..... VOLTA NOIRE
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTA NOIRE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 50000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1955-56	13.2	18.5	26.9	70.6	97.5	100.0	80.3	76.1	55.4	34.0	17.8	11.3	50.1
1956-57	12.0	19.4	32.4	69.4	129.0	117.0	76.7	62.5	37.9	20.0	16.4	8.3	50.0
1957-58	10.0	14.3	21.3	41.2	78.9	75.1	72.1	68.9	45.1	24.8	13.2	9.3	39.5
1958-59	8.1	20.0	33.3	80.4	145.0	121.0	83.3	76.4	57.0	32.7	16.4	9.6	56.9
1959-60	9.8	15.2	21.4	83.4	108.0	62.8	57.2	36.5	17.5	10.1	8.6	8.4	36.5
1960-61	10.6	28.0	58.2	115.0	100.0	70.6	61.8	44.4	21.0	12.4	8.6	7.3	44.8
1961-62	9.0	10.7	23.5	90.5	155.0	112.0	86.0	62.7	38.0	21.8	11.9	8.2	52.4
1962-63	8.6	13.1	17.9	57.5	166.0	131.0	72.4	45.1	22.4	12.1	8.1	7.3	46.7
1963-64	32.8	10.3	27.4	81.4	88.4	81.4	71.8	61.3	35.4	17.5	9.5	6.7	43.6
1964-65	8.1	22.9	38.2	67.2	157.0	130.0	80.6	67.4	43.3	23.8	12.0	8.1	54.8
1965-66	8.5	16.6	32.9	71.7	116.0	109.0	70.2	56.6	32.3	15.9	9.7	6.7	45.5
1966-67	14.2	15.2	15.6	36.6	63.8	74.4	50.1	31.4	14.0	9.0	7.2	6.8	28.1
1967-68	9.1	10.3	21.8	53.9	92.7	72.6	57.4	42.6	18.0	10.4	7.7	7.3	33.6
1968-69	12.7	40.1	30.6	59.7	71.8	71.8	65.3	48.8	25.0	12.8	8.2	7.7	37.8
1969-70	6.5	14.0	52.2	85.8	140.0	106.0	66.9	48.5	23.4	12.1	7.7	6.3	47.4
1970-71	7.7	13.8	31.6	85.1	123.0	105.0	85.6	64.9	40.2	22.5	11.4	9.2	49.9
1971-72	6.3	21.0	31.8	58.2	121.0	83.0	54.5	27.1	13.2	7.6	6.7	6.7	36.4
1972-73	11.0	36.0	22.9	53.7	53.3	35.7	17.3	8.1	3.7	2.7	2.0	2.3	20.7
1973-74	12.3	8.6	36.2	86.6	47.3	23.3	6.8	4.5	3.3	2.7	1.9	2.3	19.6
1974-75	11.0	12.7	42.8	110.0	132.0	95.0	61.0	30.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	11.0	18.0	30.9	72.8	109.2	88.8	63.8	48.1	28.7	16.0	9.7	7.3	42.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... BOROMO
 RIVER/COURS D EAU..... VOLTA NOIRE
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTA NOIRE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 50000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1955-56	50.1	1581.0	32.	1.00	109.0	2.2	11.0
1956-57	50.0	1579.4	32.	1.00	146.0	2.9	7.5
1957-58	39.5	1246.1	25.	0.79	98.1	2.0	7.3
1958-59	56.9	1795.4	36.	1.14	149.0	3.0	7.3
1959-60	36.5	1153.4	23.	0.73	127.0	2.5	8.1
1960-61	44.8	1413.6	28.	0.90	120.0	2.4	5.8
1961-62	52.4	1653.8	33.	1.05	175.0	3.5	6.2
1962-63	46.7	1475.6	30.	0.94	182.0	3.6	7.1
1963-64	43.6	1376.8	28.	0.87	95.7	1.9	6.6
1964-65	54.8	1730.8	35.	1.10	175.0	3.5	6.2
1965-66	45.5	1435.1	29.	0.91	138.0	2.8	6.6
1966-67	28.1	889.0	18.	0.56	83.9	1.7	5.8
1967-68	33.6	1061.1	21.	0.67	98.1	2.0	6.6
1968-69	37.8	1194.4	24.	0.76	76.3	1.5	6.8
1969-70	47.4	1496.3	30.	0.95	148.0	3.0	5.2
1970-71	49.9	1576.7	32.	1.00	127.0	2.5	5.4
1971-72	36.4	1148.6	23.	0.73	120.0	2.4	5.8
1972-73	20.7	653.5	13.	0.41	77.3	1.5	
1973-74	19.6	619.6	12.	0.39	106.0	2.1	
1974-75	----	----	----	----	-1.0	-1.0	1.7

GAUGING STATION/STATION DE JAUGEAGE..... BUI D/S
 RIVER/COURS D EAU..... BLACK VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... BLACK VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 125000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1965-66	7.1	150.0	693.0	765.0	1010.0	826.0	284.0	136.0	54.9	10.8	3.3	3.6	328.6
1966-67	38.4	71.6	96.5	396.0	662.0	835.0	309.0	95.7	14.7	2.7	2.1	2.2	210.5
1967-68	12.3	6.9	74.6	235.0	633.0	589.0	214.0	91.7	19.7	4.8	2.4	8.7	157.6
1968-69	56.1	274.0	523.0	949.0	1720.0	1040.0	445.0	191.0	60.9	12.5	4.0	8.1	440.3
1969-70	6.0	41.8	343.0	613.0	1180.0	1030.0	495.0	161.0	49.6	6.9	4.8	2.1	327.7
1970-71	7.1	21.9	60.8	526.0	1110.0	739.0	226.0	136.0	63.9	26.0	8.5	2.7	244.0
1971-72	14.7	32.7	176.0	550.0	917.0	617.0	160.0	58.7	10.4	2.6	2.2	2.6	211.9
1972-73	18.7	145.0	121.0	268.0	489.0	338.0	91.5	6.2	2.2	3.8	-1.0	2.1	-1.0
1973-74	18.3	35.8	150.0	528.0	591.0	257.0	38.6	2.3	1.9	2.9	-1.0	-1.0	-1.0
AVG/MOYEN	19.8	86.6	248.6	536.6	923.5	696.7	251.4	97.6	30.9	8.1	3.9	4.0	242.3

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... BUI D/S
 RIVER/COURS D EAU..... BLACK VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... BLACK VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 125000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1965-66	328.6	10364.2	83.	2.63	1200.0	9.6	9.8
1966-67	210.5	6638.3	53.	1.68	1020.0	8.2	2.4
1967-68	157.6	4973.1	40.	1.26	794.0	6.4	2.0
1968-69	440.3	13885.5	111.	3.52	2350.0	18.8	2.1
1969-70	327.7	10336.8	83.	2.62	1370.0	11.0	2.5
1970-71	244.0	7694.8	62.	1.95	1310.0	10.5	2.0
1971-72	211.9	6685.5	53.	1.70	1110.0	8.9	2.5
1972-73	----	----	----	----	613.0	4.9	1.9
1973-74	----	----	----	----	674.0	5.4	

GAUGING STATION/STATION DE JAUGEAGE..... BUI U/S
 RIVER/COURS D EAU..... BLACK VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... BLACK VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 125000.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1954-55	22.1	43.2	35.6	195.0	927.0	844.0	289.0	126.0	82.7	53.4	41.6	27.0	223.8
1955-56	30.9	63.4	179.0	559.0	1070.0	1380.0	357.0	140.0	74.5	46.1	29.8	22.5	329.3
1956-57	33.2	41.6	78.5	122.0	576.0	669.0	144.0	89.2	46.7	23.6	15.0	-1.0	-1.0
1957-58	64.0	207.0	267.0	544.0	907.0	1090.0	361.0	140.0	71.8	33.9	17.2	20.1	310.2
1958-59	15.4	34.7	47.9	139.0	362.0	392.0	138.0	104.0	62.8	36.8	25.6	16.6	114.5
1959-60	46.0	72.1	104.0	186.0	798.0	494.0	109.0	54.6	20.9	11.5	-1.0	13.5	-1.0
1960-61	27.7	77.0	169.0	414.0	749.0	604.0	129.0	66.7	25.2	13.1	-1.0	14.1	-1.0
1961-62	26.4	78.6	88.9	156.0	481.0	291.0	110.0	78.0	41.1	23.4	17.0	35.5	118.9
1962-63	45.8	121.0	219.0	410.0	997.0	955.0	306.0	91.5	31.8	16.2	11.8	10.8	267.9
1963-64	44.0	35.4	411.0	1270.0	2400.0	1510.0	416.0	121.0	55.1	23.6	17.4	15.7	526.5
1964-65	25.3	95.1	105.0	235.0	1010.0	854.0	210.0	107.0	63.5	35.2	19.7	11.8	230.9
1965-66	16.5	114.0	630.0	715.0	1000.0	788.0	195.0	91.8	45.6	22.0	14.6	15.4	303.9
1966-67	35.1	52.3	66.4	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	33.2	79.6	184.7	412.0	939.7	822.5	230.3	100.8	51.8	28.2	20.9	18.4	243.5

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... BUI U/S
 RIVER/COURS D EAU..... BLACK VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... BLACK VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 125000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1954-55	223.8	7060.3	56.	1.79	1170.0	9.4	18.3
1955-56	329.3	10386.3	83.	2.63	1760.0	14.1	17.1
1956-57	----	----	----	----	1210.0	9.7	
1957-58	310.2	9784.0	78.	2.48	1570.0	12.6	11.6
1958-59	114.5	3612.9	29.	0.92	576.0	4.6	9.6
1959-60	----	----	----	----	1520.0	12.2	
1960-61	----	----	----	----	1060.0	8.5	
1961-62	118.9	3749.8	30.	0.95	621.0	5.0	7.4
1962-63	267.9	8451.3	68.	2.14	1330.0	10.6	7.4
1963-64	526.5	16606.8	133.	4.21	3160.0	25.3	8.6
1964-65	230.9	7283.7	58.	1.85	1230.0	9.8	9.8
1965-66	303.9	9586.6	77.	2.43	1200.0	9.6	
1966-67	----	----	----	----	-1.0	-1.0	0.0

GAUGING STATION/STATION DE JAUGEAGE..... DAPOLA
 RIVER/COURS D EAU..... VOLTA NOIRE
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTA NOIRE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 78000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1955-56	-1.0	-1.0	-1.0	252.0	561.0	591.0	166.0	-1.0	-1.0	-1.0	-1.0	14.3	-1.0
1956-57	10.6	30.6	62.8	107.0	452.0	-1.0	-1.0	72.7	42.2	20.9	-1.0	-1.0	-1.0
1957-58	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1958-59	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	57.5	34.8	17.8	8.7	-1.0
1959-60	31.5	26.5	37.0	146.0	362.0	151.0	68.8	42.7	20.4	12.0	9.5	10.4	76.4
1960-61	30.7	64.6	135.0	293.0	460.0	223.0	80.6	53.6	23.8	13.2	9.2	-1.0	-1.0
1961-62	-1.0	-1.0	54.6	156.0	412.0	217.0	-1.0	75.0	-1.0	-1.0	-1.0	-1.0	-1.0
1962-63	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	6.6	-1.0
1963-64	33.3	15.4	108.0	755.0	782.0	375.0	130.0	77.8	-1.0	-1.0	-1.0	-1.0	-1.0
1964-65	16.5	31.3	53.7	173.0	616.0	548.0	138.0	84.6	51.3	-1.0	-1.0	-1.0	-1.0
1965-66	14.5	37.9	94.6	395.0	488.0	350.0	124.0	73.6	37.6	17.2	-1.0	-1.0	-1.0
1966-67	30.2	18.3	25.3	174.0	297.0	305.0	112.0	44.9	18.4	9.8	-1.0	-1.0	-1.0
1967-68	8.8	14.4	35.8	129.0	348.0	274.0	103.0	53.0	21.6	12.7	-1.0	-1.0	-1.0
1968-69	24.4	70.7	99.7	152.0	363.0	313.0	133.0	70.4	32.9	15.3	8.9	15.0	108.1
1969-70	16.3	37.0	142.0	355.0	622.0	384.0	149.0	71.0	31.9	-1.0	8.6	8.1	-1.0
1970-71	12.3	19.9	56.1	380.0	674.0	362.0	113.0	80.4	45.5	24.1	12.1	11.0	149.1
1971-72	18.5	32.2	75.1	278.0	591.0	289.0	80.5	35.3	15.2	7.8	6.1	10.7	119.9
1972-73	25.6	69.8	44.5	132.0	205.0	80.0	26.4	10.3	6.7	-1.0	-1.0	6.2	-1.0
1973-74	22.5	24.1	63.1	213.0	155.0	48.4	9.2	5.0	-1.0	-1.0	1.5	4.4	-1.0
1974-75	13.1	24.4	132.0	270.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	20.5	34.4	76.2	256.4	461.7	300.6	102.3	56.6	31.1	16.7	9.2	9.5	114.6

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... DAPOLA
 RIVER/COURS D EAU..... VOLTA NOIRE
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTA NOIRE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 78000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1955-56	----	----	----	----	752.0	9.6	
1956-57	----	----	----	----	-1.0	-1.0	7.2
1957-58	----	----	----	----	-1.0	-1.0	
1958-59	----	----	----	----	-1.0	-1.0	
1959-60	76.4	2411.9	31.	0.98	545.0	7.0	6.9
1960-61	----	----	----	----	601.0	7.7	7.7
1961-62	----	----	----	----	479.0	6.1	
1962-63	----	----	----	----	-1.0	-1.0	
1963-64	----	----	----	----	1050.0	13.5	
1964-65	----	----	----	----	771.0	9.9	
1965-66	----	----	----	----	510.0	6.5	5.7
1966-67	----	----	----	----	382.0	4.9	
1967-68	----	----	----	----	385.0	4.9	6.2
1968-69	108.1	3412.0	44.	1.39	396.0	5.1	
1969-70	----	----	----	----	664.0	8.5	5.3
1970-71	149.1	4705.1	60.	1.91	758.0	9.7	6.5
1971-72	119.9	3782.8	48.	1.54	640.0	8.2	5.5
1972-73	----	----	----	----	293.0	3.8	4.2
1973-74	----	----	----	----	305.0	3.9	
1974-75	----	----	----	----	-1.0	-1.0	0.6

GAUGING STATION/STATION DE JAUGEAGE.... KOURI
 RIVER/COURS D EAU..... VOLTA NOIRE
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTA NOIRE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 20800.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1954-55	9.0	11.0	14.0	28.0	88.0	137.0	152.0	105.0	36.0	15.0	14.0	13.0	51.8
1955-56	12.0	12.0	16.0	36.0	71.0	124.0	144.0	93.2	47.7	26.1	15.2	10.0	50.5
1956-57	9.1	9.7	12.9	34.2	82.8	112.0	95.9	42.7	16.6	10.0	7.4	6.6	36.6
1957-58	8.4	10.8	16.3	32.7	61.0	103.0	115.0	82.4	35.5	18.2	11.3	9.3	41.9
1958-59	8.4	10.5	14.9	40.2	91.6	130.0	134.0	79.7	26.2	14.0	8.7	7.6	47.1
1959-60	7.5	7.5	7.2	13.8	27.5	48.8	51.1	15.4	9.3	7.2	6.4	7.1	17.3
1960-61	6.4	6.9	9.9	19.2	31.0	62.7	68.6	27.4	10.2	7.7	6.5	6.2	21.8
1961-62	6.1	6.6	9.8	37.8	119.0	159.0	124.0	40.9	17.3	10.6	7.6	6.5	45.4
1962-63	6.3	6.5	10.2	19.2	74.1	84.2	62.1	21.4	10.2	7.5	6.4	6.6	26.2
1963-64	7.4	6.2	8.0	20.1	64.2	93.1	93.2	44.6	15.1	9.0	6.9	6.2	31.1
1964-65	6.8	7.2	8.7	25.0	76.0	108.0	108.0	54.1	19.5	10.9	7.6	6.5	36.5
1965-66	6.3	7.3	10.0	16.7	48.9	84.4	87.3	36.9	13.4	8.6	7.0	6.4	27.7
1966-67	6.9	7.1	8.2	14.2	23.7	35.4	34.2	13.7	8.2	6.8	6.3	6.2	14.2
1967-68	6.1	6.4	7.9	13.5	34.5	52.1	60.5	23.0	13.8	9.9	8.5	8.6	20.3
1968-69	9.1	10.9	18.0	37.7	58.3	89.8	91.7	44.8	18.2	11.1	8.6	9.1	33.9
1969-70	7.6	8.4	16.6	-1.0	-1.0	90.5	91.4	44.9	17.6	10.5	8.6	8.0	-1.0
1970-71	8.3	10.0	15.6	60.5	-1.0	-1.0	143.0	62.5	31.8	15.4	9.4	8.9	-1.0
1971-72	7.8	9.0	12.0	31.0	71.8	85.8	56.7	19.3	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	7.7	8.5	12.0	28.2	63.9	94.1	95.1	47.3	20.3	11.6	8.6	7.8	33.7

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... KOURI
 RIVER/COURS D EAU..... VOLTA NOIRE
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTA NOIRE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 20800.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG.AN.DISCH. DEBITS MOY.AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1954-55	51.8	1634.6	79.	2.49	-1.0	-1.0	
1955-56	50.5	1595.7	77.	2.43	-1.0	-1.0	
1956-57	36.6	1156.0	56.	1.76	-1.0	-1.0	8.3
1957-58	41.9	1324.2	64.	2.02	116.0	5.6	
1958-59	47.1	1486.9	71.	2.27	-1.0	-1.0	8.2
1959-60	17.3	548.7	26.	0.84	-1.0	-1.0	
1960-61	21.8	690.3	33.	1.05	-1.0	-1.0	
1961-62	45.4	1432.7	69.	2.18	-1.0	-1.0	6.0
1962-63	26.2	827.0	40.	1.26	89.3	4.3	6.1
1963-64	31.1	982.8	47.	1.50	100.0	4.8	6.0
1964-65	36.5	1151.8	55.	1.76	113.0	5.4	6.0
1965-66	27.7	875.6	42.	1.33	91.9	4.4	6.0
1966-67	14.2	449.1	22.	0.68	36.6	1.8	5.7
1967-68	20.3	643.3	31.	0.98	64.5	3.1	5.8
1968-69	33.9	1070.3	51.	1.63	96.5	4.6	8.0
1969-70	----	----	----	----	96.5	4.6	
1970-71	----	----	----	----	187.0	9.0	7.8
1971-72	----	----	----	----	88.3	4.2	7.0

GAUGING STATION/STATION DE JAUGEAGE..... LAWRA
 RIVER/COURS D EAU..... BLACK VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... BLACK VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 93965.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR-- ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1951-52	20.2	51.2	89.1	206.0	495.0	837.0	463.0	133.0	75.6	41.8	27.3	17.5	204.7
1952-53	17.9	25.8	74.9	203.0	603.0	834.0	260.0	-1.0	-1.0	-1.0	31.3	13.1	-1.0
1953-54	18.0	43.1	86.5	208.0	510.0	217.0	68.2	36.1	18.4	11.5	8.6	7.4	102.7
1954-55	8.4	29.8	35.0	158.0	656.0	439.0	147.0	85.7	57.8	31.3	17.9	13.6	139.9
1955-56	14.4	21.0	60.8	251.0	549.0	581.0	150.0	89.7	59.4	33.9	16.4	11.9	153.2
1956-57	10.2	25.6	55.2	102.0	432.0	292.0	91.2	64.9	36.7	17.5	10.5	19.7	96.4
1957-58	25.8	45.4	78.1	197.0	380.0	350.0	-1.0	-1.0	-1.0	-1.0	-1.0	9.8	-1.0
1958-59	8.7	22.4	47.4	128.0	292.0	219.0	87.5	75.4	50.5	29.7	15.4	8.8	82.0
1959-60	23.5	19.6	30.7	145.0	322.0	159.0	58.1	33.8	14.5	9.4	8.2	10.5	69.5
1960-61	28.3	51.2	130.0	289.0	426.0	205.0	69.6	44.8	18.9	11.2	8.8	8.5	107.6
1961-62	15.1	39.3	33.0	143.0	378.0	196.0	87.9	62.5	33.9	19.1	11.3	15.2	86.1
1962-63	20.6	26.9	40.6	192.0	547.0	393.0	106.0	49.2	19.6	12.1	7.6	10.9	118.7
1963-64	32.7	15.4	89.6	702.0	-1.0	356.0	116.0	67.0	35.5	16.7	9.8	10.5	-1.0
1964-65	15.4	27.7	46.9	161.0	659.0	530.0	125.0	75.8	46.3	26.5	13.5	12.0	144.9
1965-66	17.0	34.0	80.4	359.0	461.0	331.0	102.0	63.3	34.8	17.8	11.9	11.1	126.9
1966-67	25.0	18.3	26.0	140.0	287.0	290.0	139.0	38.4	16.2	10.4	8.9	9.2	84.0
1967-68	12.9	14.0	42.7	103.0	325.0	235.0	77.6	47.3	20.0	12.0	9.4	10.9	75.8
1968-69	26.9	88.9	113.0	170.0	301.0	317.0	112.0	60.1	27.5	14.2	9.7	12.1	104.3
1969-70	17.1	34.4	114.0	278.0	564.0	343.0	126.0	58.7	26.4	13.9	9.4	8.8	132.8
1970-71	12.6	19.7	50.3	346.0	646.0	337.0	100.0	68.7	40.6	23.0	13.7	12.4	139.1
1971-72	16.4	29.2	62.0	264.0	560.0	254.0	69.3	-1.0	-1.0	-1.0	8.8	10.5	-1.0
1972-73	25.0	56.7	38.2	126.0	181.0	66.5	24.3	11.9	9.0	8.2	7.4	8.1	46.8
1973-74	18.4	22.5	52.4	190.0	133.0	39.0	10.8	8.4	7.4	7.1	7.0	8.0	42.0
AVG/MOYEN	18.7	33.1	64.2	220.0	441.2	340.0	117.7	58.7	32.4	18.3	12.4	11.3	114.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... LAWRA
 RIVER/COURS D EAU..... BLACK VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... BLACK VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 93965.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG.AN.DISCH. DEBITS MOY.AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1951-52	204.7	6456.2	69.	2.18	1030.0	11.0	14.2
1952-53	----	----	----	----	1010.0	10.7	9.6
1953-54	102.7	3239.9	34.	1.09	589.0	6.3	7.3
1954-55	139.9	4413.8	47.	1.49	745.0	7.9	9.6
1955-56	153.2	4831.5	51.	1.63	759.0	8.1	7.3
1956-57	96.4	3041.9	32.	1.03	568.0	6.0	8.7
1957-58	----	----	----	----	443.0	4.7	7.6
1958-59	82.0	2588.2	28.	0.87	321.0	3.4	8.0
1959-60	69.5	2192.7	23.	0.74	480.0	5.1	7.3
1960-61	107.6	3393.8	36.	1.15	568.0	6.0	8.0
1961-62	86.1	2718.1	29.	0.92	448.0	4.8	8.3
1962-63	118.7	3746.3	40.	1.26	636.0	6.8	5.8
1963-64	----	----	----	----	1070.0	11.4	8.0
1964-65	144.9	4570.3	49.	1.54	794.0	8.4	7.0
1965-66	126.9	4003.2	43.	1.35	491.0	5.2	9.6
1966-67	84.0	2650.3	28.	0.89	348.0	3.7	8.3
1967-68	75.8	2391.0	25.	0.81	391.0	4.2	8.3
1968-69	104.3	3291.4	35.	1.11	364.0	3.9	7.8
1969-70	132.8	4188.6	45.	1.41	622.0	6.6	7.6
1970-71	139.1	4388.7	47.	1.48	745.0	7.9	10.6
1971-72	----	----	----	----	609.0	6.5	8.0
1972-73	46.8	1478.5	16.	0.50	263.0	2.8	6.6
1973-74	42.0	1324.8	14.	0.45	289.0	3.1	

GAUGING STATION/STATION DE JAUGEAGE.... MANIMENSO
 RIVER/COURS D EAU..... VOLTA NOIRE
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTA NOIRE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 32000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR-- ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1955-56	10.0	7.0	13.0	31.0	45.0	85.0	60.0	72.5	48.7	31.2	14.0	7.9	35.4
1956-57	9.1	10.1	14.4	34.8	64.7	76.1	74.6	55.7	33.5	18.6	16.7	10.9	34.9
1957-58	9.0	11.6	19.0	37.1	51.6	71.1	76.6	65.1	39.2	23.2	11.4	11.3	35.5
1958-59	7.9	11.3	17.2	37.5	67.5	82.5	86.9	71.8	45.4	28.0	12.9	9.1	39.8
1959-60	8.8	10.9	10.3	24.5	43.3	53.9	56.0	29.8	16.6	10.7	15.4	4.9	23.7
1960-61	7.8	9.2	17.1	35.1	44.7	60.6	63.4	37.5	19.1	12.4	7.9	8.8	26.9
1961-62	6.4	8.2	15.8	46.8	83.8	96.5	86.3	53.9	35.0	20.2	8.5	7.2	39.0
1962-63	7.6	7.8	10.6	20.4	62.4	66.1	62.2	37.3	19.1	11.5	11.9	8.2	27.0
1963-64	10.2	7.4	12.2	32.6	60.1	72.6	73.2	54.8	29.7	16.2	7.8	8.4	32.0
1964-65	8.7	9.9	13.5	27.0	67.5	78.8	78.8	60.3	37.7	20.6	9.7	7.1	34.9
1965-66	7.5	10.0	16.7	29.0	54.2	69.1	71.0	50.3	26.2	14.8	11.7	8.3	30.7
1966-67	9.0	9.7	12.4	25.0	38.5	47.5	47.0	25.9	13.4	9.1	9.8	7.8	21.2
1967-68	7.0	7.9	11.7	23.5	45.8	55.0	59.5	31.4	16.7	10.6	8.5	7.2	23.7
1968-69	8.8	11.3	19.1	35.9	49.3	65.5	67.0	44.2	21.7	13.6	8.0	7.9	29.3
1969-70	6.0	8.0	19.0	35.5	60.4	66.6	67.0	44.1	21.4	12.4	8.5	6.7	29.6
1970-71	6.6	10.5	17.1	49.3	81.0	97.6	87.0	58.6	36.2	20.7	11.5	8.8	40.4
1971-72	6.7	8.5	12.5	30.7	56.4	63.6	49.5	23.6	12.7	7.9	5.8	5.0	23.5
1972-73	11.0	16.4	13.3	23.1	34.4	29.3	13.8	8.1	5.6	4.3	3.6	3.8	13.8
1973-74	5.0	7.9	10.3	28.0	32.2	18.6	6.8	4.8	3.5	2.8	3.1	2.7	10.4
1974-75	3.8	8.6	16.5	44.9	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	7.8	9.6	14.5	32.5	54.8	66.1	62.4	43.6	25.3	15.1	9.8	7.4	29.1

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUERGE.... MANIMENSO
 RIVER/COURS D EAU..... VOLTA NOIRE
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTA NOIRE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 32000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG.AN.DISCH. DEBITS MOY.AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1955-56	35.4	1117.6	35.	1.11	-1.0	-1.0	
1956-57	34.9	1101.6	34.	1.09	77.0	2.4	7.9
1957-58	35.5	1120.0	35.	1.11	77.3	2.4	7.6
1958-59	39.8	1256.1	39.	1.24	87.7	2.7	7.6
1959-60	23.7	749.2	23.	0.74	59.6	1.9	6.6
1960-61	26.9	850.4	27.	0.84	-1.0	-1.0	
1961-62	39.0	1231.4	38.	1.22	97.5	3.0	5.9
1962-63	27.0	854.3	27.	0.85	68.4	2.1	7.1
1963-64	32.0	1012.3	32.	1.00	74.9	2.3	7.0
1964-65	34.9	1102.7	34.	1.09	80.1	2.5	6.4
1965-66	30.7	969.2	30.	0.96	72.4	2.3	6.7
1966-67	21.2	670.4	21.	0.66	48.3	1.5	7.0
1967-68	23.7	748.4	23.	0.74	61.0	1.9	5.8
1968-69	29.3	925.8	29.	0.92	68.6	2.1	7.0
1969-70	29.6	934.5	29.	0.93	69.0	2.2	
1970-71	40.4	1274.3	40.	1.26	99.3	3.1	5.4
1971-72	23.5	743.4	23.	0.74	64.1	2.0	6.2
1972-73	13.8	438.0	14.	0.43	36.1	1.1	4.5
1973-74	10.4	330.3	10.	0.33	32.8	1.0	3.0
1974-75	----	----	----	----	-1.0	-1.0	2.3

GAUGING STATION/STATION DE JAUGEAGE.... NASSO
 RIVER/COURS D EAU..... KOU
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTA NOIRE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 405.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1961-62	3.7	4.2	5.6	9.3	7.4	3.8	3.2	3.2	3.0	3.0	3.0	3.0	4.3
1962-63	3.3	4.0	3.2	6.6	9.3	4.5	3.6	3.5	3.5	3.5	3.4	3.8	4.3
1963-64	4.4	7.4	5.3	15.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	4.0	4.8	-1.0
1964-65	4.5	4.7	5.6	17.3	8.3	4.7	4.2	4.2	4.0	3.8	3.9	4.6	5.8
1965-66	5.3	7.2	8.2	10.5	9.2	4.7	4.5	4.4	4.3	4.3	4.4	4.0	5.9
1966-67	4.0	4.2	6.4	6.1	7.3	6.3	3.4	4.4	4.8	4.9	4.9	4.6	5.1
1967-68	4.6	6.6	6.2	16.1	15.2	4.3	3.4	3.5	3.5	3.5	4.9	3.7	6.2
1968-69	8.7	6.9	19.9	12.2	7.6	4.8	3.0	3.0	3.0	2.9	2.9	3.0	6.4
1969-70	4.0	6.4	12.6	10.2	10.9	4.8	4.6	4.1	-1.0	-1.0	-1.0	3.1	-1.0
1970-71	3.4	4.8	7.6	10.0	6.9	4.0	3.4	2.9	2.9	3.1	3.2	3.6	4.6
1971-72	2.8	3.6	5.6	6.6	7.4	4.9	3.0	2.9	2.9	2.9	2.9	3.2	4.0
1972-73	3.7	3.4	3.3	4.8	4.0	3.3	3.0	3.2	3.4	3.3	3.4	2.8	3.4
1973-74	2.3	2.9	3.9	4.0	4.0	2.6	2.5	2.6	2.6	2.7	2.7	2.8	2.9
1974-75	3.0	3.1	4.4	7.4	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	4.1	4.9	6.9	9.7	8.1	4.3	3.4	3.4	3.4	3.4	3.6	3.6	4.9

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... NASSO
 RIVER/COURS D EAU..... KOU
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTA NOIRE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 405.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1961-62	4.3	137.7	340.	10.78	43.8	108.1	2.9
1962-63	4.3	137.1	339.	10.74	33.4	82.5	3.4
1963-64	---	---	---	---	142.0	350.6	3.9
1964-65	5.8	183.4	453.	14.36	112.0	276.5	3.8
1965-66	5.9	186.5	461.	14.61	82.1	202.7	3.7
1966-67	5.1	161.0	398.	12.61	38.6	95.3	4.4
1967-68	6.2	198.4	490.	15.53	132.0	325.9	3.2
1968-69	6.4	204.7	505.	16.03	40.5	100.0	2.9
1969-70	---	---	---	---	40.5	100.0	3.1
1970-71	4.6	146.6	362.	11.48	34.3	84.7	2.5
1971-72	4.0	127.9	316.	10.02	22.4	55.3	2.7
1972-73	3.4	109.3	270.	8.56	21.1	52.1	
1973-74	2.9	93.5	231.	7.33	17.0	42.0	2.7
1974-75	---	---	---	---	23.9	59.0	

GAUGING STATION/STATION DE JAUGEAGE.... NWOKUY
 RIVER/COURS D EAU..... VOLTA NOIRE
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTA NOIRE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 14800.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1958-59	-1.0	-1.0	-1.0	-1.0	-1.0	117.0	124.0	46.2	-1.0	-1.0	-1.0	-1.0	-1.0
1959-60	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1960-61	9.0	10.9	18.4	42.2	58.3	91.2	89.0	30.0	12.5	9.2	7.4	9.0	32.2
1961-62	-1.0	-1.0	-1.0	57.7	115.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1962-63	-1.0	-1.0	-1.0	26.4	66.4	77.2	67.9	24.2	-1.0	-1.0	-1.0	-1.0	-1.0
1963-64	-1.0	-1.0	12.4	-1.0	-1.0	108.0	-1.0	-1.0	16.0	10.3	-1.0	-1.0	-1.0
1964-65	8.4	9.2	12.7	-1.0	-1.0	-1.0	-1.0	-1.0	22.5	13.7	10.2	8.7	-1.0
1965-66	8.5	11.5	17.2	34.4	67.4	98.1	98.8	38.4	16.8	12.0	9.7	8.4	35.0
1966-67	9.4	10.8	13.1	28.5	46.9	55.8	53.0	20.0	10.5	8.0	6.8	6.4	22.4
1967-68	6.8	7.0	10.8	26.1	58.4	72.4	77.1	27.8	11.7	8.8	7.2	7.0	26.7
1968-69	10.0	12.1	21.6	44.1	64.4	92.6	89.4	34.3	14.9	10.3	7.4	7.7	34.0
1969-70	5.9	7.4	19.4	43.1	77.2	90.0	87.1	34.5	14.6	10.5	8.7	8.1	33.8
1970-71	7.9	11.2	19.4	68.3	131.0	181.0	120.0	38.1	19.5	12.2	9.8	8.3	52.2
1971-72	8.3	13.0	13.9	39.6	74.8	88.3	46.6	15.8	11.1	8.7	7.6	7.4	27.9
1972-73	10.0	17.7	14.2	27.8	44.0	31.0	13.8	7.2	5.5	4.4	3.6	3.3	15.2
1973-74	3.3	3.4	5.0	33.2	39.7	17.1	5.4	4.5	3.8	3.2	3.1	2.3	10.3
1974-75	2.9	6.3	15.8	52.0	83.0	107.0	65.0	15.5	7.0	5.5	4.5	3.7	30.6
1975-76	5.7	8.9	20.3	35.0	55.8	71.0	61.0	16.4	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	7.3	9.9	15.2	39.8	70.1	86.5	71.2	25.2	12.8	8.9	7.1	6.6	30.1

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... NWOKUY
 RIVER/COURS D EAU..... VOLTA NOIRE
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTA NOIRE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 14800.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1958-59	----	----	----	----	145.0	9.8	
1959-60	----	----	----	----	150.0	10.1	
1960-61	32.2	1017.2	69.	2.18	102.0	6.9	
1961-62	----	----	----	----	350.0	23.6	
1962-63	----	----	----	----	80.6	5.4	
1963-64	----	----	----	----	112.0	7.6	
1964-65	----	----	----	----	-1.0	-1.0	
1965-66	35.0	1106.9	75.	2.37	280.0	18.9	7.8
1966-67	22.4	707.4	48.	1.52	56.3	3.8	8.0
1967-68	26.7	843.8	57.	1.81	81.0	5.5	
1968-69	34.0	1074.3	73.	2.30	97.0	6.6	
1969-70	33.8	1068.2	72.	2.29	95.4	6.4	5.8
1970-71	52.2	1646.9	111.	3.53	191.0	12.9	7.1
1971-72	27.9	880.6	60.	1.89	98.4	6.6	
1972-73	15.2	479.6	32.	1.03	49.0	3.3	
1973-74	10.3	325.8	22.	0.70	40.9	2.8	3.3
1974-75	30.6	967.6	65.	2.07	-1.0	-1.0	2.0
1975-76	----	----	----	----	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE.....QUESSA
 RIVER/COURS D EAU.....VOLTA NOIRE
 COUNTRY/PAYS.....HAUTE VOLTA
 BASIN/BASSIN.....VOLTA NOIRE
 KM2 AREA OF WATER SHED/BASSIN VERSANT.....62000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1954-55	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	38.0	27.0	20.0	18.0	-1.0
1955-56	14.0	19.0	56.0	148.0	294.0	306.0	100.0	55.0	43.0	27.0	19.0	12.0	91.0
1956-57	11.0	22.0	42.0	72.0	246.0	193.0	70.0	46.0	30.0	20.0	13.0	12.0	64.7
1957-58	12.0	17.0	32.0	74.0	186.0	148.0	85.0	54.0	35.0	22.0	14.0	10.0	57.4
1958-59	10.0	24.0	54.0	124.0	350.0	254.0	90.0	65.0	38.0	25.0	17.0	10.0	88.4
1959-60	27.0	19.0	25.0	95.0	205.0	100.0	40.0	29.0	17.0	12.0	11.0	12.0	49.3
1960-61	22.0	41.0	87.0	174.0	250.0	130.0	57.0	35.0	19.0	13.0	10.0	9.0	70.5
1961-62	12.0	20.0	36.0	100.0	229.0	129.0	70.0	48.0	30.0	18.0	13.0	9.0	59.5
1962-63	11.0	16.0	24.0	95.0	397.0	281.0	90.0	41.0	20.0	14.0	9.0	8.0	83.8
1963-64	24.0	14.0	69.0	340.0	384.0	210.0	88.0	48.0	27.0	17.0	11.0	8.0	103.3
1964-65	15.0	22.0	36.0	105.0	311.0	286.0	92.0	54.0	33.0	19.0	12.0	7.0	82.6
1965-66	14.0	27.0	60.0	220.0	263.0	198.0	82.0	47.0	26.0	15.0	10.0	7.0	80.7
1966-67	22.0	15.0	18.0	100.0	154.0	159.0	73.0	30.0	16.0	11.0	6.0	6.0	50.8
1967-68	10.0	14.0	24.0	80.0	200.0	170.0	72.0	35.0	17.0	12.0	10.0	13.0	54.7
1968-69	18.0	43.0	59.0	90.0	182.0	163.0	81.0	43.0	23.0	14.0	8.0	14.0	61.5
1969-70	10.4	31.1	88.5	167.0	326.0	203.0	89.5	56.0	28.0	14.3	9.6	7.9	85.9
1970-71	9.5	17.6	42.1	206.0	306.0	182.0	91.3	68.3	42.4	24.9	9.3	7.6	83.9
1971-72	16.6	25.5	54.4	169.0	314.0	156.0	61.9	30.0	16.2	12.4	13.5	6.3	72.9
1972-73	14.0	44.4	29.5	94.3	103.0	45.4	19.6	6.3	4.7	4.9	9.3	6.1	32.1
1973-74	21.4	18.2	45.0	136.0	69.5	26.7	7.8	5.5	4.7	4.0	3.5	3.0	28.7
1974-75	14.8	16.9	85.9	174.0	276.0	154.0	64.0	31.0	13.6	5.4	5.0	10.1	70.8
1975-76	-1.0	-1.0	-1.0	-1.0	-1.0	180.0	74.0	25.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	15.4	23.3	48.3	138.1	248.8	169.9	70.1	40.7	24.9	15.8	11.1	9.3	68.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... OUESSA
 RIVER/COURS D EAU..... VOLTA NOIRE
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTA NOIRE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 62000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1954-55	----	----	----	----	-1.0	-1.0	
1955-56	91.0	2872.4	46.	1.47	-1.0	-1.0	
1956-57	64.7	2041.9	33.	1.04	-1.0	-1.0	
1957-58	57.4	1810.6	29.	0.93	-1.0	-1.0	
1958-59	88.4	2788.3	45.	1.43	-1.0	-1.0	
1959-60	49.3	1555.7	25.	0.80	-1.0	-1.0	
1960-61	70.5	2225.9	36.	1.14	-1.0	-1.0	
1961-62	59.5	1876.3	30.	0.96	-1.0	-1.0	
1962-63	83.8	2643.7	43.	1.35	-1.0	-1.0	
1963-64	103.3	3258.7	53.	1.67	-1.0	-1.0	
1964-65	82.6	2606.9	42.	1.33	-1.0	-1.0	
1965-66	80.7	2546.5	41.	1.30	-1.0	-1.0	
1966-67	50.8	1603.0	26.	0.82	-1.0	-1.0	
1967-68	54.7	1726.5	28.	0.88	-1.0	-1.0	
1968-69	61.5	1939.4	31.	0.99	-1.0	-1.0	
1969-70	85.9	2710.2	44.	1.39	350.0	5.6	5.3
1970-71	83.9	2646.3	43.	1.35	343.0	5.5	7.2
1971-72	72.9	2301.6	37.	1.18	336.0	5.4	
1972-73	32.1	1014.4	16.	0.52	161.0	2.6	4.2
1973-74	28.7	907.4	15.	0.46	162.0	2.6	0.0
1974-75	70.8	2235.6	36.	1.14	-1.0	-1.0	
1975-76	----	----	----	----	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE.... SAMENDENI
 RIVER/COURS D EAU..... VOLTA NOIRE
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTA NOIRE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 4580.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1955-56	3.9	6.3	-1.0	-1.0	-1.0	-1.0	22.3	12.4	8.7	6.7	5.1	4.3	-1.0
1956-57	4.0	5.1	10.3	43.0	81.7	39.2	15.2	8.8	6.2	4.9	3.7	3.5	18.7
1957-58	5.2	7.6	10.5	35.9	87.9	59.2	24.0	11.7	7.5	5.3	4.1	3.3	21.8
1958-59	3.4	5.8	12.5	54.1	108.0	60.6	22.4	12.6	7.8	5.1	3.6	2.5	24.8
1959-60	4.1	4.5	5.8	42.1	80.8	39.1	14.7	8.2	5.2	3.7	2.6	3.0	17.8
1960-61	2.4	6.3	13.7	41.9	87.7	42.1	20.1	9.0	5.4	3.9	2.8	2.2	19.7
1961-62	2.8	4.5	17.9	72.9	152.0	35.8	13.5	8.0	5.4	4.0	2.7	2.4	26.8
1962-63	3.0	3.5	5.8	22.2	60.4	35.9	13.2	6.4	3.9	2.9	2.4	2.3	13.4
1963-64	2.6	2.6	9.1	-1.0	96.1	47.4	17.0	7.9	4.8	3.3	2.4	2.1	-1.0
1964-65	2.9	2.8	-1.0	-1.0	-1.0	45.8	-1.0	10.7	7.9	4.6	3.0	2.1	-1.0
1965-66	3.2	6.4	9.7	45.4	83.2	44.1	15.2	7.4	4.5	3.3	2.4	2.2	18.9
1966-67	2.8	4.0	9.6	25.1	39.1	46.2	13.8	5.9	3.2	2.5	2.3	2.1	13.0
1967-68	-1.0	5.0	5.6	-1.0	60.3	55.6	14.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1968-69	-1.0	-1.0	26.4	69.2	68.6	42.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1969-70	0.8	5.3	15.1	32.2	71.0	33.7	15.4	6.6	3.5	2.4	1.5	1.4	15.7
1970-71	1.9	6.6	19.3	101.0	106.0	33.6	12.4	7.6	3.9	3.2	1.9	1.8	24.9
1971-72	2.1	4.7	9.1	51.6	48.8	13.8	5.5	4.1	-1.0	-1.0	-1.0	2.6	-1.0
1972-73	5.4	9.8	8.3	22.9	23.3	12.4	4.3	2.7	2.2	2.1	-1.0	-1.0	-1.0
1973-74	-1.0	4.7	8.5	32.3	17.8	5.2	2.6	2.1	2.0	1.8	1.7	-1.0	-1.0
1974-75	-1.0	-1.0	22.7	61.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	3.1	5.3	12.2	47.0	74.8	38.4	14.4	7.7	5.1	3.7	2.8	2.5	18.1

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... SAMENDENI
 RIVER/COURS D EAU..... VOLTA NOIRE
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTA NOIRE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 4580.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1955-56	----	----	----	----	-1.0	-1.0	2.6
1956-57	18.7	592.8	129.	4.10	116.0	25.3	3.3
1957-58	21.8	689.0	150.	4.77	148.0	32.3	2.6
1958-59	24.8	784.1	171.	5.43	135.0	29.5	2.6
1959-60	17.8	561.8	123.	3.89	130.0	28.4	2.3
1960-61	19.7	624.1	136.	4.32	185.0	40.4	1.8
1961-62	26.8	845.9	185.	5.86	471.0	102.8	1.6
1962-63	13.4	425.4	93.	2.95	80.0	17.5	1.8
1963-64	----	----	----	----	203.0	44.3	1.2
1964-65	----	----	----	----	-1.0	-1.0	1.5
1965-66	18.9	596.5	130.	4.13	252.0	55.0	1.8
1966-67	13.0	411.5	90.	2.85	67.2	14.7	1.6
1967-68	----	----	----	----	86.5	18.9	
1968-69	----	----	----	----	268.0	58.5	
1969-70	15.7	496.4	108.	3.44	104.0	22.7	0.6
1970-71	24.9	786.2	172.	5.44	309.0	67.5	0.7
1971-72	----	----	----	----	163.0	35.6	1.2
1972-73	----	----	----	----	33.6	7.3	
1973-74	----	----	----	----	43.4	9.5	
1974-75	----	----	----	----	90.7	19.8	

GAUGING STATION/STATION DE JAUGEAGE..... TAINSO
 RIVER/COURS D EAU..... TAIN
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... BLACK VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 3480.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1962-63	9.0	20.9	16.4	3.7	1.4	4.2	8.2	1.2	0.4	0.8	1.6	3.4	5.9
1963-64	5.8	5.6	14.9	13.3	47.2	68.7	26.3	3.3	0.8	0.4	0.3	0.7	15.6
1964-65	1.3	15.8	3.6	0.6	16.8	19.9	2.2	1.8	0.4	0.3	0.0	1.1	5.3
1965-66	2.8	13.7	15.2	3.4	16.8	30.1	1.7	0.2	0.0	0.0	0.2	1.5	7.1
1966-67	1.6	23.2	31.0	-1.0	22.5	25.2	11.3	0.9	0.5	0.4	0.4	0.5	-1.0
1967-68	1.7	3.6	4.0	0.4	0.3	1.5	0.5	0.3	0.2	0.2	0.3	1.8	1.2
1968-69	-1.0	-1.0	-1.0	45.8	82.6	75.8	30.0	2.4	1.2	0.7	0.8	2.6	-1.0
1969-70	4.0	8.8	1.3	0.5	0.6	2.1	14.2	0.6	0.3	0.2	0.2	0.2	2.8
1970-71	1.5	1.2	1.5	0.2	1.2	2.6	0.6	0.3	0.3	0.2	0.8	1.0	0.9
1971-72	2.7	5.7	3.1	0.9	9.7	11.7	1.0	0.5	0.4	0.3	0.3	0.4	3.0
1972-73	6.7	35.2	7.7	2.5	1.5	17.5	2.9	0.5	0.4	0.4	0.5	0.9	6.4
1973-74	-1.0	2.6	3.1	3.9	13.9	14.7	2.0	0.6	0.4	0.4	-1.0	-1.0	-1.0
AVG/MOYEN	3.7	12.4	9.2	6.8	17.8	22.8	8.4	1.0	0.4	0.4	0.5	1.3	7.1

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... TAINSO
 RIVER/COURS D EAU..... TAIN
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... BLACK VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 3480.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1962-63	5.9	188.4	54.	1.72	-1.0	-1.0	
1963-64	15.6	492.9	142.	4.49	85.9	24.7	0.4
1964-65	5.3	168.7	48.	1.54	51.1	14.7	0.2
1965-66	7.1	225.9	65.	2.06	46.6	13.4	0.0
1966-67	----	----	----	----	-1.0	-1.0	0.0
1967-68	1.2	40.0	11.	0.36	17.9	5.1	0.1
1968-69	----	----	----	----	113.0	32.5	0.2
1969-70	2.8	88.4	25.	0.81	22.0	6.3	0.3
1970-71	0.9	31.2	9.	0.28	6.8	2.0	0.2
1971-72	3.0	97.6	28.	0.89	44.7	12.8	0.2
1972-73	6.4	202.7	58.	1.85	50.2	14.4	0.3
1973-74	----	----	----	----	40.7	11.7	0.1

GAUGING STATION/STATION DE JAUERGE.... BASSARI
 RIVER/COURS D EAU..... KAMA
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 202.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1962-63	0.1	2.3	0.4	4.7	7.1	4.1	1.6	0.2	0.1	0.1	0.1	0.2	1.7
1963-64	0.2	0.6	3.5	8.0	10.4	8.6	3.3	0.4	0.1	0.0	0.0	0.1	2.9
1964-65	0.1	0.4	0.8	1.3	7.3	3.6	1.0	0.1	0.1	0.2	0.0	0.3	1.2
1965-66	0.5	0.6	2.3	3.4	7.5	2.1	0.5	0.0	0.0	0.0	0.0	0.0	1.4
1966-67	0.4	1.7	0.7	5.2	5.9	6.4	1.0	0.1	0.0	0.0	0.0	0.0	1.7
1967-68	0.0	0.1	0.9	2.4	7.2	9.3	1.7	0.6	0.1	0.0	0.2	0.3	1.8
1968-69	0.8	3.5	5.3	6.9	11.2	4.3	2.5	0.1	0.0	0.0	0.0	0.2	2.8
1969-70	0.3	0.3	1.9	7.1	14.4	6.8	2.1	0.3	0.1	0.1	0.0	0.1	2.7
1970-71	0.0	0.0	0.1	5.0	12.7	2.2	0.5	0.0	0.0	0.0	0.2	0.0	1.7
1971-72	0.2	0.5	0.6	2.1	5.9	2.1	0.1	0.0	0.0	0.0	0.0	0.0	0.9
1972-73	0.0	0.6	0.9	0.8	5.8	4.1	0.4	0.2	0.2	0.0	0.0	0.0	1.0
1973-74	0.0	0.1	-1.0	-1.0	-1.0	-1.0	0.0	0.0	0.0	0.0	0.0	0.0	-1.0
AVG/MOYEN	0.2	0.8	1.5	4.2	8.6	4.8	1.2	0.1	0.0	0.0	0.0	0.0	1.8

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... BASSARI
 RIVER/COURS D EAU..... KAMA
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 202.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1962-63	1.7	55.1	273.	8.66	35.6	176.2	0.0
1963-64	2.9	92.5	458.	14.52	38.4	190.1	0.0
1964-65	1.2	39.9	198.	6.27	12.0	59.4	0.0
1965-66	1.4	44.4	220.	6.97	34.7	171.8	0.0
1966-67	1.7	56.2	278.	8.83	27.1	134.2	0.0
1967-68	1.8	59.9	297.	9.41	17.2	85.1	0.0
1968-69	2.8	91.4	453.	14.36	18.7	92.6	0.0
1969-70	2.7	88.0	436.	13.82	96.6	478.2	0.0
1970-71	1.7	54.3	269.	8.54	15.5	76.7	0.0
1971-72	0.9	30.2	150.	4.74	11.7	57.9	0.0
1972-73	1.0	34.1	169.	5.36	6.8	33.7	0.0
1973-74	----	----	----	----	-1.0	-1.0	0.0

GAUGING STATION/STATION DE JAUGEAGE.... BENJA
 RIVER/COURS D EAU..... KULAW
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 1872.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1966-67	-1.0	-1.0	-1.0	-1.0	-1.0	22.6	1.1	0.0	-1.0	-1.0	-1.0	-1.0	-1.0
1967-68	0.7	0.3	0.4	45.1	77.2	38.1	0.4	0.0	0.0	0.0	0.0	0.0	13.5
1968-69	0.0	1.8	18.7	77.7	87.7	29.4	2.3	0.4	0.0	0.0	0.0	0.0	18.1
1969-70	0.0	0.2	10.2	27.8	112.0	38.5	6.4	0.1	0.0	0.0	0.0	0.0	16.2
1970-71	0.0	0.2	0.9	54.1	125.0	43.1	0.4	0.0	0.0	0.0	0.0	0.0	18.6
1971-72	1.3	1.6	34.0	72.0	103.0	8.0	0.3	0.0	0.0	0.0	0.0	0.0	18.3
1972-73	0.0	0.0	4.1	6.1	63.0	45.0	1.4	0.1	0.0	0.0	0.0	0.0	9.9
1973-74	0.0	0.1	0.3	29.3	56.0	13.8	0.2	0.0	0.0	0.0	0.0	0.0	8.3
AVG/MOYEN	0.2	0.6	9.7	44.5	89.1	29.8	1.5	0.0	0.0	0.0	0.0	0.0	14.6

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... BENJA
 RIVER/COURS D EAU..... KULAW
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 1872.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1966-67	---	---	---	---	-1.0	-1.0	0.0
1967-68	13.5	426.2	228.	7.22	107.0	57.2	0.0
1968-69	18.1	572.9	306.	9.70	128.0	68.4	0.0
1969-70	16.2	512.9	274.	8.69	170.0	90.8	0.0
1970-71	18.6	587.8	314.	9.96	148.0	79.1	0.0
1971-72	18.3	578.6	309.	9.80	142.0	75.9	0.0
1972-73	9.9	314.5	168.	5.33	92.0	49.1	0.0
1973-74	8.3	262.0	140.	4.44	80.9	43.2	0.0

GAUGING STATION/STATION DE JAUGEAGE.... BORGOU
 RIVER/COURS D EAU..... SANSARGOU
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 2240.0

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I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1960-61	0.7	9.0	7.3	13.1	55.3	13.0	2.6	0.8	0.0	0.0	0.0	0.0	8.4
1961-62	0.4	7.0	23.2	19.3	36.7	3.6	0.2	0.0	0.0	0.0	0.0	0.0	7.5
1962-63	1.3	2.7	3.7	34.3	57.7	11.3	2.2	0.1	0.0	0.0	0.0	0.1	9.4
1963-64	2.8	3.9	27.9	42.0	41.8	18.9	3.6	0.8	0.0	0.0	0.0	0.0	11.8
1964-65	1.1	7.2	16.9	53.9	79.1	9.7	2.4	0.9	0.1	0.0	0.0	0.6	14.3
1965-66	1.6	4.8	7.7	31.1	27.6	3.4	0.1	0.0	0.0	0.0	0.0	0.0	6.3
1966-67	1.2	5.2	6.2	42.0	22.7	8.5	0.8	0.0	0.0	0.0	0.0	0.6	7.2
1967-68	2.6	3.9	5.5	32.0	69.6	7.5	0.8	0.2	0.0	0.0	0.0	0.0	10.1
1968-69	2.7	10.7	45.2	31.0	28.4	4.5	1.3	0.5	0.1	0.0	0.0	0.0	10.3
1969-70	3.2	2.0	10.4	23.3	58.8	4.5	1.1	0.1	0.0	0.0	0.0	1.1	8.7
1970-71	2.0	1.1	10.5	52.2	85.0	7.8	0.9	0.1	0.0	0.0	0.0	0.0	13.2
1971-72	1.5	1.6	6.0	45.9	29.2	5.2	0.5	0.1	0.0	0.0	0.0	0.5	7.5
1972-73	0.9	3.7	5.0	18.7	28.8	4.6	0.4	0.0	0.0	0.0	0.0	0.0	5.1
1973-74	1.9	4.5	13.4	71.7	51.1	3.6	0.6	0.0	0.0	0.0	0.2	0.7	12.3
AVG/MOYEN	1.7	4.8	13.4	36.4	47.9	7.5	1.2	0.2	0.0	0.0	0.0	0.2	9.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... BORGOU
 RIVER/COURS D EAU..... SANSARGOU
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 2240.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1960-61	8.4	267.5	119.	3.79	126.0	56.2	0.0
1961-62	7.5	237.5	106.	3.36	146.0	65.2	0.0
1962-63	9.4	298.0	133.	4.22	124.0	55.4	0.0
1963-64	11.8	372.3	166.	5.27	87.9	39.2	0.0
1964-65	14.3	451.7	202.	6.40	150.0	67.0	0.0
1965-66	6.3	200.5	90.	2.84	99.8	44.6	0.0
1966-67	7.2	229.1	102.	3.24	158.0	70.5	0.0
1967-68	10.1	320.8	143.	4.54	152.0	67.9	0.0
1968-69	10.3	326.9	146.	4.63	90.1	40.2	0.0
1969-70	8.7	274.6	123.	3.89	151.0	67.4	0.0
1970-71	13.2	419.4	187.	5.94	168.0	75.0	0.0
1971-72	7.5	237.8	106.	3.37	165.0	73.7	0.0
1972-73	5.1	163.1	73.	2.31	89.8	40.1	0.0
1973-74	12.3	388.1	173.	5.49	137.0	61.2	0.0

GAUGING STATION/STATION DE JAUGEAGE..... BROUFFOU
 RIVER/COURS D EAU..... GBAN MOU
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 320.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1964-65	1.2	3.6	3.0	2.4	5.8	2.8	0.9	0.7	0.5	0.3	0.5	0.9	1.8
1965-66	0.8	6.8	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.2	0.0	0.3	0.4	-1.0
1966-67	0.6	0.9	1.9	6.8	12.2	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	0.8	-1.0
1967-68	0.3	1.5	2.2	1.7	10.7	6.1	1.5	1.1	0.4	0.4	0.1	0.6	2.2
1968-69	1.0	2.9	4.8	12.9	8.6	4.6	2.0	1.5	0.8	0.4	0.2	0.7	3.3
1969-70	1.2	2.0	4.9	11.4	6.6	5.6	5.0	1.1	0.6	0.2	0.5	2.4	3.4
1970-71	2.5	0.6	1.7	0.9	6.6	1.6	0.6	0.1	0.1	0.1	0.9	1.0	1.3
1971-72	4.7	1.8	4.3	4.6	13.2	2.5	0.9	0.5	0.1	0.1	0.4	1.5	2.8
1972-73	3.0	4.7	4.8	4.2	7.2	2.7	0.5	0.0	0.0	0.0	0.1	0.8	2.3
1973-74	0.1	0.6	3.0	5.3	6.9	4.0	1.3	0.5	0.2	0.2	0.0	0.4	1.8
AVG/MOYEN	1.5	2.5	3.3	5.5	8.6	3.7	1.5	0.6	0.3	0.1	0.2	0.9	2.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... BROUFFOU
 RIVER/COURS D EAU..... 6BAN HOU
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 320.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1964-65	1.8	59.3	186.	5.89	33.2	103.8	0.4
1965-66	----	----	----	----	-1.0	-1.0	0.2
1966-67	----	----	----	----	70.7	220.9	0.0
1967-68	2.2	69.9	218.	6.93	40.6	126.9	0.0
1968-69	3.3	106.1	332.	10.52	68.0	212.5	0.1
1969-70	3.4	109.0	341.	10.81	50.2	156.9	0.3
1970-71	1.3	43.8	137.	4.35	18.3	57.2	0.1
1971-72	2.8	90.9	284.	9.01	52.1	162.8	0.0
1972-73	2.3	73.5	230.	7.29	-1.0	-1.0	0.0
1973-74	1.8	59.1	185.	5.86	29.4	91.9	0.0

GAUGING STATION/STATION DE JAUGEAGE.... HOMOIE
 RIVER/COURS D EAU..... DAYES
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 626.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1961-62	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.7	1.4	-1.0
1962-63	2.4	7.1	10.9	7.4	4.0	6.8	4.5	3.0	1.6	1.6	2.2	1.7	4.4
1963-64	1.8	4.3	16.7	19.8	31.5	36.1	8.5	3.7	2.8	1.8	1.3	1.4	10.8
1964-65	1.3	4.6	4.5	4.7	8.1	6.1	2.7	1.9	1.4	1.1	0.8	1.1	3.2
1965-66	0.8	2.0	11.0	5.8	11.9	9.2	3.3	1.8	1.2	0.7	0.7	0.9	4.1
1966-67	1.4	2.9	4.9	19.8	17.3	12.9	4.8	2.3	1.4	1.1	1.1	2.6	6.0
1967-68	1.7	2.4	3.9	6.1	15.2	11.6	3.9	2.4	1.5	1.0	1.1	1.4	4.3
1968-69	2.1	9.4	8.0	23.1	19.2	10.6	6.3	3.6	2.0	1.4	1.2	1.5	7.4
1969-70	1.6	1.8	-1.0	5.6	9.7	11.7	7.0	2.7	1.5	0.8	1.2	0.8	-1.0
1970-71	1.1	1.3	1.5	1.1	3.0	5.0	2.2	0.9	0.5	0.3	0.5	0.6	1.5
1971-72	0.4	1.1	5.1	5.4	0.6	4.8	1.2	0.6	0.2	0.2	0.4	0.6	1.7
1972-73	0.8	2.7	5.3	3.5	5.4	3.3	1.4	0.6	0.3	0.0	0.0	1.2	2.0
1973-74	1.1	1.3	2.3	9.4	18.6	12.1	3.6	0.6	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	1.4	3.4	6.7	9.3	12.0	10.8	4.1	2.0	1.3	0.9	0.9	1.3	4.5

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... HOHOE
 RIVER/COURS D EAU..... DAYES
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 626.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1961-62	----	----	----	----	-1.0	-1.0	0.4
1962-63	4.4	141.0	225.	7.14	31.8	50.8	0.3
1963-64	10.8	341.9	546.	17.32	59.2	94.6	0.3
1964-65	3.2	102.4	164.	5.19	21.4	34.2	0.5
1965-66	4.1	131.2	210.	6.65	33.5	53.5	0.6
1966-67	6.0	192.0	307.	9.73	48.7	77.8	0.7
1967-68	4.3	138.0	221.	6.99	30.9	49.4	1.0
1968-69	7.4	233.3	373.	11.82	67.1	107.2	1.0
1969-70	----	----	----	----	35.0	55.9	0.6
1970-71	1.5	48.5	78.	2.46	18.0	28.8	0.3
1971-72	1.7	55.3	88.	2.80	25.4	40.6	0.2
1972-73	2.0	66.1	106.	3.35	16.9	27.0	0.0
1973-74	----	----	----	----	31.9	51.0	

GAUGING STATION/STATION DE JAUGEAGE..... KOUMANGOU
 RIVER/COURS D EAU..... KOUMANGOU
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 6730.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1959-60	-1.0	2.4	53.0	94.5	273.0	102.0	-1.0	2.5	0.7	0.2	-1.0	-1.0	-1.0
1960-61	-1.0	-1.0	38.9	109.0	401.0	198.0	24.4	-1.0	-1.0	-1.0	0.0	0.1	-1.0
1961-62	4.3	15.2	48.8	53.8	172.0	43.6	5.6	1.6	0.8	0.4	0.3	2.0	29.0
1962-63	3.4	36.6	92.8	233.0	440.0	147.0	48.1	15.0	3.7	1.8	0.3	3.7	85.4
1963-64	-1.0	-1.0	82.1	326.0	376.0	265.0	-1.0	-1.0	-1.0	-1.0	-1.0	1.2	-1.0
1964-65	5.0	5.4	30.1	91.0	419.0	348.0	92.2	10.8	-1.0	-1.0	-1.0	2.3	-1.0
1965-66	5.7	14.2	31.3	176.0	158.0	-1.0	10.2	2.6	1.3	0.4	-1.0	0.4	-1.0
1966-67	2.0	22.3	30.9	109.0	245.0	163.0	28.8	4.8	1.9	0.9	0.1	0.9	50.7
1967-68	3.3	8.1	50.2	220.0	217.0	122.0	20.6	7.8	3.0	1.2	0.3	1.1	54.5
1968-69	15.1	38.5	242.0	190.0	330.0	132.0	31.0	11.2	4.6	2.0	0.5	15.1	84.3
1969-70	1.8	2.0	54.1	150.0	406.0	162.0	-1.0	-1.0	-1.0	1.7	0.6	2.3	-1.0
1970-71	2.9	1.2	18.5	124.0	447.0	131.0	22.2	10.3	7.0	5.4	0.8	0.2	64.2
1971-72	2.5	4.1	86.0	300.0	352.0	90.6	19.5	6.3	2.3	0.7	4.5	4.4	72.7
1972-73	11.9	14.8	45.4	78.7	199.0	83.7	18.9	5.0	3.8	1.0	0.2	0.9	38.6
1973-74	1.5	3.7	17.6	126.0	216.0	78.7	8.9	2.3	1.2	0.6	0.3	0.3	38.0
AVG/MOYEN	4.9	12.9	61.4	158.7	310.0	147.6	27.5	6.6	2.7	1.3	0.7	2.4	61.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... KOUMANGOU
 RIVER/COURS D EAU..... KOUMANGOU
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 6730.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1959-60	----	----	----	----	431.0	64.0	
1960-61	----	----	----	----	497.0	73.8	0.0
1961-62	29.0	915.5	136.	4.31	333.0	49.5	0.2
1962-63	85.4	2694.7	400.	12.70	665.0	98.8	0.2
1963-64	----	----	----	----	575.0	85.4	0.7
1964-65	----	----	----	----	544.0	80.8	0.7
1965-66	----	----	----	----	381.0	56.6	
1966-67	50.7	1602.0	238.	7.55	443.0	65.8	0.0
1967-68	54.5	1720.2	256.	8.11	446.0	66.3	0.1
1968-69	84.3	2659.5	395.	12.53	463.0	68.8	0.2
1969-70	----	----	----	----	541.0	80.4	0.4
1970-71	64.2	2024.8	301.	9.54	531.0	78.9	0.1
1971-72	72.7	2293.9	341.	10.81	536.0	79.6	0.6
1972-73	38.6	1217.5	181.	5.74	412.0	61.2	0.1
1973-74	38.0	1201.2	178.	5.66	414.0	61.5	0.2

GAUGING STATION/STATION DE JAUGEAGE.... KPESSIDE
 RIVER/COURS D EAU..... KARA
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 2790.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR-- ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1961-62	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.4	0.1	0.2	1.4	-1.0
1962-63	5.0	60.3	92.7	147.0	167.0	61.2	3.4	0.0	0.0	0.1	0.1	1.3	44.8
1963-64	2.5	6.8	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.3	3.4	-1.0
1964-65	4.3	4.9	19.5	79.2	188.0	28.8	4.7	0.9	0.5	0.2	0.5	3.0	27.8
1965-66	6.8	20.6	62.4	72.7	94.3	15.6	1.9	0.3	0.2	0.1	0.0	0.6	22.9
1966-67	4.8	21.8	31.2	178.0	117.0	92.8	15.1	2.0	0.4	0.2	0.0	1.2	38.7
1967-68	1.1	4.8	68.6	112.0	197.0	89.6	9.1	4.9	1.2	0.5	0.5	4.1	41.1
1968-69	9.3	63.1	94.9	96.6	139.0	48.9	15.2	2.2	0.7	0.3	0.7	4.1	39.5
1969-70	7.7	3.6	58.8	164.0	217.0	85.0	32.0	-1.0	-1.0	-1.0	0.1	3.5	-1.0
1970-71	-1.0	-1.0	-1.0	107.0	241.0	40.7	-1.0	-1.0	-1.0	0.5	-1.0	-1.0	-1.0
1971-72	6.0	8.4	94.3	142.0	123.0	18.8	2.6	0.6	0.1	0.0	0.7	1.0	33.1
1972-73	14.6	13.8	60.6	95.2	84.5	55.2	9.0	2.7	1.2	0.1	0.3	3.5	28.3
1973-74	7.7	14.6	18.0	93.7	80.7	35.9	7.3	0.6	0.1	0.0	0.0	0.2	21.5
AVG/MOYEN	6.3	20.2	60.0	117.0	149.8	52.0	10.0	1.5	0.4	0.1	0.2	2.2	35.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... KPESSIDE
 RIVER/COURS D EAU..... KARA
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 2790.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1961-62	----	----	----	----	-1.0	-1.0	
1962-63	44.8	1414.1	507.	16.07	540.0	193.5	
1963-64	----	----	----	----	-1.0	-1.0	
1964-65	27.8	879.0	315.	9.99	490.0	175.6	0.1
1965-66	22.9	724.0	260.	8.23	362.0	129.7	0.1
1966-67	38.7	1220.7	438.	13.87	934.0	334.8	0.0
1967-68	41.1	1296.6	465.	14.74	583.0	209.0	0.1
1968-69	39.5	1248.2	447.	14.19	362.0	129.7	0.3
1969-70	----	----	----	----	1150.0	412.2	0.1
1970-71	----	----	----	----	1150.0	412.2	
1971-72	33.1	1044.6	374.	11.87	540.0	193.5	0.1
1972-73	28.3	895.3	321.	10.18	405.0	145.2	0.0
1973-74	21.5	680.1	244.	7.73	503.0	180.3	0.0

GAUGING STATION/STATION DE JAUGEAGE.... LAMA KARA
 RIVER/COURS D EAU..... KARA
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 1560.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1954-55	-1.0	-1.0	24.5	16.5	44.0	25.9	2.9	0.4	0.4	0.2	0.2	0.4	-1.0
1955-56	0.7	15.9	118.0	131.0	143.0	49.7	5.1	1.1	0.3	0.3	1.4	0.4	38.9
1956-57	0.6	3.2	11.4	47.4	156.0	18.9	1.7	0.9	0.2	0.1	1.1	2.0	20.3
1957-58	4.4	21.1	47.7	97.1	267.0	49.2	11.3	3.0	0.8	0.4	0.1	3.0	42.1
1958-59	0.8	5.9	3.8	2.0	12.3	7.0	0.9	0.3	0.0	0.0	0.0	1.3	2.9
1959-60	3.7	0.9	33.4	37.6	115.0	18.6	1.9	0.3	0.1	0.0	0.0	0.5	17.7
1960-61	0.6	12.2	47.8	66.1	133.0	48.0	9.1	1.2	0.3	0.1	0.2	1.0	26.6
1961-62	4.6	8.6	23.6	24.2	23.2	15.0	1.1	0.2	0.1	0.0	0.0	0.1	8.4
1962-63	3.8	50.5	37.4	69.6	84.7	28.0	9.4	1.4	0.4	0.4	0.4	2.8	24.0
1963-64	1.3	1.9	64.0	168.0	146.0	99.9	21.4	1.9	0.7	0.1	0.3	3.0	42.4
1964-65	2.4	2.9	13.9	66.5	128.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	2.6	-1.0
1965-66	1.5	13.7	53.3	65.9	79.2	11.5	0.6	0.2	0.1	0.0	0.0	0.8	18.9
1966-67	1.0	11.2	14.7	-1.0	104.0	-1.0	15.7	0.6	0.2	0.1	0.2	0.5	-1.0
1967-68	0.5	2.1	50.0	89.4	171.0	67.3	3.2	1.5	0.3	0.1	0.1	1.4	32.2
1968-69	2.7	20.2	50.4	42.6	102.0	26.5	3.4	0.6	0.2	0.1	0.0	0.9	20.8
1969-70	4.4	1.1	35.7	99.3	129.0	61.6	11.1	1.1	0.4	0.2	0.2	0.0	28.7
1970-71	0.9	0.9	8.5	69.8	135.0	21.1	1.4	0.4	0.2	0.2	0.1	0.3	19.9
1971-72	3.7	2.7	45.4	86.1	98.3	6.1	0.7	0.3	0.1	0.0	0.1	0.7	20.3
1972-73	6.1	7.9	24.9	41.6	73.7	20.8	2.6	1.6	0.4	0.1	0.0	0.0	15.0
1973-74	1.4	3.9	18.3	51.6	93.1	23.6	1.9	0.3	0.1	0.0	0.1	0.5	16.2
AVG/MOYEN	2.4	9.8	36.3	66.9	111.8	33.2	5.5	0.9	0.3	0.1	0.2	1.1	22.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... LAMA KARA
 RIVER/COURS D EAU..... KARA
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 1560.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1954-55	---	---	---	---	342.0	219.2	
1955-56	38.9	1227.8	787.	24.96	501.0	321.2	0.0
1956-57	20.3	641.2	411.	13.03	711.0	455.8	0.1
1957-58	42.1	1328.0	851.	26.99	613.0	392.9	0.1
1958-59	2.9	91.6	59.	1.86	42.1	27.0	0.2
1959-60	17.7	558.4	358.	11.35	377.0	241.7	0.0
1960-61	26.6	840.6	539.	17.09	411.0	263.5	0.0
1961-62	8.4	265.8	170.	5.40	93.2	59.7	0.0
1962-63	24.0	759.8	487.	15.45	282.0	180.8	0.0
1963-64	42.4	1337.3	857.	27.18	723.0	463.5	0.0
1964-65	---	---	---	---	402.0	257.7	0.0
1965-66	18.9	596.8	383.	12.13	360.0	230.8	
1966-67	---	---	---	---	-1.0	-1.0	0.0
1967-68	32.2	1017.4	652.	20.68	343.0	219.9	0.0
1968-69	20.8	656.7	421.	13.35	-1.0	-1.0	
1969-70	28.7	905.1	580.	18.40	478.0	306.4	0.0
1970-71	19.9	628.4	403.	12.77	319.0	204.5	0.1
1971-72	20.3	642.6	412.	13.06	362.0	232.1	0.0
1972-73	15.0	473.2	303.	9.62	300.0	192.3	
1973-74	16.2	512.9	329.	10.43	238.0	152.6	0.0

GAUGING STATION/STATION DE JAUGEAGE.... MANDOURI
 RIVER/COURS D EAU..... OTI
 COUNTRY/PAYS..... BENIN
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 29100.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1959-60	-1.0	-1.0	31.0	270.0	657.0	353.0	13.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1960-61	-1.0	-1.0	-1.0	124.0	447.0	383.0	46.6	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1961-62	-1.0	46.1	136.0	152.0	460.0	172.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1962-63	-1.0	24.6	64.5	360.0	746.0	415.0	77.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1963-64	-1.0	-1.0	109.0	358.0	596.0	355.0	81.9	15.5	6.5	3.4	-1.0	-1.0	-1.0
1964-65	1.1	11.0	57.4	299.0	636.0	540.0	152.0	10.4	4.0	1.0	1.2	0.1	142.7
1965-66	0.1	4.0	26.2	99.6	247.0	168.0	17.8	4.6	0.9	0.2	0.2	0.1	47.3
1966-67	0.5	15.5	16.4	153.0	333.0	293.0	161.0	37.3	2.2	1.2	0.1	0.1	84.4
1967-68	0.2	10.5	27.7	154.0	384.0	309.0	45.4	10.1	4.5	1.9	0.4	0.1	78.9
1968-69	7.9	58.3	188.0	256.0	378.0	263.0	58.2	14.4	6.1	2.9	0.5	0.1	102.7
1969-70	2.2	6.8	85.5	189.0	706.0	384.0	102.0	22.7	8.4	3.8	1.0	2.2	126.1
1970-71	1.8	3.3	23.7	281.0	650.0	477.0	58.4	10.0	4.5	1.8	1.8	0.6	126.1
1971-72	3.4	4.8	59.4	246.0	393.0	122.0	13.4	4.1	2.0	0.9	0.9	0.4	70.8
1972-73	2.7	7.3	26.6	134.0	299.0	219.0	24.5	6.4	3.9	1.7	0.5	8.4	61.1
1973-74	0.3	7.0	23.7	344.0	191.0	86.6	12.2	3.6	1.2	0.2	0.4	0.9	55.9
AVG/MOYEN	2.0	16.5	62.5	227.9	474.8	302.6	61.6	12.6	4.0	1.7	0.6	1.2	97.3

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUERGE..... MANDOURI
 RIVER/COURS D EAU..... OTI
 COUNTRY/PAYS..... BENIN
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 29100.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1959-60	----	----	----	----	698.0	24.0	
1960-61	----	----	----	----	733.0	25.2	
1961-62	----	----	----	----	695.0	23.9	
1962-63	----	----	----	----	834.0	28.7	
1963-64	----	----	----	----	640.0	22.0	0.3
1964-65	142.7	4502.2	155.	4.91	834.0	28.7	0.1
1965-66	47.3	1494.5	51.	1.63	328.0	11.3	0.1
1966-67	84.4	2662.9	92.	2.90	361.0	12.4	0.0
1967-68	78.9	2490.8	86.	2.71	488.0	16.8	0.1
1968-69	102.7	3241.3	111.	3.53	430.0	14.8	0.0
1969-70	126.1	3977.7	137.	4.33	813.0	27.9	0.1
1970-71	126.1	3978.5	137.	4.34	855.0	29.4	0.1
1971-72	70.8	2234.5	77.	2.43	468.0	16.1	0.0
1972-73	61.1	1928.9	66.	2.10	390.0	13.4	0.2
1973-74	55.9	1763.6	61.	1.92	544.0	18.7	0.0

GAUGING STATION/STATION DE JAUGEAGE.... MANGO
 RIVER/COURS D EAU..... OTI
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 35650.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR-- ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1953-54	24.5	155.0	96.0	257.0	953.0	582.0	86.9	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1954-55	-1.0	-1.0	25.3	107.0	418.0	271.0	56.8	-1.0	-1.0	-1.0	-1.0	0.7	-1.0
1955-56	1.7	10.3	122.0	814.0	1140.0	732.0	115.0	15.8	7.1	4.4	1.9	1.8	247.1
1956-57	1.1	19.7	58.3	197.0	550.0	342.0	29.6	8.3	3.9	1.5	0.9	0.6	101.0
1957-58	11.3	78.0	80.1	380.0	1220.0	861.0	115.0	21.7	9.6	6.8	4.1	2.0	232.4
1958-59	3.6	11.8	8.0	121.0	356.0	149.0	11.3	1.5	2.8	1.9	1.1	0.4	55.7
1959-60	0.4	8.9	64.0	245.0	893.0	564.0	32.6	6.6	2.9	1.5	0.7	0.6	151.7
1960-61	1.6	10.9	43.4	133.0	534.0	744.0	60.7	8.7	3.4	1.7	0.9	0.6	128.5
1961-62	0.6	3.6	106.0	165.0	565.0	262.0	16.1	5.0	2.2	1.1	0.6	0.3	94.0
1962-63	1.2	12.3	107.0	397.0	1240.0	600.0	78.7	15.8	6.3	3.3	2.1	1.1	205.4
1963-64	10.1	7.8	186.0	566.0	864.0	533.0	110.0	19.3	7.8	3.5	1.9	1.1	192.5
1964-65	0.6	9.6	56.7	341.0	874.0	684.0	79.3	13.4	5.1	3.2	1.5	0.7	172.4
1965-66	0.7	7.1	36.4	163.0	346.0	187.0	25.7	9.2	3.3	1.2	0.4	0.3	65.0
1966-67	2.1	20.8	20.3	174.0	377.0	351.0	74.8	15.0	6.0	2.3	0.9	0.5	87.0
1967-68	0.9	16.3	29.5	247.0	507.0	403.0	60.2	13.4	6.5	2.8	1.1	0.6	107.3
1968-69	6.8	66.3	293.0	475.0	526.0	350.0	71.2	16.2	6.4	3.5	1.8	2.4	151.5
1969-70	4.0	5.6	88.9	189.0	1010.0	561.0	120.0	25.6	9.9	5.7	2.6	1.2	168.6
1970-71	5.3	3.7	28.9	296.0	1020.0	781.0	57.0	11.6	7.9	4.6	1.9	1.6	184.9
1971-72	3.8	9.9	67.7	356.0	661.0	183.0	22.1	13.5	6.0	1.5	0.6	0.6	110.4
1972-73	2.8	4.7	30.5	148.0	436.0	300.0	34.5	7.8	4.4	2.5	1.3	1.7	81.2
1973-74	1.9	9.0	27.9	409.0	356.0	107.0	13.9	4.8	2.1	1.0	0.5	0.5	77.8
AVG/MOYEN	4.2	23.5	75.0	294.2	706.9	454.6	60.5	12.2	5.4	2.8	1.4	1.0	136.8

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... MANGO
 RIVER/COURS D EAU..... OTI
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 35650.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3* MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1953-54	----	----	----	----	1360.0	38.1	
1954-55	----	----	----	----	457.0	12.8	
1955-56	247.1	7795.1	219.	6.93	1540.0	43.2	1.0
1956-57	101.0	3188.1	89.	2.84	616.0	17.3	0.3
1957-58	232.4	7331.6	206.	6.52	1620.0	45.4	1.0
1958-59	55.7	1757.5	49.	1.56	442.0	12.4	0.2
1959-60	151.7	4784.2	134.	4.26	1220.0	34.2	0.3
1960-61	128.5	4055.4	114.	3.61	1240.0	34.8	0.4
1961-62	94.0	2964.3	83.	2.64	769.0	21.6	0.2
1962-63	205.4	6478.0	182.	5.76	1750.0	49.1	0.8
1963-64	192.5	6072.7	170.	5.40	976.0	27.4	0.5
1964-65	172.4	5438.2	153.	4.84	1430.0	40.1	0.9
1965-66	65.0	2051.7	58.	1.82	406.0	11.4	0.3
1966-67	87.0	2746.2	77.	2.44	450.0	12.6	0.3
1967-68	107.3	3386.1	95.	3.01	651.0	18.3	0.3
1968-69	151.5	4779.9	134.	4.25	583.0	16.4	1.1
1969-70	168.6	5318.5	149.	4.73	1510.0	42.4	0.5
1970-71	184.9	5833.8	164.	5.19	1710.0	48.0	0.5
1971-72	110.4	3484.2	98.	3.10	703.0	19.7	0.2
1972-73	81.2	2561.2	72.	2.28	537.0	15.1	0.8
1973-74	77.8	2454.1	69.	2.18	568.0	15.9	

GAUGING STATION/STATION DE JAUGEAGE.... NAGBENI
 RIVER/COURS D EAU..... KOIMEPOUARBA
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 208.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1962-63	-1.0	0.3	1.1	4.2	4.1	1.7	-1.0	-1.0	-1.0	0.0	-1.0	-1.0	-1.0
1963-64	0.2	0.1	4.9	8.1	5.7	5.0	1.0	0.2	0.0	0.0	0.0	0.0	2.0
1964-65	0.0	0.1	0.7	3.7	9.5	2.1	0.4	0.2	0.0	0.0	0.0	0.0	1.3
1965-66	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	0.0	0.0	0.0	-1.0
1966-67	0.0	0.0	0.8	4.8	4.7	2.6	0.7	0.5	0.0	0.0	0.0	0.0	1.1
1967-68	0.0	0.2	0.2	2.7	6.9	2.5	0.3	0.1	0.0	0.0	0.0	0.0	1.0
1968-69	0.0	0.5	5.0	5.4	2.4	1.1	0.3	0.1	0.0	0.0	0.0	0.0	1.2
1969-70	0.0	0.0	0.3	2.4	8.1	2.1	0.3	0.1	0.1	0.0	0.0	0.0	1.1
1970-71	0.1	0.0	0.0	2.1	7.8	-1.0	0.2	0.0	0.0	0.0	0.0	0.0	-1.0
1971-72	0.0	0.0	0.6	4.7	4.9	0.8	0.1	0.0	0.0	0.0	0.0	0.0	0.9
1972-73	0.0	0.1	0.1	0.5	3.8	1.1	0.1	0.0	0.0	0.0	0.0	0.0	0.4
1973-74	0.0	0.0	0.2	2.6	2.4	0.4	0.1	0.0	0.0	0.0	0.0	0.0	0.4
AVG/MOYEN	0.0	0.1	1.2	3.7	5.4	1.9	0.3	0.1	0.0	0.0	0.0	0.0	1.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... NAGBENI
 RIVER/COURS D EAU..... KOIMEPOUARBA
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 208.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1962-63	----	----	----	----	8.0	38.5	0.0
1963-64	2.0	66.2	318.	10.10	18.8	90.4	0.0
1964-65	1.3	43.8	211.	6.69	20.4	98.1	0.0
1965-66	----	----	----	----	-1.0	-1.0	0.0
1966-67	1.1	37.0	178.	5.65	13.6	65.4	0.0
1967-68	1.0	33.9	163.	5.17	11.5	55.3	0.0
1968-69	1.2	38.8	187.	5.93	11.5	55.3	0.0
1969-70	1.1	35.2	169.	5.37	12.2	58.7	0.0
1970-71	----	----	----	----	9.5	45.7	0.0
1971-72	0.9	29.1	140.	4.45	16.5	79.3	0.0
1972-73	0.4	14.9	72.	2.28	7.7	37.0	0.0
1973-74	0.4	14.9	72.	2.28	6.6	31.7	0.0

GAUGING STATION/STATION DE JAUGEAGE..... PORGA
 RIVER/COURS D EAU..... PENDJARI
 COUNTRY/PAYS..... BENIN
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 22280.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1951-52	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	3.7	2.8	-1.0
1952-53	1.9	3.5	18.2	81.8	294.0	449.0	80.4	8.6	3.8	1.5	0.3	0.0	78.6
1953-54	11.2	40.6	49.8	119.0	424.0	344.0	63.2	8.9	4.0	1.8	0.7	0.2	88.9
1954-55	5.3	16.8	13.1	48.5	271.0	133.0	22.0	5.7	2.0	0.9	0.4	0.2	43.2
1955-56	1.0	5.7	35.7	406.0	514.0	357.0	73.0	10.6	4.7	2.3	1.0	0.5	117.6
1956-57	0.3	6.7	21.4	117.0	314.0	221.0	12.6	5.2	1.7	0.6	0.1	0.0	58.4
1957-58	4.0	15.7	27.6	240.0	510.0	361.0	72.9	14.4	6.1	2.5	0.8	0.2	104.6
1958-59	0.5	4.0	1.4	52.6	163.0	73.9	5.3	1.3	0.2	0.0	0.0	0.0	25.1
1959-60	0.0	4.3	36.1	178.0	432.0	266.0	19.3	6.0	2.6	1.4	0.5	0.3	78.8
1960-61	1.8	5.7	22.7	65.8	247.0	356.0	-1.0	-1.0	-1.0	2.7	0.5	0.1	-1.0
1961-62	1.5	6.6	51.6	-1.0	293.0	154.0	6.3	1.6	0.4	0.0	0.0	0.0	-1.0
1962-63	0.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	2.4	-1.0
1963-64	1.2	2.7	54.9	267.0	426.0	286.0	66.7	15.0	5.9	2.6	0.8	0.2	94.1
1964-65	0.8	4.4	35.0	215.0	428.0	353.0	46.6	6.5	2.8	1.1	0.3	0.0	91.1
1965-66	0.0	5.9	17.2	79.4	204.0	122.0	13.0	4.2	1.6	0.6	0.0	0.1	37.3
1966-67	0.5	6.8	8.8	105.0	238.0	226.0	47.7	8.0	3.2	1.2	0.4	0.1	53.8
1967-68	0.3	5.7	20.9	98.7	276.0	273.0	38.6	9.0	4.2	1.6	0.6	0.1	60.7
1968-69	5.3	39.5	83.2	221.0	301.0	249.0	51.2	12.4	5.7	2.7	0.9	2.8	81.2
1969-70	1.3	12.8	68.9	146.0	501.0	312.0	93.1	19.7	7.0	3.5	1.4	0.5	97.2
1970-71	0.8	3.3	10.3	153.0	444.0	359.0	38.2	7.0	3.1	1.3	0.6	0.2	85.0
1971-72	1.2	14.3	38.1	173.0	293.0	103.0	11.2	4.0	1.5	0.5	0.0	0.0	53.3
1972-73	0.5	4.7	12.8	83.0	249.0	206.0	19.4	4.3	3.9	1.8	0.4	0.8	48.9
1973-74	0.1	4.0	10.3	204.0	182.0	67.9	9.9	3.1	1.0	0.3	-1.0	-1.0	-1.0
AVG/MOYEN	1.8	10.2	30.3	152.6	333.5	251.0	39.5	7.8	3.3	1.5	0.6	0.5	69.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... PORGA
 RIVER/COURS D EAU..... PENDJARI
 COUNTRY/PAYS..... BENIN
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 22280.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1951-52	----	----	----	----	-1.0	-1.0	
1952-53	78.6	2479.0	111.	3.53	610.0	27.4	
1953-54	88.9	2805.6	126.	3.99	504.0	22.6	0.0
1954-55	43.2	1364.4	61.	1.94	340.0	15.3	0.0
1955-56	117.6	3709.8	167.	5.28	571.0	25.6	0.0
1956-57	58.4	1842.0	83.	2.62	373.0	16.7	0.1
1957-58	104.6	3299.4	148.	4.70	569.0	25.5	0.0
1958-59	25.1	794.6	36.	1.13	196.0	8.8	0.0
1959-60	78.8	2487.8	112.	3.54	464.0	20.8	0.0
1960-61	----	----	----	----	468.0	21.0	0.0
1961-62	----	----	----	----	360.0	16.2	0.0
1962-63	----	----	----	----	-1.0	-1.0	0.0
1963-64	94.1	2967.6	133.	4.22	456.0	20.5	0.0
1964-65	91.1	2874.2	129.	4.09	594.0	26.7	0.0
1965-66	37.3	1178.8	53.	1.68	234.0	10.5	0.0
1966-67	53.8	1697.9	76.	2.42	261.0	11.7	0.0
1967-68	60.7	1915.7	86.	2.73	370.0	16.6	0.0
1968-69	81.2	2562.4	115.	3.65	342.0	15.4	0.0
1969-70	97.2	3068.0	138.	4.37	590.0	26.5	0.3
1970-71	85.0	2683.6	120.	3.82	633.0	28.4	0.0
1971-72	53.3	1682.1	76.	2.39	347.0	15.6	0.1
1972-73	48.9	1542.3	69.	2.20	311.0	14.0	0.0
1973-74	----	----	----	----	269.0	12.1	0.0

GAUGING STATION/STATION DE JAUGEAGE.... PRUSO
 RIVER/COURS D EAU..... PRU
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 1212.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1957-58	0.2	3.3	2.3	0.5	3.0	12.4	12.3	5.5	0.4	0.0	0.0	0.1	3.3
1958-59	0.3	2.1	0.1	0.0	0.1	1.4	0.2	0.4	0.0	-1.0	-1.0	0.1	-1.0
1959-60	2.1	0.4	4.1	0.3	0.2	3.6	1.5	0.3	0.0	0.0	0.0	0.0	1.0
1960-61	0.1	0.2	0.1	0.1	0.6	-1.0	-1.0	-1.0	0.0	0.0	0.0	0.1	-1.0
1961-62	0.1	0.4	1.8	0.2	-1.0	2.6	0.1	0.1	0.1	-1.0	0.1	0.1	-1.0
1962-63	0.9	5.5	4.0	0.2	0.1	0.7	2.2	0.1	0.0	0.0	0.1	0.1	1.1
1963-64	0.1	1.3	8.4	6.2	15.7	27.5	9.1	0.8	0.2	0.1	0.3	0.2	5.8
1964-65	0.0	1.2	4.0	0.0	1.0	4.0	0.5	0.0	0.0	0.1	0.1	0.8	1.0
1965-66	1.7	5.7	10.2	1.3	2.1	6.7	0.7	0.1	0.0	0.0	0.0	0.5	2.4
1966-67	0.5	6.0	20.8	9.5	2.8	10.8	1.8	0.6	0.3	0.0	0.0	0.3	4.4
1967-68	0.8	2.5	3.4	0.4	0.6	1.2	0.6	0.4	0.4	0.4	0.5	1.0	1.0
1968-69	0.7	5.2	13.7	23.2	29.0	18.8	13.9	4.6	1.4	0.6	0.7	1.8	9.4
1969-70	1.8	5.1	2.8	0.6	0.7	2.2	1.9	0.4	0.5	0.5	0.6	0.6	1.5
1970-71	0.6	1.1	1.3	0.4	0.8	10.0	1.2	0.5	0.4	0.4	0.5	0.6	1.5
1971-72	1.1	4.7	7.6	1.8	1.4	9.7	0.7	0.5	0.3	0.3	0.3	0.6	2.4
1972-73	3.7	12.1	7.4	4.2	2.4	13.4	2.9	0.5	0.4	0.4	0.4	0.5	4.0
1973-74	0.6	1.6	3.8	1.2	5.6	7.1	1.5	0.4	0.4	0.4	0.4	0.5	1.9
AVG/MOYEN	0.9	3.4	5.6	2.9	4.1	8.2	3.2	1.0	0.3	0.2	0.2	0.4	2.5

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... PRUSO
 RIVER/COURS D EAU..... PRU
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 1212.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1957-58	3.3	106.1	88.	2.78	26.0	21.5	0.0
1958-59	----	----	----	----	8.1	6.7	
1959-60	1.0	34.2	28.	0.90	6.6	5.4	0.0
1960-61	----	----	----	----	11.7	9.7	0.0
1961-62	----	----	----	----	11.0	9.1	0.1
1962-63	1.1	37.1	31.	0.97	12.1	10.0	0.0
1963-64	5.8	184.9	153.	4.84	47.3	39.0	0.1
1964-65	1.0	32.6	27.	0.85	11.3	9.3	0.1
1965-66	2.4	77.5	64.	2.03	13.4	11.1	0.0
1966-67	4.4	141.3	117.	3.70	28.6	23.6	0.0
1967-68	1.0	33.5	28.	0.88	14.1	11.6	0.4
1968-69	9.4	299.3	247.	7.83	34.4	28.4	0.6
1969-70	1.5	48.1	40.	1.26	11.3	9.3	0.5
1970-71	1.5	48.5	40.	1.27	20.3	16.7	0.2
1971-72	2.4	77.4	64.	2.03	20.3	16.7	0.3
1972-73	4.0	128.3	106.	3.36	24.4	20.1	0.4
1973-74	1.9	62.9	52.	1.65	16.8	13.9	0.4

GAUGING STATION/STATION DE JAUGEAGE..... SABARI
 RIVER/COURS D EAU..... OTI
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 59550.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1959-60	-1.0	11.3	260.0	475.0	1990.0	-1.0	93.7	15.3	6.9	3.6	2.3	4.3	-1.0
1960-61	8.4	37.9	235.0	475.0	1860.0	2230.0	140.0	22.9	9.0	4.4	2.5	3.7	419.0
1961-62	9.0	48.5	361.0	481.0	1130.0	665.0	30.2	8.5	4.2	2.9	1.2	2.6	228.7
1962-63	10.8	160.0	362.0	1180.0	3220.0	2080.0	203.0	40.6	13.4	7.2	6.0	5.1	607.3
1963-64	21.7	12.7	593.0	1580.0	3150.0	1870.0	454.0	47.1	15.8	7.6	3.6	7.6	646.9
1964-65	6.3	17.5	88.6	619.0	1990.0	1420.0	135.0	38.5	23.6	14.4	9.6	9.8	364.3
1965-66	20.0	46.9	157.0	534.0	1250.0	467.0	61.0	9.1	3.6	2.2	1.1	0.8	212.7
1966-67	4.7	60.1	108.0	669.0	1350.0	1030.0	198.0	25.0	6.5	3.1	1.9	4.3	288.4
1967-68	5.4	34.7	-1.0	1210.0	1720.0	-1.0	-1.0	27.5	11.9	6.9	9.2	-1.0	-1.0
1968-69	35.2	216.0	894.0	1670.0	2020.0	1020.0	-1.0	32.0	16.8	10.9	5.9	16.7	-1.0
1969-70	21.8	24.9	283.0	693.0	2870.0	1810.0	443.0	62.8	20.1	11.1	5.7	2.8	520.6
1970-71	9.2	9.6	48.9	877.0	3110.0	2440.0	176.0	28.1	9.1	5.1	3.7	8.0	560.4
1971-72	7.9	18.9	305.0	1350.0	2500.0	-1.0	-1.0	-1.0	8.2	4.3	2.2	2.9	-1.0
1972-73	15.6	38.4	139.0	409.0	1450.0	-1.0	-1.0	5.2	2.7	0.9	0.1	0.0	-1.0
1973-74	0.6	7.5	30.2	860.0	1290.0	519.0	43.6	9.7	4.8	2.7	1.0	2.0	230.9
AVG/MOYEN	12.6	49.6	276.0	872.1	2060.0	1413.7	179.7	26.6	10.4	5.8	3.7	5.0	409.6

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... SABARI
 RIVER/COURS D EAU..... OTI
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 59550.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1959-60	----	----	----	----	-1.0	-1.0	1.4
1960-61	419.0	13216.3	222.	7.04	3260.0	54.7	1.9
1961-62	228.7	7212.3	121.	3.84	1840.0	30.9	0.9
1962-63	607.3	19153.5	322.	10.20	3760.0	63.1	3.3
1963-64	646.9	20401.7	343.	10.86	3470.0	58.3	3.0
1964-65	364.3	11490.8	193.	6.12	2530.0	42.5	6.8
1965-66	212.7	6708.9	113.	3.57	1570.0	26.4	0.5
1966-67	288.4	9095.1	153.	4.84	1680.0	28.2	1.4
1967-68	----	----	----	----	-1.0	-1.0	----
1968-69	----	----	----	----	2560.0	43.0	4.4
1969-70	520.6	16420.4	276.	8.74	3440.0	57.8	1.9
1970-71	560.4	17673.2	297.	9.41	3630.0	61.0	2.2
1971-72	----	----	----	----	2920.0	49.0	1.7
1972-73	----	----	----	----	1920.0	32.2	0.0
1973-74	230.9	7283.3	122.	3.88	1600.0	26.9	----

GAUGING STATION/STATION DE JAUGEAGE..... SABOBA
 RIVER/COURS D EAU..... OTI
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 50300.0

**

1. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1952-53	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	3.5	3.0	-1.0
1953-54	20.1	293.0	440.0	647.0	1980.0	1100.0	133.0	23.5	8.8	5.7	4.3	4.4	388.3
1954-55	18.7	96.6	93.4	168.0	689.0	700.0	106.0	24.4	7.0	5.1	3.7	3.4	159.6
1955-56	7.9	29.3	535.0	1540.0	2340.0	1360.0	-1.0	35.7	14.0	7.1	5.6	5.0	-1.0
1956-57	4.7	23.0	69.0	262.0	1000.0	820.0	83.5	14.1	5.8	4.0	3.1	8.0	191.4
1957-58	-1.0	-1.0	246.0	772.0	2350.0	1880.0	275.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1958-59	-1.0	33.0	20.4	59.2	165.0	160.0	62.6	30.3	10.6	6.8	6.9	21.1	-1.0
1959-60	30.4	31.6	139.0	495.0	1590.0	1110.0	66.5	11.6	-1.0	-1.0	-1.0	-1.0	-1.0
1960-61	10.2	66.0	226.0	324.0	1390.0	1550.0	118.0	17.0	7.9	5.1	3.5	6.0	310.3
1961-62	13.5	49.8	299.0	-1.0	894.0	449.0	23.6	7.4	4.0	3.4	2.7	3.6	-1.0
1962-63	7.7	114.0	266.0	813.0	2600.0	1210.0	149.0	50.7	23.5	6.8	5.6	5.9	437.6
1963-64	11.3	8.9	494.0	1290.0	2370.0	1230.0	308.0	41.8	12.4	7.6	5.8	8.7	482.3
1964-65	10.7	17.2	98.6	552.0	1640.0	1210.0	101.0	18.1	10.9	-1.0	8.3	8.2	-1.0
1965-66	10.1	40.7	133.0	448.0	807.0	361.0	33.2	6.6	8.2	4.9	5.0	11.7	155.7
1966-67	-1.0	-1.0	72.8	512.0	926.0	802.0	163.0	31.9	8.3	5.3	4.3	-1.0	-1.0
1967-68	-1.0	24.5	131.0	762.0	1180.0	875.0	425.0	207.0	53.3	6.1	6.6	12.7	-1.0
1968-69	66.7	152.0	633.0	699.0	1310.0	669.0	128.0	-1.0	9.2	6.5	4.5	5.7	-1.0
1969-70	8.7	8.8	173.0	596.0	2130.0	1110.0	268.0	41.1	13.1	7.7	6.1	4.2	363.9
1970-71	9.0	7.3	49.5	709.0	2450.0	1430.0	88.7	16.2	8.0	6.1	5.0	7.3	398.8
1971-72	7.5	13.5	250.0	1040.0	1740.0	388.0	34.3	10.3	6.4	4.2	2.9	3.9	291.7
1972-73	14.2	28.8	128.0	328.0	988.0	574.0	60.8	10.9	7.2	4.6	2.9	2.8	179.1
1973-74	5.1	15.5	51.4	697.0	885.0	344.0	-1.0	7.2	4.8	3.3	-1.0	-1.0	-1.0
AVG/MOYEN	15.1	55.4	216.5	635.6	1496.3	920.5	138.2	31.8	11.7	5.6	4.7	7.0	294.9

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... SABOBA
 RIVER/COURS D EAU..... OTI
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 50300.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1952-53	----	----	----	----	-1.0	-1.0	2.4
1953-54	388.3	12246.5	243.	7.72	2690.0	53.5	3.1
1954-55	159.6	5034.0	100.	3.17	1390.0	27.6	3.1
1955-56	----	----	----	----	2530.0	50.3	4.0
1956-57	191.4	6037.7	120.	3.81	1220.0	24.3	2.7
1957-58	----	----	----	----	3100.0	61.6	
1958-59	----	----	----	----	263.0	5.2	5.5
1959-60	----	----	----	----	2390.0	47.5	
1960-61	310.3	9786.0	195.	6.17	2730.0	54.3	
1961-62	----	----	----	----	-1.0	-1.0	0.3
1962-63	437.6	13802.9	274.	8.70	3060.0	60.8	
1963-64	482.3	15212.6	302.	9.59	2860.0	56.9	5.3
1964-65	----	----	----	----	2020.0	40.2	7.6
1965-66	155.7	4913.1	98.	3.10	1030.0	20.5	
1966-67	----	----	----	----	1210.0	24.1	
1967-68	----	----	----	----	1640.0	32.6	4.7
1968-69	----	----	----	----	1680.0	33.4	3.7
1969-70	363.9	11476.4	228.	7.23	2810.0	55.9	3.4
1970-71	398.8	12578.7	250.	7.93	3040.0	60.4	4.3
1971-72	291.7	9200.8	183.	5.80	2180.0	43.3	2.1
1972-73	179.1	5651.1	112.	3.56	1300.0	25.8	2.3
1973-74	----	----	----	----	1130.0	22.5	

GAUGING STATION/STATION DE JAUGEAGE..... TIELE
 RIVER/COURS D EAU..... MAGOU
 COUNTRY/PAYS..... BENIN
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 836.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1961-62	0.0	0.0	0.2	1.0	16.3	4.2	0.1	0.0	0.0	0.0	0.0	0.0	1.8
1962-63	0.0	0.0	1.5	18.4	38.7	21.3	0.7	0.2	0.0	0.0	0.0	0.0	6.7
1963-64	0.0	0.0	3.9	31.0	30.7	8.7	2.3	0.1	0.0	0.0	0.0	0.0	6.3
1964-65	0.0	1.5	1.3	36.3	49.9	30.7	8.6	0.7	0.1	0.0	0.0	0.0	10.7
1965-66	0.0	1.6	1.6	16.3	25.0	8.8	0.6	0.3	-1.0	0.0	0.0	0.0	-1.0
1966-67	0.1	0.2	0.6	4.4	16.4	26.9	1.2	0.2	0.2	0.0	0.0	0.0	4.1
1967-68	0.0	0.2	0.2	10.7	32.0	12.5	0.7	0.2	0.1	0.0	0.0	0.0	4.7
1968-69	0.0	0.2	8.4	24.1	26.1	19.0	0.9	0.3	0.1	0.0	0.0	0.0	6.5
1969-70	0.0	0.1	1.2	3.6	40.4	18.0	3.1	0.3	0.1	0.0	0.0	0.0	5.5
1970-71	0.0	0.1	0.1	2.6	45.3	9.4	0.3	0.1	0.0	0.0	0.0	0.0	4.8
1971-72	-1.0	-1.0	-1.0	18.9	30.5	5.3	0.2	-1.0	0.0	0.0	-1.0	-1.0	-1.0
1972-73	0.0	0.0	0.5	1.7	25.0	14.8	0.3	0.1	0.0	0.0	0.0	0.0	3.5
1973-74	0.0	0.1	0.1	6.3	27.4	5.6	0.1	0.0	0.0	0.0	0.0	0.0	3.2
AVG/MOYEN	0.0	0.3	1.6	13.4	31.0	14.2	1.4	0.2	0.0	0.0	0.0	0.0	5.2

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... TIELE
 RIVER/COURS D EAU..... MAGOU
 COUNTRY/PAYS..... BENIN
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 836.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1961-62	1.8	57.2	69.	2.17	31.6	37.8	0.0
1962-63	6.7	212.3	254.	8.05	59.2	70.8	0.0
1963-64	6.3	201.5	241.	7.65	66.3	79.3	0.0
1964-65	10.7	339.2	406.	12.87	77.2	92.3	0.0
1965-66	---	---	---	---	44.8	53.6	0.0
1966-67	4.1	131.9	158.	5.00	47.9	57.3	0.0
1967-68	4.7	148.7	178.	5.64	52.1	62.3	0.0
1968-69	6.5	207.8	249.	7.88	41.3	49.4	0.0
1969-70	5.5	175.5	210.	6.66	64.1	76.7	0.0
1970-71	4.8	152.1	182.	5.77	87.3	104.4	0.0
1971-72	---	---	---	---	48.2	57.7	0.0
1972-73	3.5	111.4	133.	4.23	40.5	48.4	0.0
1973-74	3.2	104.0	124.	3.95	46.3	55.4	0.0

GAUGING STATION/STATION DE JAUGEAGE.... TITIRA
 RIVER/COURS D EAU..... KERAN
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 3695.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1961-62	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.4	0.0	-1.0	-1.0	-1.0
1962-63	1.8	18.3	49.7	151.0	168.0	75.1	25.8	5.2	2.4	0.9	0.0	0.9	41.5
1963-64	1.7	2.1	77.3	256.0	266.0	164.0	44.3	12.8	4.2	1.3	0.5	1.8	69.3
1964-65	5.6	5.2	34.8	108.0	243.0	48.1	11.2	3.4	2.0	0.7	1.1	1.1	38.6
1965-66	6.3	11.4	27.5	95.4	108.0	27.3	4.7	1.4	0.6	0.2	0.3	0.6	23.6
1966-67	4.9	21.4	32.7	105.0	146.0	101.0	18.0	3.7	1.4	0.4	0.1	0.4	36.2
1967-68	5.0	5.6	62.7	227.0	149.0	86.6	13.7	6.7	2.1	0.7	0.2	0.7	46.6
1968-69	15.2	50.3	166.0	134.0	217.0	85.4	20.4	6.4	2.8	1.1	0.3	12.7	59.2
1969-70	1.8	2.5	46.0	-1.0	262.0	-1.0	-1.0	11.0	4.1	1.7	0.3	1.8	-1.0
1970-71	2.6	1.7	22.3	114.0	297.0	72.0	11.5	3.1	1.5	0.9	0.9	0.3	43.9
1971-72	1.6	2.4	91.8	213.0	177.0	45.2	7.5	2.7	1.0	0.3	0.4	1.7	45.3
1972-73	16.0	13.1	51.5	85.5	126.0	47.0	9.5	3.0	2.0	0.3	0.1	0.7	29.5
1973-74	1.8	2.9	14.6	114.0	165.0	63.9	8.5	1.5	0.5	0.2	0.1	0.1	31.0
AVG/MOYEN	5.3	11.4	56.4	145.7	193.6	74.1	15.9	5.0	1.9	0.6	0.3	1.8	42.7

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... TITIRA
 RIVER/COURS D EAU..... KERAN
 COUNTRY/PAYS..... TOGO
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 3695.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1961-62	----	----	----	----	-1.0	-1.0	
1962-63	41.5	1311.6	355.	11.26	490.0	132.6	0.0
1963-64	69.3	2186.4	592.	18.76	880.0	238.2	0.1
1964-65	38.6	1219.9	330.	10.47	925.0	250.3	0.2
1965-66	23.6	745.5	202.	6.40	279.0	75.5	0.1
1966-67	36.2	1143.1	309.	9.81	497.0	134.5	0.1
1967-68	46.6	1472.2	398.	12.63	1050.0	284.2	0.1
1968-69	59.2	1870.0	506.	16.05	532.0	144.0	0.2
1969-70	----	----	----	----	-1.0	-1.0	0.2
1970-71	43.9	1387.0	375.	11.90	862.0	233.3	0.2
1971-72	45.3	1431.2	387.	12.28	781.0	211.4	0.3
1972-73	29.5	932.1	252.	8.00	348.0	94.2	0.1
1973-74	31.0	980.5	265.	8.41	788.0	213.3	0.1

GAUGING STATION/STATION DE JAUGEAGE.... VENDI
 RIVER/COURS D EAU..... DAKA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 1214.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1958-59	-1.0	-1.0	-1.0	-1.0	-1.0	1.8	0.0	0.0	-1.0	0.0	0.0	0.0	-1.0
1959-60	0.0	0.0	0.2	0.0	16.3	15.9	0.1	0.0	0.0	0.0	0.0	0.0	2.7
1960-61	0.0	0.0	0.7	1.4	41.7	31.6	0.0	0.0	0.0	0.0	0.0	0.0	6.2
1961-62	0.5	0.0	2.7	0.8	7.5	4.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3
1962-63	0.0	0.1	0.5	34.4	79.9	-1.0	28.3	0.0	0.0	0.0	0.0	0.0	-1.0
1963-64	0.0	0.0	8.8	44.0	86.5	34.1	2.8	0.0	0.0	0.0	0.0	0.0	14.6
1964-65	0.0	0.1	0.0	0.9	9.3	9.6	0.0	0.0	0.0	0.0	0.0	0.2	1.6
1965-66	0.2	24.5	20.0	36.9	80.4	28.9	8.9	0.1	0.0	0.0	0.0	0.0	16.6
1966-67	0.0	0.0	0.0	2.6	-1.0	21.5	-1.0	-1.0	0.0	0.0	-1.0	-1.0	-1.0
1967-68	-1.0	-1.0	12.8	38.7	39.6	27.8	0.9	0.0	0.0	0.0	0.0	0.0	-1.0
1968-69	-1.0	-1.0	11.9	75.1	69.5	22.5	4.4	-1.0	0.1	0.0	0.0	0.0	-1.0
1969-70	0.0	0.0	0.0	9.8	79.9	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	0.0	-1.0
1970-71	0.2	0.5	0.1	7.8	110.0	-1.0	0.5	0.0	0.0	0.0	0.0	0.0	-1.0
1971-72	0.3	-1.0	8.2	48.0	67.8	8.3	-1.0	-1.0	-1.0	0.0	0.0	0.0	-1.0
1972-73	10.3	23.4	27.7	32.2	87.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-1.0
1973-74	0.0	0.0	0.1	27.7	49.6	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	0.9	4.0	6.2	24.0	58.9	18.7	4.1	0.0	0.0	0.0	0.0	0.0	9.7

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUAGE.... VENDI
 RIVER/COURS D EAU..... DAKA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 1214.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1958-59	----	----	----	----	60.1	49.5	0.0
1959-60	2.7	85.7	71.	2.24	91.6	75.5	0.0
1960-61	6.2	198.3	163.	5.18	26.9	22.2	0.0
1961-62	1.3	41.8	34.	1.09	26.9	22.2	0.0
1962-63	----	----	----	----	-1.0	-1.0	0.0
1963-64	14.6	463.3	382.	12.10	-1.0	-1.0	0.0
1964-65	1.6	53.4	44.	1.40	32.7	26.9	0.0
1965-66	16.6	525.6	433.	13.73	107.0	88.1	0.0
1966-67	----	----	----	----	-1.0	-1.0	0.0
1967-68	----	----	----	----	102.0	84.0	0.0
1968-69	----	----	----	----	126.0	103.8	0.0
1969-70	----	----	----	----	134.0	110.4	0.0
1970-71	----	----	----	----	154.0	126.9	0.0
1971-72	----	----	----	----	108.0	89.0	0.0
1972-73	----	----	----	----	129.0	106.3	0.0
1973-74	----	----	----	----	66.1	54.4	0.0

GAUGING STATION/STATION DE JAUGEAGE.... YEJI
 RIVER/COURS D EAU..... VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 260330.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1951-52	61.7	43.3	297.0	738.0	2750.0	3640.0	2460.0	236.0	97.0	45.6	26.1	25.1	868.3
1952-53	40.2	56.4	236.0	530.0	2370.0	4120.0	784.0	163.0	96.8	58.7	43.9	24.3	710.2
1953-54	39.9	398.0	732.0	1300.0	2280.0	2020.0	221.0	76.8	37.9	22.2	21.8	25.0	597.8
1954-55	44.4	112.0	132.0	466.0	1960.0	1830.0	389.0	121.0	73.7	43.5	35.0	35.6	436.8
1955-56	39.9	91.2	375.0	1380.0	3140.0	3760.0	762.0	142.0	83.5	51.1	42.6	33.8	825.0
1956-57	49.3	106.0	153.0	269.0	1640.0	1920.0	190.0	87.9	48.2	26.9	19.4	30.6	378.3
1957-58	118.0	602.0	804.0	1140.0	2780.0	3470.0	986.0	201.0	88.9	46.9	33.5	49.5	859.9
1958-59	50.5	78.4	72.5	265.0	1110.0	644.0	145.0	94.6	69.0	22.2	8.5	8.2	213.9
1959-60	27.0	47.2	180.0	-1.0	1820.0	1510.0	153.0	63.8	27.2	15.7	16.9	19.5	-1.0
1960-61	40.3	99.5	230.0	835.0	1970.0	2630.0	200.0	74.5	33.0	16.7	15.0	27.0	514.2
1961-62	47.8	111.0	432.0	749.0	1350.0	1210.0	148.0	68.1	36.7	20.5	12.8	18.5	350.3
1962-63	77.2	207.0	475.0	795.0	2820.0	2700.0	437.0	135.0	98.6	39.2	34.6	23.0	653.4
1963-64	123.0	144.0	849.0	2780.0	6040.0	4690.0	1580.0	233.0	106.0	80.5	57.8	72.6	1396.3
1964-65	74.4	191.0	284.0	692.0	2650.0	2610.0	452.0	150.0	100.0	70.2	46.0	37.2	613.0
1965-66	63.2	289.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	59.7	171.7	375.1	918.3	2477.1	2625.2	636.2	131.9	71.1	39.9	29.5	30.7	630.5

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... YEJI
 RIVER/COURS D EAU..... VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 260330.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1951-52	868.3	27383.2	105.	3.34	-1.0	-1.0	17.5
1952-53	710.2	22399.2	86.	2.73	4580.0	17.6	20.9
1953-54	597.8	18854.8	72.	2.30	3440.0	13.2	
1954-55	436.8	13776.5	53.	1.68	2460.0	9.4	
1955-56	825.0	26020.0	100.	3.17	4600.0	17.7	26.6
1956-57	378.3	11931.9	46.	1.45	3030.0	11.6	17.5
1957-58	859.9	27120.4	104.	3.30	4080.0	15.7	29.7
1958-59	213.9	6748.7	26.	0.82	1460.0	5.6	3.6
1959-60	-----	-----	-----	-----	2950.0	11.3	
1960-61	514.2	16217.3	62.	1.98	4120.0	15.8	
1961-62	350.3	11049.1	42.	1.35	2580.0	9.9	5.1
1962-63	653.4	20607.7	79.	2.51	3900.0	15.0	22.8
1963-64	1396.3	44034.5	169.	5.36	6720.0	25.8	50.0
1964-65	613.0	19333.6	74.	2.35	3770.0	14.5	
1965-66	-----	-----	-----	-----	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE.... DABOYA
 RIVER/COURS D EAU..... WHITE VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 96320.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1962-63	4.7	40.9	80.7	394.0	1440.0	956.0	61.4	22.7	11.2	5.0	9.9	2.6	252.4
1963-64	18.9	12.7	184.0	962.0	1870.0	637.0	154.0	22.0	8.9	5.2	3.0	2.6	323.3
1964-65	5.2	17.1	51.0	368.0	1040.0	785.0	42.3	15.3	8.0	6.3	3.1	3.0	195.3
1965-66	-1.0	26.7	158.0	573.0	1110.0	397.0	35.7	13.5	7.4	4.4	3.3	3.5	-1.0
1966-67	19.8	41.4	46.1	419.0	979.0	435.0	39.8	9.8	5.5	3.4	1.9	1.6	166.8
1967-68	1.7	5.6	25.8	437.0	1440.0	921.0	57.7	18.1	8.5	6.6	7.5	6.9	244.7
1968-69	20.1	122.0	-1.0	893.0	1050.0	364.0	41.6	11.3	7.3	4.6	2.8	4.5	-1.0
1969-70	6.4	9.7	127.0	357.0	-1.0	751.0	-1.0	-1.0	9.9	6.7	5.7	3.9	-1.0
1970-71	7.7	12.5	37.8	498.0	1550.0	868.0	83.0	16.5	8.2	6.1	4.7	5.6	258.1
1971-72	6.1	14.7	69.2	442.0	1650.0	598.0	30.2	11.6	7.5	5.0	3.8	5.3	236.9
1972-73	11.0	19.4	64.0	143.0	245.0	83.6	16.6	5.7	3.5	2.2	1.2	1.4	49.7
1973-74	2.7	24.6	47.1	637.0	648.0	80.2	13.5	6.4	4.4	3.4	2.0	2.5	122.6
AVG/MOYEN	9.4	28.9	80.9	510.2	1183.8	572.9	52.3	13.9	7.5	4.9	4.1	3.6	206.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... DABOYA
 RIVER/COURS D EAU..... WHITE VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 96320.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1962-63	252.4	7960.9	83.	2.62	1990.0	20.7	1.3
1963-64	323.3	10198.0	106.	3.36	2270.0	23.6	1.3
1964-65	195.3	6161.1	64.	2.03	1460.0	15.2	
1965-66	----	----	----	----	1230.0	12.8	
1966-67	166.8	5262.4	55.	1.73	1340.0	13.9	1.6
1967-68	244.7	7717.5	80.	2.54	1940.0	20.1	3.4
1968-69	----	----	----	----	1220.0	12.7	2.3
1969-70	----	----	----	----	-1.0	-1.0	3.7
1970-71	258.1	8142.3	85.	2.68	2140.0	22.2	4.1
1971-72	236.9	7472.9	78.	2.46	1970.0	20.5	3.0
1972-73	49.7	1568.4	16.	0.52	305.0	3.2	0.7
1973-74	122.6	3868.3	40.	1.27	1030.0	10.7	

GAUGING STATION/STATION DE JAUGEAGE.... LUMBILA
 RIVER/COURS D EAÜ..... MASSILI
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTABLANCHE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 2120.0

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I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1956-57	0.0	1.4	1.7	2.4	3.2	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.7
1957-58	1.4	0.3	1.5	0.4	0.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.3
1958-59	0.0	0.5	0.6	19.5	2.3	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.9
1959-60	0.0	0.0	0.1	14.0	1.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3
1960-61	0.1	0.5	3.7	7.2	4.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	1.3
1961-62	0.0	0.0	0.6	5.5	32.5	0.0	0.0	0.0	0.0	0.0	0.0	0.0	3.2
1962-63	0.5	1.3	0.3	6.4	10.9	0.6	0.0	0.0	0.0	0.0	0.0	0.0	1.6
1963-64	0.0	0.2	1.2	1.4	0.1	0.0	0.0	0.0	0.0	0.0	0.0	0.7	0.3
1964-65	0.0	1.2	2.6	9.1	22.9	1.9	0.0	0.0	0.0	0.0	0.0	0.0	3.1
1965-66	0.0	0.1	0.6	4.5	9.2	0.3	0.0	0.0	0.0	0.0	0.0	0.0	1.2
1966-67	0.0	1.3	0.4	2.0	2.6	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.5
1967-68	0.0	0.4	1.3	20.5	6.3	0.4	0.0	0.0	0.0	0.0	0.0	0.0	2.4
1968-69	0.3	0.0	2.1	0.3	2.8	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.4
1969-70	0.0	0.3	1.6	3.3	4.7	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.8
AVG/MOYEN	0.1	0.5	1.3	6.9	7.4	0.2	0.0	0.0	0.0	0.0	0.0	0.0	1.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... LUMBILA
 RIVER/COURS D EAU..... MASSILI
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTABLANCHE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 2120.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1956-57	0.7	23.4	11.	0.35	19.0	9.0	0.0
1957-58	0.3	10.8	5.	0.16	8.6	4.1	0.0
1958-59	1.9	60.5	29.	0.91	100.0	47.2	0.0
1959-60	1.3	41.6	20.	0.62	45.6	21.5	0.0
1960-61	1.3	42.7	20.	0.64	21.7	10.2	0.0
1961-62	3.2	101.7	48.	1.52	169.0	79.7	0.0
1962-63	1.6	53.1	25.	0.79	33.3	15.7	0.0
1963-64	0.3	9.7	5.	0.15	7.6	3.6	0.0
1964-65	3.1	99.6	47.	1.49	93.4	44.1	0.0
1965-66	1.2	39.4	19.	0.59	37.7	17.8	0.0
1966-67	0.5	17.0	8.	0.26	6.3	3.0	0.0
1967-68	2.4	76.2	36.	1.14	161.0	75.9	0.0
1968-69	0.4	15.2	7.	0.23	10.5	5.0	0.0
1969-70	0.8	26.9	13.	0.40	23.1	10.9	0.0

GAUGING STATION/STATION DE JAUGEAGE.... NABOGO
 RIVER/COURS D EAU..... NABOGO
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 1950.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1962-63	0.2	6.2	9.2	42.5	166.0	-1.0	3.1	0.0	0.0	0.0	0.0	0.1	-1.0
1963-64	1.3	0.0	8.4	16.6	107.0	151.0	16.1	0.1	0.0	0.0	0.0	-1.0	-1.0
1964-65	-1.0	-1.0	-1.0	3.5	75.4	49.2	0.4	0.0	0.0	0.0	0.0	0.0	-1.0
1965-66	0.2	1.5	7.2	16.8	95.7	37.8	0.3	0.0	0.0	0.0	0.0	0.0	13.3
1966-67	0.0	0.2	0.2	7.0	43.8	41.8	1.5	0.0	0.0	0.0	0.0	0.0	7.9
1967-68	0.0	0.1	1.0	32.7	110.0	45.3	0.5	0.0	0.0	0.0	0.0	0.0	15.8
1968-69	0.2	3.1	17.6	80.5	112.0	42.7	1.5	0.0	0.0	0.0	0.0	0.3	21.5
1969-70	0.2	0.3	6.2	36.6	166.0	63.5	10.8	0.1	0.0	0.0	0.0	0.0	23.6
1970-71	0.0	0.0	0.1	25.8	160.0	32.7	0.1	0.0	0.0	0.0	0.0	0.0	18.2
1971-72	0.2	0.1	3.8	31.2	157.0	28.6	0.3	0.0	0.0	0.0	0.0	0.0	18.4
1972-73	0.5	0.4	4.6	3.5	54.1	5.7	0.1	0.0	0.0	0.0	0.0	0.0	5.7
1973-74	0.0	0.0	1.9	18.7	25.0	8.5	0.0	0.0	0.0	0.0	0.0	0.0	4.5
AVG/MOYEN	0.2	1.1	5.5	26.2	106.0	46.0	2.9	0.0	0.0	0.0	0.0	0.0	15.6

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... NABOGO
 RIVER/COURS D EAU..... NABOGO
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 1950.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1962-63	----	----	----	----	182.0	93.3	0.0
1963-64	----	----	----	----	179.0	91.8	0.0
1964-65	----	----	----	----	140.0	71.8	0.0
1965-66	13.3	419.6	215.	6.82	136.0	69.7	0.0
1966-67	7.9	249.3	128.	4.05	94.8	48.6	0.0
1967-68	15.8	498.6	256.	8.11	166.0	85.1	0.0
1968-69	21.5	678.3	348.	11.03	138.0	70.8	0.0
1969-70	23.6	746.1	383.	12.13	205.0	105.1	0.0
1970-71	18.2	575.2	295.	9.35	185.0	94.9	0.0
1971-72	18.4	581.6	298.	9.46	202.0	103.6	0.0
1972-73	5.7	181.8	93.	2.96	103.0	52.8	0.0
1973-74	4.5	142.9	73.	2.32	43.4	22.3	0.0

GAUGING STATION/STATION DE JAUGEAGE.... NAKPANDURI
 RIVER/COURS D EAU..... MORAGO
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 1530.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1958-59	-1.0	-1.0	2.1	20.8	35.1	8.5	2.5	1.8	-1.0	-1.0	-1.0	-1.0	-1.0
1959-60	-1.0	13.9	6.0	29.3	58.4	12.2	1.4	0.0	-1.0	-1.0	-1.0	-1.0	-1.0
1960-61	0.0	4.7	2.0	16.0	32.4	12.0	2.0	0.0	0.0	0.0	0.0	0.0	5.7
1961-62	-1.0	2.7	12.5	21.5	30.8	1.8	-1.0	0.2	-1.0	-1.0	-1.0	-1.0	-1.0
1962-63	-1.0	0.4	2.7	22.8	61.2	14.3	2.8	0.5	-1.0	-1.0	-1.0	-1.0	-1.0
1963-64	0.4	1.8	23.6	35.0	32.0	22.8	3.9	0.7	0.0	0.0	0.0	0.0	10.0
1964-65	-1.0	0.1	5.9	30.2	63.9	9.4	2.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1965-66	1.0	7.5	2.1	8.8	14.3	3.6	0.1	0.0	0.0	0.0	0.0	0.0	3.1
1966-67	5.6	3.1	3.9	27.0	17.6	10.4	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1967-68	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1968-69	-1.0	-1.0	-1.0	37.7	26.0	7.4	2.4	0.3	0.0	0.0	-1.0	-1.0	-1.0
1969-70	-1.0	-1.0	-1.0	14.4	47.2	-1.0	-1.0	0.4	0.0	0.0	0.0	0.0	-1.0
1970-71	0.0	0.5	1.0	18.0	63.6	11.9	2.2	0.5	0.0	0.0	0.0	0.0	8.2
1971-72	0.8	0.6	3.3	35.2	28.3	5.8	0.7	0.0	0.0	0.0	0.0	0.0	6.2
1972-73	0.0	3.8	1.4	4.7	12.8	4.8	0.1	0.0	0.0	0.0	0.0	0.0	2.3
1973-74	0.0	-1.0	-1.0	-1.0	-1.0	-1.0	1.5	0.0	0.0	0.0	-1.0	-1.0	-1.0
AVG/MOYEN	0.9	3.5	5.5	22.9	37.3	9.6	1.9	0.3	0.0	0.0	0.0	0.1	6.8

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... NAKPANDURI
 RIVER/COURS D EAU..... MORAGO
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 1530.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1958-59	----	----	----	----	78.4	51.2	0.0
1959-60	----	----	----	----	151.0	98.7	0.0
1960-61	5.7	182.1	119.	3.77	63.8	41.7	0.0
1961-62	----	----	----	----	96.0	62.7	0.0
1962-63	----	----	----	----	135.0	88.2	0.0
1963-64	10.0	316.3	207.	6.56	93.4	61.0	0.0
1964-65	----	----	----	----	166.0	108.5	0.0
1965-66	3.1	98.7	65.	2.05	35.8	23.4	0.0
1966-67	----	----	----	----	65.7	42.9	0.0
1967-68	----	----	----	----	-1.0	-1.0	
1968-69	----	----	----	----	168.0	109.8	0.0
1969-70	----	----	----	----	134.0	87.6	0.0
1970-71	8.2	259.3	169.	5.37	117.0	76.5	0.0
1971-72	6.2	197.0	129.	4.08	118.0	77.1	0.0
1972-73	2.3	72.9	48.	1.51	26.6	17.4	0.0
1973-74	----	----	----	----	-1.0	-1.0	0.0

GAUGING STATION/STATION DE JAUGEAGE..... NANGODI
 RIVER/COURS D EAU..... VOLTA ROUGE
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 11570.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1958-59	-1.0	-1.0	7.9	65.5	146.0	28.3	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1959-60	-1.0	-1.0	10.2	124.0	167.0	11.7	0.6	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1960-61	1.0	4.9	19.5	98.0	126.0	22.6	0.6	0.0	0.0	0.0	0.0	0.0	22.7
1961-62	3.0	21.7	18.8	72.8	140.0	13.7	0.3	0.0	0.0	0.0	0.0	0.0	22.5
1962-63	4.0	23.6	16.3	76.9	280.0	77.1	11.8	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1963-64	1.0	7.3	89.3	174.0	139.0	30.6	0.5	0.0	0.0	0.0	0.0	0.0	36.8
1964-65	-1.0	3.0	21.0	125.0	301.0	57.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1965-66	-1.0	-1.0	12.4	117.0	39.1	13.0	0.9	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1966-67	-1.0	13.1	11.9	-1.0	-1.0	23.6	1.5	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1967-68	-1.0	-1.0	10.6	97.2	132.0	18.3	0.4	0.0	-1.0	-1.0	-1.0	-1.0	-1.0
1968-69	11.0	30.2	53.3	33.4	19.8	8.5	0.8	1.8	0.0	0.0	0.0	0.0	13.2
1969-70	0.8	-1.0	-1.0	84.1	220.0	30.3	1.8	0.1	0.0	0.0	0.0	0.0	-1.0
1970-71	0.0	5.6	12.6	-1.0	148.0	9.7	0.4	0.0	0.0	0.0	0.0	0.0	-1.0
1971-72	0.1	0.3	17.0	81.8	101.0	7.0	0.1	0.0	0.0	0.0	0.0	0.0	17.2
1972-73	0.0	7.1	20.5	28.1	19.0	3.9	0.1	0.0	0.0	0.0	0.0	1.8	6.7
1973-74	0.0	7.5	-1.0	129.0	40.9	1.9	0.0	0.0	0.0	0.0	0.0	0.0	-1.0
AVG/MOYEN	2.0	11.2	22.9	93.3	134.5	22.3	1.4	0.1	0.0	0.0	0.0	0.2	24.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... NANGODI
 RIVER/COURS D EAU..... VOLTA ROUGE
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 11570.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1958-59	----	----	----	----	376.0	32.5	
1959-60	----	----	----	----	309.0	26.7	
1960-61	22.7	716.3	62.	1.96	-1.0	-1.0	0.0
1961-62	22.5	710.3	61.	1.95	393.0	34.0	0.0
1962-63	----	----	----	----	474.0	41.0	
1963-64	36.8	1160.7	100.	3.18	403.0	34.8	0.0
1964-65	----	----	----	----	521.0	45.0	
1965-66	----	----	----	----	223.0	19.3	
1966-67	----	----	----	----	-1.0	-1.0	
1967-68	----	----	----	----	230.0	19.9	
1968-69	13.2	417.3	36.	1.14	212.0	18.3	0.0
1969-70	----	----	----	----	364.0	31.5	0.0
1970-71	----	----	----	----	-1.0	-1.0	0.0
1971-72	17.2	544.7	47.	1.49	194.0	16.8	0.0
1972-73	6.7	211.5	18.	0.58	56.4	4.9	0.0
1973-74	----	----	----	----	-1.0	-1.0	0.0

GAUGING STATION/STATION DE JAUGEAGE.... NASIA
 RIVER/COURS D EAU..... NASIA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 5175.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1953-54	0.0	15.7	-1.0	-1.0	-1.0	-1.0	9.2	6.5	4.5	1.7	0.3	0.1	-1.0
1954-55	0.1	0.2	0.6	6.9	64.7	162.0	33.3	6.4	-1.0	-1.0	-1.0	-1.0	-1.0
1955-56	-1.0	2.0	10.4	-1.0	277.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1956-57	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1957-58	-1.0	-1.0	-1.0	31.5	167.0	306.0	49.7	2.7	-1.0	-1.0	-1.0	0.0	-1.0
1958-59	0.0	0.8	1.7	7.0	36.2	-1.0	-1.0	1.0	0.0	-1.0	-1.0	-1.0	-1.0
1959-60	1.2	0.0	7.6	9.6	82.1	104.0	1.2	0.0	0.0	0.0	0.0	0.0	17.1
1960-61	-1.0	-1.0	0.0	23.8	133.0	225.0	45.0	0.0	-1.0	-1.0	-1.0	-1.0	-1.0
1961-62	0.0	0.0	24.1	250.0	171.0	176.0	4.3	1.5	0.0	0.0	0.0	0.0	52.2
1962-63	0.6	0.5	3.1	53.2	154.0	132.0	28.9	7.8	-1.0	-1.0	-1.0	-1.0	-1.0
1963-64	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1964-65	-1.0	-1.0	-1.0	-1.0	51.6	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1965-66	0.0	0.4	3.0	22.8	122.0	128.0	29.4	19.0	3.2	1.3	0.6	0.0	27.4
1966-67	-1.0	-1.0	-1.0	-1.0	55.6	94.8	10.6	4.1	2.3	-1.0	-1.0	-1.0	-1.0
1967-68	-1.0	-1.0	-1.0	-1.0	-1.0	231.0	28.2	7.8	5.6	3.4	1.9	1.8	-1.0
1968-69	0.8	0.5	-1.0	-1.0	142.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.8	1.2	-1.0
1969-70	2.8	1.3	1.7	19.5	131.0	212.0	18.6	6.2	3.5	0.8	0.8	0.0	33.2
1970-71	0.0	0.0	1.2	23.9	185.0	342.0	21.0	6.9	4.0	2.4	1.3	0.1	49.0
1971-72	1.7	1.2	0.2	20.8	112.0	125.0	7.4	4.5	2.4	0.9	0.0	0.0	23.0
1972-73	0.0	0.2	0.7	8.0	58.9	90.8	12.4	3.6	1.3	0.2	0.0	0.0	14.6
1973-74	0.0	0.0	0.0	34.3	50.6	-1.0	4.5	2.0	0.2	0.0	-1.0	-1.0	-1.0
AVG/MOYEN	0.5	1.6	4.2	39.3	117.2	179.1	20.2	5.0	2.2	1.0	0.6	0.3	30.9

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... NASIA
 RIVER/COURS D EAU..... NASIA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 5175.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG.AN.DISCH. DEBITS MOY.AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1953-54	----	----	----	----	-1.0	-1.0	0.0
1954-55	----	----	----	----	-1.0	-1.0	
1955-56	----	----	----	----	-1.0	-1.0	
1956-57	----	----	----	----	-1.0	-1.0	
1957-58	----	----	----	----	396.0	76.5	0.0
1958-59	----	----	----	----	-1.0	-1.0	
1959-60	17.1	541.0	105.	3.32	261.0	50.4	0.0
1960-61	----	----	----	----	353.0	68.2	0.0
1961-62	52.2	1647.7	318.	10.10	410.0	79.2	0.0
1962-63	----	----	----	----	276.0	53.3	0.0
1963-64	----	----	----	----	256.0	49.5	
1964-65	----	----	----	----	-1.0	-1.0	
1965-66	27.4	867.0	168.	5.31	256.0	49.5	
1966-67	----	----	----	----	-1.0	-1.0	
1967-68	----	----	----	----	377.0	72.9	0.8
1968-69	----	----	----	----	-1.0	-1.0	
1969-70	33.2	1047.1	202.	6.42	353.0	68.2	0.0
1970-71	49.0	1545.5	299.	9.47	517.0	99.9	0.0
1971-72	23.0	726.6	140.	4.45	280.0	54.1	0.0
1972-73	14.6	463.4	90.	2.84	-1.0	-1.0	0.0
1973-74	----	----	----	----	-1.0	-1.0	0.0

GAUGING STATION/STATION DE JAUGEAGE..... NAWUNI
 RIVER/COURS D EAU..... WHITE VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 92950.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1953-54	24.8	543.0	431.0	979.0	1420.0	696.0	103.0	16.8	6.4	3.4	1.8	1.1	352.2
1954-55	25.4	108.0	130.0	403.0	1290.0	825.0	85.4	12.7	4.8	2.5	1.9	1.6	240.8
1955-56	2.5	33.2	176.0	882.0	1420.0	1270.0	118.0	25.1	8.1	4.7	2.9	2.3	328.7
1956-57	6.6	-1.0	-1.0	260.0	1400.0	728.0	398.0	11.9	4.3	2.4	1.3	2.2	-1.0
1957-58	66.3	255.0	339.0	585.0	1600.0	973.0	123.0	23.2	7.4	4.6	-1.0	2.4	-1.0
1958-59	4.3	46.5	35.9	299.0	979.0	-1.0	-1.0	8.3	5.9	3.3	2.0	3.2	-1.0
1959-60	2.7	62.9	110.0	449.0	1390.0	615.0	36.2	11.8	6.2	3.8	2.0	1.2	224.2
1960-61	3.3	44.4	106.0	501.0	1370.0	899.0	65.8	23.4	8.0	3.6	5.0	3.4	252.7
1961-62	12.1	43.4	237.0	773.0	1220.0	518.0	37.9	15.6	7.8	-1.0	-1.0	-1.0	-1.0
1962-63	-1.0	69.6	151.0	584.0	1820.0	906.0	95.6	24.8	12.7	7.8	12.7	11.4	-1.0
1963-64	30.9	23.6	293.0	1260.0	1900.0	766.0	182.0	25.6	11.5	7.9	5.7	4.5	375.9
1964-65	4.3	14.3	107.0	567.0	1380.0	783.0	52.3	13.2	6.2	5.4	3.7	3.3	244.9
1965-66	6.2	33.9	183.0	718.0	1140.0	411.0	22.4	6.8	5.6	4.3	3.4	2.5	211.4
1966-67	31.0	96.2	85.3	-1.0	1040.0	502.0	53.2	11.0	6.1	4.1	2.7	2.8	-1.0
1967-68	3.7	8.1	43.0	567.0	1580.0	808.0	69.8	12.5	5.3	2.0	2.7	3.2	258.7
1968-69	29.6	176.0	424.0	1020.0	1120.0	361.0	-1.0	-1.0	-1.0	-1.0	2.0	2.5	-1.0
1969-70	6.6	7.7	185.0	492.0	1820.0	749.0	90.5	9.8	3.8	11.1	6.1	6.4	282.3
1970-71	13.9	9.9	65.8	634.0	1700.0	609.0	37.7	10.2	6.0	4.2	3.0	3.2	258.0
1971-72	3.8	16.7	95.5	533.0	1710.0	477.0	29.3	8.1	5.2	4.7	3.7	8.6	241.3
1972-73	11.7	24.9	99.6	213.0	321.0	123.0	20.7	6.2	3.8	2.6	3.1	3.5	69.4
1973-74	6.1	50.3	77.8	822.0	735.0	-1.0	16.6	7.2	5.6	4.4	-1.0	-1.0	-1.0
AVG/MOYEN	14.8	83.3	168.7	627.0	1350.2	685.2	86.1	14.2	6.5	4.6	3.6	3.6	254.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... NAWUNI
 RIVER/COURS D EAU..... WHITE VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 92950.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1953-54	352.2	11107.2	119.	3.79	-1.0	-1.0	0.8
1954-55	240.8	7596.1	82.	2.59	1600.0	17.2	1.2
1955-56	328.7	10367.2	112.	3.54	2000.0	21.5	1.5
1956-57	----	----	----	----	1730.0	18.6	0.8
1957-58	----	----	----	----	1920.0	20.7	1.2
1958-59	----	----	----	----	1220.0	13.1	1.5
1959-60	224.2	7072.2	76.	2.41	1670.0	18.0	0.0
1960-61	252.7	7971.5	86.	2.72	2040.0	21.9	2.5
1961-62	----	----	----	----	1930.0	20.8	
1962-63	----	----	----	----	2040.0	21.9	6.7
1963-64	375.9	11854.4	128.	4.04	2190.0	23.6	4.1
1964-65	244.9	7726.0	83.	2.64	1810.0	19.5	2.9
1965-66	211.4	6668.3	72.	2.27	1340.0	14.4	2.2
1966-67	----	----	----	----	1450.0	15.6	2.2
1967-68	258.7	8161.0	88.	2.78	1870.0	20.1	1.2
1968-69	----	----	----	----	1510.0	16.2	
1969-70	282.3	8904.3	96.	3.04	2120.0	22.8	1.8
1970-71	258.0	8139.2	88.	2.78	2020.0	21.7	2.5
1971-72	241.3	7610.3	82.	2.60	1890.0	20.3	3.3
1972-73	69.4	2190.0	24.	0.75	389.0	4.2	2.3
1973-74	----	----	----	----	1200.0	12.9	

GAUGING STATION/STATION DE JAUGEAGE.... PWALAGU
 RIVER/COURS D EAU..... WHITE VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 63350.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1951-52	2.4	11.0	26.7	455.0	560.0	341.0	41.5	5.3	0.0	0.0	0.0	0.0	120.2
1952-53	3.2	20.6	60.9	292.0	860.0	274.0	9.8	1.6	0.0	0.0	0.0	0.0	126.8
1953-54	33.5	169.0	93.5	235.0	462.0	82.9	8.6	0.0	0.0	0.0	0.0	0.0	90.3
1954-55	6.6	48.7	68.0	195.0	339.0	63.6	11.1	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1955-56	-1.0	30.6	208.0	439.0	709.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1956-57	-1.0	57.8	99.2	346.0	-1.0	214.0	5.4	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1957-58	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1958-59	-1.0	25.5	24.9	490.0	792.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1959-60	-1.0	30.1	57.7	594.0	829.0	84.1	8.0	1.6	-1.0	-1.0	-1.0	-1.0	-1.0
1960-61	5.2	29.9	70.5	341.0	639.0	114.0	8.1	2.0	-1.0	-1.0	-1.0	-1.0	-1.0
1961-62	-1.0	206.0	193.0	355.0	1380.0	209.0	27.1	2.9	-1.0	-1.0	0.0	0.0	-1.0
1962-63	9.7	58.6	97.3	537.0	1320.0	229.0	27.4	8.8	2.7	1.0	0.6	11.9	192.0
1963-64	65.4	20.9	181.0	468.0	492.0	132.0	28.1	3.9	1.4	0.0	0.0	0.0	116.0
1964-65	0.0	1.8	149.0	673.0	1210.0	178.0	17.3	2.6	-1.0	-1.0	-1.0	-1.0	-1.0
1965-66	3.6	31.4	59.0	313.0	283.0	77.0	12.0	1.7	0.9	0.0	0.0	7.2	65.7
1966-67	34.4	53.3	46.6	233.0	263.0	105.0	7.4	2.1	0.2	0.0	0.0	1.2	62.1
1967-68	2.5	7.9	56.7	586.0	962.0	158.0	16.6	5.4	1.9	0.8	9.8	5.0	151.0
1968-69	42.8	179.0	384.0	215.0	216.0	42.8	8.9	3.8	1.3	0.7	0.3	3.9	91.5
1969-70	12.8	10.7	130.0	392.0	1070.0	112.0	27.1	13.4	2.9	1.7	1.4	1.0	147.9
1970-71	7.4	21.3	64.0	616.0	832.0	99.4	15.6	-1.0	-1.0	3.0	2.0	2.7	-1.0
1971-72	13.7	18.3	113.0	405.0	618.0	78.9	13.0	5.2	2.8	1.5	0.0	12.7	106.8
1972-73	15.9	33.0	98.4	213.0	158.0	33.2	4.5	0.3	0.0	0.0	0.0	2.0	46.5
1973-74	10.7	-1.0	136.0	750.0	230.0	24.8	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	15.8	50.7	109.8	415.5	677.3	132.6	15.6	3.8	1.2	0.6	1.0	3.4	118.9

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... PWALAGU
 RIVER/COURS D EAU..... WHITE VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 63350.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1951-52	120.2	3792.0	60.	1.90	1100.0	17.4	0.0
1952-53	126.8	4000.2	63.	2.00	1190.0	18.8	0.0
1953-54	90.3	2850.3	45.	1.43	830.0	13.1	0.0
1954-55	----	----	----	----	748.0	11.8	
1955-56	----	----	----	----	1100.0	17.4	
1956-57	----	----	----	----	1020.0	16.1	0.0
1957-58	----	----	----	----	-1.0	-1.0	
1958-59	----	----	----	----	1620.0	25.6	
1959-60	----	----	----	----	1280.0	20.2	
1960-61	----	----	----	----	1170.0	18.5	
1961-62	----	----	----	----	1820.0	28.7	
1962-63	192.0	6055.5	96.	3.03	2010.0	31.7	0.0
1963-64	116.0	3660.1	58.	1.83	1060.0	16.7	0.0
1964-65	----	----	----	----	1690.0	26.7	0.0
1965-66	65.7	2073.4	33.	1.04	669.0	10.6	0.0
1966-67	62.1	1961.5	31.	0.98	665.0	10.5	0.0
1967-68	151.0	4764.2	75.	2.38	1400.0	22.1	0.1
1968-69	91.5	2887.8	46.	1.45	936.0	14.8	0.0
1969-70	147.9	4665.3	74.	2.34	1870.0	29.5	1.0
1970-71	----	----	----	----	1400.0	22.1	1.9
1971-72	106.8	3369.8	53.	1.69	924.0	14.6	0.0
1972-73	46.5	1467.4	23.	0.73	423.0	6.7	0.0
1973-74	----	----	----	----	1230.0	19.4	

GAUGING STATION/STATION DE JAUGEAGE..... WAYEN
 RIVER/COURS D EAU..... VOLTABLANCHE
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTA BLANCH
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 20800.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1955-56	0.2	1.7	5.2	9.9	20.7	11.6	0.6	0.4	0.0	0.0	0.0	0.0	4.1
1956-57	-1.0	-1.0	1.7	37.2	96.9	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1957-58	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1958-59	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1959-60	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1960-61	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1961-62	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1962-63	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1963-64	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1964-65	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1965-66	0.2	0.5	1.2	21.0	76.8	25.1	4.7	0.5	0.0	0.0	0.0	0.0	10.8
1966-67	0.1	2.6	1.4	4.0	18.6	1.6	0.2	0.0	0.0	0.0	0.0	0.0	2.3
1967-68	-1.0	-1.0	-1.0	39.4	32.0	12.4	0.3	0.0	-1.0	-1.0	-1.0	-1.0	-1.0
1968-69	0.4	1.5	4.3	10.4	7.6	0.4	0.0	0.0	0.0	0.0	0.0	0.0	2.0
1969-70	0.0	0.2	3.2	13.0	19.0	4.1	0.5	0.8	0.0	0.0	0.0	0.0	3.3
1970-71	0.0	0.0	3.7	23.3	9.7	1.0	0.0	0.0	0.0	0.0	0.0	0.0	3.1
1971-72	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1972-73	-1.0	-1.0	-1.0	9.1	7.0	1.3	0.2	0.0	-1.0	-1.0	-1.0	-1.0	-1.0
1973-74	0.0	0.6	-1.0	40.9	14.9	6.2	0.4	0.0	0.0	0.0	0.0	0.0	-1.0
1974-75	0.7	1.6	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	0.2	1.0	2.9	20.8	30.3	7.0	0.7	0.1	0.0	0.0	0.0	0.0	5.2

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... WAYEN
 RIVER/COURS D EAU..... VOLTABLANCHE
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTA BLANCH
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 20800.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1955-56	4.1	132.1	6.	0.20	49.8	2.4	
1956-57	----	----	----	----	221.0	10.6	
1957-58	----	----	----	----	-1.0	-1.0	
1958-59	----	----	----	----	-1.0	-1.0	
1959-60	----	----	----	----	-1.0	-1.0	
1960-61	----	----	----	----	-1.0	-1.0	
1961-62	----	----	----	----	-1.0	-1.0	
1962-63	----	----	----	----	-1.0	-1.0	
1963-64	----	----	----	----	-1.0	-1.0	
1964-65	----	----	----	----	-1.0	-1.0	
1965-66	10.8	341.6	16.	0.52	165.0	7.9	0.0
1966-67	2.3	74.8	4.	0.11	34.8	1.7	0.0
1967-68	----	----	----	----	38.7	1.9	0.0
1968-69	2.0	64.6	3.	0.10	13.2	0.6	0.0
1969-70	3.3	107.2	5.	0.16	37.7	1.8	0.0
1970-71	3.1	99.0	5.	0.15	43.7	2.1	0.0
1971-72	----	----	----	----	42.0	2.0	
1972-73	----	----	----	----	14.9	0.7	0.0
1973-74	----	----	----	----	157.0	7.5	0.0
1974-75	----	----	----	----	255.0	12.3	

GAUGING STATION/STATION DE JAUGEAGE.... WIASI
 RIVER/COURS D EAU..... SISSILI
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 9500.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1961-62	-1.0	2.6	15.6	107.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1962-63	-1.0	6.3	9.9	-1.0	44.6	7.5	0.4	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1963-64	2.0	11.1	23.4	122.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1964-65	1.0	0.4	6.2	60.9	164.0	51.2	2.1	0.4	0.1	0.1	0.0	0.0	23.8
1965-66	0.2	7.4	18.0	85.5	105.0	14.5	0.4	0.1	0.0	0.0	0.0	1.0	19.3
1966-67	0.5	2.7	3.6	169.0	116.0	54.1	5.2	0.5	0.8	0.4	0.4	0.5	29.4
1967-68	0.6	0.8	3.6	32.0	160.0	47.3	3.1	1.1	0.5	0.1	1.9	0.8	20.9
1968-69	2.0	27.9	143.0	159.0	141.0	14.0	2.6	0.8	0.3	0.0	0.1	0.0	40.8
1969-70	1.0	0.6	24.8	-1.0	265.0	112.0	7.8	3.9	1.5	0.9	0.5	0.1	-1.0
1970-71	1.9	1.8	4.9	-1.0	167.0	-1.0	1.6	0.3	0.0	0.0	0.0	0.0	-1.0
1971-72	0.7	4.3	8.0	144.0	219.0	70.0	3.2	0.6	0.1	0.0	0.0	0.0	37.5
1972-73	0.2	2.2	6.4	15.6	17.2	3.0	0.2	0.0	0.0	0.0	0.0	0.0	3.7
1973-74	-1.0	2.5	7.2	131.0	69.3	4.8	-1.0	-1.0	0.0	0.0	-1.0	-1.0	-1.0
AVG/MOYEN	1.0	5.4	21.1	102.5	133.4	37.8	2.6	0.8	0.3	0.1	0.3	0.2	25.5

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... WIASI
 RIVER/COURS D EAU..... SISSILI
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 9500.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1961-62	----	----	----	----	-1.0	-1.0	
1962-63	----	----	----	----	-1.0	-1.0	0.0
1963-64	----	----	----	----	-1.0	-1.0	
1964-65	23.8	752.7	79.	2.51	185.0	19.5	0.0
1965-66	19.3	609.9	64.	2.04	214.0	22.5	0.0
1966-67	29.4	929.9	98.	3.10	313.0	32.9	0.2
1967-68	20.9	662.2	70.	2.21	-1.0	-1.0	0.0
1968-69	40.8	1289.7	136.	4.31	377.0	39.7	
1969-70	----	----	----	----	348.0	36.6	0.0
1970-71	----	----	----	----	339.0	35.7	0.0
1971-72	37.5	1182.6	124.	3.95	309.0	32.5	0.0
1972-73	3.7	117.7	12.	0.39	37.9	4.0	0.0
1973-74	----	----	----	----	-1.0	-1.0	0.0

GAUGING STATION/STATION DE JAUGEAGE..... YAGABA
 RIVER/COURS D EAU..... KULPAWN
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 10600.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1957-58	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	0.5	0.4	-1.0
1958-59	1.5	2.7	0.7	1.3	65.8	31.4	0.6	0.2	0.0	0.0	0.0	1.3	8.7
1959-60	0.1	4.3	11.8	14.2	151.0	18.0	1.3	0.2	-1.0	-1.0	-1.0	-1.0	-1.0
1960-61	-1.0	-1.0	-1.0	106.0	250.0	65.9	4.6	1.0	0.1	0.3	0.6	0.9	-1.0
1961-62	1.4	0.7	3.3	65.4	206.0	17.6	0.2	0.1	0.3	0.1	0.0	0.1	24.6
1962-63	1.7	2.7	11.2	64.8	297.0	167.0	9.4	1.5	0.3	0.5	0.1	0.0	46.3
1963-64	0.2	0.5	21.1	327.0	471.0	341.0	-1.0	-1.0	-1.0	-1.0	-1.0	6.3	-1.0
1964-65	6.8	5.3	4.6	22.9	194.0	43.1	6.0	2.3	1.6	3.7	0.5	0.5	24.2
1965-66	0.4	10.6	75.0	229.0	412.0	62.2	4.6	2.5	1.5	0.7	0.4	0.7	66.6
1966-67	4.3	1.2	2.0	-1.0	-1.0	-1.0	3.0	0.3	0.4	0.3	0.2	-1.0	-1.0
1967-68	0.3	-1.0	-1.0	14.8	183.0	-1.0	-1.0	-1.0	0.4	0.3	0.1	1.7	-1.0
1968-69	1.6	14.3	139.0	196.0	243.0	36.4	5.0	3.8	1.6	1.0	0.3	1.2	53.6
1969-70	0.6	0.6	19.9	151.0	267.0	61.3	-1.0	-1.0	-1.0	-1.0	-1.0	0.0	-1.0
1970-71	0.2	0.2	1.7	73.6	206.0	23.7	2.3	0.6	0.3	0.1	0.0	0.2	25.7
1971-72	0.1	0.3	4.4	123.0	243.0	23.8	3.6	0.9	0.3	0.0	0.0	0.0	33.3
1972-73	0.2	2.3	4.2	11.4	16.2	6.5	0.8	0.6	0.0	0.0	0.0	0.0	3.5
1973-74	-1.0	-1.0	0.8	-1.0	32.7	6.2	-1.0	-1.0	0.0	0.0	-1.0	-1.0	-1.0
AVG/MOYEN	1.4	3.5	21.4	100.0	215.8	64.5	3.4	1.1	0.5	0.5	0.2	0.9	34.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... YAGABA
 RIVER/COURS D EAU..... KULPAWN
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 10600.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1957-58	----	----	----	----	-1.0	-1.0	
1958-59	8.7	277.4	26.	0.83	97.2	9.2	0.0
1959-60	----	----	----	----	279.0	26.3	0.0
1960-61	----	----	----	----	379.0	35.8	0.0
1961-62	24.6	775.9	73.	2.32	265.0	25.0	0.0
1962-63	46.3	1461.8	138.	4.37	432.0	40.8	0.0
1963-64	----	----	----	----	497.0	46.9	4.6
1964-65	24.2	765.8	72.	2.29	290.0	27.4	0.3
1965-66	66.6	2101.4	198.	6.29	480.0	45.3	0.3
1966-67	----	----	----	----	-1.0	-1.0	
1967-68	----	----	----	----	254.0	24.0	0.0
1968-69	53.6	1690.7	160.	5.06	390.0	36.8	0.3
1969-70	----	----	----	----	375.0	35.4	0.0
1970-71	25.7	812.3	77.	2.43	383.0	36.1	0.0
1971-72	33.3	1050.4	99.	3.14	394.0	37.2	0.0
1972-73	3.5	111.6	11.	0.33	33.3	3.1	0.0
1973-74	----	----	----	----	38.0	3.6	0.0

GAUGING STATION/STATION DE JAUGEAGE..... YAKALA
 RIVER/COURS D EAU..... VOLTABLANCHE
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTABLANCHE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 33000.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1955-56	1.0	5.7	77.0	115.0	147.0	46.0	4.1	0.4	0.0	0.0	0.0	0.3	33.0
1956-57	1.8	19.3	77.6	154.0	294.0	54.1	9.7	2.4	0.9	0.6	0.5	0.4	51.3
1957-58	14.0	16.6	59.0	113.0	120.0	20.0	3.5	1.2	0.6	0.1	0.1	0.1	29.0
1958-59	10.5	20.7	27.9	255.0	235.0	21.8	4.3	0.7	0.0	0.0	0.0	0.0	48.0
1959-60	2.8	7.4	28.9	298.0	197.0	28.0	3.5	0.4	0.0	0.0	0.0	0.0	47.1
1960-61	7.7	6.7	35.0	63.5	112.0	22.6	1.1	0.0	0.0	0.0	0.0	0.0	20.7
1961-62	0.0	17.2	101.0	188.0	271.0	53.0	5.6	0.5	0.0	0.0	0.0	0.0	53.0
1962-63	2.1	20.4	31.0	191.0	289.0	51.1	5.8	0.9	0.0	0.0	0.0	0.0	49.2
1963-64	1.0	13.9	45.6	130.0	53.8	6.3	1.6	0.0	0.0	0.0	0.0	0.0	21.0
1965-66	1.0	6.3	17.3	65.0	118.0	40.3	8.1	0.8	0.0	0.0	0.0	0.0	21.4
1966-67	-1.0	-1.0	-1.0	40.2	65.6	21.7	1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1967-68	-1.0	-1.0	-1.0	247.0	149.0	42.8	2.7	0.0	0.0	0.0	0.0	0.0	-1.0
1968-69	6.8	40.2	37.9	27.5	34.0	3.6	0.0	0.0	0.0	0.0	0.0	0.0	12.5
1969-70	0.0	5.0	55.8	102.0	211.0	25.9	2.9	0.4	0.0	0.0	0.0	0.0	33.5
1970-71	0.0	5.9	55.5	162.0	118.0	20.7	0.5	0.0	-1.0	0.0	0.0	0.0	-1.0
1974-75	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1975-76	0.0	0.0	81.1	133.0	153.0	16.8	0.6	0.1	0.0	0.0	0.0	0.0	32.0
AVG/MOYEN	3.4	13.2	52.1	142.7	160.4	29.6	3.4	0.5	0.1	0.0	0.0	0.0	33.8

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... YAKALA
 RIVER/COURS D EAU..... VOLTABLANCHE
 COUNTRY/PAYS..... HAUTE VOLTA
 BASIN/BASSIN..... VOLTABLANCHE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 33000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1955-56	33.0	1042.0	32.	1.00	320.0	9.7	0.0
1956-57	51.3	1618.0	49.	1.55	448.0	13.6	0.1
1957-58	29.0	915.3	28.	0.88	248.0	7.5	0.0
1958-59	48.0	1513.8	46.	1.45	535.0	16.2	0.0
1959-60	47.1	1488.2	45.	1.43	454.0	13.8	0.0
1960-61	20.7	653.7	20.	0.63	302.0	9.2	0.0
1961-62	53.0	1672.4	51.	1.61	515.0	15.6	0.0
1962-63	49.2	1553.9	47.	1.49	439.0	13.3	0.0
1963-64	21.0	662.8	20.	0.64	252.0	7.6	0.0
1965-66	21.4	675.0	20.	0.65	187.0	5.7	
1966-67	----	----	----	----	161.0	4.9	
1967-68	----	----	----	----	447.0	13.5	0.0
1968-69	12.5	394.3	12.	0.38	133.0	4.0	0.0
1969-70	33.5	1059.1	32.	1.02	414.0	12.5	0.0
1970-71	----	----	----	----	349.0	10.6	0.0
1974-75	----	----	----	----	475.0	14.4	
1975-76	32.0	1010.7	31.	0.97	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE..... YAPEI
 RIVER/COURS D EAU..... WHITE VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 102170.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1951-52	8.1	13.0	102.0	518.0	1360.0	1530.0	397.0	19.1	15.0	5.9	0.9	3.5	331.0
1952-53	1.5	2.8	90.3	352.0	1370.0	1750.0	116.0	5.2	0.5	2.0	6.0	3.2	308.3
1953-54	7.7	281.0	279.0	816.0	1440.0	780.0	60.7	11.0	5.3	3.1	2.3	3.3	307.4
1954-55	6.2	64.4	108.0	-1.0	979.0	535.0	154.0	83.7	-1.0	-1.0	63.0	66.7	-1.0
1955-56	62.2	85.5	179.0	751.0	1370.0	1440.0	117.0	52.9	-1.0	7.8	6.8	7.3	-1.0
1956-57	9.9	19.6	85.5	217.0	-1.0	260.0	75.9	14.3	3.1	1.2	1.0	1.1	-1.0
1957-58	42.8	264.0	318.0	558.0	1560.0	1240.0	148.0	26.9	-1.0	-1.0	-1.0	5.8	-1.0
1958-59	6.5	24.1	24.3	281.0	786.0	293.0	-1.0	1.5	-1.0	-1.0	-1.0	1.2	-1.0
1959-60	4.7	26.8	97.7	359.0	1210.0	683.0	45.5	12.0	6.8	4.2	3.4	4.2	204.7
1960-61	9.7	46.4	106.0	455.0	1230.0	1210.0	76.0	18.1	8.7	5.0	3.2	7.2	264.6
1961-62	10.3	35.3	221.0	688.0	991.0	705.0	49.7	15.5	7.5	2.4	2.6	5.4	227.8
1962-63	15.7	150.0	291.0	686.0	2220.0	1320.0	-1.0	-1.0	14.8	8.1	16.7	6.7	-1.0
1963-64	37.0	32.4	96.3	1050.0	2560.0	1110.0	297.0	50.3	17.4	10.4	5.7	6.4	439.4
1964-65	4.5	11.2	105.0	556.0	1190.0	942.0	82.8	21.8	11.6	6.0	2.9	2.8	244.7
1965-66	6.1	62.5	298.0	755.0	1200.0	585.0	82.7	20.2	9.0	4.6	3.0	3.3	252.4
1966-67	37.4	85.8	77.5	487.0	1020.0	507.0	80.0	14.2	0.6	4.0	3.0	3.0	193.2
1967-68	2.6	4.9	39.7	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	16.0	71.1	148.1	568.6	1365.7	930.6	127.3	24.4	8.3	5.0	8.6	8.2	273.5

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... YAPEI
 RIVER/COURS D EAU..... WHITE VOLTA
 COUNTRY/PAYS..... GHANA
 BASIN/BASSIN..... WHITE VOLTA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 102170.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1951-52	331.0	10440.3	102.	3.24	1720.0	16.8	0.7
1952-53	308.3	9722.7	95.	3.02	2120.0	20.7	
1953-54	307.4	9696.0	95.	3.01	1840.0	18.0	1.4
1954-55	----	----	----	----	1110.0	10.9	
1955-56	----	----	----	----	2300.0	22.5	5.8
1956-57	----	----	----	----	-1.0	-1.0	1.0
1957-58	----	----	----	----	2220.0	21.7	
1958-59	----	----	----	----	950.0	9.3	
1959-60	204.7	6458.4	63.	2.00	1490.0	14.6	1.9
1960-61	264.6	8345.0	82.	2.59	2390.0	23.4	2.3
1961-62	227.8	7184.7	70.	2.23	1900.0	18.6	1.1
1962-63	----	----	----	----	2850.0	27.9	4.1
1963-64	439.4	13857.2	136.	4.30	2940.0	28.8	3.5
1964-65	244.7	7717.9	76.	2.40	1790.0	17.5	1.9
1965-66	252.4	7961.8	78.	2.47	1390.0	13.6	2.7
1966-67	193.2	6095.8	60.	1.89	1330.0	13.0	2.6
1967-68	----	----	----	----	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE..... BAKEL
 RIVER/COURS D EAU..... SENEGAL
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 218000.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
19 3- 4	10.0	120.0	746.0	1937.0	2535.0	1060.0	476.0	202.0	124.0	74.0	40.0	15.0	611.5
19 4- 5	10.0	29.0	682.0	2626.0	3187.0	1113.0	583.0	272.0	144.0	86.0	50.0	22.0	733.6
19 5- 6	10.0	235.0	919.0	2740.0	2284.0	2381.0	1077.0	375.0	192.0	113.0	64.0	30.0	868.3
19 6- 7	15.0	143.0	1121.0	5831.0	4186.0	1607.0	825.0	465.0	250.0	140.0	80.0	40.0	1225.2
19 7- 8	10.0	120.0	403.0	905.0	2194.0	1282.0	613.0	340.0	185.0	110.0	62.0	28.0	521.0
19 8- 9	10.0	81.0	799.0	2195.0	3691.0	1395.0	500.0	235.0	130.0	75.0	42.0	18.0	764.2
19 9-10	10.0	286.0	949.0	2967.0	4144.0	1296.0	590.0	255.0	140.0	83.0	46.0	20.0	898.8
1910-11	10.0	120.0	590.0	2134.0	3004.0	1221.0	472.0	215.0	120.0	70.0	38.0	16.0	667.5
1911-12	10.0	120.0	590.0	1455.0	2439.0	930.0	431.0	220.0	125.0	72.0	38.0	16.0	537.1
1912-13	10.0	120.0	590.0	1425.0	2348.0	1305.0	436.0	230.0	135.0	78.0	43.0	18.0	561.5
1913-14	10.0	120.0	333.0	704.0	918.0	680.0	251.0	121.0	64.0	30.0	10.0	4.0	270.4
1914-15	10.0	120.0	590.0	1323.0	1423.0	1035.0	360.0	200.0	115.0	70.0	40.0	16.0	441.8
1915-16	10.0	90.0	636.0	1896.0	2442.0	1261.0	350.0	190.0	105.0	62.0	34.0	12.0	590.6
1916-17	5.0	4.0	726.0	1782.0	3223.0	1664.0	400.0	210.0	120.0	70.0	38.0	16.0	688.1
1917-18	10.0	20.0	293.0	2130.0	3393.0	1185.0	330.0	185.0	100.0	58.0	32.0	11.0	645.5
1918-19	10.0	200.0	836.0	3447.0	5216.0	2573.0	645.0	335.0	202.0	122.0	65.0	30.0	1140.0
1919-20	10.0	140.0	404.0	1704.0	2261.0	1026.0	356.0	210.0	115.0	70.0	38.0	15.0	529.0
1920-21	10.0	120.0	540.0	2535.0	4252.0	1311.0	596.0	290.0	160.0	95.0	52.0	23.0	832.0
1921-22	10.0	120.0	396.0	1201.0	2100.0	736.0	270.0	150.0	90.0	50.0	26.0	10.0	429.9
1922-23	10.0	40.0	402.0	3213.0	6746.0	2778.0	778.0	316.0	158.0	95.0	53.0	23.0	1217.6
1923-24	10.0	90.0	628.0	1808.0	3764.0	1463.0	741.0	272.0	138.0	80.0	44.0	19.0	754.7
1924-25	10.0	144.0	1385.0	3973.0	5300.0	2463.0	796.0	384.0	210.0	125.0	70.0	32.0	1241.0
1925-26	14.0	101.0	397.0	2280.0	3275.0	2506.0	765.0	325.0	185.0	110.0	65.0	30.0	837.7
1926-27	10.0	140.0	507.0	1607.0	1741.0	973.0	715.0	270.0	130.0	76.0	43.0	18.0	519.1
1927-28	10.0	120.0	777.0	2800.0	4745.0	2743.0	878.0	380.0	205.0	120.0	70.0	32.0	1073.3
1928-29	10.0	50.0	351.0	2973.0	4568.0	1679.0	696.0	240.0	130.0	77.0	39.0	15.0	902.3
1929-30	10.0	300.0	864.0	2948.0	4399.0	1340.0	434.0	217.0	123.0	71.0	38.0	15.0	896.5
1930-31	10.0	170.0	649.0	2621.0	3412.0	1929.0	605.0	290.0	167.0	97.0	58.0	25.0	836.0
1931-32	10.0	170.0	940.0	1755.0	2715.0	2119.0	550.0	270.0	155.0	90.0	50.0	22.0	737.1
1932-33	10.0	130.0	780.0	2780.0	3181.0	1369.0	445.0	227.0	130.0	75.0	43.0	19.0	765.7
1933-34	10.0	153.0	1087.0	3302.0	3571.0	1066.0	386.0	200.0	115.0	68.0	35.0	12.0	833.7
1934-35	10.0	20.0	270.0	2339.0	3496.0	1315.0	440.0	220.0	130.0	75.0	43.0	19.0	698.0
1935-36	10.0	120.0	896.0	4269.0	4971.0	2487.0	630.0	265.0	152.0	88.0	50.0	20.0	1163.1
1936-37	10.0	85.0	599.0	4593.0	5825.0	2261.0	707.0	334.0	172.0	105.0	62.0	25.0	1231.5
1937-38	10.0	120.0	397.0	1748.0	3108.0	1339.0	504.0	230.0	130.0	75.0	41.0	17.0	643.2
1938-39	10.0	120.0	479.0	1826.0	3995.0	1870.0	800.0	270.0	150.0	88.0	48.0	21.0	806.4
1939-40	2.3	28.0	362.0	1935.0	2089.0	1377.0	435.0	220.0	125.0	72.0	40.0	16.0	558.4
1940-41	10.0	50.0	210.0	1316.0	1343.0	1254.0	529.0	200.0	120.0	68.0	38.0	15.0	429.4
1941-42	10.0	120.0	339.0	1158.0	2115.0	740.0	247.0	130.0	75.0	44.0	19.0	6.5	416.9
1942-43	10.0	120.0	385.0	1896.0	1715.0	539.0	266.0	140.0	80.0	45.0	25.0	8.0	435.7
1943-44	10.0	120.0	366.0	1867.0	2951.0	1801.0	443.0	195.0	110.0	65.0	35.0	14.0	664.7
1944-45	10.0	120.0	225.0	814.0	1444.0	663.0	339.0	160.0	95.0	55.0	28.0	10.0	330.2

1945-46	10.0	120.0	396.0	3260.0	4738.0	1909.0	464.0	195.0	110.0	65.0	35.0	14.0	943.0
1946-47	10.0	120.0	362.0	2505.0	3024.0	1819.0	580.0	238.0	130.0	75.0	41.0	17.0	743.4
1947-48	10.0	120.0	343.0	1860.0	3363.0	1509.0	397.0	180.0	105.0	60.0	32.0	12.0	665.9
1948-49	5.0	31.0	591.0	1836.0	2656.0	961.0	398.0	168.0	105.0	60.0	32.0	12.0	571.2
1949-50	5.0	9.0	325.0	2052.0	1912.0	809.0	216.0	123.0	73.0	42.0	20.0	10.0	466.3
1950-51	5.0	3.0	545.0	2914.0	5891.0	3071.0	778.0	304.0	153.0	86.0	43.0	13.0	1150.5
1951-52	4.0	57.0	387.0	1418.0	2331.0	3581.0	1455.0	423.0	214.0	125.0	64.0	27.0	840.5
1952-53	5.0	22.0	524.0	1395.0	2421.0	3126.0	597.0	246.0	134.0	71.0	37.0	17.0	716.2
1953-54	3.0	101.0	788.0	1547.0	2926.0	1236.0	464.0	219.0	140.0	81.0	41.0	13.0	629.9
1954-55	12.0	253.0	963.0	3987.0	4419.0	1655.0	681.0	396.0	197.0	116.0	68.0	42.0	1065.7
1955-56	32.0	207.0	612.0	3563.0	4004.0	2615.0	770.0	347.0	203.0	119.0	69.0	34.0	1047.9
1956-57	13.0	40.0	495.0	2210.0	5237.0	2159.0	634.0	285.0	163.0	99.0	60.0	24.0	951.5
1957-58	8.0	215.0	608.0	2668.0	4227.0	2904.0	935.0	351.0	197.0	118.0	67.0	32.0	1027.5
1958-59	18.0	175.0	568.0	3985.0	4028.0	1916.0	785.0	444.0	237.0	139.0	84.0	40.0	1034.9
1959-60	19.0	164.0	583.0	2434.0	4047.0	1242.0	489.0	223.0	126.0	76.0	42.0	17.0	788.5
1960-61	5.0	82.0	789.0	1790.0	2508.0	1301.0	504.0	213.0	120.0	75.0	41.0	16.0	620.3
1961-62	3.5	102.0	781.0	2956.0	5201.0	1360.0	458.0	207.0	121.0	74.0	40.0	12.0	942.9
1962-63	2.7	85.0	511.0	2220.0	3632.0	1620.0	594.0	262.0	138.0	86.0	43.0	18.0	767.6
1963-64	8.0	7.0	473.0	1620.0	2772.0	1988.0	636.0	230.0	129.0	72.0	36.0	13.8	665.4
1964-65	3.2	171.0	602.0	1973.0	5680.0	1989.0	580.0	285.0	166.0	105.0	58.0	26.0	969.8
1965-66	9.3	83.8	522.0	3266.0	5349.0	2046.0	646.0	289.0	170.0	104.0	53.0	28.0	1047.1
1966-67	10.9	76.0	366.0	1378.0	2826.0	3899.0	854.0	319.0	173.0	105.0	61.0	27.4	841.2
1967-68	11.3	89.0	559.0	2409.0	5026.0	2792.0	764.0	345.0	210.0	120.0	60.0	30.0	1034.6
1968-69	7.8	63.0	408.9	1007.0	1805.0	847.2	295.9	161.8	76.5	36.7	14.9	2.1	393.8
1969-70	1.5	34.7	681.0	1650.0	3140.0	2050.0	946.0	295.0	145.0	81.0	42.0	17.0	756.9
1970-71	4.8	20.9	274.0	2250.0	2500.0	797.0	267.0	130.0	72.0	42.0	18.0	3.3	531.5
1971-72	1.7	0.7	476.0	2520.0	2770.0	819.0	264.0	128.0	70.0	40.0	16.0	2.7	592.3
1972-73	1.0	43.0	277.0	795.0	1050.0	495.0	196.0	98.0	51.0	27.4	9.3	2.3	253.7
1973-74	0.8	93.0	313.0	1690.0	1360.0	487.0	159.0	69.0	38.0	19.5	7.2	1.7	353.1
1974-75	0.6	3.0	739.0	3236.0	3138.0	1321.0	371.0	143.0	59.7	34.1	14.4	4.2	755.3
AVG/MOYEN	8.9	104.5	573.6	2293.7	3329.0	1631.3	553.7	246.8	136.4	79.8	43.3	18.3	751.6

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... BAKEL
 RIVER/COURS D EAU..... SENEGAL
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 218000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
19 3- 4	611.5	19286.8	88.	2.81	3560.0	16.3	
19 4- 5	733.6	23136.9	106.	3.37	4790.0	22.0	
19 5- 6	868.3	27383.7	126.	3.98	3630.0	16.7	
19 6- 7	1225.2	38639.4	177.	5.62	9340.0	42.8	
19 7- 8	521.0	16430.2	75.	2.39	2850.0	13.1	
19 8- 9	764.2	24101.3	111.	3.51	4200.0	19.3	
19 9-10	898.8	28345.6	130.	4.12	5490.0	25.2	
1910-11	667.5	21050.2	97.	3.06	3840.0	17.6	
1911-12	537.1	16940.0	78.	2.46	3330.0	15.3	
1912-13	561.5	17707.4	81.	2.58	3290.0	15.1	
1913-14	270.4	8527.8	39.	1.24	1040.0	4.8	
1914-15	441.8	13933.6	64.	2.03	1885.0	8.6	
1915-16	590.6	18627.2	85.	2.71	3140.0	14.4	
1916-17	688.1	21702.0	100.	3.16	4200.0	19.3	
1917-18	645.5	20359.1	93.	2.96	4960.0	22.8	
1918-19	1140.0	35953.6	165.	5.23	7300.0	33.5	
1919-20	529.0	16685.1	77.	2.43	3560.0	16.3	
1920-21	832.0	26237.9	120.	3.82	5630.0	25.8	
1921-22	429.9	13557.8	62.	1.97	2850.0	13.1	
1922-23	1217.6	38400.3	176.	5.59	9070.0	41.6	
1923-24	754.7	23801.7	109.	3.46	4670.0	21.4	
1924-25	1241.0	39136.1	180.	5.69	6350.0	29.1	
1925-26	837.7	26419.2	121.	3.84	4610.0	21.1	
1926-27	519.1	16372.4	75.	2.38	2290.0	10.5	
1927-28	1073.3	33848.6	155.	4.92	6460.0	29.6	
1928-29	902.3	28455.9	131.	4.14	5490.0	25.2	
1929-30	896.5	28274.6	130.	4.11	5490.0	25.2	
1930-31	836.0	26366.7	121.	3.84	4610.0	21.1	
1931-32	737.1	23247.2	107.	3.38	4300.0	19.7	
1932-33	765.7	24148.6	111.	3.51	4850.0	22.2	
1933-34	833.7	26293.1	121.	3.82	5490.0	25.2	
1934-35	698.0	22014.7	101.	3.20	5340.0	24.5	
1935-36	1163.1	36681.6	168.	5.34	6680.0	30.6	
1936-37	1231.5	38836.5	178.	5.65	7600.0	34.9	
1937-38	643.2	20285.5	93.	2.95	3590.0	16.5	
1938-39	806.4	25431.1	117.	3.70	5630.0	25.8	
1939-40	558.4	17611.0	81.	2.56	3400.0	15.6	
1940-41	429.4	13542.0	62.	1.97	2760.0	12.7	
1941-42	416.9	13149.1	60.	1.91	2890.0	13.3	
1942-43	435.7	13741.8	63.	2.00	3590.0	16.5	
1943-44	664.7	20963.5	96.	3.05	3480.0	16.0	
1944-45	330.2	10414.7	48.	1.51	1740.0	8.0	
1945-46	943.0	29738.4	136.	4.33	6480.0	29.7	

1946-47	743.4	23444.3	108.	3.41	4460.0	20.5	
1947-48	665.9	21000.3	96.	3.05	4360.0	20.0	
1948-49	571.2	18014.9	83.	2.62	3590.0	16.5	
1949-50	466.3	14706.2	67.	2.14	3760.0	17.2	
1950-51	1150.5	36282.1	166.	5.28	7630.0	35.0	2.3
1951-52	840.5	26506.0	122.	3.86	5340.0	24.5	2.0
1952-53	716.2	22587.6	104.	3.29	5060.0	23.2	0.3
1953-54	629.9	19865.0	91.	2.89	4180.0	19.2	4.7
1954-55	1065.7	33609.4	154.	4.89	6610.0	30.3	22.5
1955-56	1047.9	33047.1	152.	4.81	5260.0	24.1	7.5
1956-57	951.5	30009.1	138.	4.37	6050.0	27.8	3.2
1957-58	1027.5	32403.2	149.	4.71	5660.0	26.0	10.5
1958-59	1034.9	32637.1	150.	4.75	8170.0	37.5	9.0
1959-60	788.5	24866.1	114.	3.62	5460.0	25.0	0.9
1960-61	620.3	19562.8	90.	2.85	3550.0	16.3	1.2
1961-62	942.9	29737.1	136.	4.33	7030.0	32.2	1.2
1962-63	767.6	24208.3	111.	3.52	4410.0	20.2	2.6
1963-64	665.4	20984.0	96.	3.05	3760.0	17.2	1.2
1964-65	969.8	30585.1	140.	4.45	7180.0	32.9	1.8
1965-66	1047.1	33023.7	151.	4.80	7000.0	32.1	5.0
1966-67	841.2	26530.4	122.	3.86	5450.0	25.0	3.5
1967-68	1034.6	32627.4	150.	4.75	5820.0	26.7	5.0
1968-69	393.8	12422.0	57.	1.81	2880.0	13.2	0.5
1969-70	756.9	23870.6	109.	3.47	3770.0	17.3	2.0
1970-71	531.5	16764.0	77.	2.44	3440.0	15.8	0.4
1971-72	592.3	18680.0	86.	2.72	4320.0	19.8	0.8
1972-73	253.7	8002.2	37.	1.16	1430.0	6.6	0.3
1973-74	353.1	11137.9	51.	1.62	2550.0	11.7	0.0
1974-75	755.3	23820.1	109.	3.46	6575.0	30.2	0.0

GAUGING STATION/STATION DE JAUGEAGE.... DAGANA
 RIVER/COURS D EAU..... SENEGAL
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 268000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
19 3- 4	15.0	30.0	400.0	1162.0	1951.0	2035.0	750.0	320.0	180.0	110.0	60.0	30.0	586.9
19 4- 5	15.0	15.0	389.0	1580.0	2217.0	2199.0	998.0	400.0	220.0	130.0	75.0	40.0	689.8
19 5- 6	18.0	87.0	513.0	1450.0	1936.0	2153.0	1992.0	600.0	230.0	130.0	75.0	40.0	768.6
19 6- 7	20.0	42.0	617.0	1765.0	2840.0	2755.0	1761.0	461.0	250.0	145.0	80.0	40.0	898.0
19 7- 8	20.0	15.0	245.0	683.0	1534.0	1671.0	738.0	471.0	280.0	160.0	90.0	45.0	496.0
19 8- 9	20.0	20.0	485.0	1328.0	2107.0	2450.0	1287.0	390.0	195.0	110.0	65.0	35.0	707.6
19 9-10	20.0	43.0	774.0	1607.0	2357.0	2595.0	1376.0	430.0	210.0	120.0	65.0	35.0	802.6
1910-11	20.0	87.0	591.0	1335.0	2095.0	2352.0	999.0	340.0	180.0	100.0	60.0	30.0	682.4
1911-12	15.0	30.0	400.0	992.0	1778.0	1732.0	719.0	350.0	185.0	105.0	60.0	30.0	533.0
1912-13	15.0	15.0	359.0	1050.0	1663.0	1842.0	815.0	380.0	205.0	115.0	65.0	35.0	546.5
1913-14	20.0	30.0	200.0	543.0	1066.0	910.0	400.0	170.0	80.0	45.0	20.0	12.0	291.3
1914-15	12.0	12.0	450.0	993.0	1448.0	1288.0	555.0	310.0	170.0	105.0	60.0	30.0	452.7
1915-16	15.0	50.0	490.0	1136.0	1937.0	2054.0	700.0	320.0	160.0	90.0	50.0	25.0	585.5
1916-17	12.0	6.0	421.0	1268.0	1915.0	2303.0	1271.0	300.0	175.0	105.0	60.0	30.0	655.5
1917-18	12.0	7.0	97.0	1069.0	2087.0	2405.0	914.0	290.0	150.0	85.0	50.0	25.0	599.2
1918-19	12.0	60.0	493.0	1532.0	2343.0	3039.0	2000.0	550.0	280.0	150.0	80.0	40.0	881.5
1919-20	20.0	52.0	340.0	1173.0	1859.0	1884.0	708.0	300.0	170.0	100.0	60.0	30.0	558.0
1920-21	15.0	60.0	699.0	1262.0	2284.0	2676.0	1294.0	400.0	240.0	140.0	75.0	40.0	765.4
1921-22	20.0	20.0	318.0	841.0	1744.0	1571.0	466.0	225.0	130.0	75.0	45.0	20.0	456.2
1922-23	20.0	20.0	392.0	1276.0	2224.0	3140.0	2111.0	620.0	240.0	140.0	80.0	40.0	858.5
1923-24	20.0	35.0	558.0	1273.0	1948.0	2358.0	1504.0	451.0	205.0	120.0	65.0	35.0	714.3
1924-25	25.0	100.0	896.0	1702.0	2471.0	3088.0	2007.0	616.0	330.0	190.0	100.0	50.0	964.5
1925-26	25.0	59.0	494.0	1201.0	1983.0	2384.0	2022.0	520.0	280.0	160.0	95.0	45.0	772.3
1926-27	22.0	24.0	435.0	1168.0	1586.0	1468.0	654.0	400.0	195.0	110.0	65.0	35.0	513.5
1927-28	17.0	8.0	403.0	1275.0	2077.0	2693.0	2359.0	908.0	320.0	180.0	100.0	50.0	865.8
1928-29	25.0	15.0	388.0	1202.0	2220.0	2783.0	2002.0	569.0	290.0	160.0	90.0	45.0	815.7
1929-30	25.0	100.0	749.0	1365.0	2235.0	2670.0	1722.0	440.0	220.0	125.0	70.0	35.0	813.0
1930-31	18.0	75.0	546.0	1251.0	2185.0	2502.0	1723.0	450.0	240.0	140.0	80.0	40.0	770.8
1931-32	20.0	38.0	597.0	1500.0	1734.0	2184.0	1514.0	411.0	230.0	130.0	75.0	40.0	706.0
1932-33	20.0	51.0	571.0	1576.0	2245.0	2546.0	1240.0	350.0	190.0	115.0	65.0	35.0	750.3
1933-34	20.0	95.0	820.0	1774.0	2448.0	2619.0	1115.0	310.0	170.0	105.0	60.0	30.0	797.1
1934-35	15.0	7.0	178.0	1214.0	2180.0	2569.0	1459.0	350.0	190.0	110.0	65.0	35.0	697.6
1935-36	20.0	15.0	608.0	1453.0	2345.0	2958.0	2044.0	540.0	230.0	130.0	75.0	40.0	871.5
1936-37	20.0	10.0	414.0	1434.0	2606.0	3184.0	2096.0	626.0	267.0	156.0	90.0	40.0	911.9
1937-38	20.0	12.0	214.0	1062.0	1934.0	2292.0	1299.0	380.0	190.0	105.0	60.0	30.0	633.1
1938-39	15.0	6.0	524.0	1165.0	1941.0	2450.0	2120.0	628.0	220.0	125.0	70.0	35.0	774.9
1939-40	20.0	12.0	236.0	1040.0	1886.0	2065.0	1000.0	350.0	185.0	90.0	60.0	30.0	581.1
1940-41	15.0	30.0	109.0	788.0	1569.0	1396.0	925.0	310.0	180.0	100.0	55.0	25.0	458.5
1941-42	12.0	6.0	70.0	807.0	1565.0	1487.0	487.0	190.0	110.0	65.0	35.0	15.0	404.0
1942-43	7.0	4.0	211.0	1027.0	1768.0	1180.0	380.0	180.0	110.0	65.0	40.0	15.0	415.5
1943-44	12.0	8.0	262.0	1107.0	1940.0	2292.0	1390.0	300.0	160.0	95.0	55.0	25.0	637.1
1944-45	12.0	6.0	134.0	642.0	1351.0	1173.0	577.0	240.0	140.0	80.0	45.0	20.0	368.3

1945-46	10.0	40.0	250.0	1278.0	2195.0	2843.0	1759.0	400.0	180.0	95.0	55.0	25.0	760.8
1946-47	15.0	8.0	163.0	1185.0	2002.0	2386.0	1697.0	420.0	200.0	110.0	65.0	30.0	690.0
1947-48	15.0	7.0	206.0	1037.0	1866.0	2135.0	871.0	300.0	155.0	90.0	50.0	25.0	563.0
1948-49	10.0	5.0	355.0	1049.0	1874.0	1954.0	903.0	340.0	155.0	90.0	50.0	25.0	567.5
1949-50	10.0	10.0	170.0	992.0	1867.0	1686.0	521.0	210.0	120.0	70.0	40.0	20.0	476.3
1950-51	12.0	5.0	316.0	1220.0	2203.0	2986.0	2110.0	726.0	212.0	125.0	65.0	30.0	834.1
1951-52	21.0	30.0	285.0	1018.0	1736.0	2210.0	2490.0	1415.0	328.0	187.0	95.0	42.0	821.4
1952-53	15.0	10.0	324.0	1050.0	1646.0	2168.0	2218.0	591.0	190.0	100.0	55.0	30.0	699.7
1953-54	12.0	36.0	540.0	1224.0	1771.0	2091.0	1039.0	350.0	200.0	120.0	60.0	25.0	622.3
1954-55	25.0	152.0	646.0	1613.0	2327.0	2652.0	1625.0	501.0	285.0	180.0	100.0	60.0	847.1
1955-56	30.0	93.0	533.0	1571.0	2275.0	2778.0	2268.0	743.0	292.0	196.0	100.0	55.0	911.1
1956-57	25.0	12.0	337.0	1177.0	2070.0	2880.0	2093.0	537.0	243.0	133.0	80.0	40.0	802.2
1957-58	25.0	24.0	611.0	1272.0	2135.0	2703.0	2408.0	910.0	291.0	171.0	95.0	50.0	891.2
1958-59	30.0	53.0	570.0	1367.0	2328.0	2967.0	1993.0	650.0	325.0	214.0	113.0	60.0	889.1
1959-60	18.0	83.0	492.0	1075.0	1986.0	2505.0	1414.0	345.0	217.0	128.0	70.0	30.0	696.9
1960-61	15.0	7.0	489.0	1282.0	1859.0	2097.0	1109.0	322.0	192.0	107.0	60.0	25.0	630.3
1961-62	15.0	7.0	460.0	1499.0	2208.0	2695.0	1440.0	332.0	172.0	105.0	60.0	25.0	751.5
1962-63	10.0	12.0	383.0	1236.0	1978.0	2459.0	1763.0	451.0	228.0	124.0	65.0	30.0	728.2
1963-64	15.0	7.0	149.0	1192.0	1798.0	2181.0	1778.0	423.0	200.0	110.0	55.0	25.0	661.0
1964-65	15.0	47.0	497.0	1420.0	2135.0	2871.0	2138.0	473.0	250.0	155.0	85.0	40.0	843.8
1965-66	-1.0	-1.0	550.0	1210.0	2210.0	3260.0	2150.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1966-67	-1.0	-1.0	-1.0	910.0	1710.0	2330.0	2540.0	1110.0	-1.0	-1.0	-1.0	-1.0	-1.0
1967-68	-1.0	-1.0	530.0	1300.0	2150.0	3000.0	2420.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1968-69	-1.0	-1.0	500.0	950.0	1330.0	1400.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1969-70	-1.0	-1.0	660.0	1210.0	-1.0	-1.0	1950.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1970-71	-1.0	-1.0	-1.0	1200.0	2000.0	1990.0	700.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1971-72	-1.0	-1.0	-1.0	1210.0	2070.0	2120.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1972-73	-1.0	-1.0	-1.0	700.0	1040.0	700.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1973-74	-1.0	-1.0	540.0	1010.0	1600.0	940.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1974-75	-1.0	-1.0	-1.0	1183.0	1995.0	2103.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	17.4	33.3	427.5	1204.3	1971.3	2260.3	1446.1	455.4	209.9	121.3	67.8	33.7	687.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... DAGANA
 RIVER/COURS D EAU..... SENEGAL
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 268000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
19 3- 4	586.9	18509.0	69.	2.19	2280.0	8.5	
19 4- 5	689.8	21754.5	81.	2.57	2410.0	9.0	
19 5- 6	768.6	24240.6	90.	2.87	2190.0	8.2	
19 6- 7	898.0	28319.3	106.	3.35	3370.0	12.6	
19 7- 8	496.0	15641.8	58.	1.85	1830.0	6.8	
19 8- 9	707.6	22316.9	83.	2.64	2505.0	9.3	
19 9-10	802.6	25312.8	94.	3.00	2780.0	10.4	
1910-11	682.4	21520.6	80.	2.55	2460.0	9.2	
1911-12	533.0	16808.6	63.	1.99	2095.0	7.8	
1912-13	546.5	17237.0	64.	2.04	1935.0	7.2	
1913-14	291.3	9187.4	34.	1.09	1110.0	4.1	
1914-15	452.7	14277.9	53.	1.69	1460.0	5.4	
1915-16	585.5	18466.9	69.	2.19	2190.0	8.2	
1916-17	655.5	20671.8	77.	2.45	2360.0	8.8	
1917-18	599.2	18897.9	71.	2.24	2505.0	9.3	
1918-19	881.5	27801.6	104.	3.29	3205.0	12.0	
1919-20	558.0	17597.0	66.	2.08	2060.0	7.7	
1920-21	765.4	24138.1	90.	2.86	2785.0	10.4	
1921-22	456.2	14388.3	54.	1.70	1970.0	7.4	
1922-23	858.5	27076.2	101.	3.20	3540.0	13.2	
1923-24	714.3	22527.2	84.	2.67	2430.0	9.1	
1924-25	964.5	30419.1	114.	3.60	3290.0	12.3	
1925-26	772.3	24356.3	91.	2.88	2480.0	9.3	
1926-27	513.5	16193.7	60.	1.92	1745.0	6.5	
1927-28	865.8	27304.9	102.	3.23	2830.0	10.6	
1928-29	815.7	25725.4	96.	3.04	2920.0	10.9	
1929-30	813.0	25638.7	96.	3.03	2790.0	10.4	
1930-31	770.8	24309.0	91.	2.88	2590.0	9.7	
1931-32	706.0	22267.0	83.	2.63	2300.0	8.6	
1932-33	750.3	23662.5	88.	2.80	2680.0	10.0	
1933-34	797.1	25139.4	94.	2.97	2760.0	10.3	
1934-35	697.6	22001.6	82.	2.60	2680.0	10.0	
1935-36	871.5	27483.6	103.	3.25	3280.0	12.2	
1936-37	911.9	28758.2	107.	3.40	3570.0	13.3	
1937-38	633.1	19967.5	75.	2.36	2360.0	8.8	
1938-39	774.9	24437.7	91.	2.89	2585.0	9.6	
1939-40	581.1	18327.6	68.	2.17	2140.0	8.0	
1940-41	458.5	14459.2	54.	1.71	1625.0	6.1	
1941-42	404.0	12743.1	48.	1.51	1805.0	6.7	
1942-43	415.5	13105.8	49.	1.55	1870.0	7.0	
1943-44	637.1	20093.6	75.	2.38	2315.0	8.6	
1944-45	368.3	11615.7	43.	1.37	1510.0	5.6	
1945-46	760.8	23993.6	90.	2.84	3010.0	11.2	

1946-47	690.0	21762.4	81.	2.57	2430.0	9.1
1947-48	563.0	17757.3	66.	2.10	2215.0	8.3
1948-49	567.5	17896.6	67.	2.12	2095.0	7.8
1949-50	476.3	15021.6	56.	1.78	2010.0	7.5
1950-51	834.1	26306.2	98.	3.11	3390.0	12.6
1951-52	821.4	25904.1	97.	3.06	2540.0	9.5
1952-53	699.7	22067.3	82.	2.61	2450.0	9.1
1953-54	622.3	19625.9	73.	2.32	2155.0	8.0
1954-55	847.1	26716.2	100.	3.16	2920.0	10.9
1955-56	911.1	28734.5	107.	3.40	2920.0	10.9
1956-57	802.2	25299.7	94.	2.99	3160.0	11.8
1957-58	891.2	28106.4	105.	3.33	2850.0	10.6
1958-59	869.1	28040.7	105.	3.32	3100.0	11.6
1959-60	696.9	21977.9	82.	2.60	2615.0	9.8
1960-61	630.3	19878.1	74.	2.35	2160.0	8.1
1961-62	751.5	23699.3	88.	2.80	2910.0	10.9
1962-63	728.2	22966.0	86.	2.72	2560.0	9.6
1963-64	661.0	20847.9	78.	2.47	2235.0	8.3
1964-65	843.8	26611.1	99.	3.15	3195.0	11.9
1965-66	----	----	----	----	3560.0	13.3
1966-67	----	----	----	----	2790.0	10.4
1967-68	----	----	----	----	3500.0	13.1
1968-69	----	----	----	----	1650.0	6.2
1969-70	----	----	----	----	2420.0	9.0
1970-71	----	----	----	----	2280.0	8.5
1971-72	----	----	----	----	2410.0	9.0
1972-73	----	----	----	----	1150.0	4.3
1973-74	----	----	----	----	-1.0	-1.0
1974-75	----	----	----	----	2310.0	8.6

GAUGING STATION/STATION DE JAUGEAGE.... DAKKA SAIDOU
 RIVER/COURS D EAU..... BAFING
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 15700.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1952-53	12.0	48.0	317.0	715.0	987.0	644.0	191.0	88.0	46.0	29.0	20.0	14.0	259.2
1953-54	45.0	162.0	542.0	682.0	914.0	573.0	200.0	98.0	55.0	38.0	23.9	22.8	279.6
1954-55	39.0	199.0	576.0	1360.0	1079.0	555.0	360.0	197.0	91.0	59.0	41.0	40.0	383.0
1955-56	50.0	200.0	564.0	1134.0	984.0	699.0	318.0	159.0	89.0	54.0	34.0	22.0	358.9
1956-57	20.0	75.0	288.0	1365.0	919.0	627.0	248.0	109.0	60.0	38.0	24.4	16.2	315.7
1957-58	14.9	100.0	344.0	1035.0	1370.0	1153.0	410.0	150.0	78.0	48.0	30.0	21.6	396.2
1958-59	35.0	104.0	391.0	1343.0	1022.0	574.0	362.0	190.0	90.0	55.0	35.0	21.3	351.8
1959-60	44.0	160.0	305.0	866.0	1115.0	471.0	228.0	93.0	52.0	33.0	21.3	14.6	283.5
1960-61	23.3	70.0	388.0	740.0	825.0	545.0	243.0	94.0	53.0	30.0	19.4	12.0	253.5
1962-63	29.0	55.0	317.0	807.0	1010.0	657.0	298.0	113.0	38.0	19.1	11.2	6.6	280.0
1963-64	5.9	11.5	199.0	710.0	981.0	864.0	259.0	80.0	28.0	16.2	9.2	5.8	264.1
1964-65	8.7	93.0	340.0	944.0	1299.0	545.0	237.0	106.0	55.0	34.0	21.0	12.0	307.8
1965-66	7.0	86.8	364.1	690.9	1217.0	604.5	261.3	102.5	64.3	40.0	28.1	20.9	290.6
1966-67	22.7	39.2	200.0	613.8	865.9	972.3	294.5	79.0	65.0	40.2	26.9	19.2	269.8
1967-68	23.6	120.5	361.9	1247.0	1410.0	876.1	304.0	126.7	69.4	46.1	28.8	18.5	386.0
1968-69	26.5	84.3	197.7	470.4	683.5	391.9	145.6	78.3	40.2	25.3	16.9	13.3	181.1
1969-70	11.0	57.0	328.0	691.0	1099.0	909.0	360.0	122.0	60.0	37.0	22.0	15.0	309.2
1970-71	16.0	46.0	180.0	867.0	901.0	338.0	121.0	64.0	40.0	25.0	17.0	13.0	219.0
1971-72	19.3	29.6	221.0	781.0	728.0	291.0	106.0	56.6	33.3	21.5	13.9	8.6	192.4
1972-73	9.1	96.6	270.0	541.0	721.0	414.0	145.0	90.0	42.0	25.0	16.2	9.8	198.3
1973-74	29.0	77.6	208.0	590.0	694.0	335.0	-1.0	54.0	33.3	21.5	14.3	9.0	-1.0
1974-75	7.2	67.0	334.0	752.0	804.0	495.0	141.0	67.0	43.0	27.7	17.8	12.3	230.6
AVG/MOYEN	22.6	90.0	328.8	861.1	983.1	615.1	249.1	105.3	55.7	34.6	22.3	15.8	282.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... DAKKA SAIDOU
 RIVER/COURS D EAU..... BAFING
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 15700.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1952-53	259.2	8175.7	521.	16.51	1490.0	94.9	
1953-54	279.6	8818.7	562.	17.81	1220.0	77.7	
1954-55	383.0	12078.2	769.	24.39	1910.0	121.7	17.5
1955-56	358.9	11318.7	721.	22.86	2265.0	144.3	
1956-57	315.7	9959.0	634.	20.11	2920.0	186.0	18.0
1957-58	396.2	12494.8	796.	25.24	1985.0	126.4	11.6
1958-59	351.8	11096.2	707.	22.41	3450.0	219.7	19.0
1959-60	283.5	8942.8	570.	18.06	1739.0	110.8	19.0
1960-61	253.5	7996.2	509.	16.15	1039.0	66.2	
1962-63	280.0	8832.4	563.	17.84	1545.0	98.4	8.4
1963-64	264.1	8329.7	531.	16.82	1575.0	100.3	5.6
1964-65	307.8	9709.6	618.	19.61	1685.0	107.3	4.8
1965-66	290.6	9164.8	584.	18.51	1920.0	122.3	5.6
1966-67	269.8	8511.3	542.	17.19	2140.0	136.3	15.8
1967-68	386.0	12174.4	775.	24.59	2105.0	134.1	
1968-69	181.1	5713.0	364.	11.54	-1.0	-1.0	9.0
1969-70	309.2	9752.5	621.	19.70	1495.0	95.2	11.0
1970-71	219.0	6906.3	440.	13.95	1405.0	89.5	13.0
1971-72	192.4	6070.1	387.	12.26	1168.0	74.4	6.4
1972-73	198.3	6253.8	398.	12.63	1119.0	71.3	8.0
1973-74	----	----	----	----	968.0	61.7	10.0
1974-75	230.6	7274.3	463.	14.69	1329.0	84.6	

GAUGING STATION/STATION DE JAUGEAGE.... DIBIA
 RIVER/COURS D EAU..... BAFING
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 33000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1951-52	13.0	59.0	336.0	1126.0	1453.0	2052.0	937.0	293.0	150.0	87.0	44.0	19.5	547.4
1952-53	7.9	36.0	428.0	1028.0	1489.0	1315.0	339.0	145.0	80.0	45.0	22.3	9.0	412.0
1953-54	4.5	148.0	657.0	1009.0	1450.0	739.0	265.0	120.0	67.0	40.0	20.0	11.0	377.5
1956-57	10.0	45.0	289.0	1800.0	1883.0	1041.0	349.0	157.0	81.0	48.0	27.0	14.2	478.6
1957-58	7.2	129.0	387.0	1534.0	2061.0	1803.0	652.0	213.0	112.0	59.0	34.0	18.0	584.0
1958-59	23.2	116.0	440.0	2529.0	1796.0	1009.0	484.0	262.0	126.0	65.0	40.0	19.2	575.7
1959-60	29.0	162.0	358.0	1364.0	1805.0	633.0	285.0	123.0	66.0	39.0	22.0	13.3	408.2
1960-61	6.4	66.0	528.0	1000.0	1316.0	755.0	314.0	126.0	68.0	38.0	22.2	14.7	354.5
1961-62	12.1	64.0	610.0	1737.0	2340.0	650.0	300.0	115.0	60.0	30.0	18.5	8.5	495.4
1962-63	11.2	12.4	215.0	1075.0	1773.0	998.0	548.0	144.0	89.0	48.0	23.9	12.5	412.5
1963-64	8.2	9.5	190.0	947.0	1496.0	1377.0	370.0	117.0	61.0	31.0	16.0	8.2	385.9
1964-65	8.5	114.0	362.0	1305.0	2619.0	806.0	300.0	116.0	73.0	46.0	27.0	15.1	484.3
1965-66	13.1	80.7	381.9	1502.0	2100.0	950.0	380.0	145.0	91.4	53.0	32.0	17.0	478.8
1966-67	14.0	50.0	220.0	984.3	1304.0	1650.0	415.7	190.0	91.0	60.0	41.0	18.0	419.8
1967-68	13.3	89.4	338.6	1690.0	2488.0	1430.0	413.8	200.4	113.0	44.0	30.0	15.0	572.1
1968-69	0.4	11.9	129.2	653.6	2148.0	519.2	171.1	90.1	47.6	7.9	14.9	5.6	316.6
1969-70	0.0	58.0	379.0	946.0	1684.0	1238.0	511.0	180.0	102.0	59.0	31.0	18.0	433.8
1970-71	12.4	56.2	197.0	1244.0	1520.0	474.0	199.0	116.0	63.5	35.3	15.9	0.6	327.8
1971-72	0.4	41.1	319.0	1423.0	1165.0	443.0	173.0	101.0	54.1	27.3	8.2	2.0	313.0
1972-73	1.0	95.8	263.0	625.0	916.0	434.0	195.0	122.0	62.3	28.3	1.0	0.5	228.6
1973-74	10.0	109.0	240.0	872.0	905.0	365.0	196.0	73.0	14.6	6.3	3.5	1.0	232.9
1974-75	0.5	59.0	437.0	1348.0	1230.0	703.0	188.0	105.0	60.3	32.2	13.8	1.0	348.1
AVG/MOYEN	9.3	73.2	351.1	1260.9	1679.1	972.0	362.9	147.8	78.7	42.2	23.0	10.9	417.6

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... DIBIA
 RIVER/COURS D EAU..... BAFING
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 33000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1951-52	547.4	17264.6	523.	16.59	4417.0	133.8	
1952-53	412.0	12993.3	394.	12.49	2336.0	70.8	5.7
1953-54	377.5	11906.1	361.	11.44	2082.0	63.1	
1956-57	478.6	15095.7	457.	14.51	2850.0	86.4	
1957-58	584.0	18420.1	558.	17.70	2940.0	89.1	5.5
1958-59	575.7	18157.9	550.	17.45	5400.0	163.6	13.3
1959-60	408.2	12875.3	390.	12.37	2820.0	85.5	13.7
1960-61	354.5	11180.3	339.	10.74	1790.0	54.2	6.0
1961-62	495.4	15623.7	473.	15.01	-1.0	-1.0	
1962-63	412.5	13008.5	394.	12.50	2400.0	72.7	2.3
1963-64	385.9	12170.0	369.	11.69	2190.0	66.4	5.6
1964-65	484.3	15272.8	463.	14.68	4080.0	123.6	4.1
1965-66	478.8	15100.7	458.	14.51	2907.0	88.1	
1966-67	419.8	13239.8	401.	12.72	1678.0	50.8	0.0
1967-68	572.1	18042.5	547.	17.34	2672.0	81.0	9.0
1968-69	316.6	9985.0	303.	9.59	1490.0	45.2	0.0
1969-70	433.8	13681.3	415.	13.15	2190.0	66.4	7.9
1970-71	327.8	10338.2	313.	9.93	2304.0	69.8	0.0
1971-72	313.0	9873.6	299.	9.49	2810.0	85.2	
1972-73	228.6	7210.9	219.	6.93	1521.0	46.1	0.0
1973-74	232.9	7346.3	223.	7.06	1212.0	36.7	
1974-75	348.1	10979.2	333.	10.55	2995.0	90.8	

GAUGING STATION/STATION DE JAUGEAGE.... FADOUGOU
 RIVER/COURS D EAU..... FALEME
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 9300.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1952-53	0.6	5.5	232.0	298.0	484.0	596.0	126.0	46.0	17.5	7.4	2.6	0.6	151.3
1953-54	2.7	29.0	144.0	430.0	410.0	170.0	73.0	46.0	26.0	11.2	4.4	1.8	112.3
1954-55	4.9	61.0	248.0	973.0	658.0	221.0	88.0	67.0	35.0	12.5	8.3	5.3	198.5
1955-56	6.1	14.1	170.0	683.0	499.0	235.0	99.0	56.0	33.0	18.0	8.6	4.2	152.1
1956-57	2.4	11.0	118.0	527.0	610.0	223.0	80.0	42.0	24.0	12.2	7.1	3.8	138.3
1957-58	2.1	27.0	102.0	471.0	339.0	282.0	92.0	48.0	27.0	13.6	7.9	4.3	117.9
1958-59	3.2	20.8	106.0	647.0	405.0	209.0	112.0	62.0	36.0	20.0	11.4	5.8	136.5
1959-60	3.0	16.1	117.0	452.0	529.0	173.0	69.0	38.0	21.8	12.3	7.4	3.4	120.1
1960-61	2.4	19.7	170.0	338.0	377.0	158.0	67.0	36.0	21.8	9.0	4.6	2.5	100.4
1961-62	0.9	32.0	165.0	400.0	660.0	130.0	56.0	34.0	15.5	8.5	2.2	1.0	125.4
1962-63	0.4	21.0	95.0	435.0	560.0	200.0	70.0	35.0	14.5	8.0	3.9	1.7	120.3
1963-64	0.7	0.9	82.0	315.0	343.0	234.0	64.0	26.0	11.1	5.1	2.0	0.7	90.3
1964-65	2.0	40.0	126.0	392.0	828.0	200.0	102.0	49.0	30.0	24.0	11.0	4.2	150.6
1965-66	1.1	16.0	89.0	590.0	540.0	280.0	97.0	45.5	28.0	14.4	7.4	4.9	142.7
1966-67	4.7	5.5	59.0	300.0	420.0	640.0	117.0	53.5	30.0	15.0	7.4	4.9	138.0
1967-68	1.0	21.5	131.6	346.0	661.4	394.8	102.7	52.6	36.0	20.6	9.4	3.6	148.4
1968-69	5.1	5.5	44.5	96.7	232.6	124.4	37.6	17.9	8.3	4.3	1.9	0.8	48.2
1969-70	0.3	12.0	102.6	256.4	375.0	336.0	103.7	40.0	19.4	8.7	3.0	1.7	104.8
1970-71	2.1	8.1	46.4	425.0	351.0	83.0	37.0	16.8	8.0	4.1	2.1	1.0	82.0
1971-72	0.7	2.5	58.4	466.0	359.0	89.5	35.3	14.2	6.3	3.0	1.4	1.4	86.4
1972-73	8.0	-1.0	32.1	122.0	134.0	61.3	19.5	12.6	4.7	2.1	0.6	0.0	-1.0
1973-74	0.0	4.9	20.2	223.0	160.0	44.4	13.0	5.0	2.1	1.0	0.1	0.0	39.4
1974-75	-1.0	-1.0	146.0	440.0	-1.0	131.0	39.4	16.0	7.2	3.6	1.5	0.5	-1.0
AVG/MOYEN	2.4	17.8	113.2	418.5	451.5	226.7	73.9	37.3	20.1	10.3	5.0	2.5	114.9

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... FADOUGOU
 RIVER/COURS D EAU..... FALEME
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT, 9300.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1952-53	151.3	4772.9	513.	16.27	1091.0	117.3	
1953-54	112.3	3542.8	381.	12.08	-1.0	-1.0	
1954-55	198.5	6259.8	673.	21.34	-1.0	-1.0	1.3
1955-56	152.1	4798.7	516.	16.36	1113.0	119.7	3.6
1956-57	138.3	4363.7	469.	14.88	1136.0	122.2	1.9
1957-58	117.9	3720.9	400.	12.69	911.0	98.0	1.4
1958-59	136.5	4305.1	463.	14.68	1321.0	142.0	2.5
1959-60	120.1	3789.5	407.	12.92	1245.0	133.9	2.0
1960-61	100.4	3169.3	341.	10.81	840.0	90.3	1.9
1961-62	125.4	3955.4	425.	13.49	2125.0	228.5	
1962-63	120.3	3796.1	408.	12.94	-1.0	-1.0	
1963-64	90.3	2850.0	306.	9.72	689.0	74.1	0.1
1964-65	150.6	4751.9	511.	16.20	1820.0	195.7	0.2
1965-66	142.7	4502.5	484.	15.35	-1.0	-1.0	
1966-67	138.0	4354.5	468.	14.85	-1.0	-1.0	0.2
1967-68	148.4	4680.9	503.	15.96	1058.0	113.8	0.1
1968-69	48.2	1523.1	164.	5.19	405.0	43.5	0.1
1969-70	104.8	3308.1	356.	11.28	583.0	62.7	1.5
1970-71	82.0	2587.5	278.	8.82	1148.0	123.4	0.1
1971-72	86.4	2727.0	293.	9.30	1016.0	109.2	0.1
1972-73	----	----	----	----	413.0	44.4	0.0
1973-74	39.4	1244.8	134.	4.24	426.0	45.8	0.0
1974-75	----	----	----	----	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE.... GALOUGO
 RIVER/COURS D EAU..... SENEGAL
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 126900.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
19 5- 6	14.0	215.0	920.0	2269.0	1996.0	1737.0	747.0	285.0	155.0	92.0	47.0	19.0	708.0
19 7- 8	9.1	110.0	305.0	916.0	1807.0	1031.0	440.0	205.0	115.0	67.0	30.0	9.1	420.3
19 8- 9	9.1	110.0	809.0	2152.0	2736.0	1094.0	383.0	260.0	145.0	84.0	40.0	15.0	653.0
19 9-10	16.0	380.0	850.0	2866.0	3200.0	1029.0	660.0	254.0	170.0	100.0	50.0	20.0	799.5
1910-11	9.1	110.0	515.0	1950.0	2542.0	999.0	370.0	170.0	110.0	63.0	28.0	9.1	572.9
1912-13	8.0	63.0	524.0	1310.0	2015.0	994.0	272.0	145.0	80.0	44.0	17.0	5.0	456.4
1913-14	8.0	95.0	220.0	176.0	778.0	557.0	220.0	120.0	68.0	37.0	14.0	4.0	191.4
1914-15	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1915-16	9.1	110.0	610.0	1910.0	1769.0	959.0	193.0	215.0	130.0	73.0	34.0	13.0	502.0
1916-17	9.1	112.0	806.0	1907.0	2505.0	1266.0	392.0	200.0	125.0	70.0	33.0	12.0	619.7
1917-18	9.1	113.0	278.0	1870.0	2541.0	889.0	376.0	180.0	105.0	58.0	25.0	9.0	537.7
1918-19	9.1	197.0	744.0	2795.0	3168.0	1722.0	407.0	310.0	175.0	105.0	50.0	20.0	808.5
1919-20	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1920-21	9.1	112.0	380.0	2000.0	3055.0	1034.0	315.0	190.0	109.0	58.0	26.0	9.0	608.0
1921-22	9.1	112.0	305.0	1309.0	1941.0	730.0	240.0	160.0	88.0	50.0	20.0	7.0	414.2
1922-23	9.1	112.0	493.0	2699.0	3747.0	1189.0	637.0	307.0	140.0	80.0	39.0	15.0	788.9
1923-24	9.1	112.0	510.0	1721.0	2826.0	1044.0	640.0	310.0	175.0	105.0	50.0	21.0	626.9
1924-25	9.1	224.0	1456.0	3202.0	3677.0	1739.0	664.0	308.0	175.0	105.0	50.0	20.0	969.0
1951-52	10.3	63.0	379.0	1373.0	2009.0	2592.0	1131.0	338.0	185.0	109.0	56.0	24.0	689.1
1952-53	6.7	38.0	505.0	1283.0	2094.0	1868.0	407.0	200.0	102.0	49.0	31.0	13.3	549.7
1953-54	2.8	169.0	233.0	1427.0	2237.0	1003.0	356.0	186.0	122.0	63.0	33.0	13.4	487.1
1954-55	2.8	234.0	1024.0	3456.0	3031.0	1308.0	570.0	331.0	170.0	96.0	53.0	39.0	859.5
1955-56	4.0	197.0	642.0	2948.0	3174.0	1772.0	630.0	291.0	170.0	100.0	56.0	25.0	834.0
1956-57	12.5	68.0	461.0	2279.0	3240.0	1704.0	504.0	232.0	134.0	77.0	40.0	17.6	730.7
1957-58	6.4	208.0	539.0	2612.0	3145.0	2438.0	761.0	293.0	166.0	94.0	50.0	23.2	861.2
1958-59	18.4	167.0	519.0	3760.0	2913.0	1541.0	672.0	355.0	192.0	110.0	63.0	28.0	861.5
1959-60	26.0	184.0	460.0	2079.0	2836.0	915.0	380.0	179.0	104.0	58.0	29.0	11.8	605.1
1960-61	3.9	89.0	899.0	1414.0	2086.0	1042.0	397.0	171.0	95.0	56.0	29.0	10.8	524.3
1961-62	3.4	109.0	733.0	2724.0	3589.0	1030.0	360.0	171.0	96.0	52.0	25.0	7.5	743.3
1962-63	5.4	101.0	505.0	1894.0	2512.0	1320.0	486.0	217.0	116.0	66.0	30.0	10.7	605.2
1963-64	3.3	6.6	382.0	1266.0	2179.0	1790.0	509.0	191.0	119.0	53.0	24.0	7.9	544.2
1964-65	2.8	162.0	568.0	2059.0	3995.0	1403.0	446.0	226.0	123.0	66.0	34.0	10.0	757.9
1965-66	6.9	107.0	491.0	2435.0	3145.0	1461.0	495.0	226.0	139.0	86.0	46.0	20.0	721.4
1966-67	13.2	75.0	301.0	1383.0	2380.0	2716.0	651.0	269.0	151.0	97.0	53.0	21.0	675.8
1967-68	10.6	106.0	544.0	2344.0	3875.0	2011.0	597.0	291.0	179.0	100.0	50.0	25.0	844.3
1968-69	13.6	110.0	398.0	1043.0	1793.0	720.0	248.0	143.0	73.0	39.0	18.6	4.1	383.6
1969-70	1.9	42.0	580.0	1393.0	2868.0	1802.0	728.0	249.0	130.0	72.0	33.0	19.8	659.8
1970-71	6.6	36.6	276.0	1890.0	2216.0	668.0	227.0	128.0	66.0	37.0	18.4	6.4	464.6
1971-72	3.5	28.0	458.0	2241.0	2120.0	625.0	196.0	108.0	54.0	30.2	13.5	3.5	490.0
1972-73	0.1	86.1	290.0	782.0	1036.0	473.0	189.0	111.1	78.0	40.0	19.0	6.0	259.1
1973-74	0.1	139.0	329.0	1601.0	1207.0	433.0	159.0	73.7	37.8	20.4	10.0	1.8	334.3
1974-75	0.0	41.5	581.0	2184.0	2012.0	919.0	238.0	111.0	55.0	31.2	15.0	4.5	516.0
AVG/MOYEN	8.0	121.3	545.5	1973.0	2549.8	1289.1	457.8	217.7	123.0	69.8	34.5	14.0	617.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... GALOUGO
 RIVER/COURS D EAU..... SENEGAL
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 126900.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
19 5- 6	708.0	22327.4	176.	5.58	2985.0	23.5	
19 7- 8	420.3	13256.1	104.	3.31	2580.0	20.3	
19 8- 9	653.0	20595.8	162.	5.15	4175.0	32.9	
19 9-10	799.5	25215.6	199.	6.30	4860.0	38.3	
1910-11	572.9	18068.0	142.	4.51	3405.0	26.8	
1912-13	456.4	14393.5	113.	3.60	-1.0	-1.0	
1913-14	191.4	6036.5	48.	1.51	920.0	7.2	
1914-15	----	----	----	----	2110.0	16.6	
1915-16	502.0	15833.9	125.	3.96	2985.0	23.5	
1916-17	619.7	19544.6	154.	4.88	3575.0	28.2	
1917-18	537.7	16958.7	134.	4.24	4430.0	34.9	
1918-19	808.5	25497.1	201.	6.37	4860.0	38.3	
1919-20	----	----	----	----	2900.0	22.9	
1920-21	608.0	19176.7	151.	4.79	-1.0	-1.0	
1921-22	414.2	13064.0	103.	3.26	2740.0	21.6	
1922-23	788.9	24879.5	196.	6.22	4475.0	35.3	
1923-24	626.9	19770.7	156.	4.94	4300.0	33.9	
1924-25	969.0	30561.2	241.	7.64	4430.0	34.9	
1951-52	689.1	21731.7	171.	5.43	5075.0	40.0	1.9
1952-53	549.7	17336.9	137.	4.33	4730.0	37.3	4.2
1953-54	487.1	15361.1	121.	3.84	3615.0	28.5	1.2
1954-55	859.5	27107.2	214.	6.77	5350.0	42.2	9.2
1955-56	834.0	26303.6	207.	6.57	4475.0	35.3	28.0
1956-57	730.7	23045.1	182.	5.76	4405.0	34.7	10.1
1957-58	861.2	27161.9	214.	6.79	4060.0	32.0	9.4
1958-59	861.5	27169.3	214.	6.79	6880.0	54.2	10.1
1959-60	605.1	19084.0	150.	4.77	4560.0	35.9	11.0
1960-61	524.3	16537.2	130.	4.13	3650.0	28.8	2.2
1961-62	743.3	23441.4	185.	5.86	4645.0	36.6	2.0
1962-63	605.2	19087.4	150.	4.77	3280.0	25.8	3.9
1963-64	544.2	17162.9	135.	4.29	3530.0	27.8	1.7
1964-65	757.9	23901.1	188.	5.97	5375.0	42.4	2.0
1965-66	721.4	22752.9	179.	5.69	4550.0	35.9	4.0
1966-67	675.8	21313.6	168.	5.33	4256.0	33.5	7.8
1967-68	844.3	26628.4	210.	6.65	4080.0	32.2	9.8
1968-69	383.6	12097.4	95.	3.02	3051.0	24.0	0.7
1969-70	659.8	20810.3	164.	5.20	3649.0	28.8	2.9
1970-71	464.6	14653.7	115.	3.66	3344.0	26.4	2.0
1971-72	490.0	15454.4	122.	3.86	3925.0	30.9	0.0
1972-73	259.1	8173.8	64.	2.04	1715.0	13.5	0.0
1973-74	334.3	10543.0	83.	2.63	2696.0	21.2	0.0
1974-75	516.0	16273.1	128.	4.07	5277.0	41.6	

GAUGING STATION/STATION DE JAUGEAGE.... GOURBASSI
 RIVER/COURS D EAU..... FALEME
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 15000.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1954-55	1.1	53.0	293.0	1012.0	835.0	266.0	126.0	57.0	28.0	15.6	8.4	3.3	224.8
1955-56	3.2	20.4	161.0	1013.0	860.0	401.0	120.0	52.0	30.0	16.0	8.2	2.7	223.9
1956-57	0.9	8.9	119.0	637.0	1079.0	327.0	91.0	41.0	22.2	11.9	6.2	2.1	195.5
1957-58	0.7	35.0	121.0	635.0	692.0	424.0	121.0	49.0	24.2	12.3	6.0	2.0	176.8
1958-59	3.2	16.8	134.0	869.0	616.0	327.0	138.0	70.0	34.0	17.1	10.3	4.5	186.6
1959-60	1.9	13.9	138.0	588.0	801.0	231.0	78.0	34.0	18.7	9.9	4.4	1.8	160.0
1960-61	0.7	31.0	185.0	448.0	537.0	238.0	73.0	32.0	16.7	9.8	4.3	1.3	131.3
1961-62	0.5	34.0	185.0	600.0	1064.0	191.0	61.0	34.0	20.0	7.6	2.2	1.0	183.3
1962-63	0.3	22.5	113.0	585.0	916.0	300.0	81.0	35.0	15.8	7.9	3.0	0.9	173.3
1963-64	0.5	0.7	169.0	469.0	608.0	372.0	83.0	31.0	15.2	6.1	2.1	0.6	146.4
1964-65	0.2	48.0	187.0	507.0	1260.0	285.0	88.0	41.0	20.0	10.0	6.0	2.5	204.5
1965-66	0.5	19.3	106.2	790.8	885.9	419.1	118.9	44.9	25.9	13.6	6.5	2.9	202.8
1966-67	2.5	5.0	71.2	407.6	712.1	960.2	146.5	52.8	27.2	14.1	6.5	2.9	200.7
1967-68	1.1	38.7	158.0	500.0	1107.0	591.1	133.0	56.7	32.0	16.0	8.0	3.0	220.3
1968-69	4.1	6.3	36.4	135.3	368.4	176.6	42.4	21.6	10.2	4.4	1.4	0.3	67.2
1969-70	0.3	14.7	134.2	425.0	580.0	483.0	144.0	44.7	21.1	11.0	4.0	1.2	155.2
1970-71	0.4	2.5	51.8	649.0	555.0	111.0	41.8	19.5	9.8	4.4	1.5	0.5	120.5
1971-72	-1.0	-1.0	79.0	726.0	594.0	143.0	40.6	18.0	8.0	3.0	0.9	0.0	-1.0
1972-73	0.0	7.1	41.4	206.0	185.0	64.3	22.8	12.9	4.5	1.6	0.2	0.0	45.4
AVG/MOYEN	1.2	20.9	130.6	589.6	750.2	332.1	92.1	39.3	20.1	10.1	4.7	1.7	166.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... GOURBASSI
 RIVER/COURS D EAU..... FALEME
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 15000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1954-55	224.8	7091.3	473.	14.99	1795.0	119.7	0.4
1955-56	223.9	7062.7	471.	14.93	1480.0	98.7	1.6
1956-57	195.5	6165.8	411.	13.03	1550.0	103.3	0.7
1957-58	176.8	5577.1	372.	11.79	1345.0	89.7	0.4
1958-59	186.6	5886.4	392.	12.44	1465.0	97.7	0.6
1959-60	160.0	5047.3	336.	10.67	1420.0	94.7	1.3
1960-61	131.3	4143.8	276.	8.76	952.0	63.5	0.4
1961-62	183.3	5782.3	385.	12.22	1915.0	127.7	0.4
1962-63	173.3	5467.2	364.	11.56	1285.0	85.7	
1963-64	146.4	4617.9	308.	9.76	1090.0	72.7	0.4
1964-65	204.5	6450.9	430.	13.64	2090.0	139.3	
1965-66	202.8	6397.8	427.	13.52	1488.0	99.2	0.3
1966-67	200.7	6329.8	422.	13.38	1545.0	103.0	1.8
1967-68	220.3	6950.0	463.	14.69	1449.0	96.6	1.4
1968-69	67.2	2121.8	141.	4.49	726.0	48.4	0.0
1969-70	155.2	4896.4	326.	10.35	784.0	52.3	0.2
1970-71	120.5	3803.2	254.	8.04	982.0	65.5	0.0
1971-72	----	----	----	----	1167.0	77.8	0.0
1972-73	45.4	1434.3	96.	3.03	443.0	29.5	

GAUGING STATION/STATION DE JAUGEAGE.... KAYES
 RIVER/COURS D EAU..... SENEGAL
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 157400.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR- ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
19 3- 4	9.1	108.0	526.0	1794.0	2318.0	810.0	280.0	160.0	90.0	48.0	16.0	5.0	513.6
19 4- 5	-1.0	-1.0	562.0	-1.0	2243.0	862.0	405.0	170.0	105.0	58.0	24.0	8.0	-1.0
19 5- 6	15.0	210.0	862.0	2448.0	1980.0	1776.0	725.0	280.0	155.0	92.0	44.0	17.0	717.0
19 6- 7	9.1	108.0	1050.0	3783.0	3279.0	1196.0	520.0	230.0	130.0	75.0	35.0	13.0	869.0
19 7- 8	9.1	108.0	296.0	813.0	1823.0	968.0	433.0	200.0	112.0	64.0	28.0	9.0	405.2
19 8- 9	9.1	120.0	823.0	2352.0	3156.0	1214.0	473.0	250.0	140.0	80.0	38.0	14.0	722.4
19 9-10	9.1	377.0	921.0	3024.0	3279.0	1114.0	703.0	290.0	165.0	96.0	47.0	18.0	836.9
1910-11	9.1	108.0	503.0	1951.0	2692.0	1023.0	410.0	190.0	106.0	60.0	26.0	9.0	590.5
1911-12	9.1	108.0	425.0	1418.0	2041.0	756.0	342.0	170.0	96.0	54.0	22.0	7.0	454.0
1912-13	7.0	60.0	491.0	1326.0	2057.0	978.0	298.0	140.0	78.0	42.0	16.0	4.0	458.0
1913-14	7.0	90.0	214.0	532.0	747.0	472.0	215.0	115.0	65.0	35.0	13.0	3.0	209.0
1914-15	-1.0	-1.0	-1.0	-1.0	1404.0	914.0	237.0	130.0	75.0	40.0	15.0	4.0	-1.0
1915-16	9.1	108.0	597.0	1931.0	2049.0	1008.0	382.0	220.0	125.0	70.0	32.0	12.0	545.2
1916-17	9.1	108.0	811.0	1883.0	2723.0	1238.0	383.0	215.0	120.0	68.0	31.0	11.0	633.3
1917-18	9.1	108.0	243.0	1903.0	2626.0	870.0	295.0	180.0	102.0	56.0	24.0	8.0	535.3
1918-19	9.1	190.0	730.0	2580.0	3180.0	1723.0	540.0	300.0	170.0	100.0	48.0	19.0	799.0
1919-20	-1.0	-1.0	362.0	1469.0	1819.0	750.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1920-21	9.1	108.0	376.0	2041.0	3128.0	998.0	310.0	180.0	104.0	56.0	24.0	8.0	611.8
1921-22	9.1	108.0	295.0	1189.0	1908.0	646.0	270.0	155.0	85.0	48.0	19.0	6.0	394.8
1922-23	9.1	108.0	490.0	2724.0	4525.0	2100.0	612.0	237.0	136.0	78.0	37.0	14.0	922.5
1923-24	9.1	108.0	450.0	1635.0	2960.0	1055.0	625.0	300.0	170.0	100.0	48.0	20.0	623.3
1924-25	-1.0	-1.0	1394.0	3301.0	3876.0	1767.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1925-26	9.1	108.0	555.0	2063.0	2812.0	2204.0	638.0	270.0	155.0	90.0	43.0	16.0	746.9
1926-27	9.1	108.0	555.0	1505.0	1536.0	800.0	420.0	210.0	120.0	70.0	30.0	10.0	447.7
1927-28	9.1	108.0	578.0	2371.0	3440.0	2130.0	761.0	310.0	175.0	105.0	50.0	20.0	838.0
1928-29	9.1	108.0	341.0	2534.0	3439.0	1442.0	660.0	275.0	155.0	90.0	44.0	17.0	759.5
1929-30	9.1	305.0	660.0	2383.0	3294.0	1147.0	481.0	235.0	130.0	75.0	35.0	18.0	731.0
1930-31	9.1	135.0	491.0	2005.0	2477.0	1432.0	478.0	215.0	122.0	68.0	32.0	11.0	622.9
1931-32	9.1	140.0	707.0	1465.0	2400.0	1641.0	414.0	225.0	127.0	72.0	34.0	12.0	603.8
1932-33	9.1	145.0	992.0	2792.0	2840.0	1147.0	485.0	245.0	138.0	80.0	37.0	14.0	743.6
1933-34	9.1	250.0	1258.0	2873.0	2652.0	884.0	342.0	200.0	112.0	64.0	28.0	9.0	723.4
1934-35	9.1	108.0	249.0	2103.0	2559.0	1104.0	388.0	190.0	110.0	60.0	31.0	3.0	576.1
1935-36	9.1	109.0	889.0	3730.0	3610.0	1883.0	491.0	230.0	130.0	75.0	34.0	13.0	933.5
1936-37	9.1	108.0	499.0	3803.0	4204.0	1727.0	528.0	210.0	148.0	86.0	40.0	15.0	948.0
1937-38	9.1	108.0	308.0	1573.0	2327.0	969.0	365.0	180.0	100.0	56.0	24.0	8.0	502.2
1938-39	9.1	108.0	437.0	1801.0	3199.0	1329.0	579.0	230.0	130.0	75.0	34.0	13.0	662.0
1939-40	9.1	108.0	281.0	1711.0	1554.0	1004.0	320.0	160.0	70.0	50.0	20.0	6.0	441.0
1940-41	9.1	108.0	195.0	997.0	1096.0	931.0	375.0	190.0	105.0	60.0	26.0	8.0	341.6
1941-42	9.1	108.0	304.0	907.0	1651.0	535.0	220.0	125.0	70.0	38.0	14.0	3.5	332.0
1942-43	9.1	109.0	370.0	1672.0	1269.0	447.0	260.0	150.0	84.0	46.0	18.0	5.0	369.9
1943-44	9.1	108.0	281.0	1705.0	2269.0	1358.0	315.0	175.0	98.0	55.0	23.0	7.0	533.5
1944-45	9.1	137.0	220.0	768.0	1283.0	484.0	260.0	140.0	78.0	43.0	21.0	4.5	287.2

1945-46	9.1	108.0	300.0	2545.0	3473.0	1439.0	460.0	255.0	145.0	85.0	39.0	15.0	739.4
1946-47	9.1	109.0	415.0	2251.0	2397.0	1439.0	456.0	210.0	118.0	67.0	30.0	10.0	625.9
1947-48	9.1	108.0	255.0	1362.0	2157.0	779.0	300.0	170.0	95.0	53.0	22.0	7.0	443.0
1948-49	9.1	109.0	544.0	1656.0	2264.0	864.0	400.0	220.0	124.0	70.0	32.0	11.0	525.2
1949-50	4.0	20.0	330.0	2027.0	1487.0	621.0	285.0	165.0	93.0	52.0	21.0	7.0	426.0
1950-51	2.8	19.0	466.0	2224.0	3856.0	2492.0	642.0	242.0	125.0	62.0	30.0	10.5	847.6
1951-52	6.5	69.0	356.0	1368.0	1999.0	2625.0	1147.0	346.0	119.0	55.0	55.0	23.0	691.9
1952-53	7.7	32.0	473.0	1259.0	2180.0	2006.0	431.0	199.0	108.0	55.0	27.0	12.0	565.8
1953-54	3.9	149.0	831.0	1432.0	2409.0	1023.0	389.0	201.0	133.0	72.0	32.0	9.5	557.0
1954-55	18.0	224.0	949.0	3610.0	3214.0	1343.0	554.0	330.0	171.0	96.0	52.0	33.0	882.8
1955-56	39.0	194.0	606.0	2931.0	3232.0	1909.0	631.0	298.0	176.0	105.0	54.0	17.0	849.3
1956-57	7.5	48.0	436.0	2191.0	3488.0	1750.0	503.0	234.0	136.0	77.0	39.0	14.0	743.6
1957-58	5.4	199.0	523.0	2562.0	3295.0	2451.0	752.0	295.0	168.0	98.0	48.0	19.0	867.9
1958-59	12.0	162.0	479.0	3625.0	3025.0	1563.0	643.0	350.0	191.0	110.0	61.0	23.0	853.6
1959-60	17.0	161.0	435.0	2159.0	2987.0	928.0	377.0	181.0	106.0	55.0	24.0	9.0	619.9
1960-61	3.1	75.0	726.0	1446.0	2133.0	1045.0	402.0	177.0	99.0	55.0	25.0	8.0	516.1
1961-62	2.9	78.0	713.0	2768.0	3723.0	1051.0	373.0	174.0	97.0	51.0	21.0	5.7	754.7
1962-63	2.7	81.0	456.0	1927.0	2609.0	1313.0	478.0	218.0	117.0	64.0	27.0	9.2	608.4
1963-64	5.7	10.0	370.0	1279.0	2306.0	1792.0	516.0	197.0	107.0	52.0	22.0	6.3	555.2
1964-65	2.9	128.0	519.0	2100.0	4135.0	1462.0	453.0	227.0	136.0	78.0	32.0	11.5	773.7
1965-66	4.8	69.3	459.4	2584.0	3994.0	1491.0	546.9	221.1	114.0	60.2	30.4	14.2	799.1
1966-67	9.7	45.3	300.7	1302.0	2285.0	2618.0	690.1	279.7	141.2	73.2	36.7	15.3	649.7
1967-68	8.5	74.5	524.8	2181.0	3822.0	1978.0	641.6	292.2	167.2	99.2	51.5	20.2	821.7
1968-69	12.5	82.3	406.4	1042.0	1690.0	755.4	265.5	144.1	70.5	35.2	15.9	5.6	377.1
1969-70	2.0	32.0	581.0	1404.0	2758.0	1729.0	716.0	249.0	142.0	90.0	43.0	21.2	647.2
1970-71	7.5	38.9	272.0	1875.0	2153.0	639.0	241.0	131.0	81.5	48.8	24.0	7.7	459.9
1971-72	2.0	16.0	415.0	2195.0	2099.0	615.0	219.0	120.0	69.0	38.0	18.0	6.0	484.3
1972-73	3.0	74.0	300.0	720.0	952.0	470.0	214.0	122.0	65.0	35.0	13.0	3.0	247.5
1973-74	2.4	128.0	332.0	1529.0	1153.0	445.0	181.0	82.0	45.4	25.6	10.9	5.1	328.2
1974-75	1.2	20.0	532.0	2186.0	1973.0	864.0	278.0	128.0	65.3	40.6	20.3	8.9	509.7
1975-76	3.0	0.4	443.0	998.0	2030.0	815.0	296.0	133.0	72.7	40.8	17.5	3.8	404.4
AVG/MOYEN	8.4	110.6	518.6	1994.3	2561.6	1248.6	446.7	209.4	117.6	66.7	30.6	11.1	610.3

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... KAYES
 RIVER/COURS D EAU..... SENEGAL
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 157400.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
19 3- 4	513.6	16199.2	103.	3.26	3415.0	21.7	
19 4- 5	----	----	----	----	3825.0	24.3	
19 5- 6	717.0	22611.3	144.	4.56	3290.0	20.9	
19 6- 7	869.0	27405.0	174.	5.52	4805.0	30.5	
19 7- 8	405.2	12780.2	81.	2.57	2530.0	16.1	
19 8- 9	722.4	22782.3	145.	4.59	4485.0	28.5	
19 9-10	836.9	26393.2	168.	5.32	4790.0	30.4	
1910-11	590.5	18624.8	118.	3.75	3505.0	22.3	
1911-12	454.0	14317.6	91.	2.88	2625.0	16.7	
1912-13	458.0	14446.1	92.	2.91	3135.0	19.9	
1913-14	209.0	6591.0	42.	1.33	1005.0	6.4	
1914-15	----	----	----	----	2085.0	13.2	
1915-16	545.2	17195.2	109.	3.46	3070.0	19.5	
1916-17	633.3	19973.0	127.	4.02	3605.0	22.9	
1917-18	535.3	16882.5	107.	3.40	4235.0	26.9	
1918-19	799.0	25200.1	160.	5.08	4610.0	29.3	
1919-20	----	----	----	----	2975.0	18.9	
1920-21	611.8	19295.0	123.	3.89	5475.0	34.8	
1921-22	394.8	12451.7	79.	2.51	2660.0	16.9	
1922-23	922.5	29092.2	185.	5.86	5880.0	37.4	
1923-24	623.3	19657.7	125.	3.96	3855.0	24.5	
1924-25	----	----	----	----	4550.0	28.9	
1925-26	746.9	23555.0	150.	4.75	4360.0	27.7	
1926-27	447.7	14120.5	90.	2.84	2215.0	14.1	
1927-28	838.0	26430.0	168.	5.32	4425.0	28.1	
1928-29	759.5	23951.8	152.	4.83	4425.0	28.1	
1929-30	731.0	23053.0	146.	4.64	4295.0	27.3	
1930-31	622.9	19644.5	125.	3.96	3605.0	22.9	
1931-32	603.8	19042.7	121.	3.84	3785.0	24.0	
1932-33	743.6	23452.5	149.	4.72	4295.0	27.3	
1933-34	723.4	22813.9	145.	4.60	5380.0	34.2	
1934-35	576.1	18170.2	115.	3.66	4235.0	26.9	
1935-36	933.5	29441.7	187.	5.93	5765.0	36.6	
1936-37	948.0	29899.0	190.	6.02	5730.0	36.4	
1937-38	502.2	15839.2	101.	3.19	2785.0	17.7	
1938-39	662.0	20877.0	133.	4.21	4485.0	28.5	
1939-40	441.0	13910.2	88.	2.80	3260.0	20.7	
1940-41	341.6	10775.0	68.	2.17	1790.0	11.4	
1941-42	332.0	10471.5	67.	2.11	2785.0	17.7	
1942-43	369.9	11665.9	74.	2.35	3035.0	19.3	
1943-44	533.5	16827.3	107.	3.39	3165.0	20.1	
1944-45	287.2	9060.2	58.	1.83	1620.0	10.3	
1945-46	739.4	23318.5	148.	4.70	4805.0	30.5	

1946-47	625.9	19739.1	125.	3.98	3730.0	23.7	
1947-48	443.0	13973.3	89.	2.82	3035.0	19.3	
1948-49	525.2	16564.5	105.	3.34	4080.0	25.9	
1949-50	426.0	13434.3	85.	2.71	4170.0	26.5	
1950-51	847.6	26730.1	170.	5.39	5945.0	37.8	2.2
1951-52	691.9	21821.5	139.	4.40	4675.0	29.7	6.4
1952-53	565.8	17843.3	113.	3.59	4015.0	25.5	4.6
1953-54	557.0	17566.6	112.	3.54	3710.0	23.6	2.7
1954-55	882.8	27841.0	177.	5.61	5290.0	33.6	6.7
1955-56	849.3	26784.5	170.	5.40	4500.0	28.6	19.0
1956-57	743.6	23450.9	149.	4.72	4890.0	31.1	4.6
1957-58	867.9	27371.6	174.	5.51	4185.0	26.6	3.6
1958-59	853.6	26921.2	171.	5.42	6840.0	43.5	7.0
1959-60	619.9	19549.6	124.	3.94	4295.0	27.3	7.0
1960-61	516.1	16278.0	103.	3.28	3480.0	22.1	2.0
1961-62	754.7	23803.3	151.	4.80	4740.0	30.1	2.0
1962-63	608.4	19189.3	122.	3.87	3325.0	21.1	2.1
1963-64	555.2	17510.3	111.	3.53	3260.0	20.7	2.2
1964-65	773.7	24399.4	155.	4.92	5400.0	34.3	2.1
1965-66	799.1	25200.6	160.	5.08	4964.0	31.5	1.6
1966-67	649.7	20490.2	130.	4.13	4083.0	25.9	6.0
1967-68	821.7	25913.9	165.	5.22	4555.0	28.9	6.0
1968-69	377.1	11892.7	76.	2.40	2675.0	17.0	10.8
1969-70	647.2	20412.2	130.	4.11	3576.0	22.7	5.0
1970-71	459.9	14504.9	92.	2.92	3272.0	20.8	1.0
1971-72	484.3	15273.9	97.	3.08	3667.0	23.3	1.0
1972-73	247.5	7807.7	50.	1.57	1450.0	9.2	0.2
1973-74	328.2	10352.7	66.	2.09	2550.0	16.2	0.1
1974-75	509.7	16076.2	102.	3.24	5452.0	34.6	0.1
1975-76	404.4	12754.2	81.	2.57	3378.0	21.5	

GAUGING STATION/STATION DE JAUGEAGE.... KIDIRA
 RIVER/COURS D EAU..... FALEME
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 28900.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1930-31	1.0	10.0	88.0	870.0	975.0	458.0	67.0	34.0	18.0	8.0	4.0	1.0	211.1
1931-32	1.0	24.0	269.0	462.0	831.0	468.0	85.0	43.0	22.0	10.0	5.0	2.0	185.1
1932-33	1.0	11.0	253.0	616.0	570.0	320.0	59.0	28.0	14.0	7.0	3.0	1.0	156.9
1933-34	1.0	112.0	404.0	1259.0	722.0	202.0	55.0	26.0	14.0	7.0	3.0	1.0	233.8
1934-35	1.0	24.0	82.0	939.0	917.0	229.0	66.0	29.0	13.0	7.0	3.0	1.0	192.5
1935-36	1.0	24.0	255.0	1423.0	1491.0	636.0	127.0	55.0	27.0	14.0	6.0	2.0	338.4
1936-37	1.0	38.0	101.0	1078.0	1480.0	542.0	196.0	52.0	23.0	12.0	6.0	2.0	294.2
1937-38	1.0	24.0	114.0	453.0	950.0	261.0	136.0	37.0	17.0	9.0	4.0	1.0	167.2
1938-39	1.0	24.0	103.0	417.0	1107.0	482.0	375.0	69.0	29.0	15.0	7.0	2.0	219.2
1939-40	1.0	24.0	86.0	637.0	526.0	325.0	59.0	28.0	14.0	7.0	3.0	1.0	142.5
1940-41	1.0	24.0	90.0	341.0	218.0	401.0	147.0	38.0	18.0	9.0	4.0	1.0	107.6
1941-42	1.0	24.0	116.0	328.0	583.0	169.0	39.0	19.0	8.0	5.0	2.0	1.0	107.9
1942-43	1.0	24.0	50.0	528.0	332.0	64.0	25.0	13.0	6.0	4.0	2.0	1.0	87.5
1944-45	1.0	24.0	50.0	153.0	338.0	136.0	57.0	23.0	11.0	6.0	2.0	1.0	66.8
1946-47	1.0	24.0	100.0	738.0	831.0	402.0	59.0	27.0	13.0	7.0	3.0	1.0	183.8
1950-51	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1951-52	0.3	5.8	64.0	327.0	693.0	1341.0	301.0	76.0	34.0	14.6	6.9	2.2	238.8
1952-53	0.7	0.2	133.0	401.0	792.0	1096.0	132.0	49.0	23.1	9.0	4.6	1.6	220.1
1953-54	0.4	9.7	144.0	357.0	725.0	214.0	70.0	28.0	13.5	8.3	3.6	1.4	131.2
1954-55	0.3	60.0	253.0	1123.0	1189.0	289.0	126.0	60.0	29.0	13.6	7.2	3.0	262.7
1955-56	0.8	43.0	180.0	1222.0	1032.0	572.0	126.0	55.0	28.0	13.8	7.4	3.5	273.6
1956-57	1.3	10.6	137.0	601.0	1780.0	368.0	97.0	43.0	20.0	9.0	4.6	2.0	256.1
1957-58	0.9	49.0	122.0	735.0	1141.0	500.0	129.0	52.0	23.8	10.7	4.9	2.2	230.8
1958-59	1.2	33.0	131.0	990.0	795.0	370.0	143.0	80.0	29.0	12.9	7.8	3.0	216.3
1959-60	1.2	13.8	73.0	855.0	1118.0	242.0	71.0	34.0	16.2	8.1	4.1	1.9	203.1
1960-61	1.1	7.1	191.0	551.0	625.0	250.0	70.0	30.0	14.8	8.1	3.8	1.8	146.1
1961-62	0.5	35.0	188.0	706.0	1709.0	209.0	61.0	25.0	11.2	6.1	2.6	0.9	246.1
1962-63	0.2	22.4	122.0	746.0	1245.0	324.0	110.0	35.0	16.9	7.9	3.9	1.7	219.5
1963-64	0.4	0.9	170.0	524.0	746.0	395.0	83.0	31.0	13.8	6.3	2.8	0.8	164.4
1964-65	0.1	41.0	180.0	714.0	1805.0	329.0	93.0	44.0	19.6	9.9	5.0	2.1	270.2
1965-66	0.3	22.9	108.9	1078.0	1265.0	422.4	123.7	45.8	23.4	11.6	5.7	3.2	259.2
1966-67	1.5	6.4	78.6	483.1	863.6	1523.0	153.5	55.6	24.9	12.0	5.7	3.2	267.5
1967-68	0.7	48.2	149.7	500.7	1485.0	742.2	139.0	60.5	30.3	15.5	6.8	3.2	265.1
1968-69	1.5	2.7	70.4	161.0	381.0	199.6	48.6	22.1	6.7	3.4	0.8	0.0	74.8
1969-70	0.0	13.7	148.0	491.0	664.0	483.0	164.0	43.2	19.9	9.9	5.4	1.6	170.3
1970-71	0.5	0.2	116.0	742.0	568.0	106.0	40.8	14.2	10.0	4.7	1.6	0.1	133.6
1971-72	0.0	6.8	81.1	525.0	682.0	142.0	39.1	14.9	7.6	3.8	1.0	0.1	125.2
1972-73	0.0	3.8	40.3	193.0	169.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1973-74	-1.0	-1.0	40.2	458.0	314.0	78.4	13.4	7.4	-1.0	-1.0	-1.0	-1.0	-1.0
1974-75	0.0	0.0	222.0	899.0	589.0	226.0	43.4	13.9	7.1	3.6	1.4	0.2	167.1
AVG/MOYEN	0.7	22.9	136.0	657.0	878.1	408.3	103.4	37.9	18.1	8.9	4.1	1.5	189.7

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... KIDIRA
 RIVER/COURS D EAU..... FALEME
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 28900.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1930-31	211.1	6659.3	230.	7.31	1760.0	60.9	
1931-32	185.1	5839.4	202.	6.41	1650.0	57.1	
1932-33	156.9	4948.5	171.	5.43	1500.0	51.9	
1933-34	233.8	7374.1	255.	8.09	2214.0	76.6	
1934-35	192.5	6073.3	210.	6.66	2268.0	78.5	
1935-36	338.4	10672.3	369.	11.71	2160.0	74.7	
1936-37	294.2	9279.4	321.	10.18	2268.0	78.5	
1937-38	167.2	5274.3	183.	5.79	1470.0	50.9	
1938-39	219.2	6914.2	239.	7.59	2056.0	71.1	
1939-40	142.5	4496.5	156.	4.93	1026.0	35.5	
1940-41	107.6	3395.3	117.	3.73	1175.0	40.7	
1941-42	107.9	3403.2	118.	3.73	1147.0	39.7	
1942-43	87.5	2759.4	95.	3.03	1280.0	44.3	
1944-45	66.8	2107.6	73.	2.31	516.0	17.9	
1946-47	183.8	5797.3	201.	6.36	1910.0	66.1	
1950-51	----	----	----	----	2415.0	83.6	
1951-52	238.8	7531.3	261.	8.26	2680.0	92.7	0.2
1952-53	220.1	6943.7	240.	7.62	1990.0	68.9	0.1
1953-54	131.2	4138.8	143.	4.54	1250.0	43.3	0.1
1954-55	262.7	8286.3	287.	9.09	2695.0	93.3	0.1
1955-56	273.6	8629.0	299.	9.47	1885.0	65.2	0.9
1956-57	256.1	8077.1	279.	8.86	2660.0	92.0	0.6
1957-58	230.8	7280.8	252.	7.99	2170.0	75.1	0.2
1958-59	216.3	6822.0	236.	7.49	1980.0	68.5	0.4
1959-60	203.1	6407.8	222.	7.03	1925.0	66.6	0.2
1960-61	146.1	4608.7	159.	5.06	1135.0	39.3	0.5
1961-62	246.1	7763.9	269.	8.52	3120.0	108.0	0.0
1962-63	219.5	6924.7	240.	7.60	1980.0	68.5	0.0
1963-64	164.4	5187.6	180.	5.69	1200.0	41.5	0.0
1964-65	270.2	8521.8	295.	9.35	2855.0	98.8	0.0
1965-66	259.2	8175.4	283.	8.97	2290.0	79.2	
1966-67	267.5	8438.7	292.	9.26	2659.0	92.0	0.0
1967-68	265.1	8361.7	289.	9.17	2013.0	69.7	2.3
1968-69	74.8	2359.4	82.	2.59	766.0	26.5	0.0
1969-70	170.3	5370.8	186.	5.89	970.0	33.6	0.0
1970-71	133.6	4215.5	146.	4.63	1304.0	45.1	0.0
1971-72	125.2	3950.9	137.	4.34	-1.0	-1.0	0.0
1972-73	----	----	----	----	405.0	14.0	
1973-74	----	----	----	----	792.0	27.4	
1974-75	167.1	5270.7	182.	5.78	2239.0	77.5	0.0

GAUGING STATION/STATION DE JAUGEAGE.... MATAM
 RIVER/COURS D EAU..... SENEGAL
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 230000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
19 3- 4	10.0	80.0	502.0	1760.0	2905.0	1155.0	477.0	206.0	126.0	72.0	38.0	14.0	612.0
19 4- 5	8.0	15.0	505.0	2803.0	2887.0	1166.0	568.0	273.0	148.0	85.0	47.0	20.0	710.4
19 5- 6	10.0	155.0	736.0	2726.0	2416.0	2582.0	1192.0	380.0	197.0	114.0	61.0	30.0	883.2
19 6- 7	12.0	95.0	958.0	4111.0	4964.0	1939.0	838.0	472.0	251.0	145.0	80.0	40.0	1158.7
19 7- 8	10.0	80.0	265.0	764.0	2209.0	1218.0	564.0	347.0	182.0	109.0	61.0	28.0	486.4
19 8- 9	8.0	54.0	541.0	1918.0	3561.0	1672.0	514.0	240.0	131.0	72.0	43.0	18.0	731.0
19 9-10	8.0	190.0	882.0	2497.0	4005.0	1584.0	653.0	269.0	145.0	82.0	47.0	20.0	865.1
1910-11	8.0	80.0	445.0	1880.0	3017.0	1359.0	476.0	223.0	119.0	65.0	40.0	16.0	644.0
1911-12	8.0	80.0	540.0	1403.0	2483.0	980.0	419.0	234.0	125.0	67.0	40.0	16.0	532.9
1912-13	8.0	80.0	524.0	1639.0	2406.0	1432.0	437.0	242.0	134.0	74.0	44.0	18.0	586.5
1913-14	10.0	80.0	331.0	757.0	1030.0	696.0	253.0	124.0	61.0	28.0	10.0	4.0	282.0
1914-15	10.0	80.0	560.0	1374.0	1489.0	1061.0	379.0	210.0	115.0	65.0	41.0	16.0	450.0
1915-16	10.0	65.0	544.0	1941.0	2718.0	1471.0	361.0	197.0	108.0	57.0	35.0	12.0	626.5
1916-17	4.0	3.0	530.0	1622.0	2922.0	1915.0	427.0	220.0	123.0	66.0	39.0	16.0	657.2
1917-18	8.0	14.0	184.0	1783.0	3455.0	1556.0	407.0	188.0	101.0	55.0	33.0	11.0	649.5
1918-19	10.0	120.0	683.0	2728.0	5259.0	2977.0	723.0	333.0	205.0	122.0	65.0	30.0	1104.5
1919-20	8.0	93.0	361.0	1699.0	2256.0	1201.0	394.0	210.0	117.0	67.0	39.0	15.0	538.3
1920-21	8.0	80.0	461.0	2135.0	4127.0	1885.0	819.0	298.0	164.0	100.0	52.0	23.0	846.0
1921-22	8.0	80.0	407.0	1134.0	2271.0	857.0	293.0	156.0	84.0	52.0	27.0	10.0	448.2
1922-23	8.0	27.0	407.0	2734.0	5880.0	4236.0	1078.0	341.0	170.0	100.0	53.0	23.0	1254.7
1923-24	10.0	50.0	542.0	1675.0	3556.0	1835.0	658.0	274.0	146.0	79.0	42.0	18.0	740.4
1924-25	8.0	113.0	1358.0	3428.0	4923.0	3494.0	952.0	385.0	213.0	132.0	73.0	33.0	1259.3
1925-26	12.0	65.0	289.0	1880.0	3038.0	2558.0	816.0	338.0	192.0	114.0	63.0	30.0	782.9
1926-27	8.0	93.0	449.0	1651.0	1657.0	1035.0	686.0	267.0	134.0	73.0	44.0	18.0	509.5
1927-28	10.0	50.0	642.0	2313.0	4435.0	3176.0	1072.0	386.0	210.0	117.0	64.0	30.0	1042.0
1928-29	10.0	30.0	344.0	2508.0	4937.0	2342.0	792.0	247.0	133.0	75.0	37.0	15.0	955.8
1929-30	10.0	194.0	756.0	2492.0	4521.0	1947.0	502.0	225.0	124.0	68.0	37.0	15.0	907.5
1930-31	8.0	112.0	561.0	2668.0	3773.0	2279.0	675.0	303.0	170.0	101.0	55.0	25.0	894.1
1931-32	8.0	113.0	670.0	2074.0	2711.0	2414.0	597.0	280.0	156.0	89.0	48.0	17.0	764.7
1932-33	8.0	86.0	731.0	2679.0	3677.0	1690.0	485.0	233.0	138.0	75.0	45.0	19.0	822.1
1933-34	8.0	101.0	1112.0	3177.0	3991.0	1461.0	440.0	210.0	115.0	67.0	36.0	12.0	894.1
1934-35	10.0	14.0	241.0	1887.0	3598.0	1447.0	490.0	234.0	130.0	73.0	45.0	19.0	682.3
1935-36	8.0	80.0	918.0	3227.0	5424.0	3046.0	774.0	305.0	155.0	87.0	49.0	18.0	1174.2
1936-37	8.0	57.0	569.0	3569.0	7411.0	3477.0	877.0	343.0	184.0	103.0	70.0	26.0	1391.1
1937-38	8.0	80.0	276.0	1580.0	3117.0	1533.0	508.0	237.0	131.0	72.0	42.0	17.0	633.4
1938-39	8.0	80.0	412.0	1789.0	3929.0	2348.0	957.0	302.0	156.0	88.0	50.0	21.0	845.0
1939-40	1.6	2.8	326.0	1767.0	2283.0	1444.0	467.0	229.0	126.0	68.0	41.0	16.0	564.2
1940-41	8.0	34.0	192.0	1261.0	1269.0	1126.0	603.0	211.0	115.0	63.0	39.0	15.0	411.3
1941-42	8.0	80.0	243.0	1122.0	2168.0	848.0	276.0	137.0	73.0	37.0	14.0	6.0	417.6
1942-43	8.0	80.0	321.0	1819.0	1902.0	587.0	316.0	144.0	77.0	38.0	25.0	8.0	443.7
1943-44	8.0	80.0	350.0	1840.0	3036.0	2081.0	522.0	203.0	109.0	62.0	36.0	14.0	695.0
1944-45	8.0	80.0	214.0	792.0	1549.0	686.0	329.0	166.0	91.0	50.0	29.0	10.0	333.6

1945-46	8.0	80.0	296.0	2401.0	4708.0	2690.0	559.0	204.0	111.0	63.0	36.0	14.0	930.8
1946-47	8.0	80.0	203.0	2275.0	3119.0	2122.0	677.0	274.0	140.0	78.0	42.0	17.0	752.9
1947-48	8.0	80.0	191.0	1709.0	2894.0	1403.0	390.0	192.0	106.0	58.0	33.0	12.0	589.6
1948-49	4.0	27.0	547.0	1727.0	2860.0	1323.0	579.0	246.0	110.0	58.0	33.0	12.0	627.1
1949-50	5.0	6.0	197.0	1701.0	2042.0	873.0	234.0	126.0	70.0	40.0	20.0	10.0	443.6
1950-51	4.0	2.5	478.0	2344.0	5825.0	3908.0	1068.0	330.0	170.0	84.0	40.0	11.9	1188.7
1951-52	3.7	31.0	347.0	1524.0	2605.0	3376.0	1850.0	521.0	230.0	126.0	63.0	22.2	891.5
1952-53	7.1	8.6	442.0	1437.0	2352.0	3278.0	836.0	297.0	154.0	73.0	34.0	9.6	744.0
1953-54	3.1	70.0	746.0	1577.0	2740.0	1335.0	487.0	222.0	140.0	78.0	37.0	11.0	620.5
1954-55	7.1	223.0	895.0	3355.0	4641.0	2053.0	735.0	413.0	219.0	122.0	72.0	35.0	1064.1
1955-56	19.7	131.0	586.0	3108.0	4254.0	3222.0	875.0	374.0	222.0	136.0	75.0	35.0	1086.4
1956-57	15.6	31.0	412.0	1999.0	4502.0	2791.0	728.0	308.0	177.0	100.0	59.0	22.3	928.7
1957-58	5.7	150.0	598.0	2413.0	4017.0	3216.0	1098.0	390.0	209.0	127.0	65.0	25.0	1026.1
1958-59	6.3	110.0	576.0	2782.0	4688.0	2249.0	816.0	446.0	248.0	151.0	91.0	41.0	1017.0
1959-60	14.6	111.0	582.0	1983.0	4119.0	1663.0	519.0	236.0	143.0	84.0	43.0	15.9	792.7
1960-61	4.9	36.0	739.0	1870.0	2657.0	1447.0	532.0	233.0	126.0	76.0	39.0	15.0	647.9
1961-62	3.1	48.0	701.0	2778.0	4631.0	1912.0	493.0	230.0	126.0	74.0	38.0	13.3	920.6
1962-63	4.1	51.0	436.0	2113.0	3620.0	1951.0	632.0	290.0	152.0	91.0	42.0	16.5	783.2
1963-64	4.2	4.2	336.0	1729.0	2649.0	2066.0	737.0	257.0	136.0	71.0	36.0	13.9	669.9
1964-65	4.1	106.0	567.0	2371.0	4817.0	2915.0	660.0	292.0	176.0	102.0	48.0	21.3	1006.6
1965-66	8.0	74.0	455.9	2554.0	4514.0	3068.0	856.0	318.2	177.4	99.2	46.0	18.6	1015.7
1966-67	8.0	39.4	291.4	1304.0	2756.0	3850.0	1514.0	385.1	186.7	102.4	56.3	29.8	876.9
1967-68	15.5	65.8	443.6	2241.0	4010.0	3615.0	407.6	414.3	223.6	134.7	76.6	34.5	973.5
1968-69	16.1	39.8	381.6	1014.0	1896.0	1052.0	346.2	179.2	88.0	44.6	21.0	9.0	423.9
1969-70	8.0	74.0	623.4	1645.0	3294.0	2625.0	1307.0	271.6	170.5	87.6	48.5	18.6	847.7
1970-71	8.0	17.4	207.1	2158.0	2870.0	1171.0	334.0	151.8	87.6	56.2	22.1	18.6	591.8
1971-72	8.0	74.0	442.5	2162.0	3298.0	1248.0	330.0	143.4	58.6	83.0	46.0	18.6	659.3
1972-73	8.0	73.5	246.3	749.0	1114.0	1078.0	253.6	107.9	50.4	18.8	46.0	18.6	313.6
1973-74	31.1	86.1	316.4	1653.0	1657.0	609.0	194.2	75.2	28.7	11.0	9.8	18.6	390.8
1974-75	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
AVG/MOYEN	8.5	72.6	495.2	2046.2	3356.5	1970.4	635.4	264.0	142.5	81.0	45.0	18.8	761.3

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... MATAM
 RIVER/COURS D EAU..... SENEGAL
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 230000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG.AN.DISCH. DEBITS MOY.AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
19 3- 4	612.0	19302.6	84.	2.66	3160.0	13.7	
19 4- 5	710.4	22403.7	97.	3.09	3740.0	16.3	
19 5- 6	883.2	27854.1	121.	3.84	3360.0	14.6	
19 6- 7	1158.7	36542.3	159.	5.04	7700.0	33.5	
19 7- 8	486.4	15339.6	67.	2.11	2740.0	11.9	
19 8- 9	731.0	23052.8	100.	3.18	3795.0	16.5	
19 9-10	865.1	27283.8	119.	3.76	4550.0	19.8	
1910-11	644.0	20309.1	86.	2.80	3265.0	14.2	
1911-12	532.9	16806.0	73.	2.32	2965.0	12.9	
1912-13	586.5	18495.8	80.	2.55	2960.0	12.9	
1913-14	282.0	8893.1	39.	1.23	1180.0	5.1	
1914-15	450.0	14191.2	62.	1.96	2000.0	8.7	
1915-16	626.5	19759.9	86.	2.72	3060.0	13.3	
1916-17	657.2	20727.0	90.	2.86	3520.0	15.3	
1917-18	649.5	20485.2	89.	2.82	4120.0	17.9	
1918-19	1104.5	34834.1	151.	4.80	6370.0	27.7	
1919-20	538.3	16976.8	74.	2.34	2920.0	12.7	
1920-21	846.0	26679.4	116.	3.68	4640.0	20.2	
1921-22	448.2	14136.0	61.	1.95	2700.0	11.7	
1922-23	1254.7	39569.7	172.	5.46	7480.0	32.5	
1923-24	740.4	23349.7	102.	3.22	3980.0	17.3	
1924-25	1259.3	39714.3	173.	5.48	5860.0	25.5	
1925-26	782.9	24690.0	107.	3.40	3320.0	14.4	
1926-27	509.5	16070.2	70.	2.22	2030.0	8.8	
1927-28	1042.0	32863.1	143.	4.53	4890.0	21.3	
1928-29	955.8	30143.1	131.	4.16	5420.0	23.6	
1929-30	907.5	28621.5	124.	3.95	5200.0	22.6	
1930-31	894.1	28198.4	123.	3.89	4130.0	18.0	
1931-32	764.7	24117.1	105.	3.33	3690.0	16.0	
1932-33	822.1	25927.8	113.	3.57	3960.0	17.2	
1933-34	894.1	28198.4	123.	3.89	4530.0	19.7	
1934-35	682.3	21518.0	94.	2.97	4450.0	19.3	
1935-36	1174.2	37031.1	161.	5.11	6450.0	28.0	
1936-37	1391.1	43871.8	191.	6.05	8200.0	35.7	
1937-38	633.4	19975.4	87.	2.75	3450.0	15.0	
1938-39	845.0	26647.9	116.	3.67	4550.0	19.8	
1939-40	564.2	17795.2	77.	2.45	3055.0	13.3	
1940-41	411.3	12971.8	56.	1.79	2380.0	10.3	
1941-42	417.6	13171.5	57.	1.82	2710.0	11.8	
1942-43	443.7	13994.1	61.	1.93	2920.0	12.7	
1943-44	695.0	21920.1	95.	3.02	3360.0	14.6	
1944-45	333.6	10522.5	46.	1.45	1740.0	7.6	
1945-46	930.8	29354.7	128.	4.05	5420.0	23.6	

1946-47	752.9	23743.9	103.	3.27	3660.0	15.9	
1947-48	589.6	18595.7	81.	2.56	3530.0	15.3	
1948-49	627.1	19778.3	86.	2.73	3200.0	13.9	
1949-50	443.6	13991.4	51.	1.93	3020.0	13.1	
1950-51	1188.7	37489.4	163.	5.17	7000.0	30.4	
1951-52	891.5	28116.7	122.	3.88	4000.0	17.4	2.5
1952-53	744.0	23463.5	102.	3.23	4050.0	17.6	2.7
1953-54	620.5	19568.3	85.	2.70	3140.0	13.7	1.4
1954-55	1064.1	33559.8	146.	4.63	5860.0	25.5	2.7
1955-56	1086.4	34263.0	149.	4.72	4560.0	19.8	13.0
1956-57	928.7	29288.7	127.	4.04	5180.0	22.5	6.5
1957-58	1026.1	32360.4	141.	4.46	4650.0	20.2	0.7
1958-59	1017.0	32072.9	139.	4.42	6410.0	27.9	3.0
1959-60	792.7	25001.4	109.	3.45	4610.0	20.0	10.0
1960-61	647.9	20432.4	89.	2.82	2930.0	12.7	0.6
1961-62	920.6	29032.5	126.	4.00	5710.0	24.8	0.5
1962-63	783.2	24699.5	107.	3.41	3740.0	16.3	1.2
1963-64	669.9	21127.2	92.	2.91	3070.0	13.3	1.4
1964-65	1006.6	31744.6	138.	4.38	5620.0	24.4	1.1
1965-66	1015.7	32033.4	139.	4.42	4870.0	21.2	
1966-67	876.9	27654.7	120.	3.81	4270.0	18.6	
1967-68	973.5	30700.8	133.	4.23	4450.0	19.3	
1968-69	423.9	13369.9	58.	1.84	2675.0	11.6	
1969-70	847.7	26735.1	116.	3.69	3676.0	16.0	
1970-71	591.8	18663.5	81.	2.57	3089.0	13.4	
1971-72	659.3	20792.9	90.	2.87	3494.0	15.2	
1972-73	313.6	9892.0	43.	1.36	1422.0	6.2	
1973-74	390.8	12325.5	54.	1.70	2475.0	10.8	
1974-75	----	----	----	----	5560.0	24.2	0.2

GAUGING STATION/STATION DE JAUERGE.... OUALIA
 RIVER/COURS D EAU..... BAKOYE
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 85600.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1951-52	0.7	6.0	44.0	263.0	455.0	474.0	186.0	59.0	31.0	19.3	8.8	2.8	129.1
1952-53	0.5	6.0	84.0	214.0	541.0	445.0	79.0	36.0	22.0	11.4	8.5	1.7	120.7
1954-55	0.6	28.0	262.0	1065.0	977.0	360.0	103.0	47.0	26.0	14.1	6.7	2.1	240.9
1955-56	0.9	17.8	78.0	593.0	821.0	345.0	92.0	42.0	23.1	12.2	4.9	1.3	169.2
1956-57	0.3	12.8	128.0	446.0	1081.0	549.0	102.0	43.0	23.4	12.9	5.8	1.5	200.4
1957-58	0.3	53.0	117.0	913.0	934.0	554.0	145.0	55.0	31.0	17.5	7.9	2.7	235.8
1958-59	0.5	31.0	75.0	1288.0	954.0	501.0	143.0	67.0	40.0	23.1	13.1	5.0	261.7
1959-60	2.3	15.9	78.0	638.0	847.0	259.0	66.0	32.0	18.9	10.2	3.9	1.3	164.3
1960-61	0.3	17.7	246.0	358.0	729.0	258.0	84.0	40.0	20.7	8.3	2.0	0.5	147.0
1962-63	0.8	57.0	279.0	810.0	652.0	277.0	73.0	31.0	15.5	7.1	1.7	0.4	183.7
1963-64	0.2	8.3	80.0	298.0	481.0	378.0	89.0	26.0	12.2	5.8	1.9	0.4	115.0
1964-65	0.1	40.0	164.0	693.0	1382.0	440.0	89.0	45.0	24.0	13.0	5.1	1.3	241.3
1965-66	0.2	23.0	84.9	766.5	939.4	389.7	97.4	40.5	24.1	12.4	5.0	1.6	198.7
1966-67	1.9	10.2	51.8	320.0	898.9	885.8	181.9	60.7	32.7	19.2	8.3	2.7	206.1
1967-68	1.2	9.6	135.5	496.4	1163.0	549.0	139.5	61.2	37.0	20.0	9.2	3.6	218.7
1968-69	1.2	2.6	204.1	394.7	624.9	154.7	55.6	28.1	13.8	6.4	2.0	0.3	124.0
1969-70	0.1	14.0	197.0	375.0	999.0	488.0	215.0	55.0	28.0	14.0	5.0	2.0	199.3
1970-71	0.6	4.4	83.7	446.0	535.0	153.0	41.5	18.6	8.3	2.8	1.1	0.2	107.9
1971-72	0.0	10.8	172.0	-1.0	-1.0	274.0	43.0	17.2	5.2	1.4	0.5	0.1	-1.0
1972-73	0.0	23.9	41.2	140.0	103.0	31.8	11.8	0.6	0.2	0.0	0.0	0.0	29.3
1973-74	0.0	27.8	128.0	460.0	217.0	36.8	8.0	1.3	0.3	0.1	0.0	0.0	73.2
1974-75	0.0	4.8	263.0	-1.0	-1.0	166.0	-1.0	11.2	3.4	1.1	0.3	0.1	-1.0
AVG/MOYEN	0.5	19.2	136.1	548.8	766.7	362.2	97.3	37.1	20.0	10.5	4.6	1.4	167.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... OUALIA
 RIVER/COURS D EAU..... BAKOYE
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 85600.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1951-52	129.1	4072.3	48.	1.51	1015.0	11.9	
1952-53	120.7	3808.2	44.	1.41	2130.0	24.9	0.1
1954-55	240.9	7598.8	89.	2.81	1656.0	19.3	
1955-56	169.2	5337.9	62.	1.98	1302.0	15.2	0.2
1956-57	200.4	6322.1	74.	2.34	1763.0	20.6	
1957-58	235.8	7438.2	87.	2.76	2000.0	23.4	
1958-59	261.7	8253.7	96.	3.06	2900.0	33.9	0.1
1959-60	164.3	5183.7	61.	1.92	1368.0	16.0	1.6
1960-61	147.0	4637.1	54.	1.72	1899.0	22.2	
1962-63	183.7	5793.4	68.	2.15	1352.0	15.8	0.1
1963-64	115.0	3628.7	42.	1.34	1044.0	12.2	0.0
1964-65	241.3	7612.0	89.	2.82	2930.0	34.2	0.0
1965-66	198.7	6266.9	73.	2.32	1260.0	14.7	0.0
1966-67	206.1	6501.9	76.	2.41	1515.0	17.7	0.3
1967-68	218.7	6899.0	81.	2.56	1747.0	20.4	0.3
1968-69	124.0	3911.5	46.	1.45	1148.0	13.4	0.0
1969-70	199.3	6286.4	73.	2.33	1508.0	17.6	0.2
1970-71	107.9	3403.7	40.	1.26	948.0	11.1	0.0
1971-72	----	----	----	----	-1.0	-1.0	0.0
1972-73	29.3	926.3	11.	0.34	185.0	2.2	0.0
1973-74	73.2	2310.8	27.	0.86	1024.0	12.0	0.0
1974-75	----	----	----	----	-1.0	-1.0	

GAUGING STATION/STATION DE JAUGEAGE..... TOUKOTO
 RIVER/COURS D EAU..... BAKOYE
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 16500.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1952-53	0.3	3.0	93.0	276.0	360.0	320.0	90.0	31.0	11.4	4.5	5.7	1.1	99.6
1954-55	3.5	27.0	140.0	571.0	504.0	251.0	93.0	33.0	15.0	10.1	6.3	3.0	138.0
1956-57	0.7	16.0	49.0	230.0	423.0	355.0	101.0	34.0	11.8	6.4	3.0	0.9	102.5
1957-58	0.1	33.0	55.0	361.0	398.0	316.0	106.0	47.0	29.0	15.5	9.3	1.8	114.3
1958-59	0.8	17.3	37.0	443.0	387.0	256.0	78.0	44.0	36.0	29.0	21.7	8.0	113.1
1959-60	0.7	7.3	35.0	251.0	301.0	142.0	33.0	12.5	6.3	2.6	0.9	0.2	66.0
1963-64	0.1	3.5	44.0	153.0	208.0	287.0	79.0	26.0	12.2	4.5	1.8	0.2	68.2
1964-65	0.1	31.0	91.0	321.0	693.0	321.0	62.0	37.0	19.9	10.0	3.5	1.0	132.5
1965-66	0.1	15.3	36.2	300.0	351.0	209.4	60.5	29.2	18.6	9.1	2.8	0.6	86.0
1966-67	0.3	5.8	33.7	225.5	405.5	453.0	100.0	42.6	22.5	13.5	5.8	1.5	109.1
1967-68	0.7	7.9	58.2	174.3	620.5	310.9	89.1	40.9	26.0	17.0	6.9	1.7	112.8
1968-69	0.6	5.0	62.4	165.1	288.2	100.3	40.3	22.7	11.6	4.6	0.8	0.1	58.4
1969-70	0.0	15.8	74.4	166.9	625.0	323.0	134.6	44.6	24.5	14.3	5.5	2.0	119.2
1970-71	0.6	4.1	30.0	203.0	376.0	122.0	35.0	18.0	8.0	3.0	1.3	0.2	66.7
1971-72	0.0	3.8	82.6	326.0	401.0	121.0	33.2	16.0	6.7	2.7	0.7	0.0	82.8
1972-73	0.0	18.9	22.6	72.4	99.1	26.8	7.8	2.3	0.6	0.0	0.0	0.0	20.8
1973-74	0.0	5.7	33.7	184.0	108.0	28.0	7.7	-1.0	0.1	0.0	0.0	0.0	-1.0
1974-75	0.0	0.0	65.3	326.0	294.0	97.1	26.0	8.8	2.6	1.1	0.2	0.0	68.4
AVG/MOYEN	0.4	12.2	57.9	263.8	380.1	224.4	65.3	28.7	14.5	8.2	4.2	1.2	88.4

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... TOUKOTO
 RIVER/COURS D EAU..... BAKOYE
 COUNTRY/PAYS..... MALI
 BASIN/BASSIN..... SENEGAL
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 16500.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1952-53	99.6	3143.0	190.	6.04	595.0	36.1	
1954-55	138.0	4354.3	264.	8.37	1030.0	62.4	0.8
1956-57	102.5	3234.5	196.	6.22	620.0	37.6	0.2
1957-58	114.3	3604.8	218.	6.93	555.0	33.6	
1958-59	113.1	3568.2	216.	6.86	965.0	58.5	0.3
1959-60	66.0	2082.6	126.	4.00	605.0	36.7	0.3
1963-64	68.2	2153.1	130.	4.14	660.0	40.0	0.0
1964-65	132.5	4179.8	253.	8.03	970.0	58.8	0.2
1965-66	86.0	2714.1	164.	5.22	530.0	32.1	0.5
1966-67	109.1	3441.8	209.	6.61	910.0	55.2	0.4
1967-68	112.8	3558.5	216.	6.84	1100.0	66.7	0.8
1968-69	58.4	1844.0	112.	3.54	558.0	33.8	0.0
1969-70	119.2	3759.6	228.	7.23	862.0	52.2	0.1
1970-71	66.7	2105.5	128.	4.05	490.0	29.7	0.0
1971-72	82.8	2611.4	158.	5.02	623.0	37.8	0.0
1972-73	20.8	658.3	40.	1.27	158.0	9.6	0.0
1973-74	---	---	---	---	378.0	22.9	0.0
1974-75	68.4	2157.8	131.	4.15	1400.0	84.8	

GAUGING STATION/STATION DE JAUGEAGE.... GOULOUMBO
 RIVER/COURS D EAU..... GAMBIE
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... GAMBIA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 42000.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1953-54	-1.0	-1.0	360.0	684.0	1340.0	943.0	280.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1954-55	-1.0	-1.0	271.0	773.0	1610.0	1080.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1955-56	-1.0	-1.0	355.0	1350.0	1930.0	1420.0	200.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1956-57	-1.0	-1.0	285.0	852.0	1540.0	1290.0	300.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1958-59	-1.0	-1.0	300.0	926.0	1460.0	1190.0	350.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1959-60	-1.0	-1.0	280.0	716.0	1480.0	810.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1960-61	-1.0	-1.0	250.0	395.0	745.0	542.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1961-62	-1.0	-1.0	-1.0	976.0	1870.0	1400.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1962-63	-1.0	-1.0	325.0	869.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1964-65	-1.0	-1.0	400.0	1040.0	1670.0	1620.0	350.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1965-66	-1.0	-1.0	300.0	777.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1966-67	-1.0	-1.0	250.0	430.0	968.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1967-68	-1.0	-1.0	150.0	634.0	1200.0	1520.0	924.0	100.0	-1.0	-1.0	-1.0	-1.0	-1.0
1968-69	-1.0	-1.0	-1.0	350.0	926.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1969-70	-1.0	-1.0	-1.0	661.0	1030.0	995.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0	-1.0
1970-71	3.0	20.0	122.0	926.0	874.0	226.0	71.0	27.0	13.0	7.5	5.0	2.5	191.4
1971-72	15.7	27.4	-1.0	587.0	707.0	320.0	88.3	32.4	9.5	6.5	3.7	16.6	-1.0
1972-73	2.5	35.4	136.0	446.0	449.0	207.0	90.9	35.6	15.5	7.8	4.2	2.5	119.3
1973-74	5.4	36.0	79.0	755.0	797.0	205.0	78.0	28.0	13.0	7.5	5.0	2.5	167.6
1974-75	2.2	18.8	264.0	832.0	1142.0	757.0	160.0	60.4	21.1	12.7	7.8	5.9	273.6
AVG/MOYEN	5.7	27.5	257.9	748.9	1207.6	907.8	262.9	47.2	14.4	8.3	5.1	6.0	291.6

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... GOULOUMBO
 RIVER/COURS D EAU..... GAMBIE
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... GAMBIA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 42000.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1953-54	----	----	----	----	1430.0	34.0	
1954-55	----	----	----	----	1830.0	43.6	
1955-56	----	----	----	----	2040.0	48.6	
1956-57	----	----	----	----	1800.0	42.9	
1958-59	----	----	----	----	1710.0	40.7	
1959-60	----	----	----	----	1660.0	39.5	
1960-61	----	----	----	----	1072.0	25.5	
1961-62	----	----	----	----	2160.0	51.4	
1962-63	----	----	----	----	-1.0	-1.0	
1964-65	----	----	----	----	2030.0	48.3	
1965-66	----	----	----	----	-1.0	-1.0	
1966-67	----	----	----	----	-1.0	-1.0	
1967-68	----	----	----	----	1680.0	40.0	
1968-69	----	----	----	----	1150.0	27.4	
1969-70	----	----	----	----	1250.0	29.8	
1970-71	191.4	6036.5	144.	4.56	1150.0	27.4	
1971-72	----	----	----	----	952.0	22.7	1.5
1972-73	119.3	3764.3	90.	2.84	713.0	17.0	2.2
1973-74	167.6	5285.9	126.	3.99	1100.0	26.2	2.0
1974-75	273.6	8630.0	205.	6.52	1220.0	29.0	

GAUGING STATION/STATION DE JAUGEAGE.... KEDOUGOU
 RIVER/COURS D EAU..... GAMBIA
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... GAMBIA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 7550.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1970-71	1.0	13.9	123.0	484.0	437.0	115.0	45.0	22.7	12.8	7.2	3.5	2.2	105.6
1971-72	2.3	6.1	53.0	282.0	312.0	91.8	31.2	14.9	7.9	4.1	1.7	0.4	67.2
1972-73	0.0	33.7	87.4	288.0	239.0	107.0	40.5	22.3	11.3	6.0	2.6	0.5	69.8
1973-74	0.8	9.0	71.3	368.0	324.0	91.6	34.0	16.0	8.7	4.8	1.9	0.4	77.5
1974-75	0.0	8.4	139.3	443.3	427.1	202.8	50.9	22.6	12.2	6.7	2.8	0.7	109.7
AVG/MOYEN	0.8	14.2	94.8	373.0	347.8	121.6	40.3	19.6	10.5	5.7	2.5	0.8	86.0

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE..... KEDOUGOU
 RIVER/COURS D EAU..... GAMBIA
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... GAMBIA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 7550.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1970-71	105.6	3330.4	441.	13.99	1130.0	149.7	0.7
1971-72	67.2	2121.8	281.	8.91	756.0	100.1	0.0
1972-73	69.8	2203.0	292.	9.25	756.0	100.1	0.0
1973-74	77.5	2445.3	324.	10.27	795.0	105.3	0.0
1974-75	109.7	3460.5	458.	14.53	864.0	114.4	

GAUGING STATION/STATION DE JAUGEAGE.... MAKO
 RIVER/COURS D EAU..... GAMBIA
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... GAMBIA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 10500.0

**

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1970-71	0.5	13.7	131.0	527.0	493.0	122.0	49.3	26.1	14.9	7.2	2.7	0.8	115.6
1971-72	1.4	7.2	57.3	349.0	376.0	117.0	37.1	17.9	8.1	3.4	1.0	0.1	81.2
1972-73	0.0	27.8	93.0	306.0	273.0	115.0	42.8	25.1	12.8	5.2	1.7	0.4	75.2
1973-74	0.1	13.1	77.8	458.0	428.0	103.0	37.2	18.5	8.8	3.7	1.1	0.3	95.7
1974-75	0.1	7.6	155.1	524.0	524.4	244.0	55.0	23.9	12.2	6.2	2.3	0.6	129.6
AVG/MOYEN	0.4	13.8	102.8	432.8	418.8	140.2	44.2	22.2	11.3	5.1	1.7	0.4	99.5

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... MAKO
 RIVER/COURS D EAU..... GAMBIA
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... GAMBIA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 10500.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1970-71	115.6	3648.1	347.	11.02	1150.0	109.5	0.7
1971-72	81.2	2563.6	244.	7.74	875.0	83.3	0.0
1972-73	75.2	2372.5	226.	7.17	802.0	76.4	0.0
1973-74	95.7	3021.1	288.	9.12	1010.0	96.2	0.0
1974-75	129.6	4087.5	389.	12.34	1034.0	98.5	0.0

GAUGING STATION/STATION DE JAUGEAGE.... SIMENTI
 RIVER/COURS D EAU..... GAMBIA
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... GAMBIA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 20500.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1970-71	0.0	8.5	137.0	837.0	660.0	173.0	62.1	25.6	11.7	5.4	2.4	0.5	160.2
1971-72	0.1	10.3	77.2	516.0	571.0	169.0	44.7	15.8	7.0	3.3	0.9	0.1	117.9
1972-73	0.0	21.0	119.0	392.0	360.0	141.0	50.5	23.4	10.0	4.8	1.3	0.2	93.5
1973-74	0.2	12.3	89.4	690.0	648.0	132.0	43.2	15.3	7.2	3.4	0.7	0.1	136.8
1974-75	0.0	12.7	247.0	781.0	870.0	458.0	80.9	29.1	12.3	5.9	2.0	0.3	208.2
AVG/MOYEN	0.0	12.9	133.9	643.2	621.8	214.6	56.2	21.8	9.6	4.5	1.4	0.2	143.3

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... SIMENTI
 RIVER/COURS D EAU..... GAMBIA
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... GAMBIA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 20500.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3+MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1970-71	160.2	5054.1	247.	7.82	1160.0	56.6	
1971-72	117.9	3719.6	181.	5.75	1020.0	49.8	0.0
1972-73	93.5	2951.7	144.	4.57	776.0	37.9	0.0
1973-74	136.8	4314.6	210.	6.67	1180.0	57.6	
1974-75	208.2	6567.8	320.	10.16	1200.0	58.5	0.0

GAUGING STATION/STATION DE JAUGEAGE.... CHIROMAWA
 RIVER/COURS D EAU..... KANO
 COUNTRY/PAYS..... NIGERIA
 BASIN/BASSIN..... HADEJIA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 6975.0

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I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S)

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1964-65	1.0	6.3	64.8	239.1	215.6	22.3	3.3	0.8	0.3	0.7	0.1	0.0	46.1
1965-66	30.0	73.0	56.1	122.4	199.9	8.5	1.5	0.5	1.3	0.0	0.0	0.0	41.1
1966-67	24.5	23.9	11.3	198.8	295.7	39.1	4.6	1.0	0.4	0.2	0.1	0.0	49.9
1967-68	1.1	8.0	43.6	135.0	125.2	21.0	3.1	0.8	0.3	0.1	0.0	0.0	28.1
1968-69	20.6	29.6	114.8	131.3	54.6	7.0	0.9	0.1	0.0	0.0	0.0	0.1	29.9
1969-70	2.7	26.1	98.7	143.7	146.6	35.7	6.4	1.1	0.2	0.0	0.0	0.0	38.4
1970-71	7.0	10.0	49.8	242.4	216.0	12.7	2.0	0.8	0.2	0.3	0.5	0.0	45.1
AVG/MOYEN	12.4	25.2	62.7	173.2	179.0	20.8	3.1	0.7	0.3	0.1	0.1	0.0	39.8

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... CHIROMAWA
 RIVER/COURS D EAU..... KANO
 COUNTRY/PAYS..... NIGERIA
 BASIN/BASSIN..... HADEJIA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 6975.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1964-65	46.1	1456.7	209.	6.62	660.0	94.6	0.0
1965-66	41.1	1296.1	186.	5.89	1213.0	173.9	0.0
1966-67	49.9	1575.7	226.	7.16	745.0	106.8	0.0
1967-68	28.1	888.7	127.	4.04	382.0	54.8	0.0
1968-69	29.9	943.4	135.	4.29	854.0	122.4	0.0
1969-70	38.4	1212.1	174.	5.51	442.0	63.4	0.0
1970-71	45.1	1423.5	204.	6.47	765.0	109.7	0.0

GAUGING STATION/STATION DE JAUGEAGE.... GASHUA
 RIVER/COURS D EAU..... K.YOBE
 COUNTRY/PAYS..... NIGERIA
 BASIN/BASSIN..... K.YOBE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 62160.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1963-64	0.2	0.5	32.5	86.7	119.7	27.8	80.4	14.2	2.8	0.9	0.3	0.1	30.5
1964-65	0.2	0.5	34.8	88.6	169.2	354.9	216.1	47.7	10.5	2.9	1.4	0.6	77.2
1965-66	0.4	3.2	58.0	89.9	125.7	148.0	82.6	25.7	4.5	1.5	0.7	0.3	45.0
1966-67	0.2	38.9	46.6	76.8	117.4	172.9	128.1	43.6	9.6	2.5	1.0	0.5	53.1
1967-68	0.2	0.2	22.6	83.8	123.2	157.3	60.2	15.7	3.4	1.3	0.5	0.2	39.0
1968-69	0.2	41.4	88.7	116.3	132.1	100.2	15.0	2.8	0.8	0.2	0.1	0.1	41.4
1969-70	0.1	0.0	36.6	110.1	128.6	139.4	106.0	27.1	4.7	1.9	1.1	0.4	46.3
1970-71	0.3	0.3	32.1	103.6	133.4	155.0	126.9	33.4	5.3	2.8	0.6	0.1	49.4
AVG/MOYEN	0.2	10.6	43.9	94.4	131.1	156.9	101.9	26.2	5.1	1.7	0.7	0.2	47.7

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... GASHUA
 RIVER/COURS D EAU..... K.YOBE
 COUNTRY/PAYS..... NIGERIA
 BASIN/BASSIN..... K.YOBE
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 62160.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG.AN.DISCH. DEBITS MOY.AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3*MILLION	RUNOFF LAME D EAU ECOULEE(MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1963-64	30.5	962.1	15.	0.49	142.6	2.3	0.0
1964-65	77.2	2437.2	39.	1.24	392.5	6.3	0.0
1965-66	45.0	1420.4	23.	0.72	161.1	2.6	0.2
1966-67	53.1	1676.9	27.	0.86	194.9	3.1	0.2
1967-68	39.0	1231.4	20.	0.63	171.5	2.8	0.1
1968-69	41.4	1308.4	21.	0.67	133.6	2.1	3.9
1969-70	46.3	1461.2	24.	0.75	142.5	2.3	1.1
1970-71	49.4	1560.5	25.	0.80	165.2	2.7	6.1

GAUGING STATION/STATION DE JAUGEAGE.... KOLDA
 RIVER/COURS D EAU..... CASAMANCE
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... CASA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 3700.0

I. AVERAGE MONTHLY DISCHARGE/DEBIT MOYEN MENSUEL (M3/S) **

WATER YEAR ANNEE HYDRO	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	AVG
1967-68	0.1	0.6	2.4	12.5	33.4	33.0	10.6	4.4	3.0	2.4	1.6	0.9	8.7
1968-69	1.6	0.4	1.6	2.5	4.8	7.7	2.1	1.1	0.9	0.6	0.4	0.2	2.0
1969-70	0.1	0.1	2.7	9.5	46.5	13.7	5.1	2.5	1.7	1.1	0.7	0.5	7.0
1970-71	0.3	1.2	3.0	13.7	10.1	3.3	1.4	0.9	0.6	0.4	0.3	0.1	2.9
1971-72	0.0	0.4	6.9	12.0	12.4	6.2	2.1	1.2	0.9	0.5	0.3	0.1	3.6
1972-73	0.1	0.1	0.9	4.0	3.8	1.9	0.8	0.4	0.2	0.1	0.0	0.0	1.0
1973-74	0.0	0.3	3.0	8.7	8.2	3.1	1.1	0.5	0.3	0.2	0.1	0.0	2.1
AVG/MOYEN	0.3	0.5	2.9	9.0	17.0	9.8	3.3	1.6	1.1	0.8	0.5	0.3	3.9

-1. INDICATES NO RECORDED VALUE/ -1. INDIQUE UNE LACUNE

GAUGING STATION/STATION DE JAUGEAGE.... KOLDA
 RIVER/COURS D EAU..... CASAMANCE
 COUNTRY/PAYS..... SENEGAL
 BASIN/BASSIN..... CASA
 KM2 AREA OF WATER SHED/BASSIN VERSANT. 3700.0

II. DISCHARGE/ECOULEMENT

WATER YEAR ANNEE HYDRO	AVG. AN. DISCH. DEBITS MOY. AN M3/SEC	ANNUAL VOLUME VOLUME ANNUEL M3 * MILLION	RUNOFF LAME D EAU ECOULEE (MM)	SPECIFIC RUNOFF DEBIT SPECIFIQUE (L/S/KM2)	MAX DAILY FLOOD CRUE MAX JOUR (M3/S)	SPECIFIC FLOOD CRUE SPECIFIQUE (L/S/KM2)	ABS MIN DISCH. ETIAGE (M3/S)
1967-68	8.7	277.2	75.	2.38	45.8	12.4	0.5
1968-69	2.0	64.2	17.	0.55	13.9	3.8	0.3
1969-70	7.0	223.0	60.	1.91	113.0	30.5	0.1
1970-71	2.9	94.1	25.	0.81	32.0	8.6	0.1
1971-72	3.6	114.1	31.	0.98	14.8	4.0	0.0
1972-73	1.0	33.7	9.	0.29	8.4	2.3	0.0
1973-74	2.1	68.2	18.	0.58	16.0	4.3	0.0

ANNEXES DU CHAPITRE 6

APPENDICES TO CHAPTER 6

RESSOURCES DES TERRES

LAND RESOURCES

- 6-1 Liste des 390 unités cartographiques de la carte des sols OUA/IFAN, montrant les unités de sol contenues dans chaque carte ainsi que leurs potentialités.
- List of the 390 mapping units of the OAU/IFAN soils map, showing soil units contained in each and their capability.
- 6-2 Liste des 166 unités cartographiques de la carte des sols au 1:5.000.000 de la FAO, couvrant le Tchad, le Cameroun, l'Empire Centrafricain, et montrant les unités de sol contenues dans chaque carte ainsi que leurs potentialités.
- List of the 166 mapping units of the FAO 1:5 million soils map covering Chad, the Cameroon and Central African Empire, showing soil units contained in each and their capability.
- 6-3 Etude du cas No. 1 : Haute-Volta
- Case study No. 1 : Upper Volta
- 6-4 Etude du cas No. 2 : Nigeria
- Case study No. 2 : Nigeria

Tableaux/Tables

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- Tableau 1. Définitions des 12 groupes de potentialité des sols contenus dans le rapport de la FAO sur l'onchocercose (FAO, 1973)
- Table 1. Definitions of the 12 soil capability groupings included in the FAO onchocerciasis report (FAO, 1973)
- Tableau 2. Catégories de sols, selon le système français, contenues dans les 12 classes de potentialité agrologique du rapport de la FAO sur l'onchocercose
- Table 2. French Soil Orders represented in the 12 FAO onchocerciasis report capability groupings

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- Tableau 1. Récapitulation des risques de colmatage et sommaire de l'utilisation des terres des dépôts éoliens ainsi que des dépôts fluviaux plus anciens et plus jeunes
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- Figure 1. Carte de reconnaissance pédologique de la zone de Ouahigouya, Haute-Volta
- Reconnaissance Soils Map of Ouahigouya area, Upper Volta
- Figure 2. Carte pédologique simplifiée de la Haute-Volta
- Simplified Soils Map of Upper Volta

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Figure 1. Carte des potentialités des sols du Nigeria (FAO, 1966)
Nigeria. Soils Map showing capabilities (FAO, 1966)

Figure 2. Dépôts quaternaires dans le bassin versant Rima-Sokoto
(Sombroek et Zonneveld, 1971)

Quaternary deposits in the Rima-Sokoto river basin
(Sombroek and Zonneveld, 1971)

- 6 - 1 Liste des 390 unités cartographiques de la carte des sols OUA/IFAN, montrant les unités de sol contenues dans chaque carte ainsi que leurs potentialités.

List of the 390 mapping units of the OAU/IFAN soils map, showing soil units contained in each and their capability.

ANNEXE 6-1

Dans le tableau suivant:

l'arrangement d'ensemble suit la clef de la carte des sols dans l'atlas IFAN/OUA et indique à son tour chacune des dix sous-classifications des sols;

la première colonne donne le symbole d'identification de l'unité cartographique sur la carte IFAN/OUA. Le même symbole apparaît également sur la carte de la FAO;

la seconde colonne énumère les unités de sol, telles que définies dans le Tableau 6-2 et comprises dans chacune des unités cartographiques;

la troisième colonne indique la classification du CIEH pour les potentialités des sols pour chacune des unités en question, comme montré sur le Tableau 6-1;

la quatrième colonne récapitule en un ou deux chiffres les classifications données dans la troisième colonne pour les potentialités des sols. Le premier chiffre réfère à la potentialité de l'unité de sol dominant, tandis que le second chiffre récapitule la potentialité des sols associés si ceux-ci diffèrent du sol dominant. Cette récapitulation au moyen d'un ou deux chiffres est indiquée par le type de nuancement utilisé sur la carte du CIEH pour les potentialités des sols.

APPENDIX 6-1

In the following table:

the general arrangement follows the key to the soils map in the IFAN/OAU atlas, giving the soils of each of the ten orders in turn;

the first column gives the identifying symbol of the mapping unit on the IFAN/OAU map. The same symbol also appears on the FAO map;

the second column lists the soil units, as defined in Table 6-2, included within each of these mapping units;

the third column gives the CIEH soil capability classification for each of these soil units, as listed in Table 6-1;

the fourth column gives the one or two figure summary of the soil capability ratings given in column three. The first figure is the capability of the dominant soil unit; the second figure summarizes the capability of the associated soils if different from that of the dominant soil. This one or two figure summary is indicated by the type of shading used on the CIEH soil capability map.

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
<u>1 SOLS MINÉRAUX BRUTS</u>			
<u>1 RAW MINERAL SOILS</u>			
	Sables éoliens Eolian sands		
SS	1A	5	5
	Sur roches variées On various rocks		
Y1	1B 1A	5, 5	5
Y4	1B 1A 5C	5, 5, 3	5+3
Y5	1B 1C 1A	5, 5, 5	5
Y6	1B 1A 10A	5, 5, 5	5
Y7	1B 1A 10A 2	5, 5, 5, 4	5
Y8	1B 1A	5, 5	5
Yg2	1B 5	5, 3	5+3
Yh9	1B 1C 1A 5	5, 5, 5, 3	5+3
Yh10	1B 2A 5 1E	5, 5, 3, 5	5+3
I1	1C	5	5
I2	1C 1B	5, 5	5
I3	1C 2C	5, 4	5+4
I4	1C 2I	5, 2	5+2
I5	1C 2C 7	5, 4, 4	5+4
I6	1C 2C 8	5, 4, 3-4	5+4
I7	1C 8O ou/or 8P	5, 2-3	5+3
I8	1C 7B 2I	5, 4, 2	5+4
I9	1C 7D ou/or 7E	5, 3	5+3
I10	1C 8C 7E	5, 3, 3	5+3
I11	1C 8	5, 3	5+3
I12	1C 8Q-R	5, 3	5+3

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
<u>SOLS MINÉRAUX BRUTS</u>			
<u>¹ RAW MINERAL SOILS</u>			
	Sur roches variées On various rocks		
I 13	1C 8G L ou/or R	5, 3	5+3
I 14	1C 8A ou/or G	5, 2-3	5+3
I 15	1C 8A ou/or G 8T	5, 2-3, 2	5+2
I 16	1C 8G ou/or R	5, 3	5+3
I 17	1C 8 indurés/indurated	5, 4	5+4
I 18	1C 10C 7A	5, 5, 4	5+4
	Sur cuirasse On cuirasse		
I 19	1D 5BCD	5, 3	5+3
I 20	1D 6A	5, 1	5+1
I 21	1D 5A 7E	5, 2, 3	5+2
I 22	1D 7E	5, 3	5+3
I 23	1D 7E 4E	5, 3, 4	5+3
I 24	1D 7C ou/or G	5, 2-3	5+2
I 25	1D 7G 2C	5, 3, 4	5+3
I 26	1D 7E 7H	5, 3, 4	5+3
I 27	1D 8 ^(hydromorphes) (hydromorphic)	5, 2	5+2
	sur matériaux non différenciés on non-differentiated materials		
I 28	1E 2CDE	5, 4	5+4
I 29	1E 2CDE 8O ou/or P	5, 4, 2-3	5+3
I 30	1E 2CDE 7A ou/or B	5, 4, 4	5+4
I 31	1E 6A	5, 1	5+1
I 32	1E 2CDE 7E	5, 4, 3	5+4

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
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1 SOLS MINÉRAUX BRUTS
1 RAW MINERAL SOILS

sur matériaux non différenciés on non-differentiated materials			
I 33	1E 7E 7A ou/or B	5, 3, 4 ou/or 3	5+3
I 34	1E 7E 7G	5, 3, 3	5+3
I 35	1E 7H	5, 4	5+4
I 36	1E 7G 8 (hydromorphes) (hydromorphic)	5, 3, 2	5+3
I 37	1E 7 vertique/vertic	5, 3	5+3
I 38	1E 8 G-P	5, 3	5+3
I 39	1E 8A ou/or C 2C-E	5, 2-3, 4	5+3
I 40	1E 8G ou/or Q 8H	5, 3, 3	5+3
I 41	1E 8A-F	5, 3-4	5+3
I 42	1E 8A-F 2 andosolique andosolic	5, 3-4, 3	5+3
I 43	1E 9	5, 2	5+2

2 SOLS PEU ÉVOLUES
2 IMMATURE SOILS

Sur roches variées On various rocks			
R 1	2A	5	5
Sur sables éoliens On eolian sands			
Re 1	2B	5	5
Re 42	2B 5F 2J	5, 5, 5	5
Sur matériau graveleux On gravelly material			
Re 24	2C 1D	4, 5	4+5
Re 32	2C 5B-D 1D	4, 3, 5	4+3
Re 33	2C 1C-E 7D-H	4, 5, 3	4
Re 34	2C, 7 1C-E	4, 3, 5	4+3

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
<u>2 SOLS PEU EVOLUES</u>			
<u>2 IMMATURE SOILS</u>			
	Sur matériau graveleux On gravelly material		
Re 35	2C 5FG ou/or 7AB	4, 4-5, 4	4
Re 36	2C 7AB 9D 1C-E	4, 4, 1, 5	4
Re 37	2C 6A 7AB 1C-E	4, 1, 4, 5	4+1
Re 40	2C 7G 9BC	4, 3, 1-2	4+2
Re 45	2C 7D-H 1D 9D	4, 3, 5, 1	4+3
Re 49	2C 1C-E 7A-C	4, 5, 2-4	4
Re 50	2C 8G-W 7D-H	4, 3, 3	4+3
Rd 6	2C 7D-H 8G-W 1C-E	4, 3, 3, 5	4+3
Rd 7	2C 7E	4, 3	4+3
	Sur matériau caillouteux On pebbly material		
Rd 1	2D	4	4
	Sur grès argileux et sur quartzites/On clayey sandstones and on quartzites		
Rd 3	2E	4	4
	Sur sables éoliens On eolian sands		
Re 39	2F 1B 2B	4, 5, 5	4+5
Re 43	2F 9BC 10	4, 1-2, 5	4+2
	Sur matériau sableux grossier On coarse sandy material over granite		
Q 17	2G	4	4
	Sur argile limoneuse à sable limoneux/On sandy clay to loamy sand material		
Re 38	2H 4 7AB	3, 4, 4	3+4

Symbole d'unité cartographique (1)	Unités de sol (2)	Classement du CIEH pour les potentialités des unités de sol (3)	Récapitulation des potentialités (4)
Mapping unit symbol	Soil units	CIEH capability ratings of soil units	Summary of capability

2 SOLS PEU EVOLUES
IMMATURE SOILS

	Sur alluvions sableuses On sandy alluvium		
Jd1	2I	2	2
Rd8	2I 9B-D	2,1-2	2
Rd16	2I 9BC	2,1-2	2
Rd17	2I 8 sableux/sandy	2,3	2+3
	Sur alluvions de sable ou de sable limoneux/On sand or loamy sand alluvium		
Jc1	2I	2	2
Jd3	2I 8G-W 9D	2,3,1	2
	Sur dépôts marins ou lacustres de textures variées/On marine or lake deposits of various textures		
Yh2	2J 10A	5	5
Yg3	2J 10A 5 salés/salinated	5,5,5	5

3 ANDOSOLS

	Sur matériau de base dérivé de roches ignées/On basic material derived from igneous rocks		
Tv11	3A	1	1
Hh9	3A 4 1C-E	1,4,5	1+4
Th2	3A 1C-E	1,5	1+5
Tv12	3A 8	1,3	1
Tm3	3A 9BC	1,1-2	1+2

4 VERTISOLS

	Sur alluvions d'argile On clay alluvium		
Vp8	4A 4B 9 sableux/sandy	3,4,2	3

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
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4 VERTISOLS

	Sur alluvions d'argile On clay alluvium		
Vc 1	4B	4	4
Vc 8	4B 4D	4, 4	4
Vc 9	4B 4A-C ⁽¹⁾	4, 3	4+3
Vc 13	4B 5CD	4, 3	4+3
Vc 16	4B 5A-E 7D	4, 2-3, 3	4+3
Vp 9	4B 2I	4, 2	4+2
Vp 19	4B 7E	4, 3	4+3
	Sur alluvions d'argile On clay alluvium		
Vp 1	4C	4	4
	Sur alluvions d'argile On clay alluvium		
Vc 15	4D 9 sableux/sandy 7AB 10	4	4
	Sur matériau d'argile On clay material		
Vc 1	4E	4	4
Vc 4	4E 7E	4, 3	4+3
Vc 5	4E 9 salés/salinated 9	4, 5, 1-2	4+2
Vc 6	4E 9	4, 1-2	4+2
Vc 9	4E 4 solonetzique/solonetzic	4, 5	4+5
Vc 10	4E 9D	4, 1	4+1
Vc 11	4E 1C-E	4, 5	4+5
Vc 12	4E 4 solonetzique/solonetzic	4, 5, 2	4
Vp 10	4E 6B	4, 2	4+2
Vp 11	4E 7Ab 7D-H	4, 4, 3	4
Vp 12	4E 10CD 7G	4, 5, 3	4
Vp 23	4E 7G	4, 3	4+3

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
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4 VERTISOLS

	Sur matériau d'argile On clay material		
Vc 20	4E 6B 7G	4, 2, 3	4+2
Vc 14	4F 2	4, 4	4

5 SOLS SEMI-ARIDES BRUNS ET BRUNS ROUGEATRES
BROWN AND REDDISH BROWN SUBARID SOILS

	Sur alluvions d'argile On clay alluvium		
Bv 7	5C 5A	3	3
	Sur matériau dérivé de la marne argileuse/On clay marl-derived material		
Bk 4	5D	3	3
	Sur sable limoneux On loamy sand material		
Be 27	5E 2C-E	2+4	2+4
Be 28	5E 2J 7AB	2, 5, 4-5	2+5
	Sur sables éoliens On eolian sands		
Qc 1	5F	5	5
Qc 6*	5F 7B 10CD	5, 4, 5	5+4
Qc 7	5F 9 10	5, 1-2, 5	5+2
	Sur sables éoliens On eolian sands		
Q11	5G	4	4
Q16*	5G 5F	4, 5	4+5
Q14	5G 2C 9D	4, 4, 1	4

* Contient des formations d'ergs tant récentes qu'anciennes (5F et 5G)
Contains both recent and ancient Erg formations (5F and 5G)

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
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⁵ SOLS SEMI-ARIDES BRUNS ET BRUNS ROUGEATRES
BROWN AND REDDISH BROWN SUBARID SOILS

	Sur sables éoliens On éolian sands		
Q110	5G 7D-H 2E	4, 3, 4	4+3
Q111	5G 2C	4	4
Q112	5G 2C-E 1D 2 F-I	4, 4, 5, 3-4	4
Qc 3*	5G 5F 5A	4, 5, 2	4

⁶ SOLS BRUNS EUTROPHES
EUTROPHIC BROWN SOILS

	Sur matériau argileux, parfois graveleux/On clay material, sometimes gravelly		
Be 1	6A	1	1
Be 3	6A 4E 1C-E	1, 4, 5	1+4
Be 7	6A 1C-E 9BC	1, 5, 1-2	1+4
Be 25	6A 6B 6 hydromorphes/hydromor- phic 4AB	1, 2, 2, 3-4	1+2
Be 26	6A 6B 6 hydromorphes/hydromor- phic 4AB 8A-F	1, 2, 2, 3-4, 3-4	1+2
Be 42	6A 6B 1C-E	1, 2, 5	1+2
	Sur matériau d'argile On clay material		
Bv 1	6B	2	2
Bv 2	6B 4E 1C-E	2, 4, 5	2+4
Bv 3	6B 10CD	2, 5	2+5
Bv 4	6B 4BE 2C 1C-E	2, 4, 4, 5	2+4
Bv 5	6B 2C 1C-E	2, 4, 5	2+4
Bv 6	6B 6A 4E	2, 1, 4	2+1

* Contient des formations d'ergs tant récentes qu'anciennes (5F et 5G)
Contains both recent and ancient Erg formations (5F and 5G)

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
<u>6 SOLS BRUNS EUTROPHES</u>			
<u>EUTROPHIC BROWN SOILS</u>			
	Sur matériau d'argile On clay material		
Bv 8	6B 6 hydromorphe/hydromor- phic	2, 2	2
Lc 5	6C 4E	2, 4	2+4
<u>7 SOLS FERRUGINEUX TROPICAUX</u>			
<u>TROPICAL FERRUGINOUS SOILS</u>			
	Sur sables éoliens On eolian sands		
Qc 1	7A	4	4
Qc 4	7A 7B	4, 4	4
Qc 7	7A 9 10	4, 1-2, 5	4+2
Qc 10	7A 1C-E	4, 5	4+5
Qc 13	7A 10	4, 5	4+5
Qc 14	7A 1D 5	4, 5, 3	4
	Sur sables éoliens On eolian sands		
Q11	7B	4	4
Q13	7B 9D 2C-E 6	4, 1, 4, 1-2	4+1
Q15	7B 7D-H 9	4, 3, 1-2	4+2
Q16	7B 7A	4, 4	4
Q18	7B 6 2C-E	4, 2, 4	4+2
Q111	7B 2C	4, 4	4
Q112	7B 2C-E 1D 2I	4, 4, 5, 2	4
Q113	7B 9BC	4, 1-2	4+2
Q114	7B 9 Salés/salinated	4, 5	4+5
Q116	7B 7A 2BF	4, 4, 4	4
Q117	7B 1C-E	4, 5	4+5

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
<u>7 SOLS FERRUGINEUX TROPICAUX</u>			
<u>TROPICAL FERRUGINOUS SOILS</u>			
	Sur sables éoliens On eolian sands		
Q118	7B 7B à base vertique/ with vertic basis 1C-E	4, 3, 5	4+3
Q119	7B 6	4, 1-2	4+1
Q121	7B 7A 9D	4, 4, 1	4+1
	Sur matériau sableux On sandy material		
Je 33	7C	2	2
	Sur matériau graveleux, remanié, dérivé du schiste/On reworked, schist derived, gravelly material		
Lp 7	7D 9D 7H	3, 1, 4	3+1
	Sur matériau d'argile sableuse dérivée de l'altération du granite On sandy clay material derived from the weathering of granite		
Lf 1	7E	3	3
Lf 11	7E 8AG	3, 3-4	3
Lf 18	7E 2C	3, 4	3+4
Lf 20	7E 1D 7G	3, 5, 3	3
Lf 24	7E 2C	3, 4	3+4
Lf 25	7E 7G 6A	3, 3, 1	3+1
Lf 26	7E 7H 9D 1C-E	3, 4, 1, 5	3
Lf 31	7E 1C-E 6A	3, 5, 1	3
Lf 32	7E 1C-E	3, 5	3+5
Lf 34	7E 9D	3, 1	3+1
Lf 42	7E 9D 2BF	3, 1, 4	3+1
Lf 45	7E 7H	3, 4	3+4

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
<u>7 SOLS FERRUGINEUX TROPICAUX</u>			
<u>TROPICAL FERRUGINOUS SOILS</u>			
	Sur matériau d'argile sableuse dérivée de l'altération du granite		
	On sandy clay material derived from the weathering of granite		
Lf 46	7E 8AG	3, 3-4	3
Lf 49	7E 8A 1C-E	3, 2, 5	3
Lf 52	7E 7H 7G	3, 4, 3	3
	Sur matériau kaolinitique non différencié/On undifferentiated kaolinitic material		
Af 15	7E 8CK	3, 3	3
L 2	7E 6A	3, 1	3+1
L 3	7E 1C-E	3, 5	3+5
	Sur des argiles plus ou moins sablo-graveleuses dérivées des schistes/Over more or less gravelly sandy clays derived from schists		
Lf 35	7E 2C	3, 4	3+4
Lf 36	7E 6A 2C	3, 1, 4	3+1
Lp 4	7E 1D 2C	3, 5, 4	3+4
	Sur matériau dérivé des grès Over sandstone derived material		
Lf 27	7E 8A-F 1C-E	3, 3-4, 5	3
Lf 40	7E 2C-E	3, 4	3+4
Lf 41	7E 9D 1C-E	3, 1, 5	3+1
Lf 43	7E 7A-C 9D	3, 2-4, 1	3+2
Lf 48	7E 7H 7DF 1C-E	3, 4, 3, 5	3
	Sur matériau de limon sableux On sandy loam material		
Lp 8	7F 8BDF	3, 4	3+4

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
<u>7 SOLS FERRUGINEUX TROPICAUX</u> <u>TROPICAL FERRUGINOUS SOILS</u>			
	Sur matériau de limon sableux On sandy loam material		
Lf 53	7F 7H	3, 4	3+4
Lf 54	7F 7H 8A	3, 4, 2	3
Lf 55	7F 7H 8C	3, 4, 3	3
	Sur matériau dérivé de schiste graveleux/On gravelly schist derived material		
Lf 37	7G 7H	3, 4	3+4
Lf 38	7G 7H 9D 6A	3, 4, 1, 1	3+1
Lf 27	7G 1C-E	3, 5	3+5
	Sur matériau dérivé des grès On sandy material derived from sandstones		
Lg 13	7G 8A-P 2	3, 3, 4	3
Lg 14	7G 9BC 7E	3, 1-2, 3	3+2
	Sur gneiss fondamental ou roches non différenciées/Over basement complex or non-differentiated rocks		
Lg 20	7G 10CD	3, 5	3+5
Lg 21	7G 7D-H 10	3, 3, 5	3
Lg 23	7G 10 7H 1C-E	3, 5, 4, 5	3+5
Lg 24	7G 7D sur sables/on sand 10	3, 3, 5	3+5
Lg 25	7G 7D sur sables/on sand 2	3, 3, 4	3
Lg 26	7G 9	3, 1-2	3+2
Lg 28	7G 7E 7H	3, 3, 4	3
Lp 5	7G 1C-E 7E	3, 5, 3	3+5
Lp 6	7G 7E	3, 3	3

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
<u>7 SOLS FERRUGINEUX TROPICAUX</u> <u>TROPICAL FERRUGINOUS SOILS</u>			
	Sur matériau de gneiss fonda- mental altéré/Over weathered basement complex material		
Lf 39	7H 2C 9D	4, 4, 1	4+1
Lg 8	7H 7G 7E	4, 3, 3	4+3
Lp 2	7H 7G 2C 1D	4, 3, 4	4+3
Lp 9	7H 2 1D	4, 4, 5	4
Lp 10	7H 7G 8C	4, 3, 3	4+3
Lf 30	7H 7G	4, 3	4+3
<u>8 SOLS FERALLITIQUES</u> <u>FERALLITIC SOILS</u>			
	Sur matériau de sable limoneux On loamy sand material		
Ne 14	8A 8HO	2, 2-3	2
	Sur matériau dérivé des roches basiques/On material derived from basic rocks		
Lp 3	8B 7E	2, 3	2+3
	Sur sables limoneux dérivés de roches sédimentaires On loamy sands derived from sedimentary rocks		
Lf 7	8C 9	3, 1-2	3+2
Lf 8	8C 7H	3, 4	3+4
Lf 13	8C 8E 1C-E 8C	3, 3, 5	3
Nd 9	8C 7E	3, 3	3
Nd 28	8C 7E 9	3, 3, 1-2	3+2

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
<u>8 SOLS FERALLITIQUES</u>			
<u>8 FERALLITIC SOILS</u>			
	Sur matériau de limon sableux dérivé de différentes roches du gneiss fondamental/On sandy loam material derived from varied basement complex rocks		
Lf 15	8C 10	3, 5	3+5
Lf 50	8C 2 10	3, 4, 5	3+4
Lf 51	8C 8A	3, 2	3+2
Lf 60	8C 8A	3, 2	3+2
Lf 61	8C	3	3
Lf 62	8C 8K	3, 3	3
Lf 63	8C 8BDF	3, 4	3+4
Lf 64	8C 1C-E	3, 5	3+5
	Sur roches variées On various rocks		
Lf 12	8D 2 1C-E	4, 4, 5	4
Nd 3	8E 1C-E	3, 5	3+5
Nd 7	8E 1C-E 8C	3, 5, 3	3+5
Ne 6	8E 8G-P 1C-E	3, 3, 5	3
	Sur matériau dérivé d'argile schisteuse/On clay schist- derived material		
Ap 20	8F 8(hydromorphe/hydromorphic) 1C-E	4, 5	4+5
Ap 23	8F 8G 1C-E	4, 3, 5	4+3
	Sur sables limoneux dérivés de roches sédimentaires/On loamy sands derived from sedimentary rocks		
Af 13	8G 8N	3, 4	3+4

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
<u>8 SOLS FERALLITIQUES</u>			
<u>FERALLITIC SOILS</u>			
	Sur matériau de gneiss fondamental altéré On weathered basement complex material		
Nd 6	8G 8G (hydromorphe/hydro- morphic)	3, 2	3+2
Ao 60	8F 8K 8N	3, 3, 3	3
	Sur limons sableux On sandy loams		
Af 18	8H 8K 8N	3, 3, 4	3
Af 25	8H 8M	3, 3	3
Nd 25	8H 8M 1C-E	3, 3, 5	3
	Sur matériau de gneiss fondamen- tal altéré/On weathered basement complex material		
Ao 1	8I	3	3
Ao 10	8I 1C-E 8M	3, 5, 3	3
Ao 46	8I 8G 8M	3, 3, 3	3
Ao 48	8I 8G 8N	3, 3, 4	3
Ao 49	8I 2 1C-E	3, 4, 5	3+4
	Sur matériau dérivé d'argile schisteuse/On clay schist derived material		
Nd 14	8I 8M	3, 3	3
	Sur matériau d'argile sableuse dérivé de roches sédimentaires On sandy clay material derived from sedimentary rocks		
Af 11	8I 8A-F 7H	3, 3-4, 4	3+4
	Sur roches basiques altérées On weathered basic rocks		
Bh 8	8J 3A	1, 1	1

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
<u>8 SOLS FERALLITIQUES</u>			
<u>FERALLITIC SOILS</u>			
	Sur matériau d'argile sableuse dérivé de roches sédimentaires On sandy clay material derived from sedimentary rocks		
Nd 1	8K	3	3
Nd 5	8K 8G 1C-E	3, 3, 5	3
Nd 15	8K 8M 8N	3, 3, 4	3
Nd 17	8K 9BC	3, 1-2	3+2
Nd 22	8K 1C-E	3, 5	3+5
	Sur limons sableux venant de roches métamorphiques et non différenciées On sandy loams from metamorphic and undifferentiated rocks		
Ne 1	8K	3	3
Ne 3	8K 1C-E 8G	3, 5, 3	3+5
Ne 16	8K 8G 8I	3, 3, 3	3
Ne 17	8K 1C-E	3, 5	3+5
Ne 18	8K 1C-E	3, 5	3+5
Ne 19	8K	3	3
Ne 21	8K 8O	3, 2	3+2
	Sur sables limoneux On loamy sands		
Af 2	8K 7D-H	3, 3-4	3
Nd 8	8K 8G	3, 3	3
Nd 16	8K 8G (hydromorphe/hydromorphic)	3, 3	3
	Sur sables limoneux On loamy sands		
Ao 11	8L 8G 1C-E	3, 3, 5	3
Ao 13	8L 2 1C-E	3, 4, 5	3+4
Ao 29	8L 1C-E 8O	3, 1, 2	3+1

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
<u>8 SOLS FERALLITIQUES</u>			
<u>8 FERALLITIC SOILS</u>			
	Sur sables limoneux On loamy sands		
Ao 30	8L 8G 8O	3, 3, 2	3
Ao 43	8L 1C-E	3, 5	3+5
	Sur matériau dérivé d'argile schisteuse/On material from clay schists		
Af 12	8M 8hydromorphes/hydromorphic 8N	3, 2, 4	3+2
Af 23	8M 8O	3, 2	3+2
Af 24	8M 8G	3, 3	3
	Sur matériau dérivé de roches granitiques/On material derived from granite rocks		
Af 16	8M 8K	3, 3	3
Af 26	8M 8O	3, 2	3+2
Af 30	8M 7 1C-E	3, 3, 5	3
Ao 59	8M 8G 8K	3, 3, 3	3
	Sur matériau dérivé du schiste On schist derived material		
Ap 15	8N 8M 1C-E	4, 3, 5	4
Ap 16	8N 8M	4, 3	4+3
Ap 22	8N 7D-H 1C-E	4, 3, 5	4
	Sur matériau dérivé du granite On granite derived material		
Bf 2	8O 8G	2, 3	2+3
Bf 3	8O 1C-E	2, 5	2+5
Bf 4	8O 8J	2, 1	2+1
Bf 5	8O 6	2, 1-2	2
Bf 6	8O 8G	2, 3	2+3

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
⁸ SOLS FERALLITIQUES FERALLITIC SOILS			
	Sur gneiss fondamental On basement complex		
Af 1	8P	3	3
Af 4	8P 8K 1C-E	3, 3, 5	3
	Sur sables limoneux dérivés du gneiss fondamental/On loamy sands derived from the base- ment complex		
Fr 6	8Q 8G 8K	3, 3, 3	3
Nd 10	8Q 8G	3, 3	3
Nd 12	8Q 1C-E 8O	3, 5, 2	3+4
	Sur sables limoneux dérivés de roches variées/On loamy sands derived from various rocks		
Nd 18	8Q 9D	3, 1	3+1
Nd 19	8Q 9 8K	3, 1-2, 3	3+2
Nd 20	8Q 2GI	3, 2-4	3
Nd 21	8Q 8K	3, 3	3
	Sur sables limoneux dérivés du gneiss fondamental/On loamy sands derived from the base- ment complex		
Fo 1	8R	3	3
Fo 9	8R 8G-P	3, 3	3
Fo 14	8R 8V	3, 3	3
Fo 20	8R 1C-E	3, 5	3+5
Fo 26	8R 8U	3, 4	3+4
Fo 33	8R 9A	3, 2	3+2
Fo 35	8R 9BC	3, 3-4	3
Fo 36	8R 8S	3, 4	3+4

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
<u>8 SOLS FERALLITIQUES</u>			
<u>FERALLITIC SOILS</u>			
	Sur sables limoneux dérivés du gneiss fondamental/On loamy sands derived from the base- ment complex		
Fo 37	8R 1C-E 8S	3, 5, 4	3+4
Fo 38	8R 8S 9	3, 4, 1-2	3
Fo 39	8R 8S 8W	3, 4, 3	3
Fo 40	8R 8A-F 1C-E	3, 3-4, 5	3+4
Fo 45	8R 8U 9A	3, 4, 2	3
Fo 46	8R 8G-P 9A	3, 3, 2	3
	Roches non différenciées Non differentiated rocks		
Fp 2	8S 1C-E	4, 5	4+5
Fp 3	8S 1C-E 2	4, 5, 4	4
Fp 4	8S 8Q 8R	4, 4, 3	4+3
Fp 5	8S 9A	4, 2	4+2
Fp 6	8S 8 lessivés/leaching	4, 4	4
	Sur matériau argileux dérivé de roches basiques/On clay mate- rial derived from basic rocks		
Fh1	8T	2	2
Fh6	8T 8W	2, 3	2+3
Fh7	8T 8 lessivés/leaching 9A	2, 3, 2	2+3
Nh3	8T 1C-E	2, 5	2+5
	Sur matériau sableux au sable limoneux/On sandy to loamy sand material		
Fx1	8U	4	4
Fx7	8U 8V 8Q	4, 3, 3	4+3
Fx8	8U 8K	4, 4, 3	4

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
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⁸ SOLS FERALLITIQUES
FERALLITIC SOILS

	Sur matériau sableux au sable limoneux/On sandy to loamy sand material		
Fx 11	8U 9A	4, 2	4+2
Qf 20	8U 9A podsols	4, 2, 5	4+2
	Matériau argileux dérivé du gneiss fondamental/Clay material derived from the basement complex		
Af 5	8V 8G 8K	3, 3, 3	3
Af 28	8V 8NS	3, 3-4	3
Af 29	8V 8N 2 sables/sands	3, 4, 5	3+4
Ao 7	8V 8Q	3, 3	3
Fo 41	8V 8NS 1C-E	3, 4, 5	3+4
Fx 12	8V 8NS 9	3, 3, 1-2	3
	Matériau dérivé d'argile schisteuse Clay, schist-derived material		
Ap 17	8V 8NS	3, 4	3+4
Ap 18	8V 8W	3, 3	3
Nd 27	8V 8NS 1C-E	3, 4, 5	3+4
	Sur produits altérés de granite On granite weathering products		
Bf 7	8W 8T	3, 2	3+2
	Sur matériau dérivé du schiste On schist-derived material		
Ao 45	8W 8Q	3, 3	3

⁹ SOLS HYDROMORPHES
HYDROMORPHIC SOILS

	Alluvions d'argile/Clay alluvium		
Gd 21	9A 2G-I sols organiques/organic soils	2, 2-4, 2	2+3

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
⁹ SOLS HYDROMORPHES HYDROMORPHIC SOILS			
	Texture variée/Varied texture		
Od10	9A 2G-I 9B-E	2, 2-4, 1-2	2
Gh4	9A 2G-I sols organiques/orga- nic soils	2, 2-4, 3	2+3
Gh8	9A 8O	2, 2	2
	Alluvions d'argile Clay alluvium		
Je45	9B 2G-I	2, 2-4	2+3
Gd16	9B 2 10	2, 4, 5	2+4
	Sables/Sands		
Ge5	9C 7A-C	1, 2-4	2+3
	Texture variée/Varied texture		
Gh1	9C	1	1
Ge1	9C 10CD	1, 5	1+5
Ge10	9C 10	1, 5	1+5
G4	9C 2	1, 4	1+4
G5	9C 7DH 4	1, 3, 4	1+3
G6	9C 2 10 4	1, 4, 5, 4	1+4
Wd2	9C 8QR	1, 3	1+3
	Roches métamorphiques et grani- tiques/Metamorphic & granite rocks		
Lg15	9D	1	1
	Matériau d'argile Clay material		
Je21	9D	1	1
Je37	9D 9C 4	1, 1, 4	1
J2	9D 2F-I	1, 2-4	1+3
J4	9D 9 8Q-W	1, 1-2, 3-4	1+2

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
9 SOLS HYDROMORPHES			
HYDROMORPHIC SOILS			
	Matériau d'argile Clay material		
Ge 2	9D 2F-I 9A	1, 2-4, 2	1+2
Je 32	9D 4	1, 4	1+4
	Matériau de sable limoneux Loamy sand material		
G2	9D	1	1
Lg 3	9D 2C	1, 4	1+4
Lg 5	9D 7A-C	1, 2-4	1+3
Lg 7	9D 4C	1, 4	1+4
Lg 9	9D 6 7A-C 2C	1, 1-2, 2-4, 4	1+2
Lg 10	9D 2C 6B	1, 4, 2	1+4
Lg 11	9D 9BC	1, 1-2	1
Lg 12	9D 7A-C 2C	1, 2-4, 4	1+3
J3	9D 7G	1, 3	1+3
	Matériau limoneux polygénétique ou matériau sablonneux/Polygene- tic silty or sandy material		
Je 1	9D	1	1
	Colluvion sableuse Sandy colluvium		
G 3	9D 2F-H	1, 4	1+4
	Alluvion et colluvion variées Varied alluvium and colluvium		
Bg 1	9D	1	1
Bg 2	9D 2F-H 9BC	1, 4, 1-2	1+4
G 1	9D 4	1, 4	1+4
Je 34	9D 6 7A-C	1, 1-2, 2-4	1+2
Je 35	9D 2 10	1, 4, 5	1+4

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
<u>9 SOLS HYDROMORPHES</u> <u>HYDROMORPHIC SOILS</u>			
	Alluvion et colluvion variées Varied alluvium and colluvium		
Je 36	9D 9BC 10	1, 1-2, 5	1+2
	Sur matériau de sable limoneux On loamy sand material		
Lg 1	9E	1	1
<u>10 SOLS HOLOMORPHES</u> <u>HALOMORPHIC SOILS</u>			
	Sur alluvion lacustre d'argile On clay lacustrian alluvium		
Zt 1	10A	5	5
Zo 4	10A 10CD	5, 5	5
	Sur alluvion grossière dominante On dominantly coarse alluvium		
Zo 6	10A 5EG	5, 2-4	5+3
	Alluvion de texture variée Varied texture alluvium		
Zg 7	10A 9A 7A-C	5, 2, 2-4	5+2
Je 22	10A 10 hydromorphe/hydromor- phic 9D	5, 5, 1	5+1
	Sédiments fluvi-marins Fluvio-marine sediments		
Jt 2	10B 2 salins/saline 9A	5, 5, 2	5+2
Jt 3	10B 9A salés/salinated	5, 5	5
Jt 4	10B 9A 9A salés/salinated	5, 2, 5	5+2
Jt 5	10B 9A salés/salinated 9A	5, 5, 2	5+2
	Limons sableux à argiles sableuses dérivés du granite ou de migmatites Sandy loams to clays derived from granite or migmatites		
Ws 3	10C	5	5

Symbole d'unité cartographique (1) Mapping unit symbol	Unités de sol (2) Soil units	Classement du CIEH pour les potentialités des unités de sol (3) CIEH capability ratings of soil units	Récapitulation des potentialités (4) Summary of capability
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¹⁰ SOLS HOLOMORPHES
HALOMORPHIC SOILS

Limons sableux à argiles sableuses
dérivés du granite ou de migmatites
Sandy loams to clays derived
from granite or migmatites

Ws 2	10C 9D	5, 1	5+1
Ws 4	10C 1C-E	5, 5	5
Ws 8	10C 6B 7A	5, 2, 4	5+2
Ws 9	10C 2C	5, 4	5+4
Ws 10	10C 4	5, 4	5+4
Ws 11	10C 9BC 4A-C	5, 1-2, 4	5+2
Ws 12	10C 7A-C 2C	5, 2-4, 4	5+3

Matériau de limon sableux à argile
Sandy loam to clay material

Ws 5	10D 9BC 4A-C	5, 1-2, 4	5+2
Ws 6	10D 4A-C	5, 4	5+4

- 6 - 2 Liste des 166 unités cartographiques de la carte des sols au 1:5.000.000 de la FAO, couvrant le Tchad, le Cameroun, l'Empire Centrafricain, et montrant les unités de sol contenues dans chaque carte ainsi que leurs potentialités.

List of the 166 mapping units of the FAO 1:5 million soils map covering Chad, the Cameroon and Central African Empire, showing soil units contained in each and their capability.

APPENDIX 6-2

This appendix lists the mapping units, shown in the FAO 1:5 million soils map which cover the territories of Tchad, the Cameroons and the Central African Republic. These three territories are not covered in the OAU/IFAN soils map used as a basis for soil capability interpretation for the rest of West Africa, and the FAO mapping units have therefore been used instead, but the French mapping units assessed as equivalent, as set out in column two, were taken as the basis for the capability classification.

In the following table:

the general arrangement follows the order of the soil mapping units listed (in alphabetical order) in the FAO 1:5 million soils map;

the first column gives the identifying symbol of the mapping unit;

the second column lists first the major soil and then, in order of importance, any minor soils within the mapping unit, in terms of the French classification used for the IFAN/OAU map, as listed in Table 6-1 (Volume 1, Chapter 6);

the third column gives the CIEH soil capability classification for each of these soil units, as defined in Table 6-4 (Vol. 1, Chap. 6);

the fourth column gives the one or two figure summary of the soil capability ratings given in column three. The first figure is the capability of the dominant soil unit; the second figure summarizes the capability of the associated soils if different from that of the dominant soil. This one or two figure summary is indicated by the type of shading used on the CIEH soil capability map (Volume 2, Map No. 6-1).

ANNEXE 6-2

La présente annexe énumère les unités cartographiques montrées dans la carte des sols au 1:5.000.000 de la FAO, carte qui couvre les territoires du Tchad, du Cameroun et de l'Empire Centrafricain. Ces trois pays ne sont pas pris en compte dans la carte de l'OUA/IFAN employée comme base de l'interprétation des potentialités des sols pour le reste de l'Afrique de l'Ouest, et les unités cartographiques de la FAO ont donc été préférablement utilisées, tandis que les unités cartographiques du système français, évaluées en tant qu'équivalences comme précisé dans la deuxième colonne, ont été considérées comme le fondement de la classification des potentialités.

Dans le tableau suivant:

l'arrangement d'ensemble suit la nomenclature des unités cartographiques des sols énumérées (par ordre alphabétique) dans la carte pédologique au 1:5.000.000 de la FAO;

la première colonne indique le symbole d'identification de l'unité cartographique;

la seconde colonne tout d'abord identifie les sols principaux, puis, par ordre d'importance, tout sol secondaire dans l'unité cartographique, en fonction de la classification française utilisée pour la carte IFAN/OUA, comme montré dans le Tableau 6-1 (Vol. 1, Chap. 6);

la troisième colonne donne la classification du CIEH pour les potentialités de chacune de ces unités de sol, comme défini dans le Tableau 6-4 (Volume 1, Chapitre 6);

la quatrième colonne récapitule en un ou deux chiffres les classifications données dans la troisième colonne pour les potentialités des sols. Le premier chiffre réfère à la potentialité de l'unité de sol dominant, tandis que le second chiffre récapitule la potentialité des sols associés si ceux-ci diffèrent du sol dominant. Cette récapitulation au moyen d'un ou deux chiffres est indiquée par le type de nuancement utilisé sur la carte du CIEH pour les potentialités des sols (Volume 2, Carte No. 6-1).

(1)	(2)	(3)	(4)
A	ACRISOLS		
Af	Acrisols ferriques Ferric Acrisols		
Af 17	8G, 7GH	3, 3-4	3
Af 31	8G, 8OW	3, 2-3	3
Ao	Acrisols orthiques Orthic Acrisols		
Ao 1	8I	3	3
Ao 7	8V, 8Q	3, 3	3
B	CAMBISOLS		
Bc	Cambisols calciques Calcic Cambisols		
Bc 8	6A, 5E	1, 2	1 + 2
Be	Cambisols eutriques Eutric Cambisols		
Be 30	6A/5E, 8Q	1/2, 3	1 + 3
Be 45	6A/5E, 3A	1/2, 1	1
Bh	Cambisols humiques Humic Cambisols		
Bh 8	8J, 3A	1, 1	1
Bv	Cambisols vertiques Vertic Cambisols		
Bv 8	6B, 6 hydromorphe/ hydromorphic	2, 2	2
F	FERRALSOLS		
Fh	Ferralsols humiques Humic Ferralsols		
Fh 1	8T	2	2

(1)	(2)	(3)	(4)
Fo	Ferralsols orthiques Orthic Ferralsols		
Fo 1	8R	3	3
Fo 2	8R, 8U	3, 4	3 + 4
Fo 8	8R, 8, 7	3, 3, 3	3
Fo 9	8R, 8G-P	3, 3	3
Fo 14	8R, 8V	3, 3	3
Fo 21	8R, 1, 2DE	3, 5, 4	3 + 5
Fo 22	8R, 8	3, 3	3
Fo 26	8R, 8U	3, 4	3 + 4
Fo 28	8R, 9B	3, 2	3 + 2
Fo 32	8R, 9B, 8U	3, 2, 4	3 + 2
Fo 33	8R, 9A	3, 2	3 + 2
Fo 35	8R, 9BC	3, 2	3 + 2
Fp	Ferralsols plinthiques Plintic Ferralsols		
Fp 2	8S, 1	4, 5	4 + 5
Fp 7	8S, 8G-I, 7E-H	4, 3, 3-4	4 + 3
Fp 8	8S, 8G-I, 2D	4, 3, 4	4 + 3
Fr	Ferralsols rhodiques Rhodic Ferralsols		
Fr 2	8Q, 8J/T, 1, 2DE	3, 1-4, 5, 4	2 + 5
Fr 6	8Q, 8G, 8K	3, 3, 3	3
Fr 8	8Q, 8EK, 2DE	3, 3, 4	3
Fx	Ferralsols xanthiques Xanthic Ferralsols		
Fx 1	8U	4	4
Fx 8	8U, 8X	4, 3	4 + 3
Fx 9	8U, 9ABC	4, 2-1	4 + 2
Fx 10	8U, 8R	4, 3	4 + 3

(1)	(2)	(3)	(4)
G	GLEYSOLS		
G	Gleysols non différenciés Undifferentiated Gleysols		
G 2		9D	1
Gd	Gleysols dystriques Dystric Gleysols		
Gd 5		9B, 2I	2, 2
Gd 6		9B, 8R, 2I	2, 3, 2
Gd 14		9B, 9 plinthique plinthic, 2I	2, 3, 2
Gd 16		9B, 2, 10	2, 4, 5
Ge	Gleysols eutriques Eutric Gleysols		
Ge		9C	1
Ge 1		9C, 10CD	1, 5
Ge 16		9C, 5FG, 4	1, 4-5, 4
Ge 22		9C, 9BD, 7G	1, 2, 3
Gh	Gleysols humiques Humic Gleysols		
Gh 1		9C	1
Gh 4		9A, 2G-I, + sols organiques organic soils	2, 3, 2
Gh 8		9A, 8O	2, 2
Gh 11		9A, 8U	2, 4
H	PHAEZOMS/PHAEZEMS		
Hh	Phaeozoms hapliques Haplic Phaeozems		
Hh		3A	1
I	LITHOSOLS		
I		1A à/to E	5

(1)	(2)	(3)	(4)
Complexes of I			
I - Bc - Tv	1, 6A, 3A	5, 1, 1	5 + 1
I - Bf	1, 8	5, 3	5 + 3
I - Lc - Pe	1, 6C, 2	5, 2, 4	5 + 2
I - Lf	1, 7E	5, 3	5 + 3
I - Lp	1, 7E, 7H	5, 3, 4	5 + 3
I - Lv	1, 7 vertique/vertic	5, 3	5 + 3
I - Nd	1, 8	5, 3	5 + 3
I - Nh - Rd	1, 8T, 2	5, 2, 4	5 + 2
I - Rd	1, 2	5, 4	5 + 4
I - Rd - So	1, 2, 10	5, 4, 5	5 + 4
I - Re	1, 2	5, 4	5 + 4
I - Y	1, 1B	5, 5	5
J	FLUVISOLS		
J	Fluvisols non différenciés Undifferentiated Fluvisols		
J 1	9D	1	1
J 2	9D, 2F, I	1, 4, 2	1 + 3
Jc	Fluvisols calcaires Calcareous Fluvisols		
Jc 28	2I, 7, 4	2, 3, 4	2 + 3
Jc 29	2I, 4	2, 4	2 + 4
Jc 30	2I, 4, 10A	2, 4, 5	2 + 4
Je	Fluvisols eutriques Eutric Fluvisols		
Je 13	9 BCD	1-2	1
Je 28	9 BCD, 10CD	1-2, 5, 5	1 + 5
Je 30	9 BCD, 7, 4	1-2, 3, 4	1 + 3
Je 31	9 BCD, 7	1-2, 3	1 + 3
Je 32	9D, 4	1, 4	1 + 4
Je 35	9D, 2, 10	1, 4, 5	1 + 4
Je 48	9 BCD, 7	1-2, 3	1 + 3

(1)	(2)	(3)	(4)
L	LUVISOLS		
L	Luvisols non différenciés Undifferentiated Luvisols		
L 2	7E, 6A	3, 1	3 + 1
Lc	Luvisols chromiques Chromic Luvisols		
Lc 5	6C, 4E	2, 4	2+4
Lf	Luvisols ferriques Ferric Luvisols		
Lf 1	7E	3	3
Lf 12	8D, 2, 1C-E	4, 4, 5	4
Lf 30	7H, 7G	4, 3	4 + 3
Lf 32	7E, 1 C-E	3, 5	3 + 5
Lf 41	7E, 9D, 1C-E	3, 1, 5	3 + 1
Lf 48	7E, 7H, 7DF, 1C-E	3, 4, 3, 5	3
Lf 65	8, 4, 1	3, 4, 5	3 + 4
Lg	Luvisols gleyiques Gleyic Luvisols		
Lg 2	7G, 7E	3	3
Lg 4	9CD	1	1
Lg 15	9D, 9C	1, 1	1
Lg 20	7G, 10CD	3, 5	3 + 5
Lg 33	7G, 9BCD, 7E	3, 1-2, 3	3 + 1
Lg 34	7G/9D, 4, 9C	3/1, 4, 1	3
Lg 35	7G/9D, 7E	3/1, 3	3
Lg 36	7G, 9BCD, 7E	3, 1-2, 3	3+1
Lp	Luvisols plinthiques Plinthic Luvisols		
Lp 4	7E, 1D, 2C	3, 5, 4	3 + 5
N	NITOSOLS		
Nd	Nitosols dystriques Dystric Nitosols		

(1)	(2)	(3)	(4)
Nd 1	8K	3	3
Nd 6	8G, 8G hydromorphe hydromorphic	3, 2	3 + 2
Nd 8	8K, 8G	3, 3	3
Nd 10	8Q, 8G	3, 3	3
Nd 11	8Q, 7	3, 3	3
Ne	Nitosols eutriques Eutric Nitosols		
Ne 1	8K	3	3
Ne 3	8K, 1C-E, 8G	3, 5, 3	3 + 5
Ne 17	8K, 1C-E	3, 5	3 + 5
Ne 26	8K, 8Q, 8T	3, 3, 2	3 + 2
Nh	Nitosols humiques Humic Nitosols		
Nh 3	8T, 1C-E	2, 5	2 + 5
O	HISTOSOLS		
Od	Histosols dystriques Dystric Histosols		
Od 11	9A	2	2
Q	ARENOSOLS		
Qc	Arenosols cambiques Cambic Arenosols		
Qc 1	5F	5	5
Qc 4	7A, 7B	4	4
Qc 10	7A, 1C-E	4, 5	4 + 5
Qc 11	7A, 10CD	4, 5	4 + 5
Qc 12	7A, 4	4, 4	4
Qc 13	7A, 10	4, 5	4 + 5
Qc 15	7A, 2	4, 4	4
Qc 16	7A, 10, 4	4, 5, 4	4 + 5
Qc 17	7A, 10	4, 5	4 + 5
Qc 18	7A, 9D	4, 1	4 + 1

(1)	(2)	(3)	(4)
Qf	Arenosols ferriques Ferric Arenosols		
Qf 1	8U	4	4
Qf 4	8U, 8R, 8	4, 3, 3	4 + 3
Qf 17	8U, 9BCD	4, 1-2	4 + 1
Qf 18	8U, 10, 4	4, 5, 4	4 + 5
Qf 19	8U, 9BCD	4, 1-2	4 + 1
Qf 21	8U, 8, 2	4, 3, 4	4 + 3
Q1	Arenosols luviques Luvic Arenosols		
Q1 11	7B/5G 2C	4/4, 4	4
Q1 18	7B, 1C-E	4, 5	4 + 5
Q1 22	7B/5G	4/4	4
Q1 23	7B/5G, 1, 9BD	4/4, 5, 1-2	4 + 1
Q1 24	7B/5G, 7, 9	4/4, 3, 1-2	4 + 3
R	REGOSOLS		
Rd	Regosols dystriques Dystric Regosols		
Rd 12	2CDE, 8	4, 3	4 + 3
Rd 17	2I, 8 sableux sandy	2, 3	2 + 3
Rd 18	2CDE, 1, 7	4, 5, 3	4 + 5
Re	Regosols eutriques Eutric Regosols		
Re 1	2B	5	5
Re 33	2C, 1C-E, 7D-H	4, 5, 3	4
Re 39	2F, 1B, 2B	4, 5, 5	4 + 5
Re 40	2C, 7G, 9BC	4, 3, 1-2	4 + 2
Re 2	2, 10, 1	4, 5, 5	4 + 5
S	SOLONETZ		
So	Solonetz orthique Orthic Solonetz		

(1)	(2)	(3)	(4)
So 8	10CD, 5F	5, 5	5
So 9	10CD, 4, 10	5, 4, 5	5 + 4
T	ANDOSOLS		
Th	Andosols humiques Humic Andosols		
Th 2	3A, 1C-E	1, 5	1 + 5
Tm	Andosols molliques Mollic Andosols		
Tm 3	3A, 9BC	1, 1-2	1 + 2
Tv	Andosols vitriques Vitric Andosols		
Tv 11	3A	1	1
Tv 12	3A, 8	1, 3	1 + 3
V	VERTISOLS		
Vc	Vertisols chromiques Chromic Vertisols		
Vc 1	4E ou/or 4B	4	4
Vc 9	4E, 4 solonetzique solonetzic	4, 5	4 + 5
Vc 13	4B, 5CD	4, 3	4 + 3
Vc 14	4F, 2	4, 4	4
Vp	Vertisols pelliques Pellic Vertisols		
Vp 1	4C	4	4
Vp 8	4A, 4B, 9 sableux sandy	3, 4, 2	3
Vp 9	4B, 2I	4, 2	4 + 2
Vp 10	4E, 6B	4, 2	4 + 2
Vp 11	4E, 7AB, 7D-H	4, 4, 3	4
Vp 12	4E, 10CD, 7G	4, 5, 3	4 + 5
Vp 13	4, 9CD, 5F	4, 1, 5	4 + 1
Vp 17	4, 5FG	4, 4-5	4
Vp 19	4B, 7E	4, 3	4 + 3

(1)	(2)	(3)	(4)
Vp 23	4E, 7G	4, 3	4 + 3
Vp 24	4, 10	4, 5	4 + 5
Vp 25	4, 10	4, 5	4 + 5
Vp 26	4, 9BD	4, 1-2	4 + 1
W PLANOSOLS			
W Planosols non différenciés Undifferentiated Planosols			
W2	9A, 10CD	2, 5	2 + 5
We Planosols eutriques Eutric Planosols			
We 2	9A, 10CD	2, 5	2 + 5
Ws Planosols solodiques Solodic Planosols			
Ws 2	10C, 9D	5, 1	5 + 1
Ws 10	10C, 4	5, 4	5 + 4
Ws 11	10C, 9BC, 4A-C	5, 1-2, 4	5 + 2
X XEROSOLS			
Xh Xerosols hapliques Haplic Xerosols			
Xh 14	1B, 2	5, 4	5 + 4
Y YERMOSOLS			
Y 12	1B	5	5 + 1
Z SOLONCHAKS			
Z 1	10A	5	5
Z 4	10A, 4E, 10C	5, 4, 5	5 + 4
Z 6	10A, 7, 4	5, 3-4, 4	5 + 4
Zo Solonchaks orthiques Orthic Solonchaks			
Zo 4	10A, 10CD	5, 5	5
Zo 5	10A, 10CD	5, 5	5
Zo 6	10A, 5EG	5, 2-4	5 + 3

6 - 3 Etude du cas No. 1 : Haute Volta (page 1)

Case study No. 1 : Upper Volta (page 21)

ANNEXE 6-3

On dispose pour la Haute-Volta d'une plus grande quantité d'informations sur les sols que pour la plupart des pays de la savane. C'est ainsi qu'à propos des investigations dont il est question ici, la documentation ci-après énumérée a été prise en compte:

- (a) Les cartes des sols et comptes rendus connexes couvrant l'ensemble du pays à l'échelle 1:500.000 et publiés par l'ORSTOM*.
- (b) La récapitulation ("Rapport de synthèse") des travaux susvisés (Boulet et autres, 1969) qui donne la description des principaux sols et qui contient une carte des sols au 1:2.000.000. Par ailleurs, elle contient, à cette même échelle de 1:2.000.000, une carte des "régions agricoles" qui correspond presque à une carte des potentialités des sols.
- (c) Les cartes à l'échelle 1:500.000 et le rapport y afférent, basées sur les cartes des sols au 1:500.000 de (a) ci-dessus, et qui indiquent les ressources en sols de la Haute-Volta en termes d'unités agronomiques (Boulet, 1976). Les cinq cartes montrent essentiellement la profondeur et la texture du sol, ainsi que la division de la Haute-Volta en quatre zones climatiques. Bien que le rapport narratif ("Notice des cartes de ressources en sols de la Haute-Volta") fournisse des informations plus détaillées sur les sols et leurs propriétés agronomiques, il ne place pas cependant ces sols dans des classes de potentialités.
- (d) Une carte en couleurs, à l'échelle 1:3.000.000, montrant "la valeur agricole des sols", carte annexée à l'atlas joint au rapport de la FAO, "Contrôle de l'onchocercose dans la région du bassin

* (Boulet, 1968; Boulet and Leprun, 1969; Kaloga, 1969; Leprun and Moreau, 1968; Rieffel and Moreau, 1969.)

de la Volta, 1973"). Cette carte divise les sols en six catégories avec une classification pour les valeurs agricoles allant de néant à très bonne.

- (e) Une carte en noir et blanc, à l'échelle d'environ 1:4.000.000, intitulée "potentialité des sols", contenue dans le volume de cartes sur feuilles mobiles connu sous le nom de "Cartographie des pays du Sahel" (Ministère de la Coopération, 1976). Il s'agit en l'occurrence d'une carte simplifiée des sols représentant sept groupes principaux de sols, soit les sols salés et sodiques, les sols d'érosion et cuirasses, les sols subarides, les sols hydromorphes, les sols ferrugineux et ferralitiques, les argiles noires tropicales, les sols bruns tropicaux. Des notes très brèves portant sur la valeur agricole de chaque groupe sont portées dans la légende, mais aucune tentative n'est faite afin de classer les sols selon leurs potentialités.
- (f) De courtes annotations (non datées) venant de l'IRAT et définissant les "unités aptes à l'exploitation agricole" en Haute-Volta en fonction des unités du paysage géomorphologique qui sont aisément identifiables sur les photographies aériennes.

Parmi les documents ci-dessus, ceux sous les rubriques (a), (b), (c) et (d) se sont révélés ceux se rapportant davantage aux présentes tâches, et ils ont donc été étudiés en détail. Les notes afférentes aux items (b), (c) et (d) et à leur relation avec la carte des potentialités des sols établie par le CIEH sont indiquées dans les paragraphes suivants, tandis que la Figure 1 représente une partie de la carte pédologique de base au 1:500.000 de l'ORSTOM, (a) ci-dessus), montrant les sols de la zone de Ouahigouya.

SOIL MAP OF THE OUAHIGOUYA AREA

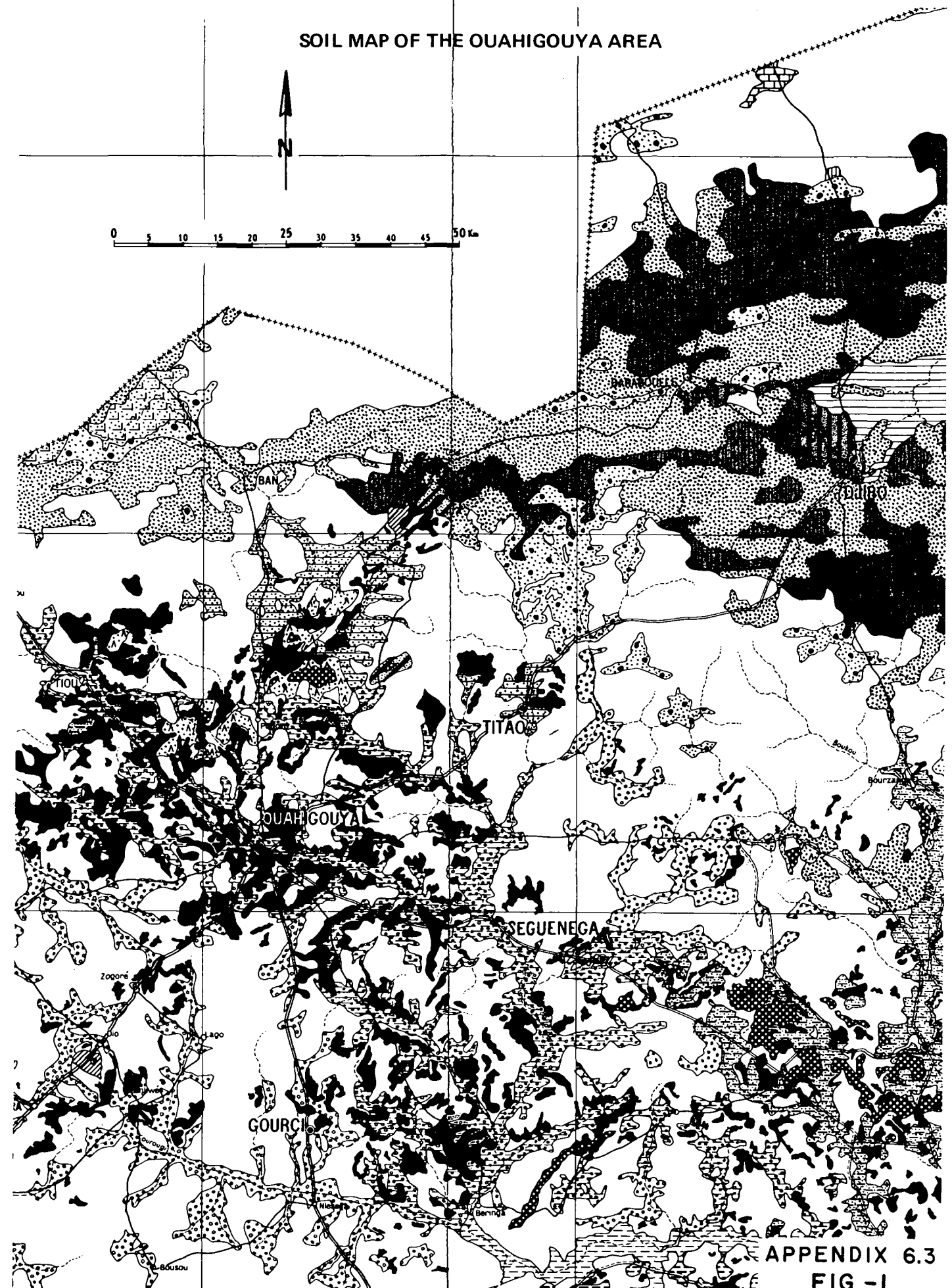
KEY

- | | |
|---|---|
| <p>1. SOLS MINERAUX BRUTS D'EROSION
LITHOSOLS</p> <p>OVER FERRUGINOUS CRUSTS</p> <p>OVER VARIOUS ROCKS</p> | <p>1. RAW MINERAL SOILS
LITHOSOLS</p> <p>(IFAN UNIT 1D) (CIEH CAPABILITY 5)</p> <p>(IFAN UNIT 1C) (CIEH CAPABILITY 5)</p> |
| <p>2. SOLS PEU EVOLUES D'EROSION
SOLS REGIQUES</p> <p>GRAVELLY REGOSOLS ASSOCIATED WITH LITHOSOLS OVER FERRUGINOUS CRUSTS
(IFAN UNIT 2C ASSOCIATED WITH 1D) (CIEH CAPABILITY 4 + 5)</p> | <p>2. IMMATURE SOILS
REGOSOLS</p> |
| <p>7. SOLS FERRUGINEUX TROPICAUX</p> <p>SLIGHTLY DESATURATED, MODAL, OVER EOLIAN SANDS
(IFAN UNIT 7B) (CIEH CAPABILITY 4)</p> <p>SLIGHTLY DESATURATED, ASSOCIATED WITH GRAVELLY SOILS
(IFAN UNITS PROBABLY 7C AND E) (CIEH CAPABILITY 2 + 3)</p> <p>DESATURATED, CONCRETIONARY (IFAN UNIT 7E)
(CIEH CAPABILITY 3)</p> | <p>7. TROPICAL FERRUGINOUS SOILS</p> |
| <p>9. SOLS HYDROMORPHES
SOLS A TACHES ET CONCRETIONS</p> <p>WITH PSEUDOGLEY, ON LOAMY SAND COLLUVIUM AND ALLUVIUM
(IFAN UNIT 9D) (CIEH CAPABILITY 1)</p> <p>WITH PSEUDOGLEY, ASSOCIATED WITH SHALLOW SANDY CLAY GRAVELLY FERRUGINOUS SOILS
(IFAN UNITS 9D AND 7E) (CIEH CAPABILITY 1)</p> | <p>9. HYDROMORPHIC SOILS
MOTTLED AND CONCRETIONARY</p> |
| <p>10. SOLS HALOMORPHES</p> <p>DEGRADED STRUCTURE, SOLONETZ, WITH COLUMNAR B HORIZON
(IFAN UNIT 10C) (CIEH CAPABILITY 5)</p> | <p>10. HALOMORPHIC SOILS</p> |

APPENDIX 6.2, MAP 1

KEY TO THE 1: 500,000 SOIL MAP OF THE OUAHIGOUYA AREA showing the main soils included in the section reproduced.

THE DARK PATCHES ARE ALL SHALLOW SOILS OVER FERRUGINOUS CRUSTS (CIEH CAPABILITY RATING 5) AND THE UNSHADED AREAS ARE THE SHALLOW VERY GRAVELLY SOILS OF THE "PARKING LOTS", WHICH ARE SUCH A STRIKING FEATURE OF THE AREA, ASSOCIATED WITH SHALLOW SOILS OVER FERRUGINOUS CRUSTS (CIEH CAPABILITY RATING 4 + 5). THE MAP ILLUSTRATES THAT THE SOIL PATTERN IS RELATIVELY COMPLEX, AND THAT ONLY THE BROAD FEATURES OF THE AREA SURVIVE REDUCTION TO THE 1: 5 MILLION SCALE. MOST OF THE AREA IS GRADED 4 OR 5 IN THE CIEH CLASSIFICATION OF CAPABILITY, BUT THERE ARE SMALL AREAS OF HYDROMORPHIC SOILS (CAPABILITY 1) WHICH ARE THE MOST PRODUCTIVE IN THE AREA.



APPENDIX 6.3
FIG.-1

"Rapport de synthèse" sur les sols de la Haute-Volta, et projet de la carte des potentialités des sols préparé par le CIEH en fonction du rapport de synthèse en question.

Le rapport de synthèse est un précis utile des études de sols entreprises jusque là dans le pays, précis rédigé par des pédologues ayant participé aux travaux et possédant conséquemment une profonde connaissance des sols concernés.

Au lieu d'une carte des sols comme telle, le rapport contient quatre cartes distinctes des sols, chacune à l'échelle 1:2.000.000, et chacune montrant la distribution d'un important groupe de sols ou (comme dans un cas) de deux groupes de sols. Les sols ainsi représentés sur des cartes individuelles regroupent:

1. Des vertisols
2. Des sols bruns eutrophes
3. Des sols ferrugineux tropicaux peu lessivés et des sols subarides bruns rougeâtres (ces sols sont représentés ensemble sur une seule carte)
4. Des sols ferrugineux tropicaux lessivés

Une cinquième carte, à la même échelle de 1:2.000.000, indique les "régions agricoles", mais en réalité c'est une carte simplifiée des sols fournissant dans la légende quelques indications à propos de la potentialité des sols, mais sans qu'il y ait de texte à l'appui de la carte. Cette carte montre:

- (a) les secteurs comportant une proportion élevée de sols lourds (les vertisols et les sols bruns eutrophes sont ici combinés, bien qu'ils soient indiqués séparément sur les cartes des sols accessoires);
- (b) les aires où ces sols lourds ont été limités en raison d'un manque d'eau ou d'un facteur pédologique comme une couverture de sable, ou la salinité;

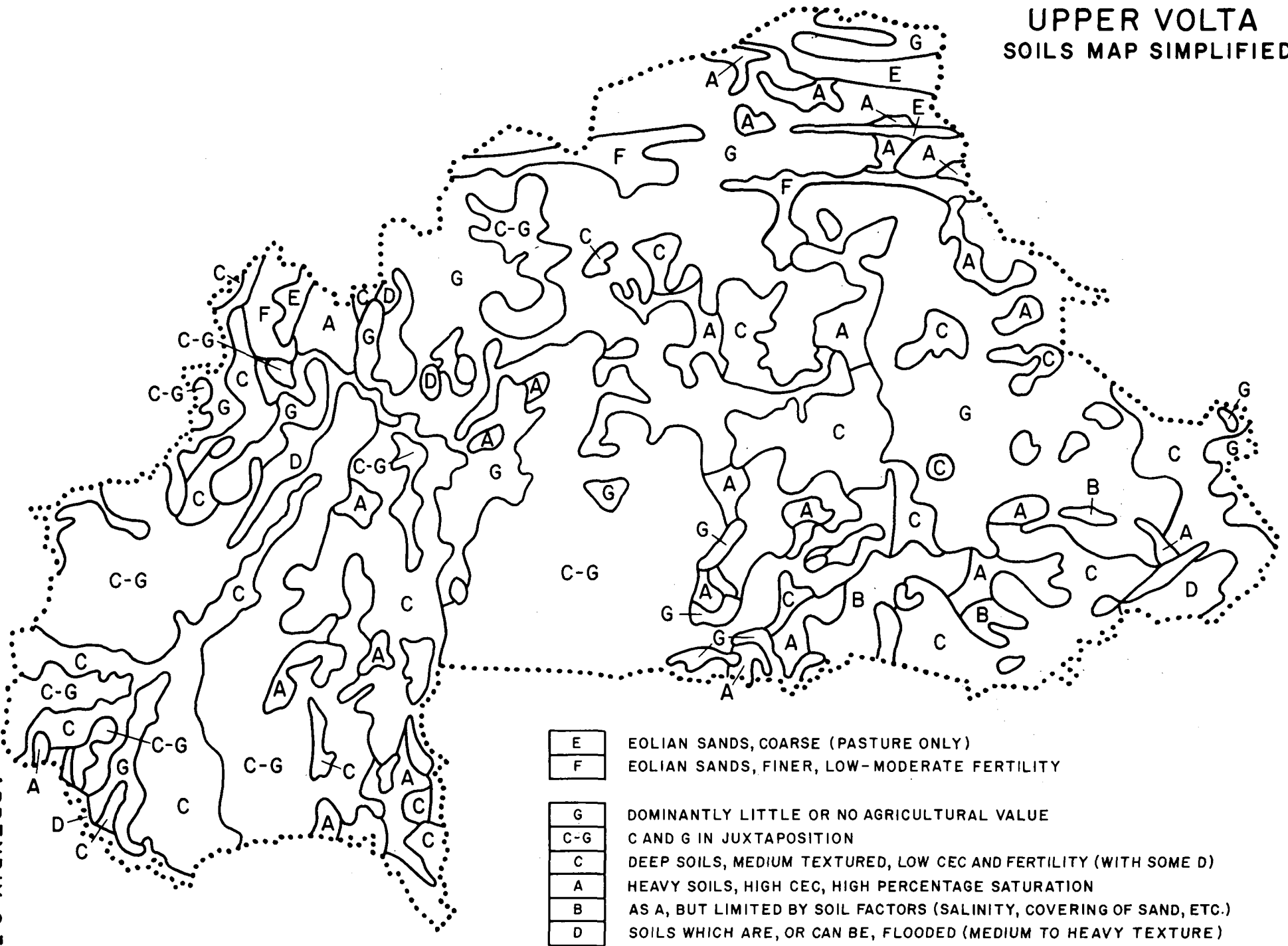
- (c) les périmètres comprenant une forte proportion de sols profonds, à texture moyenne, avec capacité d'échange peu élevée, et fertilité faible (sols ferrugineux et sols hydromorphes non saturés);
- (d) les zones comprenant surtout des sols saturés, ou des sols susceptibles d'être saturés (ce groupe ne s'étend que sur des étendues très restreintes);
- (e) et (f) les secteurs constitués principalement de sables éoliens, répartis entre ceux à même de supporter uniquement des parcours et ceux, de texture moins grossière, qui sont cultivables;
- (g) les aires de peu ou d'aucune valeur agricole, et
- (h) les périmètres où (c) et (g) se juxtaposent étroitement doivent être cartographiés ensemble.

Les unités (g) et (h) correspondent à celles possédant de loin les plus grandes superficies. Un plan superposable transparent est fourni et peut être placé sur la carte des "régions agricoles" afin d'indiquer les principaux secteurs affectés par le dépeuplement résultant de l'onchocercose.

Un projet de carte pédologique basée sur ce qui précède, mais simplifiée de manière à pouvoir être réduite à l'échelle 1:5.000.000, a été préparée par le CIEH à titre d'exercice (Figure 2) visant à:

- (a) utiliser les renseignements donnés comme matériaux de source directe en vue de l'établissement d'une carte des potentialités des sols de la Haute-Volta, devant être comparée par la suite avec les cartes pédologiques de ce pays obtenues par interprétation des cartes des sols au 1:5.000.000 de la FAO et de l'OUA/IFAN.

UPPER VOLTA SOILS MAP SIMPLIFIED



E	EOLIAN SANDS, COARSE (PASTURE ONLY)
F	EOLIAN SANDS, FINER, LOW-MODERATE FERTILITY
G	DOMINANTLY LITTLE OR NO AGRICULTURAL VALUE
C-G	C AND G IN JUXTAPOSITION
C	DEEP SOILS, MEDIUM TEXTURED, LOW CEC AND FERTILITY (WITH SOME D)
A	HEAVY SOILS, HIGH CEC, HIGH PERCENTAGE SATURATION
B	AS A, BUT LIMITED BY SOIL FACTORS (SALINITY, COVERING OF SAND, ETC.)
D	SOILS WHICH ARE, OR CAN BE, FLOODED (MEDIUM TO HEAVY TEXTURE)

APPENDIX 6.3
FIG.-2

- (b) vérifier dans quelle mesure la réduction de l'information de l'échelle de 1:2.000.000 à 1:5.000.000 a conduit à des pertes dans l'information et dans les détails.

La méthode suivie dans le tracé du projet de carte des potentialités des sols a été celle décrite ci-après:

- (a) Les aires de "peu ou d'aucune valeur agricole" ont été séparées des autres unités, puis un dessin simplifié a été préparé à partir des périmètres aptes à l'agriculture, en vue de réduction à l'échelle 1:5.000.000.
- (b) De la même façon, une délimitation simplifiée, se prêtant à la réduction, a été préparée pour les secteurs décrits comme étant les unités C et G en juxtaposition, c'est-à-dire pour les secteurs où les sols profonds mais généralement pauvres (unité C) se trouvent étroitement associés avec des sols de peu ou d'aucune valeur agricole (unité G).
- (c) Finalement, une carte simplifiée des sols a été préparée en deux étapes: les cartes simplifiées, établies comme dit ci-dessus, ont été fusionnées au titre d'une première étape, puis toutes les superficies des unités de sol restantes de suffisante envergure pour être réduites à l'échelle 1:500.000 ont été introduites, tout en effectuant les ajustements nécessaires, cela en vertu d'une seconde étape. Cette opération a conduit à l'établissement d'une carte des sols basée sur la carte au 1:2.000.000 simplifiée de manière à permettre de la réduire à l'échelle 1:5.000.000, et la comparaison entre cette carte simplifiée et celle originale a donné la possibilité d'évaluer le degré de la perte des détails en résultant.

Il est évident que la carte définitive convenant à la réduction simplifiée

la carte originelle des sols. La perte des détails, a-t-on constaté, affecte tout particulièrement:

- (a) Les sols hydromorphes qui sont largement distribués mais qui se présentent rarement en unités individuelles de taille suffisante pour être montrées sur des cartes à échelle plus petite, et
- (b) des superficies dispersées de vertisols et de sols bruns eutrophes qui, bien qu'apparaissant clairement sur la carte au 1:2.000.000, sont cependant trop restreintes pour continuer d'exister après la réduction au 1:5.000.000.

Bien entendu, la carte définitive ainsi obtenue (voir sous ce couvert) demeure néanmoins une carte des sols. Pour la convertir en une carte des potentialités des sols il faudrait assigner des classes de potentialité aux unités cartographiques des sols. Cette démarche équivaldrait à une simplification plus poussée, et donc à la perte de certaines informations.

La carte au 1:3.000.000 de la "valeur agricole des sols" dans le rapport de la FAO intitulé "Contrôle de l'onchocercose dans la région du bassin de la Volta (FAO, 1973).

Le rapport en question classe les sols de la Haute-Volta dans 12 groupes de potentialité (voir Tableau 1). Une annexe énumère les unités cartographiques individuelles comprises dans chacun de ces 12 groupes de potentialité, et elle donne un exposé des méthodes utilisées. Les auteurs soulignent non seulement que cette classification n'est pas, cependant, aussi exacte que le laisserait penser le nombre élevé de classes, mais également qu'il s'est produit parfois des différences contradictoires d'opinion parmi les auteurs consultés, quant à la valeur des différents sols cartographiés et analysés par ces derniers. Les informations de base employées dans cette compilation sont à des échelles différentes; d'ailleurs, certaines cartes à échelle plus grande utilisent des systèmes de

TABLEAU 1
DEFINITIONS DES 12 GROUPES DE POTENTIALITE DES SOLS
CONTENUS DANS LE RAPPORT DE LA FAO SUR L'ONCHOCERCOSE.

(FAO, 1973)

<u>Classe</u>	<u>Valeur Agricole</u>	<u>Remarques</u>
I	Nulle	Pas utilisée à des fins agricoles
II	Nulle à médiocre	Utilisée occasionnellement
III	Médiocre à nulle	Les sols III à IV b sont traditionnelle-
IV a	Médiocre	ment utilisés pour les cultures vivrières
IV b	Médiocre à moyenne	mais leur rapport monétaire est très faible.
V	Moyenne à médiocre	Les classes IV b à VI sont des sols relati-
VI	Moyenne	vement profonds; les rendements varient de
VII	Moyenne à bonne	moyens à bons et les améliorations de
VIII	Bonne à moyenne	moyennes à considérables.
IX	Bonne	Les classes VIII à X possèdent des potentia-
X	Bonne à très bonne	lités similaires à celles des classes pré-
XI	Très bonne	cédentes, mais elles fournissent de
		meilleurs rendements. Elles sont également
		à même de supporter certaines variétés de
		riz.
		Les sols de la classe XI sont destinés à
		une intensive utilisation (marafchage, riz),
		et ils ne réclament pas de grandes amélio-
		rations.

classification autres que ceux des cartes à plus petite échelle, cela même au sein d'un même pays. La conception de la valeur agricole a été prise en termes de la production existante en fonction des méthodes appliquées, et elle n'a pas tenu compte des résultats susceptibles d'être obtenus si appel était fait à des interventions majeures comme notamment les engrais, les insecticides, la mécanisation.

L'examen de la liste étendue des sols et des unités cartographiques assignées à chacune des 12 classes de potentialité montre plutôt que des unités cartographiques similaires, qu'il est difficile de séparer des informations données, sont placées dans deux classes, et parfois dans plusieurs classes. Cette situation résulterait peut-être des opinions contradictoires dont il est question plus haut à propos de différents auteurs travaillant dans des secteurs différents sur des sols plutôt semblables. Les résultats, cependant, prêtent à confusion. Il devient alors difficile de se rendre compte de la raison qui fait que des unités cartographiques déterminées ont été assignées à des classes spécifiques. Souvent même, il ne s'avère pas possible, en fonction des renseignements donnés, d'introduire en toute confiance les unités cartographiques dans les 72 unités cartographiques utilisées dans la carte au 1:5.000.000 de l'IFAN/OUA.

Si, par exemple, les unités cartographiques utilisées dans le présent rapport sont simplement affectées, en fonction du sol dominant, à l'une des 10 catégories de sols du système français, alors on constate que (cf. Tableau 2):

- (a) chacun des 12 groupes de potentialité des sols utilisés contient des sols appartenant à au moins 3 des 10 catégories et que deux groupes réunissent entre eux pas moins de 8 catégories de sols;
- (b) chaque catégorie de sols (sauf les andosols qui ne sont pas présents) tombe dans un nombre considérable de groupes de potentialité, avec l'une de ces catégories, les sols ferrugineux

Tableau 2. CATEGORIES DE SOLS, SELON LE SYSTEME FRANCAIS,
CONTENUES DANS LES 12 CLASSES DE POTENTIALITE AGROLOGIQUE DU
RAPPORT DE LA FAO SUR L'ONCHOCERCOSE

Catégorie de sols (système français)	CLASSES DE POTENTIALITE DES SOLS											Total	
	I	II	III	IVa	IVb	V	VI	VII	VIII	IX	X		XI
1 Sols minéraux bruts	x		x	x			x		x	x			6
2 Sols peu évolués	x	x	x	x	x	x	x	x	x		x		10
3 Andosols													0
4 Vertisols				x			x	x	x	x		x	6
5 Bruns subarides		x		x			x	x	x				5
6 Sols bruns eutrophes				x		x	x	x	x	x	x	x	8
7 Sols ferrugineux	x	x	x	x	x	x	x	x	x	x	x	x	12
8 Sols feralli- tiques	x						x		x	x			4
9 Sols hydromorphes	x			x		x	x	x	x	x	x	x	9
10 Sols halomorphes	x		x	x	x								4

tropicaux, tombant dans chacune des 12 catégories de potentialité.

Les sols isohumiques subarides de la catégorie 5, et les sols bruns eutrophes de la catégorie 6, que l'on s'attendrait à posséder des potentialités relativement bien définies, sont répartis dans cinq classes (II à VIII) et huit classes (IVa à XI), respectivement. Ce qui peut-être surprend encore davantage c'est la variation dans la classification des sols de la catégorie 1, "sols minéraux bruts" et de ceux de la catégorie 2, "sols peu évolués", auxquels de nombreux auteurs n'accordent que de faibles valeurs. Les sols minéraux bruts apparaissent dans six classes, allant de I à IX, tandis que les sols peu évolués apparaissent dans pas moins de neuf classes, de I à X.

On pourrait se demander quel sol minéral brut serait placé dans une classe aussi élevée que la classe IX (alors que la classe XI représente celle la plus élevée). Il s'agit des sols minéraux bruts, d'origine non climatique, d'érosion; de lithosols associés à des vertisols lithomorphes modaux et à des lithosols sur grès. Cependant, selon les définitions des classes de potentialité, les sols de la classe IX, à laquelle les sols susvisés sont affectés, sont des sols généralement profonds donnant des rendements relativement satisfaisants pour les cultures traditionnelles; ce qui ne cadre pas avec la conception générale des lithosols. Ces sols correspondraient vraisemblablement à l'unité 1C de la carte 1:5.000.000 de l'OUA/IFAN, tandis que dans la classification du CIEH ils sont placés dans la Classe 5, sols sans valeur agricole.

Pareillement, on peut s'interroger sur le fait que des sols peu évolués aient été placés dans la Classe X (soit une classe au-dessous de la catégorie la plus élevée). Les sols en question correspondent à des sols peu évolués, d'apport, hydromorphes, sur alluvions sableuses à sablo-limoneuses. Ces sols correspondent à l'Unité 2C de la carte de l'OUA/IFAN. Si ces sols sont des sables, il est peu probable qu'ils méritent d'être placés dans une classe aussi élevée, bien que l'on puisse s'attendre à ce que les sables limoneux soient

un peu plus productifs. Cependant, si on considère les classes de potentialité assignées aux sols hydromorphes en général on constate que ces derniers sont assignés à pas moins de neuf des onze classes, depuis celle la plus faible (classe I) à la plus élevée (classe XI). Cette variation reflète-t-elle les "opinions contradictoires" des différents auteurs? Il se peut que ces interprétations soient correctes, mais qu'elles le soient ou pas elles indiquent certainement qu'il faut davantage d'informations que ce qui figure sur une carte à petite échelle si on doit entreprendre l'évaluation de ces sols avec un certain degré de confiance.

Semblablement, dans le même compte rendu à propos de l'onchocercose, un éventail très étendu de potentialités est attribué aux sols ferrugineux de la catégorie 7 - en fait, ces sols apparaissent dans chaque classe de potentialité de I à XI, tandis que dans la classification du CIEH, utilisant cinq classes, la plupart de ces sols tombent dans les classes 3 ou 4.

En conséquence, il est difficile de comprendre ou de vérifier les renseignements contenus dans ledit rapport, renseignements paraissant souvent arbitraires. Néanmoins, ce document demeure digne d'attention ne serait-ce du fait qu'il constitue vraisemblablement la tentative de la classification de potentialité la plus détaillée, en termes du nombre de classes, jamais entreprise pour l'Afrique Occidentale. Le rapport semble illustrer une fois de plus les très grandes difficultés rencontrées lorsque l'on désire interpréter en termes de potentialité les unités taxonomiques de sols généralement cartographiées à des échelles moyennes ou à des échelles plus petites.

Les cinq feuilles cartographiques au 1:500.000 des ressources en sols de la Haute-Volta et le rapport narratif connexe (Boulet, 1976).

Cet important rapport ainsi que le jeu de cartes ont été reçus et examinés après que l'étude du reste des documents énumérés ci-dessus ait été achevée et après que la carte pédologique simplifiée mentionnée plus haut ait été tracée.

Le document en question comprend:

- (a) Cinq feuilles cartographiques (Nord, Ouest-Nord, Ouest-Sud, Centre-Sud, Est-Sud) intitulées "Ressources en sols. Carte au 1:500.000 des unités agronomiques déduites de la carte pédologique".
- (b) Un exposé narratif de 97 pages, par R. Boulet, intitulé "Notice des cartes de ressources en sols de la Haute-Volta".

Les cartes donnent une interprétation directe (ce qui est rare en Afrique Occidentale francophone) des cartes pédologiques publiées à la même échelle, et elles prennent en compte tant les sols que le climat dans la définition des unités agronomiques délimitées.

Climat

Quatre zones agro-climatiques ont été définies pour le pays. Ce sont par ordre croissant de la précipitation:

- (a) La zone agro-climatique septentrionale (zone sahélienne).
La précipitation est moins de 550 à 600 mm. La végétation se caractérise par des steppes à épineux sur les sols lourds et par la savane arbustive sur des sols plus légers.
- (b) La zone agro-climatique de transition
La précipitation se situe entre 600 et 800 mm. La végétation comprend des savanes arborées claires sur des sols plus profonds et des arbustes sur ceux moins profonds. La zone souffre souvent de déficits d'eau. Les cultures entreprises dépendent partiellement de la texture du sol, le millet et les arachides étant produits sur des sols sableux, au moins à la surface, le manioc et le sorgho sur des sols imparfaitement drainés de texture légère à moyenne, et le coton et le sorgho sur les sols les plus lourds.

(c) La zone agro-climatique médiane.

C'est la plus étendue des quatre zones définies en Haute-Volta. La précipitation va de 800 à 1.200 mm. La végétation est typiquement représentée par la savane arborée. Tout un éventail de cultures adaptées y sont entreprises, relativement affectées par les insuffisances de pluies. Ces spéculations regroupent notamment les arachides, le coton, le sorgho, le maïs, le manioc et les ignames.

(d) La zone agro-climatique méridionale.

La précipitation se situe entre 1.200 et 1.500 mm et la végétation naturelle (bien modifiée actuellement par suite des longues périodes d'agriculture nomade) est composée de savane arborée passant progressivement à la savane arborée claire sur les sols plus profonds et sur ceux disposant d'un meilleur approvisionnement en eau.

Les unités agronomiques sont définies et cartographiées pour chacune des quatre zones agro-climatiques. Les limites de ces unités sont les mêmes que celles des unités cartographiques pédologiques de la carte des sols au 1:500.000 (à laquelle il est également fait référence dans le code), sauf que certaines des unités agronomiques regroupent deux unités cartographiques pédologiques ou davantage.

Les unités agronomiques de chacune des quatre zones agro-climatiques sont énumérées dans les légendes des cartes en fonction de (a) la profondeur, et (b) la texture.

La profondeur du sol dans les légendes est classée comme profonde (plus de 100 cm), moyenne (40 à 100 cm) ou peu profonde (moins de 40 cm). Quant à la texture du sol, elle prend en compte tant la texture du sol de

surface que celle de l'horizon B. Le coloriage, sur les cartes, des unités agronomiques avec sol profond ou moyennement profond reflète la texture, tout particulièrement celle de la couche arable, avec des couleurs marron pour les sols argileux, des couleurs orange pour les sols avec couche arable surjacentes à des argiles, et des couleurs jaunes pour les sols sableux, au moins dans la couche arable. Les couleurs bleues indiquent des sols mal drainés. Cependant, les sols peu profonds (moins de 40 cm) ne sont pas colorés sur la carte, de sorte que les endroits en blanc laissent à penser qu'il s'agit de secteurs avec faible valeur agricole.

Des tableaux fournissant des renseignements portant sur la fertilité du sol sont également donnés sur les feuilles cartographiques, tableaux qui indiquent le nombre d'unités cartographiques pédologiques de la carte pédologique originelle qui correspond aux unités agronomiques. Les tableaux en question renseignent, pour chaque unité agronomique, à propos des neuf facteurs ci-après affectant la fertilité.

- P Profondeur réelle du sol - trois classes de profondeur, plus une quatrième classe pour les sols de profondeur variable.
- T Texture des horizons A et B - trois classes, plus les affleurements rocheux.
- D Drainage - cinq classes.
- E Les relations hydrauliques, indiquant si l'alimentation en eau du sol est très insuffisante, insuffisante, satisfaisante, surabondante, en opposition ou inconnue.
- CA Capacité d'échange fondée sur le total des bases échangeables (moins de 1 milliéquivalent par 100 grammes à plus de 20 milliéquivalents par 100 grammes) et sur le pourcentage de saturation.

- CR Carences; n'est indiquée qu'une insuffisance en $P_2 O_5$, si toutefois elle existe.
- CH Facteurs chimiques défavorables (sols avec alcali de sodium, présence de carbonate ou de sulfate de sodium).
- MO Teneur en matière organique - trois classes (faible, moyenne, élevée).
- PY Facteurs physiques défavorables (colmatage, contrastes marqués entre les textures, comme dans les planosols, présence d'abondants matériaux grossiers (concrétions de roches ferrugineuses ou de fragments rocheux), surtout haute susceptibilité à l'érosion).

Objectif des cartes

Les cartes établies ne prétendent pas assigner des valeurs de potentialité aux sols et conséquemment de les placer selon un ordre de mérite bien défini. Les fins visent plutôt à "traduire en termes agronomiques simples" les principaux éléments obtenus des cartes pédologiques au 1:500.000 établies en 1967-69. Cette "traduction" est destinée à donner une image concise des ressources en sols susceptibles d'être exploitées dans le pays, également à fournir des informations liées tant à l'aménagement de nouveaux secteurs qu'à l'amélioration de ceux déjà cultivés. Cependant, l'auteur souligne que cette traduction à partir de la carte pédologique ainsi que la nécessité de synthétiser les faits pédologiques en fonction de l'agronomie "ont entraîné la disparition d'une partie des informations par rapport aux cartes originelles". Comme indiqué plus haut, cette tâche complexe a été exécutée en délimitant les unités agronomiques (correspondant à une, deux, trois, ou davantage unités cartographiques originelles de sols) et en établissant des tableaux récapitulants, dans la mesure où ils sont connus, les plus importants facteurs affectant la productivité du sol. Quant à la division en quatre zones climatiques,

il a fallu l'adopter car il se peut que des sols possédant les mêmes propriétés agronomiques présentent des potentialités agricoles différentes, dépendant de la zone climatique dans laquelle ils se trouvent. Cependant, les sous-divisions climatiques ne suivent ni exactement ni constamment les isohyètes de la précipitation, bien qu'elles soient localement modifiées par les facteurs de sol et de végétation.

La carte des ressources en sols par rapport à la carte des potentialités au 1:5.000.000 du CIEH. (Carte 6-1, Volume 2 de ce rapport)

Le rapport Boulet (1976) ainsi que les cinq feuillets cartographiques représentent une importante et utile démarche dans l'interprétation de la carte pédologique, interprétation qui vise à aider ceux qui ne sont pas des experts en pédologie en appelant leur attention, au moyen de cartes, tableaux et textes, sur les propriétés des sols se rapportant directement à l'agriculture pratique, cela tout en mettant principalement l'accent sur la profondeur et la texture du sol.

Par rapport à la carte des potentialités des sols au 1:5.000.000 établie par le CIEH, on notera que:

- (a) C'est là un exemple de carte à échelle moyenne (1:500.000) qui n'a pu être établie qu'en raison du fait que l'on disposait déjà d'une carte pédologique sûre à la même échelle. R. Boulet, qui a préparé les cartes des ressources en sols, a été également impliqué dans la préparation de la cartographie originelle des zones Centre-Nord et Est ainsi que du reste dans celle antérieure du "Rapport de synthèse", à l'échelle 1:2.000.000, dont il est fait mention ci-dessus. On notera que l'échelle au 1:500.000 représente, en termes linéaires, dix fois celle au 1:5.000.000 de la carte du CIEH, mais en termes de surface elle est 100 fois plus grande, de sorte que l'on obtient une centuple augmentation de la quantité d'espace disponible pour la représentation d'une surface terrestre et donc un accroissement au centuple dans la

somme de détails susceptibles d'être montrés.

- (b) La carte des ressources en sols omet toute information pédologique ne présentant pas strictement un intérêt agronomique, pour se concentrer sur la texture, la profondeur et le drainage du sol, (ce qui est indiqué sur la carte elle-même), et pour renseigner, dans les tableaux, à propos d'autres propriétés comme la fertilité chimique générale du sol, son régime hydraulique, sa teneur en matière organique et toute caractéristique chimique ou physique préjudiciable. Par ailleurs, des notes supplémentaires sur la légende appellent l'attention sur les principales améliorations qu'il convient, pense-t-on, d'entreprendre. C'est ainsi, par exemple, que pour les sols sableux du secteur de Ouahigouya on a accordé la première priorité à la nécessité non seulement de cultiver les sols afin d'en accroître la porosité (et l'acceptation de l'eau) mais également d'utiliser des engrais, puis de considérer en seconde priorité d'augmenter les niveaux de matière organique.
- (c) Comme dans le cas de l'étude de la FAO sur les sols nigériens examinée dans l'Annexe 6-4, on a envisagé le climat comme un facteur affectant la productivité du sol. Bien que la méthode utilisée ne soit pas paramétrique vu qu'aucune valeur numérique n'est suggérée ou donnée pour les neuf facteurs de productivité tabulés, il n'en demeure pas moins que, pareillement à l'étude susvisée de la FAO, on a pris systématiquement en compte les principaux facteurs considérés comme ayant une incidence sur la valeur agronomique des sols.
- (d) Bien que l'auteur soit à même, à l'échelle utilisée, de présenter tout un volant d'informations, il n'en demeure

pas moins qu'en dehors du fait de suggérer une faible valeur pour certains sols en les laissant non colorés sur la carte, il ne s'occupe pas de placer les sols dans des classes de potentialité, donc d'opiner à propos de leur valeur. S'il est vrai que les classes de potentialité puissent faire l'objet de critiques du fait qu'elles correspondent forcément à des simplifications, elles obligent néanmoins les compilateurs à établir la valeur relative des sols. Les teintes colorées des sols, autres que celles associées aux sols peu profonds, mettent essentiellement l'accent sur la profondeur et la texture des sols, soit des propriétés qui, comme le souligne l'auteur, demeurent relativement permanentes et difficiles à modifier. Dans la zone climatique sahélienne de la Haute-Volta, dans l'extrême nord du pays, les sols ne se prêtant pas à la culture mais convenant toutefois comme parcours sont représentés en utilisant des pointillés colorés sur un fond blanc. Cependant, sur des cartes à échelles plus petites, y compris les cartes pédologiques au 1:5.000.000, on pourrait difficilement indiquer la profondeur et la texture des sols, vu que ce sont là des propriétés qui changent sur de courtes distances. En conséquence, bien que les renseignements fournis sur ces feuillets cartographiques au 1:500.000 soient de grande valeur pratique pour l'utilisateur, il convient cependant de reconnaître que cette valeur n'est pas la même que celle pour des informations qui pourraient être montrées sur un feuillet cartographique unique couvrant l'ensemble de l'Afrique Occidentale.

APPENDIX 6-3

There is a greater amount of soils information available for Upper Volta than for most Savanna countries. In the present investigation reference was made to the following:

- (a) Soil maps and accompanying reports covering the whole of the country at a scale of 1:500,000 and published by ORSTOM*.
- (b) A summary ("Rapport de synthèse") of the above work (Boulet et alia, 1969) which describes the main soils, and includes a soil map on the 1:2 million scale. It also includes, on the same scale, a map of "agricultural regions" which is almost a soil capability map.
- (c) Maps at the 1:500,000 scale and accompanying report, based on the 1:500,000 soils maps (item (a), above) which indicates the soil resources of Upper Volta in terms of agronomic units (Boulet, 1976). The five maps show mainly soil depth and texture, with a division of Upper Volta into four climatic zones. The accompanying report ("Notice des cartes de ressources en sols de la Haute-Volta) gives more detailed information on the soils and their agronomic characteristics, but does not put them into capability classes.
- (d) A coloured map showing "agricultural value of the soils", at a scale of 1:3 million, in the atlas which goes with the FAO 1973 onchocerciasis report ("Contrôle de l'onchocercose dans la région du bassin de la Volta"). This map divides the soils into six categories with agricultural values graded from nil to very good.

*(Boulet, 1968; Boulet and Leprun, 1969; Kaloga, 1969; Leprun and Moreau, 1968; Rieffel and Moreau, 1969.)

(e) A black and white map, at a scale of about 1:4 million, called "potentialité des sols", in the loose leaf volume of maps entitled "Cartographie des Pays du Sahel" (Ministère de la Coopération, 1976). This is a simplified soils map showing seven major soil groups: sols salés et sodiques (salinated and sodic soils); sols d'érosion et cuirasses (transported soils and bedrock); sols subarides (subarid soils); sols hydromorphes (hydromorphic soils); sols ferrugineux et ferralitiques (ferruginous and ferralitic soils); argiles noires tropicales (tropical black clays); sols bruns tropicaux (tropical brown soils). Very brief notes on the agricultural value of each group are incorporated in the key but there is no attempt to put the soils into capability classes.

(f) Short notes issued by IRAT (undated) defining "cropping possibility units" in Upper Volta related to those geomorphological landscape units which are easily identified on air photographs.

Of the above, items (a), (b), (c) and (d) proved the most relevant to the present exercise and were studied in detail. Notes on items (b), (c) and (d) and on their relevance to the CIEH soil capability map are given in the following paragraphs. Figure 1 represents a section of the basic 1:500,000 ORSTOM soils map (item (a) above) showing the soils of the Ouahigouya area.

The "Rapport de synthèse" on the soils of Upper Volta, and the draft soil capability soil capability map drawn by CIEH based upon it.

The Rapport de Synthèse is a useful précis of the soil survey work carried out in the country until that time, written by soil surveyors who took part in the surveys and who, therefore, had a first hand knowledge of the soils of the country.

SOIL MAP OF THE OUAHIGOUYA AREA

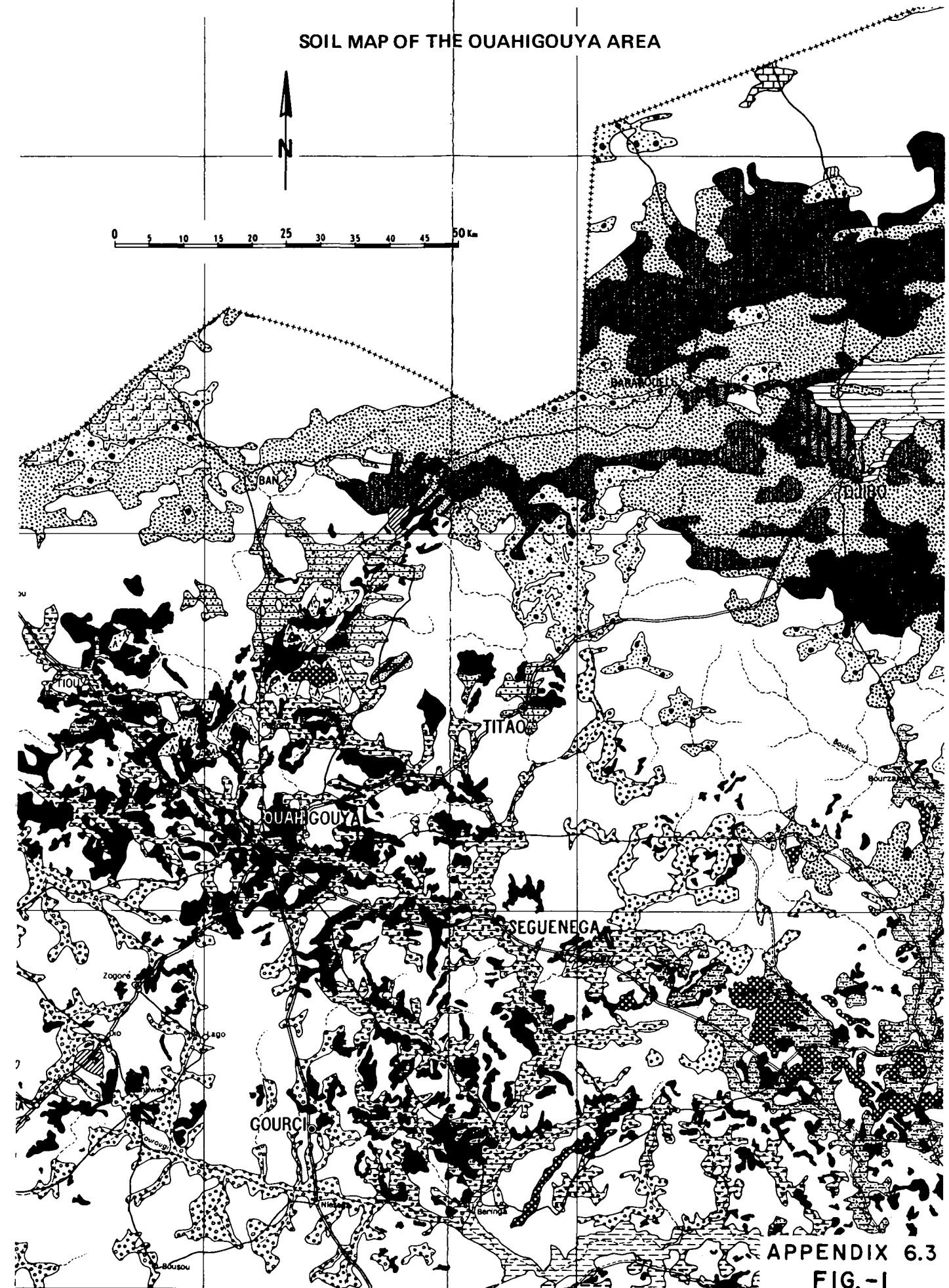
KEY

- | | |
|---|---|
| <p>1. SOLS MINERAUX BRUTS D'EROSION
LITHOSOLS</p> <p>OVER FERRUGINOUS CRUSTS</p> <p>OVER VARIOUS ROCKS</p> | <p>1. RAW MINERAL SOILS
LITHOSOLS</p> <p>(IFAN UNIT 1D) (CIEH CAPABILITY 5)</p> <p>(IFAN UNIT 1C) (CIEH CAPABILITY 5)</p> |
| <p>2. SOLS PEU EVOLUES D'EROSION
SOLS REGIQUES</p> <p>GRAVELLY REGOSOLS ASSOCIATED WITH LITHOSOLS OVER FERRUGINOUS CRUSTS
(IFAN UNIT 2C ASSOCIATED WITH 1D) (CIEH CAPABILITY 4 + 5)</p> | <p>2. IMMATURE SOILS
REGOSOLS</p> |
| <p>7. SOLS FERRUGINEUX TROPICAUX</p> <p>SLIGHTLY DESATURATED, MODAL, OVER EOLIAN SANDS
(IFAN UNIT 7B) (CIEH CAPABILITY 4)</p> <p>SLIGHTLY DESATURATED, ASSOCIATED WITH GRAVELLY SOILS
(IFAN UNITS PROBABLY 7C AND E) (CIEH CAPABILITY 2 + 3)</p> <p>DESATURATED, CONCRETIONARY (IFAN UNIT 7E)
(CIEH CAPABILITY 3)</p> | <p>7. TROPICAL FERRUGINOUS SOILS</p> |
| <p>9. SOLS HYDROMORPHES
SOLS A TACHES ET CONCRETIONS</p> <p>WITH PSEUDOGLEY, ON LOAMY SAND COLLUVIUM AND ALLUVIUM
(IFAN UNIT 9D) (CIEH CAPABILITY 1)</p> <p>WITH PSEUDOGLEY, ASSOCIATED WITH SHALLOW SANDY CLAY GRAVELLY FERRUGINOUS SOILS
(IFAN UNITS 9D AND 7E) (CIEH CAPABILITY 1)</p> | <p>9. HYDROMORPHIC SOILS
MOTTLED AND CONCRETIONARY</p> |
| <p>10. SOLS HALOMORPHES</p> <p>DEGRADED STRUCTURE, SOLONETZ, WITH COLUMNAR B HORIZON
(IFAN UNIT 10C) (CIEH CAPABILITY 5)</p> | <p>10. HALOMORPHIC SOILS</p> |

APPENDIX 6.2, MAP 1

KEY TO THE 1: 500,000 SOIL MAP OF THE OUAHIGOUYA AREA showing the main soils included in the section reproduced.

THE DARK PATCHES ARE ALL SHALLOW SOILS OVER FERRUGINOUS CRUSTS (CIEH CAPABILITY RATING 5) AND THE UNSHADED AREAS ARE THE SHALLOW VERY GRAVELLY SOILS OF THE "PARKING LOTS", WHICH ARE SUCH A STRIKING FEATURE OF THE AREA, ASSOCIATED WITH SHALLOW SOILS OVER FERRUGINOUS CRUSTS (CIEH CAPABILITY RATING 4 + 5). THE MAP ILLUSTRATES THAT THE SOIL PATTERN IS RELATIVELY COMPLEX, AND THAT ONLY THE BROAD FEATURES OF THE AREA SURVIVE REDUCTION TO THE 1: 5 MILLION SCALE. MOST OF THE AREA IS GRADED 4 OR 5 IN THE CIEH CLASSIFICATION OF CAPABILITY, BUT THERE ARE SMALL AREAS OF HYDROMORPHIC SOILS (CAPABILITY 1) WHICH ARE THE MOST PRODUCTIVE IN THE AREA.



APPENDIX 6.3
FIG.-1

Instead of a soil map as such, the report gives four separate soil maps, each at a scale of 1:2 million, and each showing the distribution of one important group of soils or (in one case) two groups of soils. The soils thus shown on separate maps are:

1. Vertisols
2. Eutrophic brown soils
3. Little leached Tropical Ferruginous soils and Reddish-brown Subarid soils (shown together on one map)
4. Leached tropical Ferruginous soils

A fifth map on the same scale of 1:2 million gives "agricultural regions" but is in fact a simplified soils map with some indication in the legend on soil capability, but there is no supporting text to the map. This map shows:

- (a) areas with a high proportion of heavy soils (Vertisols and Eutrophic Brown soils are here combined, though shown separately on the accompanying soil maps);
- (b) areas where these heavy soils have been limited by lack of water or by a soils factor, such as a covering of sand, or salinity;
- (c) areas with a high proportion of deep, medium textured, low cation exchange capacity of low current fertility (Ferruginous soils and non-inundated hydromorphic soils);
- (d) areas of dominantly inundated soils, or soils which could be inundated (this group is very minor in extent);
- (e) and (f) areas of mainly windblown sands, divided into those which can support only pasture and those, of less coarse texture, which are cultivable;
- (g) areas of little or no agricultural value, and
- (h) areas where (c) and (g) are in close juxtaposition, so that they have to be mapped together.

By far the most extensive of these are units (g) and (h). A useful transparent overlay is provided, which can be placed on the "agricultural regions" map to indicate the main areas affected by depopulation caused by onchocerciasis.

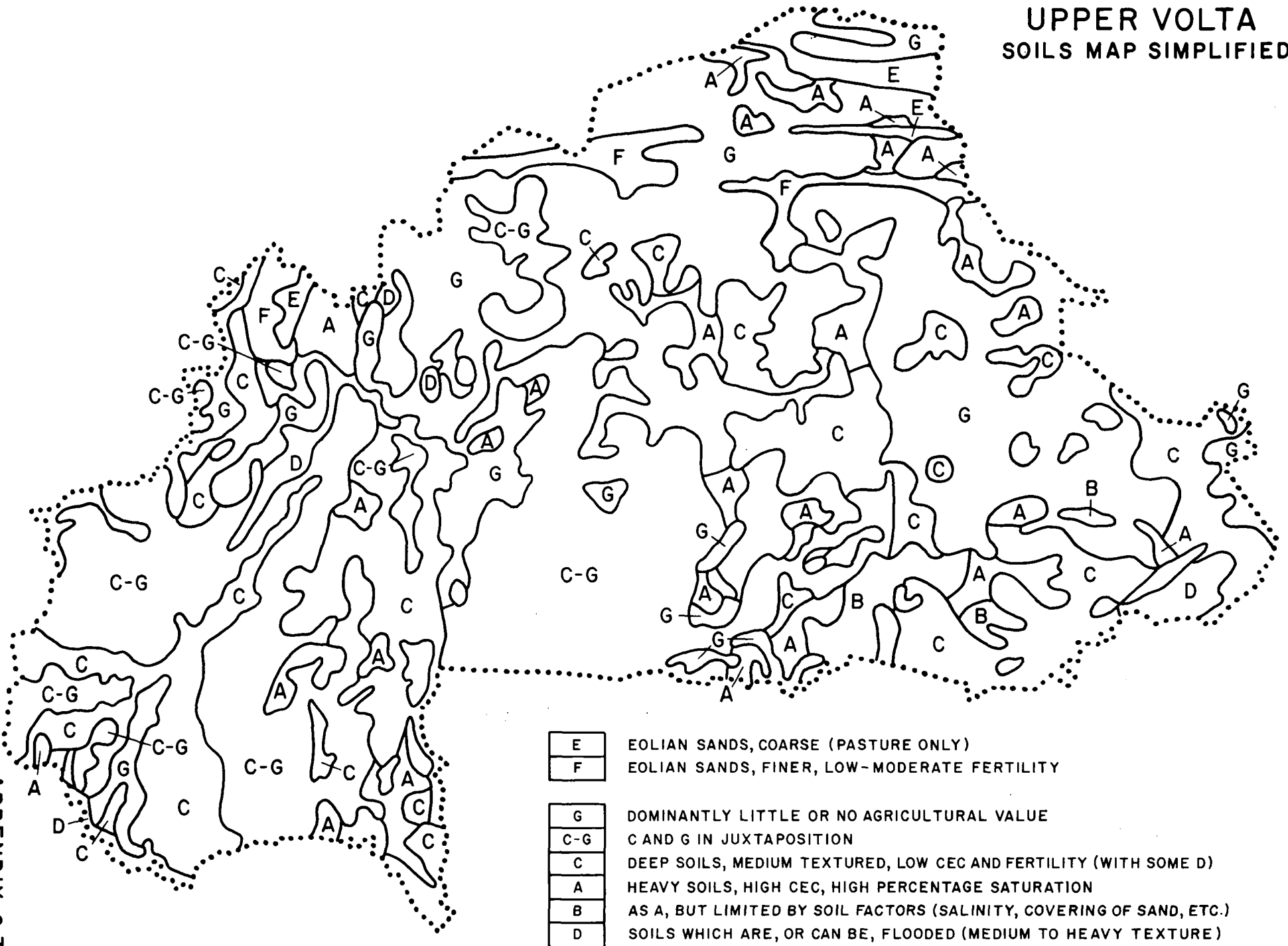
A draft soil map based on the above, but simplified so as to be suitable for reduction to the 1:5 million scale, was drawn up by CIEH as an exercise (Figure 2). The objects of this exercise included the following:

- (a) to use the information given as direct source material for a soil capability map of Upper Volta, to be compared subsequently with soil capability maps of that country obtained by interpretation of the 1:5 million FAO and OAU/IFAN soil maps.
- (b) to see to what extent reduction of the information from a scale of 1:2 million to 1:5 million resulted in a loss of information and detail.

The method employed in drawing up the draft soil capability map was as follows:

- (a) The areas of "little or no agricultural value" were separated from the other units and then a simplified outline was prepared from this suitable for reduction to the 1:5 million scale.
- (b) In the same way a simplified outline, suitable for reduction, was prepared of those areas described as being units C and G in juxtaposition, i. e. areas where deep but generally poor soils (unit C) are closely mixed with soils of little or no agricultural value (unit G).
- (c) Finally a simplified soil map was prepared in two stages: the simplified maps, prepared as described above, were amalgamated as a first stage, and then all the areas of the remaining

UPPER VOLTA SOILS MAP SIMPLIFIED



E	EOLIAN SANDS, COARSE (PASTURE ONLY)
F	EOLIAN SANDS, FINER, LOW-MODERATE FERTILITY
G	DOMINANTLY LITTLE OR NO AGRICULTURAL VALUE
C-G	C AND G IN JUXTAPOSITION
C	DEEP SOILS, MEDIUM TEXTURED, LOW CEC AND FERTILITY (WITH SOME D)
A	HEAVY SOILS, HIGH CEC, HIGH PERCENTAGE SATURATION
B	AS A, BUT LIMITED BY SOIL FACTORS (SALINITY, COVERING OF SAND, ETC.)
D	SOILS WHICH ARE, OR CAN BE, FLOODED (MEDIUM TO HEAVY TEXTURE)

APPENDIX 6.3
FIG.-2

soil units large enough to be reduced to the 1:5 million scale were fitted in, with adjustments where necessary, as a second stage. The result of this exercise was a soils map based on the 1:2 million map simplified so as to allow it to be reduced to the scale of 1:5 million, and a comparison of this simplified map with the original enables an assessment to be made of the degree of loss of detail involved.

The final map suitable for reduction inevitably simplifies the original soil map. The loss of detail was found to affect, in particular:

- (a) hydromorphic soils, which are widely distributed, but which rarely occur in individual units large enough to be shown on the smaller scale maps, and
- (b) scattered areas of vertisols and eutrophic brown soils which, though shown clearly on the 1:2 million map, are too small to survive reduction to 1:5 million.

The final map produced (attached) is, of course, still a soils map. To convert it from a soils map to a soil capability map it would be necessary to assign capability classes to the soil mapping units. This step would represent a further simplification, and loss of some information.

The 1:3 million "agricultural value of soils" map in the FAO report "Contrôle de l'Onchocercose dans la région du bassin de la Volta" (FAO, 1973).

This report puts Upper Volta soils into 12 capability groupings (see Table 1). An Appendix lists the individual mapping units included in each of these 12 capability groupings, and discusses the methods used. The authors point out that the classification is not, however, as exact as the large number of classes might suggest, and that there were sometimes contradictory differences of opinion among the authors consulted as to the value of the various soils they had mapped

Table 1. DEFINITIONS OF THE 12 SOIL CAPABILITY GROUPINGS
INCLUDED IN THE FAO ONCHOCERCIASIS REPORT

(FAO, 1973)

<u>Capability Class</u>	<u>Agricultural value</u>	<u>Comments</u>
I	Nil	Not used for agriculture.
II	Nil to poor	Occasionally used.
III	Poor to nil	Soils III to IVb are traditionally used for subsistence crops but are of very low monetary value.
IVa	Poor	
IVb	Poor to moderate	Classes IVb-VI are soils which are relatively deep; yields are moderate to good and necessary improvements are moderate to large.
V	Moderate to poor	
VI	Moderate	
VII	Moderate to good	Classes VIII to X have similar aptitudes to the previous group but give higher yields. Can also support some rice varieties.
VIII	Good to moderate	
IX	Good	
X	Good to very good	
XI	Very good	Class XI soils are for intensive use (market gardens, rice) and do not need major amendments.

and analysed. The basic material used in this compilation was on several scales, with some larger scale maps using different classification systems from smaller scale maps even in the same country. Agricultural value was conceived of in terms of existing production of crops using existing methods, and did not take into account what might be achieved if major inputs (fertilizers, insecticides, mechanization) were used.

An examination of the extensive list of soils and mapping units assigned to each of the 12 capability classes shows that rather similar mapping units, difficult to separate from the information given, are put into two or more classes, and sometimes into several classes. This may, perhaps, reflect the contradictory opinions referred to of various authors working in different areas on rather similar soils. The result, however, is confusing. It is difficult to see why mapping units have been assigned to particular classes. Often, the mapping units themselves cannot, on the information given, be fitted with confidence into the 72 mapping units used on the 1:5 million French IFAN/OAU map.

If, as an exercise, the mapping units used in this report are merely assigned to one of the 10 French soil orders to which the dominant soils belongs, then one finds (see Table 2):

- (a) that each of the 12 soil capability groupings used contains soils of at least 3 of the 10 orders, and that two groupings have within them soils of not less than 8 orders;
- (b) that each soil order (except the Andosols, which are not represented) falls into a considerable number of capability groupings, with one order, the Tropical Ferruginous soils, falling into every one of the 12 capability categories.

The Isohumic Subarid soils of order 5, and the Eutrophic Brown soils of order 6, which one might have expected to have relatively well defined capabilities, are spread over five classes (II to VIII) and eight classes (IVa to XI)

Table 2. FRENCH SOIL ORDERS REPRESENTED IN THE 12 FAO ONCHOCERCIASIS REPORT CAPABILITY GROUPINGS.

FRENCH SOIL ORDER	SOIL CAPABILITY GROUPINGS											Total	
	I	II	III	IVa	IVb	V	VI	VII	VIII	IX	X		XI
1 Sols minéraux bruts	x		x	x			x		x	x			6
2 Sols peu évolués	x	x	x	x	x	x	x	x	x		x		10
3 Andosols													0
4 Vertisols				x			x	x	x	x		x	6
5 Subarid Brown		x		x			x	x	x				5
6 Sols bruns eutrophes				x		x	x	x	x	x	x	x	8
7 Sols ferrugineux	x	x	x	x	x	x	x	x	x	x	x	x	12
8 Sols ferallitiques	x						x		x	x			4
9 Sols hydromorphes	x			x		x	x	x	x	x	x	x	9
10 Sols halomorphes	x		x	x	x								4

respectively. What is, perhaps, even more surprising is the range of capability groupings assigned to soils of order 1, Raw Mineral Soils, and of order 2, Immature Soils, to which many authors assign only low ratings. The Raw Mineral Soils appear in six classes, ranging from I to IX. The Immature Soils appear in no less than nine classes, from I to X.

One might wonder what raw mineral soil could be placed in a class as high as IX (when XI is the highest class). The answer is given as non-climatic, erosional raw mineral soils: lithosols associated with lithomorphic vertisols and with lithosols over sandstones. According to the capability definitions, though, soils of class IX, to which these are assigned, are generally deep soils giving relatively good yields of traditional crops (see table). This does not fit in with the general conception of lithosols. These soils would presumably be unit 1C on the 1:5 million map, OAU/IFAN map, which, in the CIEH classification are put into class 5, soils without agricultural value.

In the same way, one might wonder what immature soil has been placed in class X (only one class below the very highest category). The soils in question are the immature depositional soils, hydromorphic, on sands to loamy sands. These would correspond to unit 2C on the OAU/IFAN map. If these soils are sands, it seems unlikely that they deserve such a high class, though the less light textured loamy sands can be expected to be somewhat more productive. However, if we look at the capability groupings given to the hydromorphic soils in general, we find that they are assigned to no less than nine of the eleven classes, ranging from the very lowest (class 1) to the very highest (class XI). Does this range reflect the "contradictory opinions" of various authors? These interpretations may possibly be correct, but correct or not they certainly suggest that we need much more information than is given on a small scale map if we are to assess these soils with any degree of confidence.

Similarly, the Ferruginous soils of order 7 are, in this onchocerciasis report, given a very wide range of capabilities - in fact, they appear in every

capability class from I to XI, whereas in the CIEH classification, using five classes, most of them appear in classes 3 or 4.

The information contained in this report is, therefore, difficult to understand or to check, often appearing arbitrary. It deserves attention nevertheless even if only because it is possibly the most detailed capability classification attempt, in terms of number of classes, yet to appear for West Africa. The report appears to illustrate once again the very great difficulties encountered when it is desired to interpret the taxonomic soil units generally mapped at the medium and smaller scales in terms of soil capability.

The five 1:500,000 map sheets of soil resources of Upper Volta and the accompanying explanatory report (Boulet, 1976).

This important report and set of maps was received and studied after the study of the remaining documents listed above had been completed, and after the simplified soil map, described above, had been drawn up.

The report consists of:

- (a) Five map sheets (North, Northwest, Southwest, South-Central, Southeast) headed "Ressources en sols. Carte à 1:500,000 des unités agronomiques déduites de la carte pédologique" (Soil Resources. Map of agronomic units at 1:500,000 scale, based on the pedological map).
- (b) An accompanying text, of 97 pages, by R. Boulet, entitled "Notice des cartes de ressources en sols de la Haute-Volta" (Report on Upper Volta Soils Resources Maps).

The maps represent a direct interpretation (such as is rare in francophone West Africa) of the soil maps published at the same scale, and takes account of both soils and climate in defining the "agronomic units" delineated.

Climate

Four agro-climatic zones are defined for the country. These, in order of increasing rainfall, are as follows:

(a) Northern agro-climatic zone (Sahelian zone).

Rainfall is less than 550 to 600 mm. Vegetation is spiny steppe on heavy soils and savanna with bushes on lighter soils.

(b) Transitional agro-climatic zone.

Rainfall is 600 - 800 mm. Vegetation is open savanna woodland on deeper soils but bush on shallower soils. The zone suffers from frequent water deficits. The crops grown depend partly on soil texture, with millet and groundnuts on soils which are sandy, at least at the surface, cassava and sorghum on imperfectly drained soils of light to medium texture, and cotton and sorghum on the heaviest soils.

(c) Median agro-climatic zone.

This is the most extensive, in Upper Volta, of the four zones defined. Rainfall is 800 - 1200 mm. Vegetation is typically wooded savanna. A range of adapted crops are grown, relatively affected by rainfall deficits. These crops include groundnuts, cotton, sorghum, maize, cassava and yams.

(d) Southern agro-climatic zone.

Rainfall is 1200 to 1500 mm and natural vegetation (now much modified by long periods of shifting cultivation) is wooded savanna grading into dry open savanna woodland on the deeper soils and those with the best water supply.

Agronomic units are defined and mapped for each of the four agro-climatic zones. The agronomic units have the same boundaries as the pedological mapping units of the 1:500,000 soils map (to which reference is also made in the key)

except that some of the agronomic units combine two or more of the pedological mapping units.

The agronomic units of each of the four agro-climatic zones are listed in the legends to the maps according to (a) depth and (b) texture.

Soil depth in the keys is classified as deep (over 100 cm), medium (40-100 cm) or shallow (less than 40 cm). Soil texture takes into account the texture of both the surface soil and of the B horizon. The colouring on the map of the deep and medium depth agronomic units reflects texture, particularly topsoil texture, with brown colours for clay soils, orange colours for soils with a loam topsoil over clay, and yellow colours for soils which are sandy, at least in the topsoil. Blue colours indicate poorly drained soils. However, the shallow soils (less than 40 cm) are not coloured on the map, so that blank areas suggest areas of low agricultural value.

Concise tables giving information affecting soil productivity are also given on the map sheets, which indicate the numbers of the pedological mapping units of the original pedological map which correspond to the agronomic units. These tables give, for each agronomic unit, information on the following nine factors affecting productivity:

- P Effective soil depth - three depth classes plus a fourth class for soils of variable depth.
- T Texture of the A and B horizons - three classes, plus rock outcrops.
- D Drainage - five classes.
- E Water relationships indicating whether the soil has a very deficient, deficient, good, over-abundant, contrasting or unknown water supply.

- CA Exchange capacity based on the total exchangeable bases (five classes, from less than 1 m.e./100 g to over 20 m.e./100 g) and percentage saturation (five classes).
- CR Deficiencies; only a deficit of P_2O_5 , if present, is indicated.
- CH Unfavourable chemical factors (sodium alkali soils, presence of sodium carbonate or sodium sulphate).
- MO Organic matter content - three classes (low, average, high).
- PY Unfavourable physical factors (sealing, abrupt A to B textural contrasts, as in Planosols, presence of abundant coarse material (ironstone concretions or rock fragments), particularly high susceptibility to erosion).

Aim of the maps

The maps produced do not attempt to give capability ratings to the soils and thus put them in a well-defined order of merit. Instead, the aim is merely to "translate into simple agronomic terms" the principal facts obtained from the 1:500,000 soils map prepared in 1967-69. This "translation" has the aim of providing a concise picture of the exploitable soil resources of the country, giving information relative to the development of new areas and to the improvement of those already cultivated. However, the author emphasizes that this translation from the pedological map, and the need to synthesize the pedological facts in relation to agronomy, "have resulted in some loss of information relative to the original maps". As indicated above, this complex task has been carried out by delineating agronomic units (corresponding to one, two, three or more of the original soil mapping units) and by providing tables summarizing, as far as they are known, the more important factors affecting soil productivity. The division into four climatic zones was made necessary because soils with the same agronomic properties might have different agricultural potentials depending on the climatic zone in which they occur. However,

the climatic subdivisions do not follow the rainfall isohyets exactly or consistently, but are locally modified by soil and vegetation factors.

The "soil resources" maps in relation to the CIEH 1:5 million soil capability map.
(Map 6-1 Volume 2 of this report)

The Boulet (1976) report and five map sheets represent an important and useful exercise in soil map interpretation intended to help the non-soil scientist by drawing attention, in maps, tables and text, to the soil characteristics of direct relevance to practical agriculture, with particular emphasis on soil depth and texture.

In relation to the CIEH 1:5 million soil capability map, we may note that:

- (a) These are examples of medium scale maps (1:500,000) which are made possible by the fact that a reliable soils map on the same scale was already available. R. Boulet, who prepared the soil resources maps, was mapping of the Central, Northern and Eastern sections, and also with the earlier "Rapport de synthèse", at the 1:2 million scale, discussed above. A scale of 1:500,000 is, in linear terms, ten times the 1:5 million scale of the CIEH map, but in terms of areas it is 100 times as much, so that there is a 100-fold increase in the amount of space available for the representation of an area on the ground and a 100 fold increase in the amount of detail that can be shown.
- (b) The soil resources map leaves out any pedological information not strictly of agronomic interest, concentrating on soil texture, depth and drainage, which are shown on the map itself, and giving an indication, in tables, of other properties such as the general chemical fertility of the soil, its water regime, organic matter content and any harmful

chemical or physical characteristics. Additional notes on the legend draw attention to the major improvements thought necessary. For the sandy soils of the Ouahigouya area, for example, the first priority is given as the need to cultivate the soil to increase its porosity (and water acceptance) and to use fertilizers, and second priority as the raising of organic matter levels.

- (c) As in the case of the FAO study of Nigerian soils examined in Appendix 6-4, consideration has been given to climate as a factor affecting soil productivity. The method used is not parametric, since no numerical value is suggested or given for the nine productivity factors tabulated, but, as in the case of the FAO Nigerian study, there is some systematic consideration of the major factors held to affect the agronomic value of the soils.
- (d) At the scale used the author is able to present a range of information on the soils, but apart from suggesting the low value of certain soils by leaving them uncoloured on the map he is not concerned with putting soils into capability classes and, therefore, with giving an opinion as to their value. Although capability classes may be criticized on the grounds that they are, of necessity, simplifications, they, nevertheless, force compilers to assess the relative value of soils. The colour shading of soils other than the shallow ones emphasizes primarily soil depth and texture, properties which, as pointed out by the author, are relatively permanent and difficult to modify. In the sahel climatic zone of Upper Volta, in the extreme north of the country, soils which are not suited to cultivation but which nevertheless are apt for pasture are also indicated, using coloured dot patterns on a white background.

On smaller scale maps, however, including soil maps at the 1:5 million scale, it would hardly be possible to indicate soil depth and texture, since these change over short distances. The information given on these 1:500,000 map sheets therefore, though of very great practical value to the user, is not such as could be shown on a single map sheet covering the whole of West Africa.

6 - 4 Etude du cas No. 2 : Nigeria (page 1)

Case study No. 2 : Nigeria (page 27)

ANNEXE 6-4

A l'occasion de la cartographie des sols entreprise dans le passé au Nigeria on a suivi dans une large mesure, tout particulièrement dans le nord du pays, le système de classification SPI de d'Hoore. Plus récemment, on a cependant essayé de classer les sols nigériens tant dans le système du "U.S. Seventh Approximation" que dans celui des unités cartographiques de la FAO.

Bien qu'un large éventail de publications sur les sols du Nigeria ait été consulté, on en a toutefois retenu deux au titre d'études représentatives, soit:

1. La partie intitulée "Ressources en sols du Nigeria" dans l'ouvrage "Développement agricole au Nigeria, 1965-1980", publié en 1966 par la FAO
2. Sombroek, W.G. et Zonneveld, I.S. 1971, "Champs d'anciennes dunes et dépôts fluviaux dans le bassin versant du Rima-Sokoto (nord-ouest du Nigeria)". Institut des études pédologiques des Pays-Bas, Wageningen, précis no. 5 de l'étude des sols.

De ces deux références, la première a fait l'objet d'une étude affinée vu qu'elle constitue une tentative minutieusement entreprise en vue d'établir une évaluation quantitative et numérique des sols en fonction de paramètres sélectionnés dont chacun est défini et auquel une valeur numérique est attribuée. Ce travail de la FAO représente vraisemblablement l'étude la plus détaillée de cette nature jamais exécutée en Afrique Occidentale. En outre, elle indique ce que les auteurs ont considéré constituer les plus importants facteurs limitants pour les sols nigériens, qui avaient été classés et cartographiés selon le système d'Hoore.

Quant à la seconde publication, elle a été retenue car elle renseigne à propos des "sables de couverture" qui sont considérables dans les parties plus sèches de l'Afrique Occidentale (les arenosols de la classification FAO). Par ailleurs, elle contient une carte à l'échelle 1:500.000 susceptible d'être utilement comparée avec les cartes au 1:5.000.000 de la FAO et de l'IFAN. Cette comparaison, rappelons-le, sert à montrer la considérable quantité de détails importants, affectant souvent les potentialités des sols, qui se perdent dans des cartes à échelles plus petites.

Chapitre intitulé "Ressources en sols du Nigeria" dans l'ouvrage "Développement agricole au Nigeria, 1965-1980", (FAO, Rome, 1966)

Le chapitre en question contient une carte des sols au 1:5.000.000 indiquant l'actuelle productivité de ces derniers (c'est-à-dire une carte de la potentialité des sols). Les sols sont placés dans cinq classes, bien que les unités cartographiques soient en fait des combinaisons de classes. Le texte est digne d'attention, étant donné qu'il donne un exposé détaillé de la façon dont ces cinq classes ont été établies, en faisant appel à un système selon lequel sont multipliées entre elles les valeurs numériques des propriétés suivantes des sols considérées comme influençant les potentialités de ces derniers:

- P profondeur du sol
- T texture et structure
- N saturation en cations
- S salinité
- O matière organique
- A nature des minéraux argileux
- M réserves minérales
- D drainage
- H eau (précipitation, en prenant en compte "le nombre de mois pendant lesquels le sol reste déficient en eau pour la production des récoltes)

La productivité du sol se calcule donc selon $P \times T \times N \times S \times O \times A \times M \times D \times H$. Comme il s'agit ici d'une formule multiplicative, les facteurs les plus limitants (soit ceux avec les plus faibles valeurs numériques) l'emportent sur les autres. La même pondération n'est pas attribuée à tous les facteurs; pour certains de ces facteurs la valeur varie de 5 à 100, tandis que pour d'autres elle ne va que de 90 à 100. Ce qui signifie qu'il se peut que la valeur définitive soit réduite (dans le pire des cas) de jusqu'à 95% pour la première propriété, mais seulement de jusqu'à 10% pour la seconde.

La carte pédologique de base utilisée dans le présent rapport est la carte CCTA de d'Hoore, mise toutefois à jour à l'effet d'englober de plus récentes conclusions obtenues dans certains secteurs.

Sept sols principaux ont été cartographiés au Nigeria. Ces sols sont identifiés ci-dessous avec, pour chacun, un sommaire de leurs caractéristiques:

- i. Les ferralsols dont la teneur en matières nutritives est souvent faible, mais qui possèdent des propriétés physiques stables, favorables et sont résistants à l'érosion. Ces sols, qui répondent bien aux engrais, se trouvent situés en grande partie dans la zone de forêt ("zone du palmier à huile et du caoutchoutier"), mais certains - phase de la savane - s'étendent le long des fleuves Niger et Bénoué.
- ii. Les sols ferrugineux tropicaux généralement caractérisés, au Nigeria, par un horizon A surjacent à un horizon B avec davantage d'argile et une faible structure cuboïde subangulaire qui est souvent concrétionnée et/ou tachetée. Le CEC est faible, mais le pH et la saturation en cations sont assez élevés, reflétant ainsi les précipitations davantage modérées dans les zones de savane. L'horizon A légèrement structuré possède une faible capacité de rétention d'eau, et

ces sols sont bien davantage sensibles à l'érosion que les ferralsols (bien que leurs pentes soient en règle générale modérées). Ils sont dans une large mesure utilisés pour le millet (secteurs nord de la savane) et pour le sorgho (secteurs sud de la savane).

- iii. Les sols alluviaux dont les horizons sont relativement peu développés ou peu différenciés. Ces sols sont formés dans des dépôts fluviaux, lacustres et marins relativement récents. L'humidité (mauvais drainage) conduit souvent à des marbrures du sous-sol et à une tendance à davantage de matière organique que les sols associés des terres hautes. La valeur de ces sols dépend de leur texture. Dans certains cas, cette valeur est réduite par la salinité. Les sols en question sont utilisés pour le riz, ou, lorsqu'ils sont convenablement drainés, par tout un assortiment de cultures vivrières. Ils sont généralement assez plats et conviennent donc pour l'irrigation, bien qu'ils puissent nécessiter un drainage afin d'abaisser la nappe aquifère. Ces sols se trouvent en majorité dans la zone de forêt (delta et parties basses du Niger), quoique de petits secteurs avec ces sols soient largement répandus dans la savane.
- iv. Les sols bruns et bruns rougeâtres semi-arides qui sont en règle générale faiblement calcaires et se sont développés surtout à partir de sédiments sableux. Ces sols se manifestent dans la partie semi-aride du nord du pays et servent principalement comme terrains de parcours et pour le millet, avec des arachides cultivées localement.
- v. Les vertisols qui se caractérisent par une texture lourde, de mauvaises propriétés physiques, une médiocre ouvrabilité, et par le fait qu'ils se fissurent profondément et

en largeur au séchage. Le CEC est élevé et la situation des matières nutritives généralement bonne, mais la mise en oeuvre de ces sols nécessite tant un matériel moderne pour les façons culturales que le recours à l'irrigation. Ces sols se présentent généralement dans des dépressions qui se sont développées à partir d'anciens dépôts lacustres.

- vi. Les lithosols sont généralement des sols peu profonds d'ordinaire surjacents à un alios (couche ferrugineuse). En raison de leur faible profondeur ces sols ont peu de valeur agricole.
- vii. Les sols salins et hydromorphes s'entendent essentiellement des sols autour du lac Tchad qui exigent d'être amendés et irrigués avant de pouvoir devenir productifs.

Le rapport contient deux cartes. L'une de ces cartes montre l'actuelle productivité des sols et représente une interprétation basée sur la fertilité naturelle et les méthodes traditionnelles. Elle est cependant décrite par les auteurs comme étant une "approximation grossière" vu qu'elle ne peut pas être plus précise que la carte de base de laquelle elle dérive". Quant à l'autre carte, c'est une carte des potentialités du sol qui est réputée être fondée sur les "résultats prévus par suite d'emploi de pratiques adéquates de mise en valeur du sol et qui reflète l'amélioration qui serait obtenue par l'introduction de la technologie moderne".

Attribution d'une valeur numérique aux paramètres du sol

Aux huit facteurs de sol et au facteur climatique (le nombre de mois pluvieux) sont assignées séparément des valeurs numériques, et la valeur du sol s'obtient en multipliant entre elles ces valeurs numériques, comme indiqué plus haut.

Ci-après sont données des informations supplémentaires à propos de ces évaluations individuelles:

H - eau

Variation: 5 à 100

Dépendant du nombre de mois pendant lesquels un sol reste sec, et donc reflète le climat (tel que montré par les cartes de la précipitation) plutôt que le sol lui-même.

Par exemple, H_4 (évaluation de 80 à 100) indique que le sol se trouve en-dessous du point de flétrissement pendant 3 à 5 mois, et H_3 (évaluation entre 50 et 70) pendant 6 à 8 mois. Les évaluations pour les cultures annuelles diffèrent légèrement de celles pour les espèces arboricoles.

Ces évaluations ouvrent cependant la porte à une certaine discussion. C'est ainsi qu'à un secteur avec six mois de pluie et six mois de sécheresse serait assignée une évaluation de 50, mais il se pourrait qu'un tel climat se prête parfaitement bien à un large éventail de cultures comportant un cycle végétatif de six mois au maximum.

D - drainage

Variation: 10 - 100 (cultures annuelles), 5 à 100 (cultures arboricoles)

L'évaluation maximale (100) s'applique aux sols convenablement drainés, avec une nappe aquifère profonde, ne comportant aucun horizon hydromorphe dans les 120 centimètres et aucune teneur excessive en eau rendant ces sols incultivables. Les évaluations les plus faibles (5 à 40) s'appliquent à des sols rendus non cultivables pendant au moins deux mois par suite d'un excès d'eau.

Un horizon hydromorphe à 60-120 cm (classe D3a) justifierait que le sol concerné soit évalué à 80-90, c'est-à-dire en appliquant une réduction allant jusqu'à 20%. Il apparaît toutefois que dans certains cas l'eau à cette profondeur peut représenter un avantage si le sol reste humide plus longtemps qu'un autre sol bien drainé. Il semble donc qu'il se produit un certain chevauchement entre H, eau, et D, drainage.

P - profondeur réelle du sol

Variation: 5 à 100

Les sols pour les cultures vivrières bénéficient de l'évaluation 100 lorsque la profondeur desdits sols atteint 90 cm, et pour les sols de cultures arboricoles lorsque cette profondeur dépasse 120 cm. Les sols pour cultures vivrières, avec profondeur moindre que 30 cm, obtiennent une évaluation de 20.

En multipliant P par H on obtient une certaine idée de la quantité approximative d'eau retenue pendant l'année, mais ce résultat est modifié par T, texture (voir le prochain paragraphe), bien que T ne réfère en réalité qu'à l'horizon A.

T - texture et structure de l'horizon A

Variation: 10 à 100

L'évaluation maximale (100) est accordée aux sols avec "texture moyenne, équilibrée: limon, limon sableux et limon argilo-sableux".

Un sol légèrement texturé (défini comme "sable fin, sable limoneux ou sable et limon grossiers") est classé en tant que T4 et est évalué entre 40 et 50 s'il est de "structure stable" et entre 30 et 40 dans le cas de "structure instable".

Un sol fortement structuré ("à argile ou argile limoneuse"), se prêtant aux cultures vivrières, s'évalue entre 60 et 70 si la structure va de massive à prismatique, mais à 80 si la structure s'étend d'angulaire à grumeleuse, ou si elle est massive mais très poreuse.

Dans les deux cas précités, une évaluation plutôt faible est appliquée aux cultures arboricoles. La raison de cette situation n'apparaît pas clairement, surtout compte tenu du fait que l'évaluation s'effectue en fonction uniquement de la texture de l'horizon A. Dans de nombreux sols de l'Afrique Occidentale l'horizon A repose souvent sur un horizon B contenant davantage d'argile.

Il semble qu'il existe une trop grande différence entre l'évaluation de seulement 40% pour un horizon A avec texture légère et structure stable, et l'évaluation de 100% pour une couche superficielle de limon.

N - saturation en cations

Variation: 40 à 100

L'évaluation maximale (100) s'applique à un sol saturé à plus de 75%, bien qu'un sol saturé en calcium (Ca) soit évalué à 80. Le taux décroît avec l'augmentation du lessivage pour atteindre 40 lorsque la saturation se situe au-dessous de 15%.

Il existe généralement une relation assez étroite entre le pourcentage de saturation et le pH. Etant donné que ce dernier est mesuré à bien moins de frais et bien plus facilement que le pourcentage de saturation, peut-être qu'il aurait été préférable d'exprimer ce paramètre en pH plutôt qu'en V (=S/T, ou TEB/CEC).

S - teneur en sels solubles

Variation: 5 à 100

L'évaluation maximale (100) s'applique aux sols avec moins de 0,2% de sels solubles totaux. L'évaluation se situe entre 5 et 15 si les sels solubles excèdent 1,0%, si le carbonate de soude est présent ou dépasse 0,6% du total des sels solubles y compris le carbonate de soude.

L'évaluation est modifiée par la texture, avec des taux plus faibles pour les sols plus légers et des taux plus élevés pour des sols à texture lourde et moyenne.

O - matière organique de l'horizon A₁

Variation: 70 à 100

L'évaluation maximale (100) s'applique aux sols dont la teneur en matière organique excède 5%. Les évaluations minimum (70 à 85) sont réservées aux sols contenant moins de 1% de matière organique. Les chiffres sont légèrement modifiés par les considérations se rapportant à H (eau) et D (profondeur). Une relation C/N dépassant 25 jointe à une teneur élevée en matière organique réduit l'évaluation à 70.

La réduction maximale susceptible d'être occasionnée à l'évaluation en raison d'une forte teneur en matière organique n'est que de 30%, de sorte que les auteurs considèrent qu'une faible teneur en matière organique constitue conséquemment un facteur limitant moindre que les divers autres paramètres envisagés

(y compris la structure et la texture de la couche arable).

A - capacité et nature de l'échange minéral de l'argile

Variation: 90 à 100

A ce paramètre est attribuée la plus faible variation de tous les paramètres, et on considère donc qu'il est le moins capable de réduire la productivité.

Un CEC de moins de 20 milliéquivalents par 100g de sol s'évalue à 90, tandis qu'un CEC dépassant 40 milliéquivalents s'évalue à 100.

Malgré la faible différence entre les évaluations on peut néanmoins se demander si le CEC plus élevé constitue nécessairement un avantage. Bien qu'il existe alors une plus grande capacité de rétention des cations et du NH_4 , une plus grande quantité d'un cation déterminé, comme le K^+ , se trouve à la disposition de la plante lorsque le CEC est faible par comparaison aux cas où il se situe à un niveau plus élevé.

M - réserves des minéraux altérables dans l'horizon B

Variation: 85 à 100

Un sol avec aucune ou de très faibles réserves minérales est évalué à 85, alors qu'un sol possédant de grandes réserves minérales venant de roches basiques ou calcaires est évalué à 100.

La variation indiquée semble être plutôt étroite. Les minéraux susceptibles d'altération représentent la fertilité en réserve et ils influencent le "pouvoir stabilisant" d'un sol, surtout si sa teneur en matière organique est faible ou a disparu. Les sols sur roches basiques avec réserves de minéraux tels que l'hornblende ou la biotite se rangent, si les autres paramètres sont assez favorables, parmi les plus productifs naturellement en Afrique Occidentale.

Commentaires sur les valeurs assignées aux paramètres du sol

La logique voudrait, semble-t-il, qu'au fur et à mesure de l'accroissement de la connaissance des sols de l'Afrique Occidentale, des systèmes numériques d'évaluation (comme celui exposé ici) devraient remplacer ceux

d'avantage subjectifs actuellement utilisés sur une plus grande échelle. Dans la pratique, cependant, il se pourrait que l'exactitude et la supériorité des systèmes numériques, compte tenu de l'état actuel de la connaissance, se révèlent davantage apparentes que réelles. Cette restriction résulte simplement du fait de l'insuffisance de la connaissance s'agissant de la corrélation entre les valeurs des paramètres individuels (comme la saturation en cations) et les rendements réels des récoltes. En effet, la productivité du sol subit l'influence de tant de facteurs interdépendants qu'il s'avère présomptueux d'assigner à chacun de ces facteurs une évaluation numérique, vu qu'il existe peu de travaux précis en plein champ sur lesquels ces évaluations pourraient être fondées. En conséquence, les évaluations représentent autant une "estimation réfléchie" que peut-être les évaluations de potentialité affectées au sol en fonction de l'expérience personnelle davantage subjective acquise à pied d'oeuvre.

La publication qui a fait l'objet de l'examen constitue certainement une audacieuse et prudente tentative visant à placer l'évaluation des potentialités sur une base saine et objective, mais plusieurs des valeurs ainsi assignées paraissent être contestables et non prouvées. Les très larges différences d'évaluation liées aux différences plutôt mineures dans la texture de la couche superficielle se justifient-elles? Faudrait-il assigner une plus forte évaluation à la présence ou à l'absence de minéraux altérables, ou encore au taux de matière organique, que ce qui est pris en compte ici? Devrait-on considérer également d'autres paramètres tels que la texture et la structure du sous-sol? Un sol avec 12 mois humides produit-il nécessairement deux fois plus qu'un sol avec seulement six mois de pluie? Il se pourrait que se manifeste un considérable désaccord entre différents chercheurs à propos de l'applicabilité des évaluations utilisées. C'est ainsi que dans un système dans lequel les évaluations individuelles sont multipliées entre elles, une évaluation assignée à l'un quelconque des neuf paramètres risque de grandement affecter l'ensemble du résultat - par exemple, une légère différence dans la texture de la couche arable peut réduire jusqu'à 60% l'évaluation totale d'un sol.

Unités d'aptitude

L'évaluation du sol idéal est de 100. Le rapport fait usage du concept de "l'unité d'aptitude" qui équivaut à un hectare de ce sol idéal avec une évaluation de 100. S'agissant du Nigeria, les auteurs ont trouvé que les sols avec aptitude au-dessous de 0,2 (c'est-à-dire avec une évaluation moindre que 20) ne conviennent pas généralement à l'agriculture (cultures vivrières) alors que l'évaluation des meilleurs sols se place au-dessus de 0,64.

Carte de l'actuelle productivité

Des valeurs approximatives d'aptitude ont été calculées pour 54 unités de sols de la carte pédologique de base (en fonction de la carte CCTA mais mise à jour). Les sols ont été divisés en cinq classes selon les évaluations de leurs potentialités. Aucun sol de première classe n'a été identifié (aptitude plus élevée que 0,64). La proportion, au Nigeria, de l'ensemble des sols des quatre autres classes se présente comme ci-après:

Seconde classe	5,5%
Troisième classe	31,7%
Quatrième classe	46,5%
Cinquième classe	16,3%

Les classes quatre et cinq (totalisant 62,8%) ont été considérées comme ayant une valeur discutable pour l'agriculture, ce qui donc laisse un total de 37,2% de terres (dans les classes 2 et 3) pour l'exploitation agricole.

On rappellera que dans les classes d'aptitude données dans les investigations du CIEH le facteur climatique n'est pas pris en compte dans l'évaluation des sols, de sorte que cette évaluation du CIEH reflète des potentialités intrinsèques du sol sans considérer la précipitation. Par contre, dans l'étude nigériane, un régime de six mois humides et de six mois de sécheresse donne

une évaluation de 70, de sorte qu'aucun sol dans cette zone climatique, même s'il répond à l'idéal à tous les autres points de vues (et donc obtenant 100 pour chacun des autres paramètres), ne peut atteindre une évaluation plus élevée que 70. De plus, dans un secteur avec quatre mois pluvieux aucun sol, même s'il possède par ailleurs toutes les caractéristiques de l'idéal, ne peut bénéficier d'une évaluation supérieure à 50. On pourrait avancer que pour des cultures à court cycle végétatif adaptées au régime pluvial local, l'eau ne constituerait pas un facteur limitant. En conséquence, il serait instructif d'établir une variante de carte des 54 unités de sols tout en ne considérant pas le facteur H qui se rapporte essentiellement à la précipitation. La carte en question servirait à indiquer dans une certaine mesure la potentialité d'irrigation, étant donné que c'est l'évaluation atteinte si les limitations d'eau sont éliminées.

Carte des potentialités du sol

Dans la relation utilisée pour établir l'ensemble des évaluations des aptitudes des sols, les auteurs ont considéré que certaines limitations restaient relativement constantes (c'est-à-dire difficiles à modifier) tandis que d'autres pouvaient être améliorées. Dans la première catégorie de ces limitations se rangent: P (profondeur du sol), T (texture et structure de la couche arable), A (capacité d'échange des cations), M (réserves minérales), et les facteurs d'ouvrabilité et d'érodabilité. D'autres facteurs peuvent être modifiés par l'homme au moyen d'interventions comme le drainage des sols, l'emploi des engrais et de la chaux, la récupération des sols salins, l'accroissement de la teneur en matière organique, et, bien entendu, l'irrigation.

Dans la pratique, on peut être amené à formuler des réserves quant à la praticabilité d'augmenter sensiblement la teneur en matière organique, ou à propos des avantages du chaulage, mais compte tenu desdites réserves, il apparaît intéressant de recalculer l'ensemble des évaluations des aptitudes en ayant recours à la formule modifiée suivante:

P_1 (potentiel futur) = $N_1 \times S_1 \times O_1 \times D_1 \times P_c \times T_c \times A_c \times M_c$
 dans laquelle le suffixe 1 indique une propriété corrigée du sol et le suffixe
 c une propriété constante du sol non susceptible de modification.

Lorsque ces nouveaux calculs sont appliqués aux 54 unités de sols,
 alors toute la courbe de distribution des classes 1 à 5 des sols se déplace
 vers la droite comme indiqué ci-après:

	<u>Potentialité</u>		
	<u>Actuelle</u>	<u>Future</u>	
Classe 1	Néant	3,4	} cultivable
Classe 2	5,5	45,5	
Classe 3	31,7	30,3	
Classe 4	46,5	9,7	} impropre à la culture
Classe 5	16,3	11,0	

Il résulte de ce déplacement que 79,2% des terres deviennent cultivables au lieu de 37,2% comme à présent. Le seul facteur essentiel responsable de ce changement demeure le facteur eau, mais on part ici du postulat essentiel selon lequel l'approvisionnement en eau est assuré. Pareillement, les nouvelles évaluations pourraient être considérées comme indiquant les valeurs relatives des sols après les améliorations, mais sans tenir compte du facteur humidité.

Pour chacune des 54 unités de sols, on a calculé un coefficient d'aménagement C en utilisant $\frac{P_1}{P}$.

Etant donné que pour l'ensemble du Nigeria l'unité d'aptitude moyenne est considérée égale à 17,7 et que la potentialité moyenne est de 45, en conséquence C pour tout le pays correspond à $\frac{45}{17,7}$ ou 2,55. Ce qui signifie qu'avec l'irrigation et d'autres améliorations, on pourrait obtenir une productivité 2 fois et demie plus grande que celle du moment. Il est évident que personne ne saurait envisager sérieusement d'irriguer tout le pays. A la page 12 du chapitre 1

du rapport, on souligne que "d'importants investissements dans l'irrigation seraient difficilement faisables, ou tout au moins pas sages, pendant un assez grand nombre d'années". Cependant, cette approche représente une tentative raisonnée visant à prévoir un plafond. Les stations de recherche comme l'IITA ont certainement obtenu des rendements dépassant de plus de 2 fois et demie les moyennes locales, mais la question de savoir si ces accroissements de rendement sont économiques dépend des prix de vente. On retiendra à ce propos qu'à l'occasion des essais de fertilisation entrepris par la FAO on a enregistré de nombreux cas où les augmentations de rendement ne se sont pas avérées économiques.

Par ailleurs, le rapport établit également une comparaison entre les évaluations calculées pour les unités d'aptitude et l'actuelle population.

Envergure des superficies peu utilisées au Nigeria

La plus grande partie de l'actuelle production agricole vient des centres de population où la pression exercée sur la terre a considérablement réduit les mises en jachère. Par contre, la région centrale (faisant politiquement partie de la région nord) n'apporte dans ce domaine qu'une faible contribution. L'une des principales conclusions du rapport est que cette région centrale devrait être développée. Les auteurs du document avancent que "l'ensemble de cette région bénéficie d'une précipitation modérément bonne, notamment supérieure à celle des secteurs intensivement exploités du point de vue agricole plus loin dans le nord", et ils soulignent que les cartes pédologiques montrent de vastes superficies de bonnes, ou de potentiellement bonnes, terres. Il se pourrait que les auteurs susvisés fassent montre d'un excès d'optimisme au sujet de la précipitation, vu que la distribution et la sûreté risquent de ne pas se comparer aussi bien avec celles vers le nord, mais ils reconnaissent que le "principal obstacle à la mise en valeur de la région centrale demeure la présence de la mouche tsé-tsé", et ils insistent pour que celle-ci soit éliminée, puis que soit immédiatement entreprise l'exécution d'un programme de développement agricole.

Evaluations des potentialités actuelles des unités de sols cartographiées

Comme indiqué plus haut, les unités de sols sont regroupées selon cinq classes de potentialité dans lesquelles les classes 4 et 5 prédominent et la classe 1 est absente, étant par ailleurs entendu que de vastes superficies sont cartographiées au titre d'une combinaison de deux classes de potentialité ou davantage. Par exemple, les aires dans le secteur de Kano-Kaduna sont représentées sur la carte pédologique en tant que Bc Ja Jc (lithosols sur cuirasses ferrugineuses, et sols ferrugineux tropicaux sur matériau sableux et sur roches acides cristallines), aires auxquelles ont été assignées une évaluation de potentialité de 5-4-3. (Cf. Figure 1.)

Les aperçus sur les unités cartographiques ainsi que l'évaluation suivante de leur potentialité indiquent non seulement la façon selon laquelle on est parvenu à établir les évaluations mais précisent également, pour chaque sol, les facteurs limitants que les auteurs du rapport considèrent les plus importants. (1)

Ab Lithosols sur cuirasses ferrugineuses

Classe 5

Principaux facteurs limitants: P1 = profondeur du sol = 5

T1c = caillouteux/rocheux = 60

N3 = modérément lessivés = 60

Bc Lithosols sur cuirasses ferrugineuses

Classe 5

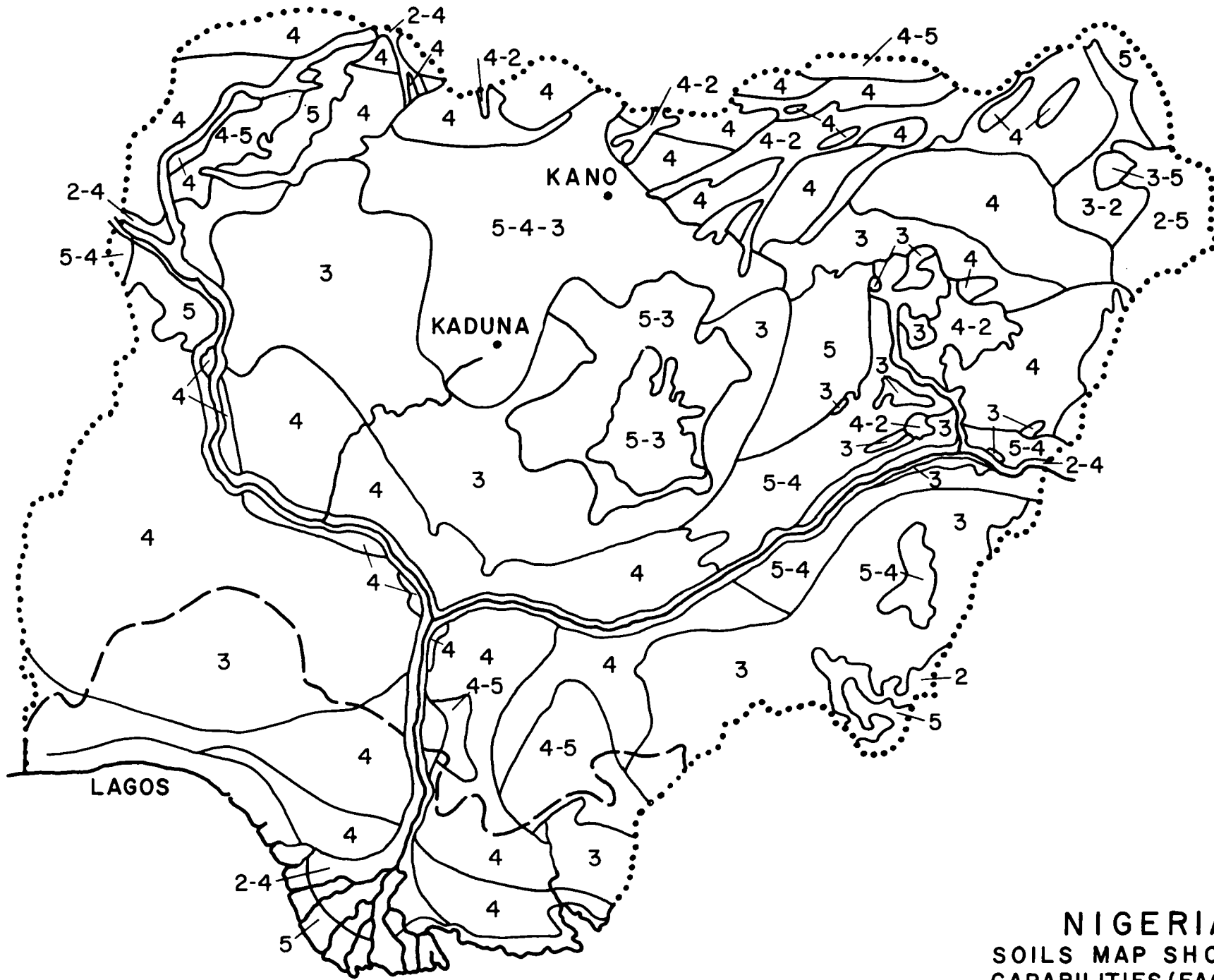
Principaux facteurs limitants: Même que ci-dessus, sauf que

T1b = caillouteux,

rocheux, graveleux = 30

(1) Dans l'énumération des principaux facteurs limitants, les facteurs H, reflétant surtout le nombre de mois secs, ont été omis.

APPENDIX 6.4
FIG. - 1



NIGERIA
SOILS MAP SHOWING
CAPABILITIES (FAO 1966)



Bd Lithosols - non différenciés

Classe 5

Principaux facteurs limitants: P2 = profondeur du sol = 20

T1a/b = caillouteux, pierreux,
graveleux = 10/30

N2 = fortement lessivés = 50

Bh Régosols sur sédiments lâches

Classe 4

Principaux facteurs limitants: T4b = légèrement texturés, stables = 50

N3 = modérément lessivés = 60

Bo Sols alluviaux

Classe 2

Principaux facteurs limitants: T6a = structure massive à prismatique = 80

N4 = peu lessivés = 80

Dj Vertisols - non différenciés

Classe 5

Principaux facteurs limitants: T5a = structure massive à prismatique = 60

N6 = calcaires = 80

O1 = moins de 1% de O M = 85

Da Vertisols sur roches riches en minéraux ferromagnésiens

Classe 4

Principaux facteurs limitants: P3 = sol de 30 à 60 cm d'épaisseur = 50

T1c = argile avec 20 à 40% de pierres = 60

Db Vertisols sur roches calcaires

Classe 3

Principaux facteurs limitants: D2 = hydromorphes à 30-60 cm/incultivables
par suite de la teneur excessive en eau = 40-80

T5a = structure de la couche arable, massive
à prismatique = 60

Gb Sols bruns et bruns rougeâtres semi-arides - non différenciés

Classe 4

Principaux facteurs limitants: T4a = structure instable = 40

M2a = peu de minéraux altérables,
issus des sables = 85

Ga Sols bruns semi-arides sur sédiments lâches

Classe 4

Principaux facteurs limitants: T4a = structure instable = 40
M2a = peu de minéraux altérables,
issus des sables = 85

Hb Sols bruns eutrophes - non différenciés

Classe 2

Principaux facteurs limitants: aucune limitation majeure, avec toutes les évaluations (sauf H, nombre de mois secs allant de 90 à 100

Ia Sols ferrugineux tropicaux sur matériau sableux

Classe 3 dans le nord-est (secteur de Potiskum), mais

Classe 4 dans le nord (Kano-Kaduna) et dans le nord-ouest

Principaux facteurs limitants: dans les secteurs de la Classe 4, la texture légère représente le principal facteur limitant = T4a = 40.

Dans le secteur de la Classe 3, la texture est T6 moyennement lourde = 80/90.

Le lessivage est N3 = modéré = 60, ou

N4 = léger = 80

Profondeur = P4 (60 à 90 cm) = 80.

Ic Sols ferrugineux tropicaux sur roches acides cristallines

Classe 3 dans les secteurs de Kano-Kaduna et Jos, également dans le coin sud-ouest, mais

Classe 4 dans le secteur d'Ilorin.

Principaux facteurs limitants: N3 = modérément lessivés = 60

M1 (secteur d'Ilorin uniquement) = réserves minérales faibles à nulles = 85

P4 = modérément profond = 80 (60 à 90 cm)

Texture = moyennement lourde = 80 à 90.

Jd Sols ferrugineux tropicaux - non différenciés

Classe 4 dans l'extrême nord-ouest en association avec Ja, et dans le nord et le nord-est de Potiskum, mais

Classe 5 dans le nord-ouest, au sud de Sokoto

Principaux facteurs limitants: T2 = texture très grossière = 10 à 30
dans le secteur de la Classe 5 et dans le nord-est de Potiskum, autrement
T4b = légèrement texturés mais stables = 50
N2 = fortement lessivés = 50 dans le secteur de la Classe 5, autrement N3 (=60) ou N4(=80).

La Ferralsols jaunes rouges sur sédiments sableux lâches

Classe 4, mais cartographiés uniquement dans la zone de forêt.

Lc Ferralsols jaunes - non différenciés

Classe 3, cartographiés uniquement dans la zone de forêt au nord de Calabar.

Ll Ferralsols rouges sur sédiments sableux lâches

Classe 4

Principaux facteurs limitants: N2 = fortement lessivés = 50
M1 = réserves faibles à nulles = 85

Ln Ferralsols rouges - non différenciés

Classe 4

Principaux facteurs limitants: N1 = fortement lessivés = 40
M1 = réserves faibles à nulles = 85

Na Sols hydromorphes

Classe 2 dans le secteur de Hadejia, mais

Classe 4 le long des rives du Niger

Principaux facteurs limitants: D2 = (hydromorphes à 30-60cm) = 40-80 dans les secteurs de la Classe 4, mais
D3 (hydromorphes au-dessous de 60 cm) = 80-90 dans les secteurs de la Classe 2.
T5a = structure massive à prismatique = 60 dans les secteurs de la Classe 4, mais T7 = texture équilibrée = 100 dans les secteurs de la Classe 2.

Nb Sols organiques

Classe 5 (en bordure du lac Tchad)

Principaux facteurs limitants: D1 , rendus incultivables par suite d'une
teneur excessive en eau = 10-40
T2c = humus non décomposé = 30

Mb Sols hydromorphes salins et alcalins

Classe 5

Principaux facteurs limitants: T3 = argile dispersée ou imperméable = 30, ou
T5 = argile massive à prismatique = 60
S6 ou S9 = total des sels solubles supérieur
à 1% (ou plus élevé que 0,6% avec le carbo-
nate de sodium) = 5 à 15.

Me Sols salins - non différenciés

Classe 5

Principaux facteurs limitants: mêmes que pour Mb, ci-dessus.

L'examen de ce qui précède indique que dans quelques cas, il se peut que la même unité cartographique (telle que Ja, Jc, Jd ou Na) soit assignée à deux secteurs, mais ces secteurs sont néanmoins placés dans des classes différentes de potentialité. C'est ainsi que l'unité cartographique est mise dans les deux classes 2 et 4. En conséquence, cette classification reflète une connaissance supplémentaire des propriétés des sols locaux au-delà de ce qui est montré sur la carte pédologique, et elle suggère qu'en certains cas au moins il ne conviendrait pas de fonder la classification des potentialités du sol uniquement sur les cartes taxonomiques à échelle plus petite. Quant aux différences entre les secteurs de la Classe 3 et ceux de la Classe 4 de l'unité cartographique Ja, elles représentent surtout des différences dans la texture de la couche arable, ce qui ainsi reflète le fait (déjà souligné plus haut) que ce seul facteur se trouve à même de modifier considérablement l'ensemble de l'évaluation. Dans ce cas particulier, l'évaluation de 80-90 du sol de structure T6 (texture moyennement lourde) est le double de l'évaluation 40 donnée à la texture T4a (structure instable et texture légère). Les sols hydromorphes des rives du Niger (Classe 4)

sont mis dans une classe plus basse par rapport aux sols hydromorphes du Hadejia en raison d'un drainage moins bon et d'une structure allant de massive à prismatique.

Les plus grandes superficies des meilleurs sols de la savane nigériane correspondent à l'unité Jc, sols ferrugineux tropicaux sur roches acides cristallines (c'est-à-dire sur granites, etc). Ces sols sont placés dans la Classe 3, ainsi que le sont les périmètres moins étendus de l'unité Ja avec des sols similaires mais sur matériau sableux. Les sols de la Classe 2, sont relativement restreints et sont cartographiés en association avec les sols plus pauvres.

Institut des Etudes Pédologiques des Pays-Bas, Wageningen: Précis no. 5 sur l'étude des sols: Sombroek, W.G. et Zonneveld, I.S. 1971. "Champs d'anciennes dunes et dépôts fluviatiles dans le bassin versant du Rima-Sokoto (nord-ouest du Nigeria).

L'étude susvisée prend en compte les loess ainsi que les dépôts de sable de couverture poussés par le vent, également les dépôts alluviaux plus anciens et plus jeunes du quaternaire transportés par les eaux, par rapport au climat. L'étude en question a été retenue en raison surtout du fait qu'elle contient une carte au 1:50.000 (et des secteurs sélectionnés cartographiés au 1:20.000) qui, lorsque comparée avec les cartes au 1:5.000.000 de la FAO et de l'IFAN, indique les différents sols et dépôts qui ont perdu leur identité dans la simplification nécessaire à l'échelle 1:5.000.000. Ces divers sols et dépôts possèdent, semble-t-il, des potentialités agricoles très différentes.

La même étude non seulement fait état de potentialités agricoles différentes pour de nombreux dépôts transportés par le vent et l'eau mais également suggère que le degré et la persistance du colmatage de surface ont une très grande incidence sur l'utilisation de la terre et la mesure selon laquelle les sols sont mis en valeur au titre des méthodes traditionnelles. Seulement les unités cartographiques, ou les portions de ces unités, où le colmatage s'avère

relativement prononcé ne sont pas en règle générale largement utilisées à des fins agricoles. Cette corrélation est mise en évidence dans le tableau ci-joint qui renseigne tant à propos des dépôts éoliens (sous forme de courtes citations empruntées à l'étude) qu'au sujet des unités cartographiques des dépôts plus anciens et plus jeunes transportés par les eaux (cela, sous la forme de notes concises).

Le rapport met donc l'accent, dans les secteurs cartographiés et décrits par Sombroek et Zonneveld, sur l'importance du degré de colmatage de la surface en relation avec la potentialité du sol. Cependant, le colmatage ne représente pas l'une des propriétés évaluées numériquement dans l'étude de la FAO sur le Nigeria (cf. le chapitre précédent); non plus il n'existe suffisamment d'information dans l'étude du CIEH pour permettre de considérer le colmatage d'une façon systématique. On pourrait avancer que les effets néfastes du colmatage se trouvent dans une certaine mesure limités à certains types de sols, mais il y a peu de doute que là où de sévères colmatages se produisent il se peut que l'agriculture soit rendue presque impossible. Parmi les dépôts éoliens, les sables de couverture de Sangiwa (en dépit de leur texture relativement grossière) sont ceux davantage soumis aux risques du colmatage et du compactage, et même lorsqu'ils sont labourés ces sols se colmatent à nouveau avec les premières averses. Presque tous ces périmètres ne sont pas cultivés et même la culture arboricole a échoué en raison du ruissellement et du manque de pénétration des eaux de pluie dans le sol. Pour les mêmes raisons, tous les dépôts fluviaux où le colmatage est élevé demeurent virtuellement inutilisés.

Sombroek fait une distinction entre les secteurs s'étendant vers le sud, au sud d'à peu près la latitude de Niamey, et les zones nord où les textures ont généralement une tendance à être plus légères. Dans les secteurs sud, ce sont les dépôts plus anciens (les ergs anciens) qui souffrent du colmatage et restent virtuellement inutilisés, tandis que les dépôts plus jeunes sont d'ordinaire soumis à une exploitation agricole intensive. Ceci

Tableau 1. Récapitulation des risques de colmatage et sommaire de l'utilisation des terres des dépôts éoliens ainsi que des dépôts fluviaux plus anciens et plus jeunes

<u>Nom et symbole cartographique</u>	<u>Envergure du colmatage</u>	<u>Utilisation de la terre</u>
(a) <u>Dépôts éoliens</u>		
Funtus b	Colmatage sous des conditions de végétation naturelle, mais après labourage restent friables pendant longtemps	Culture intensive pendant la saison humide
Sangiwa A ou a	Extrêmement sujets au colmatage de surface malgré la texture sableuse; le labourage ne produit aucun effet vu que la première averse occasionne à nouveau un colmatage complet	Agriculture pluviale virtuellement impossible (faible réussite des semis; taux élevé d'écoulement
Sokoto C ou c	Aucun colmatage de surface	Utilisée presque partout pour l'agriculture nomade
Zurmi D ou d	Un certain colmatage mais sans effets défavorables sur les cultures	La plus grande partie en cultures permanentes
Illela E ou e	Aucun colmatage	Utilisée surtout pour l'agriculture nomade
(b) <u>Dépôts fluviaux plus anciens</u>		
Tureta 1.1	Peu de colmatage	Souvent utilisée pour l'agriculture nomade de la saison humide
Bakalori 1.2	Colmatage de surface pas persistant	Utilisée dans une large mesure pour la mise en culture permanente de la saison humide
Rabah 2.1	Aucun colmatage	Utilisée presque partout pour la mise en culture permanente de la saison humide
Talata 2.2	Colmatage prononcé dans les parties argileuses, faible ailleurs	Parties argileuses laissées essentiellement inutilisées, le reste intensivement cultivé

(à suivre)

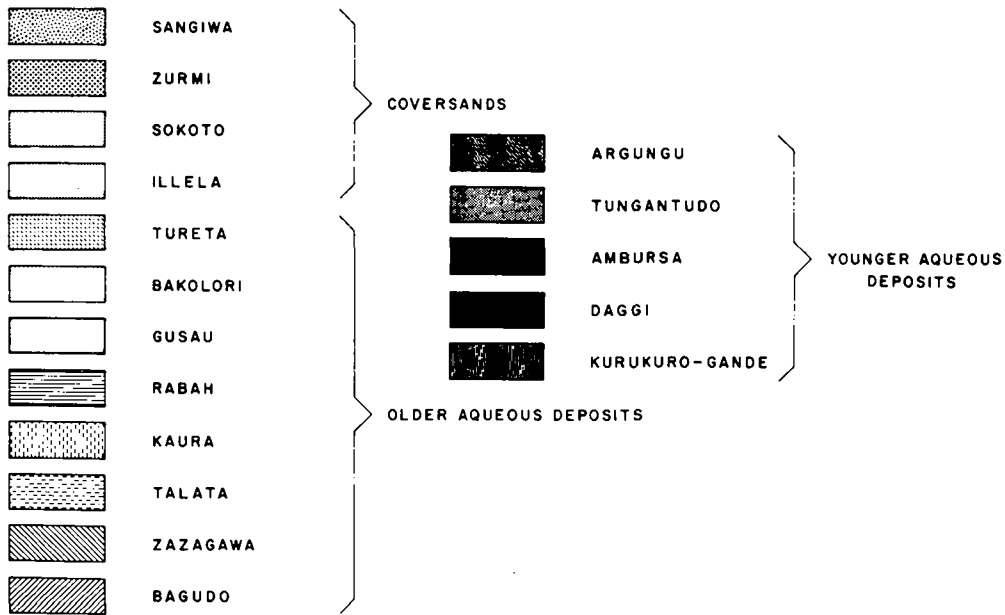
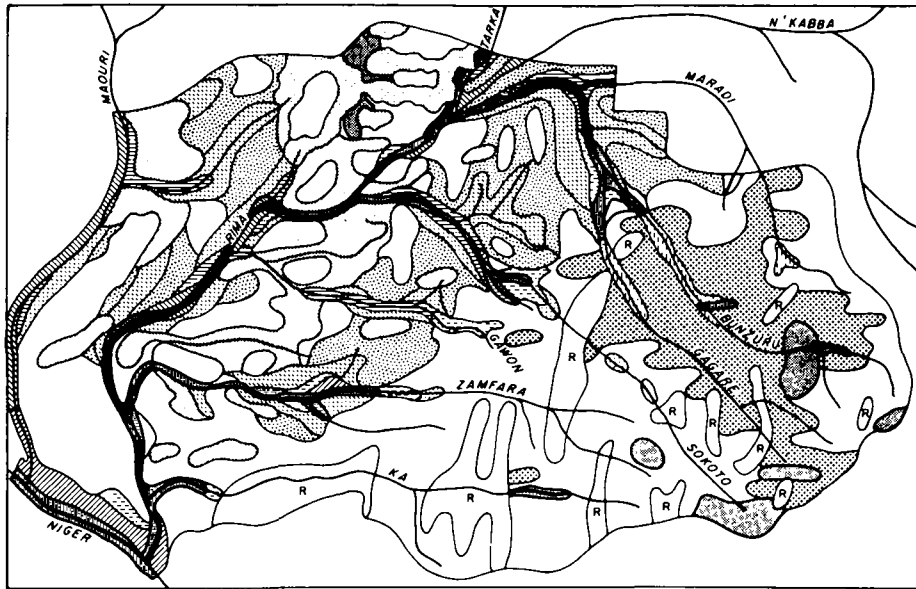
Tableau 1. (suite)

Kaura-Namoda 2.3	Aucun colmatage	Entièrement utilisée pour la mise en culture permanente de la saison humide
Zazagawa 3.1	Aucun colmatage	Utilisée pour la mise en culture intermittente de la saison humide
Bagudo 3.2	Forte tendance au colmatage, exception faite des secteurs s'élevant en hauteur	Laissée essentiellement inutilisée, exception faite des secteurs s'élevant en hauteur
	(c) <u>Dépôts fluviaux plus jeunes</u>	
Argungu 4	Aucun colmatage	Presqu'au niveau de la mise en culture permanente
Diggi 5	Digues se colmatant fortement, terres du bassin se colmatant légèrement seulement	Levées virtuellement inutilisées; terres du bassin utilisées pour la culture du riz
Ambursa 6.1	Aucun colmatage	Cultivée partout où le drainage de la saison humide est possible
Kurukura et Gande 7.1 à 8.3	Colmatage sur les levées anciennes; le reste sans colmatage	Levées anciennes peu utilisées; le reste exploité en cultures diverses

ne s'harmonise pas avec l'expérience française dans le nord de la Haute-Volta où les ergs anciens ont davantage de corps, une consistance B de couleur, et sont cultivés, alors que les ergs plus jeunes, plus grossiers, ne sont pas mis en valeur.

La carte au 1:500.000 jointe au rapport montre de vastes zones de dépôts éoliens dans la partie est du bassin, également par endroits des dépôts éoliens et fluviaux en combinaison très diversifiée dans la partie nord-ouest de la moitié du bassin, avec Sokoto au centre. (Cf. Figure 2.)

Le secteur des dépôts généralement éoliens à l'est est cartographié en tant qu'unité Q16. Ce qui dans le système français correspond aux sols ferrugineux tropicaux sur sables éoliens, soit les unités 7A et 7B (sols peu différenciés et modaux) pour lesquelles une classification de potentialité de 4 a été suggérée dans cette étude. L'unité 7B, a-t-on pensé, se révélait davantage productive que l'unité 7A en absence de colmatage, mais compte tenu des informations dans l'étude nigériane, la même évaluation a été assignée aux deux unités. Dans le système FAO, ces unités semblent se mettre en corrélation dans une certaine mesure avec Qc(7A) et Q1(7B), bien que dans d'autres cas Qc et Q1 paraissent correspondre à 5F et 5G, soit les sols bruns rougeâtres sur sables éoliens. 5F est peu différencié et est surjacent à des ergs récents grossiers, tandis que 5G s'est développée dans les ergs anciens qui sont plus fins et ont une couleur et une structure B. L'expérience acquise dans le nord de la Haute-Volta révèle que 5F ne convient pas à l'agriculture, alors que 5G l'est, de sorte que ces unités ont été prises en tant que 5 et 4 respectivement dans la classification du CIEH. Cependant, il apparaît que 5F et 5G risquent de se classer en tant que 7A et 7B. Quel que soit le classement d'ensemble donné à ces derniers, l'étude nigériane indique que la carte détaillée au 1:5.000.000 cache d'importantes différences dans la potentialité qui n'apparaissent pas à cette échelle mais qui se manifestent lorsque les sols sont cartographiés à des échelles plus grandes comme, par exemple, au 1:500.000 utilisée dans l'étude nigériane en question.



QUATERNARY DEPOSITS IN THE RIMA-SOKOTO RIVER BASIN,
AS MAPPED BY SOMBROEK AND ZONNEVELD, 1971.

APPENDIX 6-4

Soil mapping in Nigeria in the past has made considerable use, particularly in the north, of the SPI soil classification system of d'Hoore (1964). More recently, however, attempts have been made to classify Nigerian soils in the framework of the U.S. Seventh Approximation and the FAO mapping units as well.

Although a wide range of soil publications on Nigeria were consulted, two in particular were selected as case studies. These were:

1. The chapter entitled "Soil Resources of Nigeria" in the book "Agricultural Development in Nigeria, 1965-1980", published by FAO in 1966.
2. Sombroek, W.G. and Zonneveld, I.S. 1971. Ancient dune fields and fluvial deposits in the Rima-Sokoto river basin (N.W. Nigeria). Netherlands Soil Survey Institute, Wageningen, Soil Survey paper no. 5.

Of these two publications, the first was studied in detail because it represents a careful, detailed attempt to produce a quantitative, numerical rating for soils based on selected parameters each of which is defined and given a numerical value. This is probably the most detailed study of this kind yet carried out in West Africa. It also indicates what the authors considered to be the most important limiting factors for Nigerian soils, which were classified and mapped according to the system of d'Hoore.

The second publication was studied because it gives information on the "cover sands" which are extensive in the drier parts of West Africa (the Arenosols of the FAO classification) and includes a map on the 1:500,000 scale which can usefully be compared with the FAO and IFAN 1:5 million maps. Such a comparison serves to indicate the considerable amount of important detail, often affecting soil capability, which is lost in the smaller scale maps.

The chapter entitled "Soil Resources of Nigeria" in "Agricultural Development in Nigeria, 1965-1980" (FAO, Rome, 1966)

This chapter includes a soil map on the 1:5 million scale indicating the present productivity of the soils (i.e. a soil capability map). The soils are put into five classes though the actual mapping units are usually combinations of classes. The text is noteworthy because it gives a detailed account of how these five classes have been arrived at, making use of a numerical system which multiplies together numerical ratings for the following soil properties held to influence soil capability:

- P soil depth
- T texture and structure
- N base saturation
- S salinity
- O organic matter
- A nature of clay minerals
- M mineral reserves
- D drainage
- H water (rainfall, taking into consideration
"the number of months in which the soil
remains water deficient for crop production).

Soil productivity is then calculated as $P \times T \times N \times S \times O \times A \times M \times D \times H$. As this is a multiplying formula, the most limiting factors (those with the lowest numerical ratings) overrule the others. Not all factors are given equal weight. For some the possible range is 5 - 100, while for others it is only 90 - 100. This means that the final rating can be reduced (in the most adverse conditions) by up to 95% for the first property, but only by up to 10% for the second.

The basic soil map used in this report is the CCTA map of d'Hoore, updated to take into account more recent findings in some areas.

There are seven major soils mapped in Nigeria. They are listed below with a summary of their characteristics as given in the report:

- i. Ferralsols are often low in nutrients but have stable, favourable physical properties and are resistant to erosion. They respond to fertilisers. Most are in the forest zone ("oilpalm and rubber belt") but some - the savanna phase - extend in a belt along the Niger and Benue rivers.
- ii. Ferruginous tropical soils are often characterized, in Nigeria, by a sandy A horizon over a B with more clay and a weak subangular blocky structure which is often concretionary and/or mottled. CEC is low, but pH and base saturation are fairly high, reflecting the more moderate rainfalls of the savanna areas. The light textured A horizon has a low water holding capacity, and these soils are much more erodible than the Ferralsols (even though gradients are often moderate). They are used widely for millet (northern savanna areas) and for sorghum (southern savanna areas).
- iii. Alluvial soils show relatively little horizon development or differentiation. They are formed in relatively recent river, lake and sea deposits. Wetness (poor drainage) is often reflected in subsurface mottles and in a tendency to have more organic matter than associated upland soils. The value of these soils depends on their texture. In some cases it is reduced by salinity. They are used for rice, or, when well drained, for a range of food crops. They are often fairly flat, and thus suited to irrigation, but may need drainage to lower the water table. Most are in the forest zone (delta and lower reaches of the Niger) but minor areas are widespread in the Savanna.

- iv. Semi arid brown and reddish brown soils are often weakly calcareous and developed mainly from sandy sediments. They occur in the semi-arid northern part of the country and are mainly used for pasture and millet, with ground-nuts grown locally.
- v. Vertisols are characterized by heavy texture, poor physical properties and poor workability, and the fact that they often crack deeply and widely on drying. CEC is high and nutrient status often relatively good, but their use needs modern tillage equipment and, often, irrigation. They often occur in depressions, developed from old lake deposits.
- vi. Lithosols are shallow soils usually over an ironpan layer (ferruginous crust). Because of their shallowness they have little agricultural value.
- vii. Saline and hydromorphic soils refer mainly to soils around Lake Chad which need reclamation and irrigation before they can be productive.

The report gives two maps. One shows present soil productivity and is an interpretation based on natural fertility and traditional practices. It is nevertheless described by the authors as being a "rough approximation", since it "cannot be more accurate than the basic map from which it is derived". The second map given is a map of soil potentialities which is stated to be based on "predicted results from adequate soil management practices and reflects the improvement of soils that would be achieved by the introduction of modern technology".

Soil parameters given a numerical rating

Eight soil factors and one climatic factor (the number of wet months)

are assessed separately, given a numerical rating, and the value of the soil obtained by multiplying all these together, as indicated above.

The following notes give additional information on these individual ratings.

H - water

Range: 5 - 100

This is based on the number of months a soil is dry, and therefore reflects climate (as shown by the rainfall maps) rather than the soil itself.

H4 (rating 80-100), for example, indicates the soil is below wilting point for 3-5 months, and H3 (rating 50-70) that it is below wilting point for 6-8 months. There are slightly different ratings for annual crops and for tree crops.

These ratings are somewhat open to discussion. An area with six months rain and six months drought would get a rating of 50, but such a climate might be very well suited to a wide range of crops with a growing season of up to six months.

D - drainage

Range: 10-100 (crops), 5 - 100 (trees).

The maximum rating (100) is for well drained soils with a deep water table, no hydromorphic horizon within 120 cm, and no waterlogging. The lowest ratings (5 - 40) are for soils waterlogged for at least two months.

A hydromorphic horizon at 60-120 cm (class D3a) would give a soil a rating of 80-90, i.e. a reduction of up to 20%. It appears however that in some cases water at this depth might be an advantage if the soil remains moist longer than a well drained one. There appears to be some overlap between H, water, and D, drainage.

P - effective soil depth

Range: 5 - 100.

The 100 rating is reached, for crops, when soil depth reaches 90 cm, and for

tree crops when it exceeds 120 cm. Less than 30 cm, for crops, gets a rating of 20.

P multiplied by H would give some idea of the approximate amount of water held during the year, but this would be modified by T, texture (considered next), though T here in fact refers only to the A horizon.

T - texture and structure of the A horizon

Range: 10 - 100

Maximum rating (100) is given to a soil of "average, balanced texture: loam, sandy loam and sandy clay loam".

A light textured soil (defined as "fine sand, loamy sand or coarse sand and silt") is classed as T4 and carries a rating of 40-50 if it is of "stable structure", but only 30-40 if of "unstable structure".

A heavy textured soil ("clay or silty clay") rates, for crops, at 60-70 if structure is massive to prismatic, but at 80 if angular to crumb in structure, or if massive but very porous.

In both these cases there is a rather lower rating for tree crops. It is not clear why this should be so, particularly as the rating is made with reference only to the texture of the A horizon. In many West African soils a light textured A is often underlain by a B with more clay in it.

There seems to be too much difference between the ratings for a stable structured light textured A horizon, rated at only 40%, and for a loam topsoil, rated at 100%.

N - base status

Range: 40 - 100

Maximum rating (100) is for a soil over 75% saturated, though a Ca saturated soil is rated at 80. The rate falls with increased leaching to reach 40 where saturation is below 15%.

There is generally a fairly close relationship between % saturation and pH. Since the latter is measured so much more cheaply and easily than the former, it might have been better to have expressed this parameter as pH rather than as V (= S/T, or TEB/CEC).

S - soluble salts content

Range: 5 - 100

Maximum rating (100) is for soils with less than 0.2% total soluble salts. The rating falls to 5 - 15 if soluble salts are over 1.0% if sodium carbonate is not present or over 0.6% total soluble salts including sodium carbonate.

The rating is modified by texture, with lower rates for lighter soils and higher rates for heavy and medium textured soils.

O - organic matter of the A1 horizon

Range: 70 - 100

Maximum rating (100) is for a soil with over 5% organic matter. Minimum ratings (70 - 85) are for soils with less than 1% organic matter. Figures are slightly modified by H (water) and D (depth) considerations. A C/N ratio of over 25 plus a high organic matter content reduce the rating to 70.

The maximum reduction in rating that can be given by a low organic matter content is only 30%, so that low organic matter is considered by the authors therefore to be less of a limiting factor than many other parameters considered (including topsoil structure and texture).

A - mineral exchange capacity and nature of the clay

Range: 90 - 100

This parameter is given the smallest range of all the parameters, and is therefore considered as having the least potential influence on reducing productivity.

A CEC of under 20 m.e. per 100g soil rates at 90. A CEC of over 40 m.e. rates as 100.

Small as this difference in ratings is, it is nevertheless debatable whether the higher CEC is necessarily an advantage. Although there is a greater capacity to hold cations and NH_4 , a given amount of a particular cation, such as K^+ , is more available to the plant at a lower CEC than at a higher one.

M - reserve of alterable minerals in the B horizon.

Range: 85 - 100

A soil with no reserves, or very low reserves, is rated 85. A soil with large

reserves of minerals derived from basic or calcareous rocks is rated 100.

The range given seems rather narrow. Weatherable minerals represent reserve fertility and influence the "staying power" of a soil, particularly if its organic matter content is low or lost. Soils over basic rocks with reserves of minerals such as hornblende or biotite are often, if other parameters are fairly favourable, among the most naturally productive in West Africa.

Comments on the values assigned to the soil parameters.

It seems logical that, as knowledge of West African soils increases, numerical systems of assessment (such as the one discussed here) should supersede the more subjective ones at present more widely used. In practice, however, the accuracy and superiority of numerical systems may still, given the present state of knowledge, be more apparent than real. This is simply a result of the fact that we do not have sufficient experience in the correlation of values for individual parameters (such as base saturation) and actual crop yields. The productivity of the soil is affected by so many inter-relating factors that it is presumptuous to give each individual one a numerical rating since there is little precise field work on which these ratings can be based. The ratings are therefore as much an "informed guess" perhaps as are the capability ratings assigned to soils based more subjectively on first hand personal experience.

The publication examined represents a bold and thoughtful attempt to put capability assessment on a sound, objective basis, but many of the ratings assigned appear to be debatable and unproved. Are the very big rating differences associated with somewhat minor differences in topsoil texture justified? Should the presence or absence of reserves of weatherable minerals, or the amount of organic matter, be given a bigger weighting than is the case here? Should other parameters, such as the texture and structure of the subsoil, be taken into consideration as well? Does a soil with 12 wet months necessarily produce twice as much as one with only six? There might be very considerable

disagreement among different investigators as to the applicability of the ratings used. In a system which multiplies ratings together, a rating given any one of the nine parameters can greatly affect the overall result - a slight topsoil difference in texture for example can reduce the overall rating of a soil by up to 60%.

Capability units.

An ideal soil has a rating of 100. The report makes use of the concept of a "Capability Unit" (UC) equivalent to one hectare of such an ideal soil with a rating of 100. Applied to Nigeria, the authors found that soils below 0.2 UC (i.e. with a rating below 20) are not generally suited for agriculture (for crops) while the best soils had UC ratings of over 0.64.

The map of present productivity.

Approximate UC values were calculated for 54 soil areas of the basic soil map (based on the CCTA map but updated). Soils were divided into five classes based on their UC ratings. No first class soils were found (UC over 0.64). The proportions, in Nigeria as a whole, of soils of the other four classes were as follows:

Second class	5.5%
Third class	31.7%
Fourth class	46.5%
Fifth class	16.3%

Classes four and five (totalling 62.8%) were considered to be of questionable value for agriculture, leaving a total of 37.2% of the land (in classes 2 and 3) for cultivation.

In the capability classes given in the CIEH investigation, a climatic factor is not included in the soil rating, so that the CIEH ratings reflect intrinsic soil capabilities regardless of rainfall. In this Nigerian study, in contrast,

a six month wet/six month dry regime gives a rating of 70, so that no soil in this climatic zone, even if ideal from every other point of view (and therefore getting 100 for every other parameter) can get a rating higher than 70. In a zone with four wet months no soil, however ideal, can get a rating of more than 50. It could be argued that for short season crops adapted to the local rainfall regime, water would not be a limiting factor. It would be instructive, therefore, to produce an alternative map of the 54 soil areas leaving out the H factor reflecting mainly rainfall. This map would serve to indicate irrigation potentiality to some extent since it is the rating that is achieved if water limitations are removed.

Map of soil potentialities.

In the function used to give the overall UC ratings of soils some of the limitations are regarded by the authors as being relatively constant (i. e. difficult to modify) while others are capable of improvement. In the first category of fairly permanent limitations are: P (soil depth); T (texture and structure of the topsoil); A (exchange capacity); M (mineral reserves); and the workability and erodibility factors. Other factors can be modified by man through such activities as draining soils, using fertilizers and lime, reclaiming saline soils, building up organic matter contents and, of course, by irrigating.

In practice one might have reservations about the practicability of increasing organic matter by very much, or the advantages of liming, but with these reservations it appears instructive to recalculate the overall UC ratings using a modified formula:

$$p_1 \text{ (future potential)} = N_1 \times S_1 \times O_1 \times D_1 \times P_c \times T_c \times A_c \times M_c$$

where the suffix 1 indicates a corrected soil property and the suffix c indicates a constant soil property not amenable to modification.

When these new calculations are applied to the 54 soil units, then the whole curve of distribution of the soil classes 1 - 5 shifts to the right, as follows:

	<u>Potential</u>		
	<u>Present</u>	<u>Future</u>	
Class 1	nil	3.4	} cultivable
Class 2	5.5	45.5	
Class 3	31.7	30.3	
Class 4	46.5	9.7	} non-
Class 5	16.3	11.0	

The effect of the shift would be that 79.2% can be cultivated as against 37.2% at present. The major single factor in the change is probably the water factor, but this makes the major assumption that water can be provided. Alternatively the new ratings could be considered as indicating the relative values of the soils after improvements, but disregarding the moisture factor.

For each of the 54 soil units a development coefficient C is calculated by taking $\frac{P1}{P}$.

For Nigeria as a whole, the average UC is stated to be 17.7, but the potential averages 45. Therefore C for the whole country is $\frac{45}{17.7}$ or 2.55. The implication of this is that with irrigation and other improvements, a productivity of 2 1/2 times the present one could be achieved. In practice, one cannot seriously think of irrigating the whole country. In Chapter 1 of the report it is agreed that "substantial investments in irrigation would hardly be practicable, or at least not wise, for quite a number of years". The approach does however represent a reasoned attempt to predict a ceiling. Research stations such as IITA have certainly produced maximum yields over 2 1/2 times the local averages, but whether yield increases are economic depends on selling prices. The FAO fertilizer trials indicated many instances of yield increases which were not economic.

The report also compares the calculated UC ratings with present population.

The extent of little used land in Nigeria.

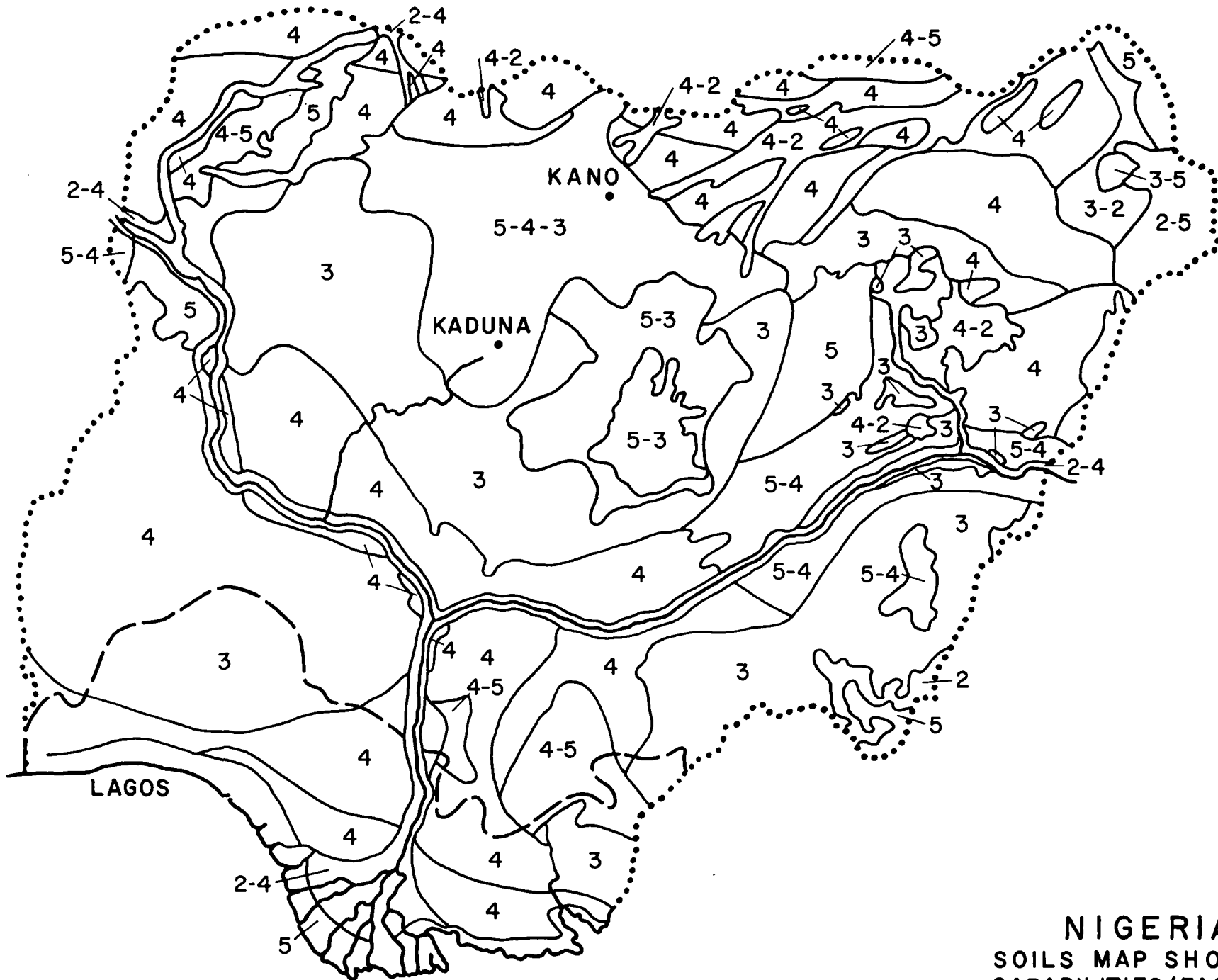
Most of the present agricultural production comes from population nuclei where land pressure has much reduced fallows. The middle belt, in contrast (politically part of Northern Region) makes little contribution. A major conclusion of the report is that this region should be developed. The authors claim that "the whole of this belt has moderately good rainfall, notably superior to that of the densely farmed land further north", and note that the soil maps indicate extensive areas of good, or of potentially good land. It could be that the authors are over-optimistic about the rainfall, since distribution and reliability may not compare as well with that of the areas to the north, but they do recognize that the "main obstacle to the use of this central belt is the prevalence of tsetse", and they urge its elimination followed at once by a planned agricultural development.

Present capability ratings of the soil units mapped.

As described above, soil units are put into five capability classes, with units 4 and 5 predominating, and unit 1 absent, but considerable areas are mapped as a complex of two or more capability classes. Areas in the Kano-Kaduna area, for example, are shown on the soil map as Bc Ja Jc (lithosols on ferruginous crusts, and ferruginous tropical soils on sandy material and on crystalline acid rocks) which are given the capability rating 5-4-3. (See Figure 1).

The outline of the mapping units and their capability ratings which follows indicates not only how the ratings are arrived at, but also what are, for each soil, the limiting factors considered most important by the authors of the report. (1)

(1) In the listing of major limiting factors, H factors, reflecting mainly the number of dry months, are omitted.



APPENDIX 6.4
FIG.-1

NIGERIA
SOILS MAP SHOWING
CAPABILITIES (FAO 1966)

Ab Lithosols on ferruginous crusts

Class 5

Main limiting factors: P1 = soil depth = 5

T1c = pebbly/rocky = 60

N3 = moderately leached = 60.

Bc Lithosols on ferruginous crusts

Class 5

Main limiting factors: as above, except T1b = pebbly,
stony, gravelly = 30

Bd Lithosols - undifferentiated

Class 5

Main limiting factors: P2 = soil depth = 20

T1a/b = pebbly, stony, gravelly = 10/30

N2 = strongly leached = 50

Bh Regosols on loose sediments

Class 4

Main limiting factors: T4b = light textured, stable = 50

N3 = moderately leached = 60

Bo Alluvial soils

Class 2

Main limiting factors: T6a = massive to prismatic structure = 80

N4 = slightly leached = 80

Dj Vertisols - undifferentiated

Class 5

Main limiting factors: T5a = massive to prismatic structure = 60

N6 = calcareous = 80

O1 = less than 1% O M = 85

Da Vertisols on rocks rich in ferromagnesian minerals

Class 4

Main limiting factors: P3 = soil 30-60 cm thick = 50

T1c = clay with 20-40% stones = 60

Db Vertisols on calcareous rocks

Class 3

Main limiting factors: D2 = hydromorphic at 30-60 cm/
waterlogging = 40-80

T5a = massive to prismatic topsoil
structure = 60

Gb Semi arid brown and reddish brown soils - undifferentiated

Class 4

Main limiting factors: T4a = unstable structure = 40

M2a = weatherable minerals low,
derived from sands = 85

Ga Semi arid brown soils on loose sediments

Class 4

Main limiting factors: T4a = unstable structure = 40

M2a = weatherable minerals low,
derived from sands = 85

Hb Eutrophic brown soils - undifferentiated

Class 2

Main limiting factors: no important limitations, with all ratings
(except H, number of dry months) 90 to 100

Ia Ferruginous tropical soils on sandy material

Class 3 in north-east (Potiskum area) but

Class 4 in north (Kano-Kaduna) and north-west.

Main limiting factors: in the Class 4 areas the main limiting
factor is the light texture = T4a = 40.

In the class 3 area texture is

T6 = medium heavy = 80/90.

Leaching is N3 = moderate = 60

or N4 = slight = 80.

Depth = P4 (60-90 cm) = 80.

Jc Ferruginous tropical soils on crystalline acid rocks

Class 3 in Kano-Kaduna and Jos areas and in south-east corner, but
Class 4 in Ilorin area.

Main limiting factors: N3 , moderately leached = 60

M1 (Ilorin area only) = low to nil mineral
reserves = 85

P4 = moderately deep = 80 (60-90 cm)

Texture = medium heavy = 80/90.

Id Ferruginous tropical soils - undifferentiated

Class 4 in extreme north-west in association with Ja, and north and
north-east of Potiskum, but

Class 5 in the north-west, south of Sokoto.

Main limiting factors: T2 = very coarse texture = 10 - 30

in Class 5 area, and north-east of
Potiskum, otherwise

T4b = light textured but stable = 50

N2 = strongly leached = 50 in Class 5
area, otherwise N3 (= 60) or N4 (= 80).

La Red-yellow ferralsols on loose sandy sediments

Class 4, but mapped only in forest zone

Lc Yellow ferralsols - undifferentiated

Class 3, mapped only in forest zone north of Calabar

Ll Red ferralsols on loose sandy sediments

Class 4

Main limiting factors: N2 = strongly leached = 50

M1 = low to nil reserves = 85

Ln Red ferralsols - undifferentiated

Class 4

Main limiting factors: N1 = strongly leached = 40

M1 = low or nil reserves = 85

Na Hydromorphic soils

Class 2 in Hadejia area, but

Class 4 along Niger banks

Main limiting factors: D2 (hydromorphic at 30-60 cm)

= 40-80 in Class 4 areas, but

D3 (hydromorphic below 60 cm)

= 80-90 in class 2 areas.

T5a = massive to prismatic structure = 60 in

Class 4 areas but

T7 = balanced texture = 100 in class 2 areas.

Nb Organic soils

Class 5 (bordering Lake Chad)

Main limiting factors: D1 = waterlogging = 10-40

T2c = non-decomposed humus = 30

Mb Hydromorphic saline and alkaline soils

Class 5

Main limiting factors: T3 = dispersed or impermeable clay = 30, or

T5 = massive to prismatic clay = 60

S6 or S9 = total soluble salts over 1% (or over
0.6% with sodium carbonate) = 5-15

Me Saline soils - undifferentiated

Class 5

Major limiting factors: as Mb, above

A study of the above indicates that in a few cases, two areas may be given the same mapping unit (such as Ja, Jc, Jd or Na) but are nevertheless put in different capability classes. The Na mapping unit, for example, is put both in Class 2 and in Class 4. This classification therefore reflects additional knowledge of local soil characteristics beyond what is shown on the soil map, and suggests that in some cases at least it is not satisfactory to base a soil capability classification merely on the smaller scale taxonomic maps. The differences between the Class 3 and Class 4 areas of mapping unit Ja are mainly differences in topsoil texture, reflecting the fact (pointed out above) that this factor alone is able to change the overall rating considerably. In this particular

case the T6 textured soil (medium heavy texture) with a rating of 80-90 is double the rating of 40 given the T4a texture (unstable structure and light texture). The hydromorphic soils of the Niger banks (Class 4) are downgraded in relation to the hydromorphic soils of the Hadejia area because of poorer drainage and a massive to prismatic structure.

The most extensive of the better soils of the Nigerian savanna areas are unit Jc, ferruginous tropical soils on crystalline acid rocks (i.e. on granites etc.). These are put into Class 3, as are less extensive areas of unit Ja, similar soils but on sandy material. The Class 2 soils are relatively inextensive and are mapped in association with poorer soils.

Netherland Soil Survey Institute, Wageningen: Soil Survey Paper no. 5:
Sombroek, W.G. and Zonneveld, I.S., 1971, Ancient dune fields and
fluvial deposits in the Rima-Sokoto river basin (N.W. Nigeria).

This report studies wind blown loess and cover sand deposits, and water borne older and younger alluvial deposits of the Quaternary period in relation to climate. It was included in these case histories mainly because it provided a map at the 1:50,000 scale (and selected areas mapped at 1:20,000) which, when compared with the FAO and IFAN 1:5 million maps, indicated the varied soils and deposits which have lost their identity in the simplification necessary at the 1:5 million scale. These varied soils and deposits are, it appears, of very different agricultural capabilities.

The report not only indicates different agricultural capabilities for many of the wind and water borne deposits, but suggests that the degree and persistence of surface sealing has a very important influence on land use and the extent to which the soils are used under traditional practices. Only mapping units, or parts of mapping units, where sealing is relatively pronounced are not generally widely used for agriculture. This correlation is brought out in the table attached which gives information on the eolian deposits (in the form of

Table 1. Summary of liability to sealing and of land-use of Eolian deposits and of older and younger river deposits as described and mapped by Sombroek and Zonneveld (1971)

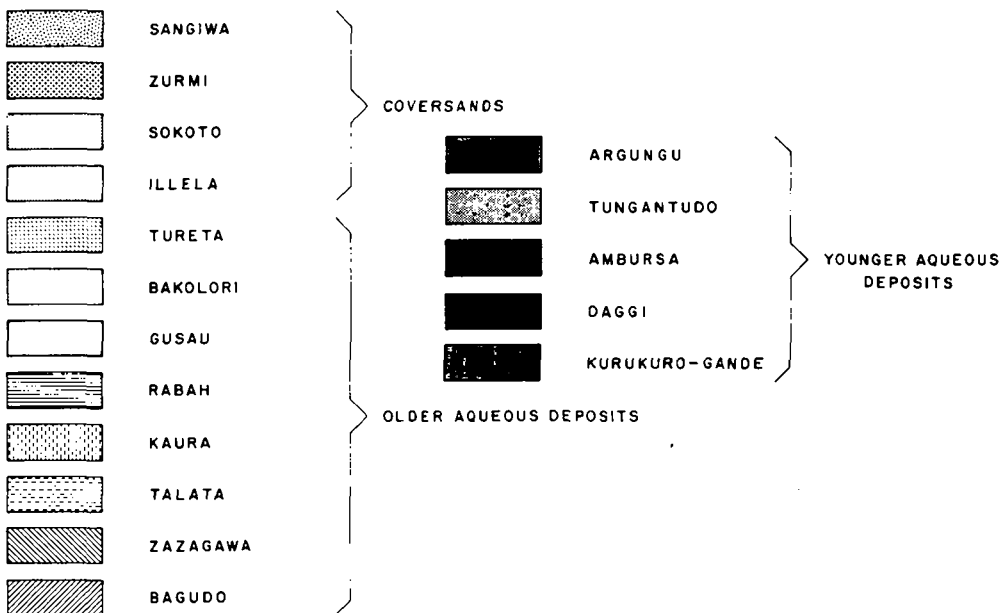
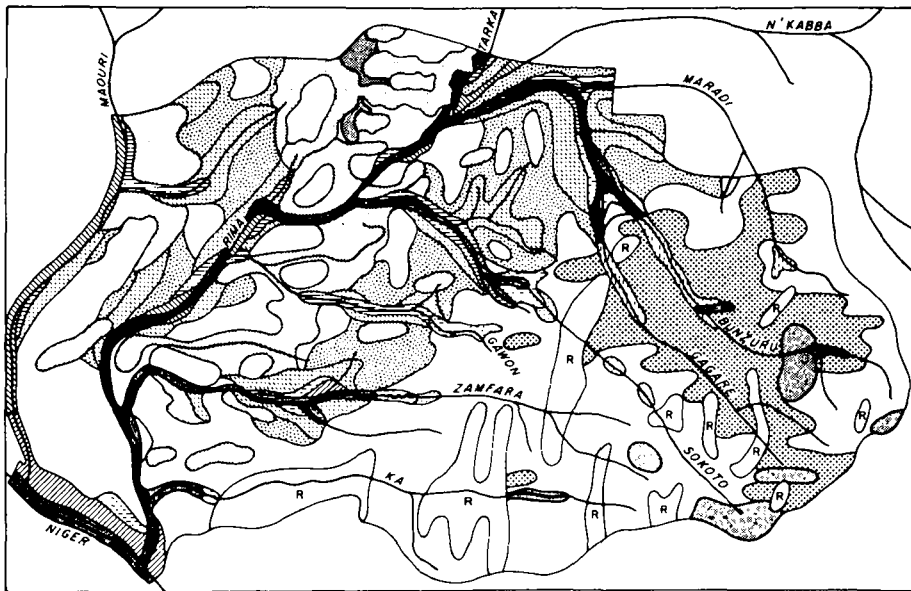
<u>Name/map symbol</u>	<u>Extent of sealing</u>	<u>Land-use</u>
(a) <u>EOLIAN DEPOSITS</u>		
FUNTUA b	Sealing under natural vegetation, but friable for a long time after tillage	Intensive wet season cultivation
SANGIWA A or a	Extremely liable to surface sealing despite sandy texture; tillage has no effect as first shower causes complete resealing	Rainfed agriculture virtually impossible (poor seedling emergence; much run-off)
SOKOTO C or c	No surface sealing	Used nearly everywhere for shifting cultivation
ZURMI D or d	Some slight sealing but no adverse effects on crops	Mostly under permanent cultivation
ILLELA E or e	No sealing	Mostly used for shifting cultivation
(b) <u>OLDER RIVER DEPOSITS</u>		
TURETA 1.1	Little sealing	Often used for wet season shifting cultivation
BAKALORI 1.2	Surface sealing not persistent	Largely used for permanent wet season cropping
RABAH 2.1	No sealing	Used almost everywhere for permanent wet season crops
TALATA 2.2	Strong sealing on clayey parts, little elsewhere	Clayey parts mostly unused, remainder intensively cropped
KAURA-NAMODA 2.3	No sealing	Fully used for permanent wet season cropping
ZAZAGAWA 3.1	No sealing	Used for intermittent wet season cropping
BAGUDO 3.2	Strong tendency to seal except on raised patches	Mostly unused except on raised patches
(c) <u>YOUNGER RIVER DEPOSITS</u>		
ARGUNGU 4	No sealing	Near permanent cropping
DIGGI 5	Levees seal strongly, basin land only slightly	Levees virtually unused, basins used for rice
AMBURSA 6.1	No sealing	Cropped wherever wet season drainage possible
KURUKURA and Gande 7.1 to 8.3	Sealing on old levees, rest without sealing	Old levees little used, rest has varied cultivation

short quotations from the report) and on the mapping units of the older and younger water borne deposits (in the form of concise notes).

The report thus emphasizes the importance in the areas mapped and described by Sombroek and Zonneveld of the degree of surface sealing in relation to soil capability. However, sealing is not one of the properties assessed numerically in the FAO study of Nigeria (previous section), nor was sufficient information available on sealing for it to be considered systematically in the CIEH study. It might be argued that its bad effects are to some extent confined to certain types of soils, but there is little doubt that where severe sealing occurs it can make agriculture almost impossible. Of the eolian deposits, the Sangiwa coversands (in spite of being relatively coarse) are the most liable to surface sealing and compaction, and even if tilled these soils reseal with the first showers of rain. Almost all these areas are uncultivated and even tree crop establishment has failed due to runoff and lack of rainfall penetration into the soil. Similarly, all the river deposits where sealing is strong are virtually unused.

Sombroek distinguishes between the southern areas, south of about the latitude of Niamey, and the northern areas where textures generally tend to get lighter. In the southern areas it is the older deposits (erg anciens) which suffer from sealing and are virtually unused, whereas the younger deposits are usually intensively cropped. This is not in agreement with French experience in northern Upper Volta where the erg anciens have more body and a colour/consistency B, and are cultivated, whereas the younger, coarser ergs are unused.

The 1:500,000 map attached to the report shows considerable areas of eolian deposits in the eastern part of the basin, and very varied patchy mixed eolian and river deposits in the north-western half of the basin, with Sokoto at the center. (See Figure 2).



QUATERNARY DEPOSITS IN THE RIMA-SOKOTO RIVER BASIN,
AS MAPPED BY SOMBROEK AND ZONNEVELD, 1971.

The area of generally eolian deposits in the east is mapped as unit Q16. In the French system this is shown as tropical ferruginous soils over eolian sands, units 7A and 7B (little differentiated and modal) for which capability classifications of 4 have been suggested in this study. Unit 7B was felt to be more productive than 7A when it did not suffer from sealing, but in view of the evidence in this Nigerian study both units were given the same rating. In the FAO system these units appear to correlate to some extent with Qc (7A) and Q1 (7B), though in other cases Qc and Q1 appear to correlate with 5F and 5G, the Reddish Brown soils over eolian sands. 5F is little differentiated and over the coarser erg recents, whereas 5G is developed in the erg anciens which are finer and have a colour and structural B. Experience in northern Upper Volta is that 5F is not suited to agriculture, whereas 5G is, so these have been given ratings 5 and 4 respectively in the CIEH classification. It appears, however, that 5F and 5G may grade into 7A and 7B. Whatever overall class is given to the latter, however, the Nigerian study indicates that the 1:5 million map hides important detailed capability differences not shown on that scale but shown when soils are mapped at larger scales such as, for example, the 1:500,000 scale used in this Nigerian study.