

Table C5.3 (9/10) Average cost per cubic meters of groundwater by the year 2010

Location	(Unit : US\$/m ³)					Location	(Unit : US\$/m ³)				
	Diesel+B/H	Electric+B/H	Hand+B/H	Solar+B/H	Wind+B/H		Hand+S/W	Electric+B/H	Solar+B/H	Wind+B/H	Hand+S/W
823.2	0.5244	0.3245	0.1936	0.5635	0.3823	843.3	0.4368	0.4239	0.1926	0.5635	0.1228
823.3	0.5244	0.3245	0.1936	0.5635	0.3823	843.4	0.5244	0.3245	0.1936	0.5635	0.3823
824.1	0.5244	0.3245	0.1936	0.5635	0.3823	843.5	0.4801	0.2802	0.1460	0.4992	0.1194
824.2	0.5244	0.3245	0.1936	0.5635	0.3823	843.6	0.9224	0.6894	0.2645	0.5635	0.1194
824.3	0.5244	0.3245	0.1936	0.5635	0.3823	843.7	0.5244	0.3245	0.1936	0.5635	0.3823
825.1	0.5244	0.3245	0.1936	0.5635	0.3823	851.1	0.5050	0.3093	0.1202	0.4934	0.1137
825.2	0.5244	0.3245	0.1936	0.5635	0.3823	851.2	0.4642	0.2668	0.1304	0.5007	0.1137
825.3	0.5244	0.3245	0.1936	0.5635	0.3823	851.3	0.4840	0.2810	0.1501	0.4824	0.1023
825.4	0.5244	0.3245	0.1936	0.5635	0.3823	851.4	0.5244	0.3245	0.1936	0.5635	0.1023
825.5	0.5244	0.3245	0.1936	0.5635	0.3823	852.1	0.5019	0.2958	0.1193	0.4739	0.1023
831.2	0.5244	0.3245	0.1936	0.5635	0.3823	852.2	0.5118	0.3062	0.1237	0.5127	0.1137
831.3	0.5244	0.3245	0.1936	0.5635	0.3823	852.3	0.5396	0.3288	0.1157	0.4774	0.2825
831.4	0.5244	0.3245	0.1936	0.5635	0.3823	853.1	0.5435	0.3352	0.1485	0.5219	0.1194
831.5	0.5244	0.3245	0.1936	0.5635	0.3823	853.2	0.6447	0.4147	0.0991	0.5635	0.2711
832.1	0.5244	0.3245	0.1936	0.5635	0.3823	853.3	0.4801	0.2786	0.1316	0.5114	0.1364
832.2	0.5244	0.3245	0.1936	0.5635	0.3823	853.4	0.3749	0.2790	0.1759	0.4814	0.1194
832.3	0.5244	0.3245	0.1936	0.5635	0.3823	853.5	0.5217	0.3153	0.1084	0.4554	0.2693
832.4	0.5244	0.3245	0.1936	0.5635	0.3823	853.6	0.4999	0.2947	0.1133	0.5635	0.1194
832.5	0.5244	0.3245	0.1936	0.5635	0.3823	854.1	0.5039	0.2978	0.1095	0.4734	0.1137
832.6	0.5244	0.3245	0.1936	0.5635	0.3823	854.2	0.4622	0.2625	0.1047	0.4620	0.1194
832.7	0.5244	0.3245	0.1936	0.5635	0.3823	854.3	0.5435	0.3309	0.1192	0.4834	0.1194
833.1	0.5244	0.3245	0.1936	0.5635	0.3823	854.4	0.5475	0.3414	0.1071	0.4709	0.1194
833.2	0.5244	0.3245	0.1936	0.5635	0.3823	855.1	0.4582	0.2607	0.1155	0.4824	0.1194
833.3	0.5244	0.3245	0.1936	0.5635	0.3823	855.2	0.5244	0.3245	0.1936	0.5635	0.1023
833.4	0.5244	0.3245	0.1936	0.5635	0.3823	855.3	0.5244	0.3245	0.1936	0.5635	0.0682
834.1	0.5244	0.3245	0.1936	0.5635	0.3823	861.1	0.7399	0.5149	0.1873	0.5635	0.1023
834.2	0.5244	0.3245	0.1936	0.5635	0.3823	861.2	0.5244	0.3245	0.1936	0.5635	0.1137
834.3	0.5244	0.3245	0.1936	0.5635	0.3823	861.3	0.5244	0.3245	0.1936	0.5635	0.1364
834.4	0.5244	0.3245	0.1936	0.5635	0.3823	862.1	0.5244	0.3245	0.1936	0.5635	0.1194
835.1	0.5244	0.3245	0.1936	0.5635	0.3823	862.2	0.5244	0.3245	0.1936	0.5635	0.1364
835.2	0.5244	0.3245	0.1936	0.5635	0.3823	862.3	0.5244	0.3245	0.1936	0.5635	0.1364
835.3	0.5244	0.3245	0.1936	0.5635	0.3823	863.1	0.4701	0.2712	0.1367	0.4924	0.1137
841.1	0.6252	0.6005	0.5097	0.5635	0.5249	863.2	0.5244	0.3245	0.1936	0.5635	0.3823
841.2	0.5244	0.3245	0.1936	0.5635	0.3823	863.3	0.5244	0.3245	0.1936	0.5635	0.1194
841.3	0.6023	0.4742	0.2118	0.5635	0.4975	863.4	0.5244	0.3245	0.1936	0.5635	0.1194
841.4	0.4741	0.2747	0.2003	0.5062	0.3820	863.5	0.5244	0.3245	0.1936	0.5635	0.1137
841.5	0.4959	0.2979	0.2809	0.6351	0.4320	863.6	0.5951	0.3771	0.1372	0.5635	0.1364
841.6	0.5812	0.3747	0.1888	0.5635	0.4360	864.2	0.5495	0.3382	0.1450	0.4724	0.1364
841.7	0.5244	0.3245	0.1936	0.5635	0.3823	864.3	0.5244	0.3245	0.1936	0.5635	0.1364
841.8	0.5673	0.3625	0.2306	0.5635	0.4360	865.1	0.3609	0.2034	0.1253	0.4969	0.1364
842.1	0.4067	0.2227	0.0974	0.4633	0.2785	865.2	0.5244	0.3245	0.1936	0.5635	0.1364
842.2	0.5376	0.3282	0.1299	0.5635	0.3074	865.3	0.6150	0.3943	0.1473	0.5635	0.1364
842.3	0.5793	0.3661	0.2630	0.5635	0.4136	865.4	0.5244	0.3245	0.1936	0.5635	0.1364
842.4	0.5673	0.3545	0.2307	0.5635	0.3254	865.5	0.4444	0.2488	0.1108	0.4834	0.1364
842.5	0.5912	0.3779	0.1610	0.5635	0.3523	911.1	0.5244	0.3245	0.1936	0.5635	0.1364
843.1	0.5554	0.3507	0.1936	0.5635	0.4062	911.2	0.5244	0.3245	0.1936	0.5635	0.1364
843.2	0.6388	0.4279	0.2448	0.5635	0.4077	911.3	0.4206	0.2300	0.1336	0.5168	0.1364

Table C5.3 (10/10) Average cost per cubic meters of groundwater by the year 2010

Location	(Unit : US\$/m ³)							Location	(Unit : US\$/m ³)						
	Diesel+B/H	Electric+B/H	Hand+B/H	Solar+B/H	Wind+B/H	Hand+S/W	Hand+S/W		Diesel+B/H	Electric+B/H	Hand+B/H	Solar+B/H	Wind+B/H	Hand+S/W	
911.4	0.5244	0.3245	0.1532	0.5635	0.3823	0.1364	934.2	0.4801	0.2792	0.1208	0.4931	0.3012	0.1364		
911.5	0.6844	0.4539	0.1269	0.5635	0.3227	0.1364	934.3	0.5244	0.3245	0.1936	0.5635	0.3823	0.1364		
912.1	0.5244	0.3210	0.1117	0.5635	0.2944	0.1364	934.4	0.6050	0.3848	0.1230	0.5635	0.3044	0.1364		
912.2	0.5244	0.3245	0.1056	0.5635	0.2844	0.1364	934.5	0.5244	0.3245	0.1936	0.5635	0.3823	0.1364		
912.3	0.4305	0.2392	0.1211	0.5108	0.3176	0.1364	935.1	0.5773	0.3544	0.1133	0.4785	0.2916	0.1364		
912.4	0.4325	0.2405	0.1281	0.5066	0.3155	0.1364	935.2	0.6487	0.4334	0.1936	0.5635	0.3823	0.1364		
912.5	0.5693	0.3546	0.1482	0.5635	0.2984	0.1364	935.3	0.5931	0.3839	0.2562	0.6076	0.4149	0.1364		
913.1	0.5244	0.3245	0.1242	0.5635	0.3047	0.1364	935.4	0.5244	0.3245	0.1936	0.5635	0.3823	0.1364		
913.2	0.5244	0.3245	0.1299	0.5635	0.3823	0.1364	936.1	0.4543	0.2564	0.1145	0.5635	0.2981	0.1364		
914.1	0.4166	0.2273	0.1438	0.5156	0.3220	0.1364	936.2	0.5773	0.3600	0.1152	0.4755	0.2925	0.1364		
914.2	0.4880	0.2891	0.1663	0.4698	0.3433	0.1364	936.3	0.5396	0.3273	0.1111	0.4795	0.2898	0.1364		
915.1	0.5244	0.3245	0.1089	0.5635	0.3823	0.1364	936.4	0.5465	0.3318	0.1094	0.4755	0.2872	0.1364		
915.2	0.5244	0.3245	0.1131	0.5635	0.3039	0.1364	937.1	0.5138	0.3063	0.1104	0.4830	0.2912	0.1364		
916.1	0.5244	0.3245	0.1184	0.5635	0.3823	0.1364	937.2	0.5892	0.3718	0.1360	0.5635	0.3158	0.1364		
916.2	0.5244	0.3245	0.1036	0.5635	0.3823	0.1364	937.3	0.4840	0.2823	0.1706	0.4650	0.3386	0.1364		
917	0.3967	0.2127	0.1033	0.4758	0.2854	0.1364	937.4	0.5892	0.3691	0.1089	0.5635	0.2906	0.1364		
921.1	0.5316	0.3215	0.1200	0.5635	0.2992	0.1364	938.1	0.5244	0.3245	0.1280	0.5635	0.3823	0.1364		
921.2	0.5244	0.3245	0.1926	0.5635	0.3623	0.1364	938.2	0.5316	0.3214	0.1152	0.5635	0.2952	0.1364		
921.3	0.4999	0.2941	0.1031	0.4745	0.2837	0.1364	938.3	0.5244	0.3245	0.1936	0.5635	0.3823	0.1364		
921.4	0.5244	0.3245	0.1936	0.5635	0.3623	0.1364	939.1	0.4950	0.2928	0.1201	0.4830	0.3095	0.1364		
921.5	0.5244	0.2772	0.1124	0.4827	0.2909	0.1364	939.2	0.5316	0.3201	0.1191	0.4830	0.2913	0.1364		
922.1	0.4364	0.2421	0.1107	0.4740	0.2837	0.1364	939.3	0.4444	0.2547	0.3056	0.4612	0.4693	0.1364		
922.2	0.5244	0.3245	0.1060	0.5635	0.2800	0.1364	93A.1	0.5713	0.3549	0.1071	0.5635	0.2907	0.1364		
922.3	0.4245	0.2321	0.1106	0.4818	0.2917	0.1364	93A.2	0.4781	0.2850	0.2706	0.5635	0.4994	0.1364		
922.4	0.4391	0.2336	0.1936	0.5635	0.6696	0.1364	93A.3	0.5244	0.3245	0.1936	0.5635	0.3823	0.1364		
922.5	0.5713	0.3673	0.2409	0.7868	0.4947	0.1364	93A.4	0.5244	0.3245	0.1936	0.5635	0.3823	0.1364		
922.6	0.5416	0.3291	0.1120	0.4840	0.2937	0.1364	93A.5	0.4642	0.2670	0.1313	0.5049	0.3063	0.1137		
923.1	0.5912	0.3245	0.1936	0.5635	0.3823	0.1364	44A.0	0.6070	0.4017	0.1936	0.5635	0.3823	0.1364		
923.2	0.5244	0.3245	0.1936	0.5635	0.3823	0.1364	Average	0.5244	0.3245	0.1936	0.5635	0.3823	0.1364		
923.3	0.5244	0.3245	0.1936	0.5635	0.3823	0.1023	Max	0.9224	0.6804	0.5772	0.8460	0.6961	0.1364		
924.1	0.5244	0.3245	0.1936	0.5635	0.3823	0.1298	Min	0.1231	0.1231	0.0551	0.4466	0.2602	0.0882		
924.2	0.5244	0.3245	0.1487	0.5635	0.3823	0.1023									
924.3	0.5244	0.3245	0.1936	0.5635	0.3823	0.1364									
931.1	0.5244	0.3245	0.1936	0.5635	0.3823	0.1364									
931.2	0.5244	0.3245	0.1936	0.5635	0.3823	0.1364									
931.3	0.5244	0.3245	0.1936	0.5635	0.3823	0.1364									
931.4	0.5244	0.3245	0.1936	0.5635	0.3823	0.1364									
932.1	0.4882	0.2670	0.0842	0.4537	0.2668	0.1364									
932.2	0.5244	0.3245	0.1936	0.5635	0.3823	0.1364									
932.3	0.5244	0.3245	0.1936	0.5635	0.3823	0.1364									
932.4	0.5693	0.3654	0.2136	0.6830	0.4426	0.1364									
932.5	0.5244	0.3245	0.1370	0.5635	0.2989	0.1364									
932.6	0.5244	0.3245	0.1936	0.5635	0.3823	0.1364									
933.1	0.5178	0.3102	0.1133	0.4875	0.2948	0.1364									
933.2	0.5244	0.3245	0.1936	0.5635	0.3823	0.1364									
933.3	0.5244	0.1639	0.1639	0.5375	0.3423	0.1364									
933.4	0.3987	0.2925	0.2025	0.6980	0.4405	0.1364									
934.1	0.5654	0.3245	0.1936	0.5635	0.3823	0.1364									

Table C6.1 Geologists in the provinces and districts

District	Number of Staff
Nairobi	13 (GS, MOWD)
Kilambu	1
Kirinyaga	-
Muranga	-
Nyandarua	1
Nyeri	2
Kilifi	1
Kwale	1
Lamu	1
Mombasa	2
Taita Taveta	1
Tana River	1
Embu	2
Isiolo	1
Kitui	1
Machakos	2
Marsabit	1
Meru	1
Garissa	1
Mandera	1
Wajir	1
Kisii	-
Nyamira	1
Kisumu	-
Siaya	1
South Nyanza	1
Baringo	1
Elgeyo Marakwet	-
Kajiado	1
Kericho	-
Laikeipla	1
Nakuru	2
Nandi	-
Narok	1
Samburu	1
Trans-Nzola	1
Turkana	1
Uasin Gishu	1
West Pokot	-
Bungoma	-
Busia	1
Kakamega	2
Total	51

As of Dec., 1991

FIGURES

Fig. C2.1

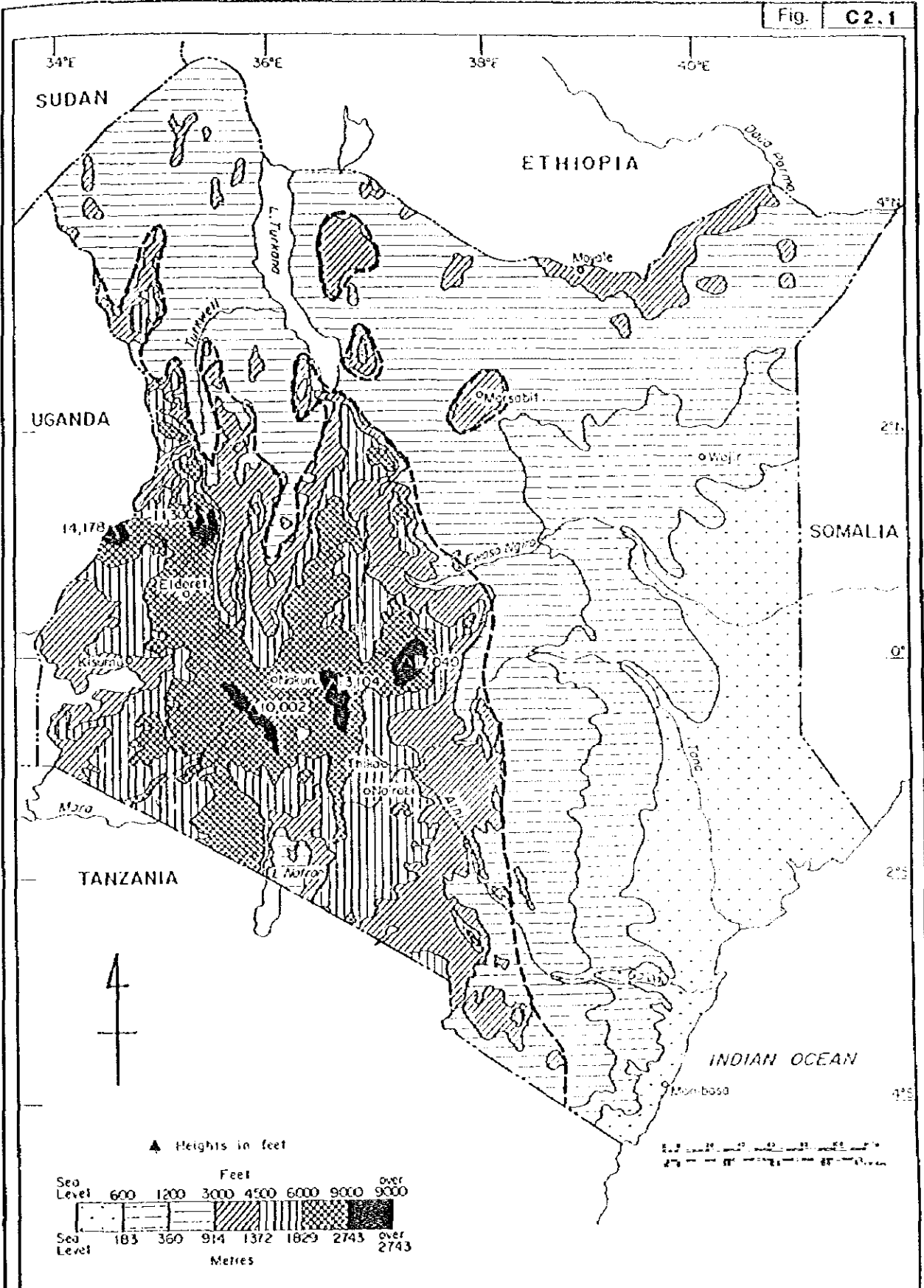


Figure C2.1 Topography of Kenya

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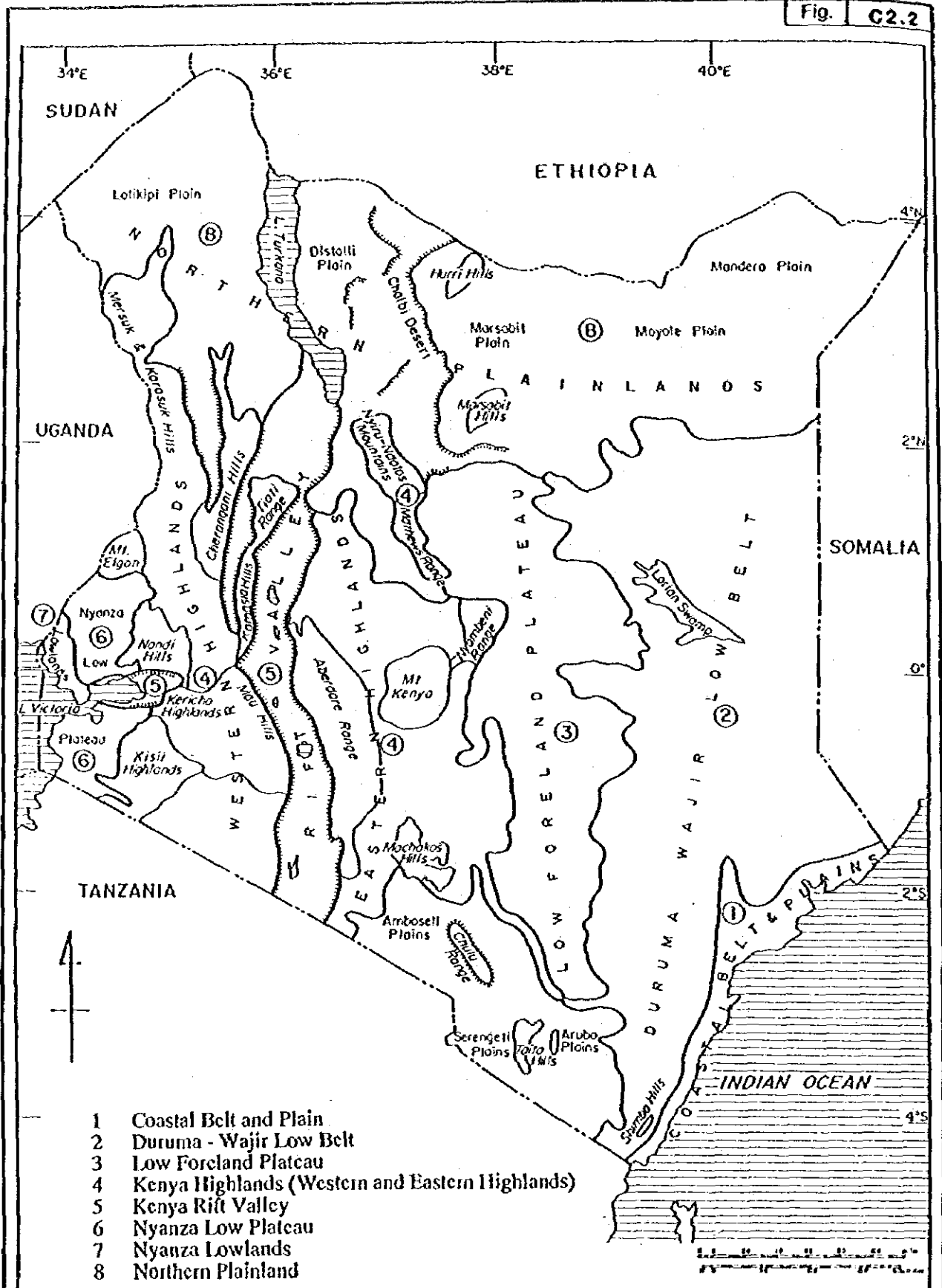


Figure C2.2 Physiographic units of Kenya

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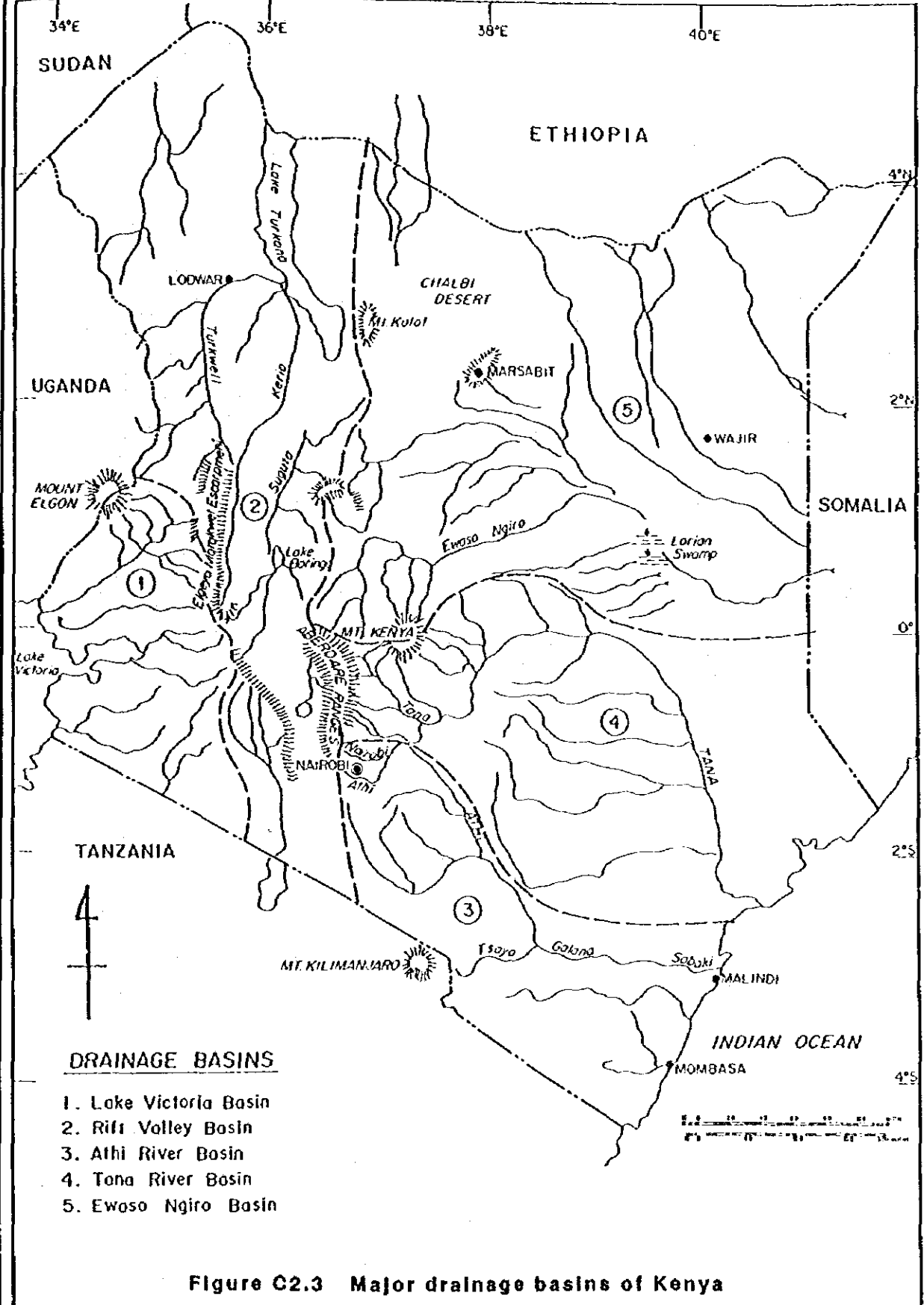


Figure C2.3 Major drainage basins of Kenya

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Fig. C2.4

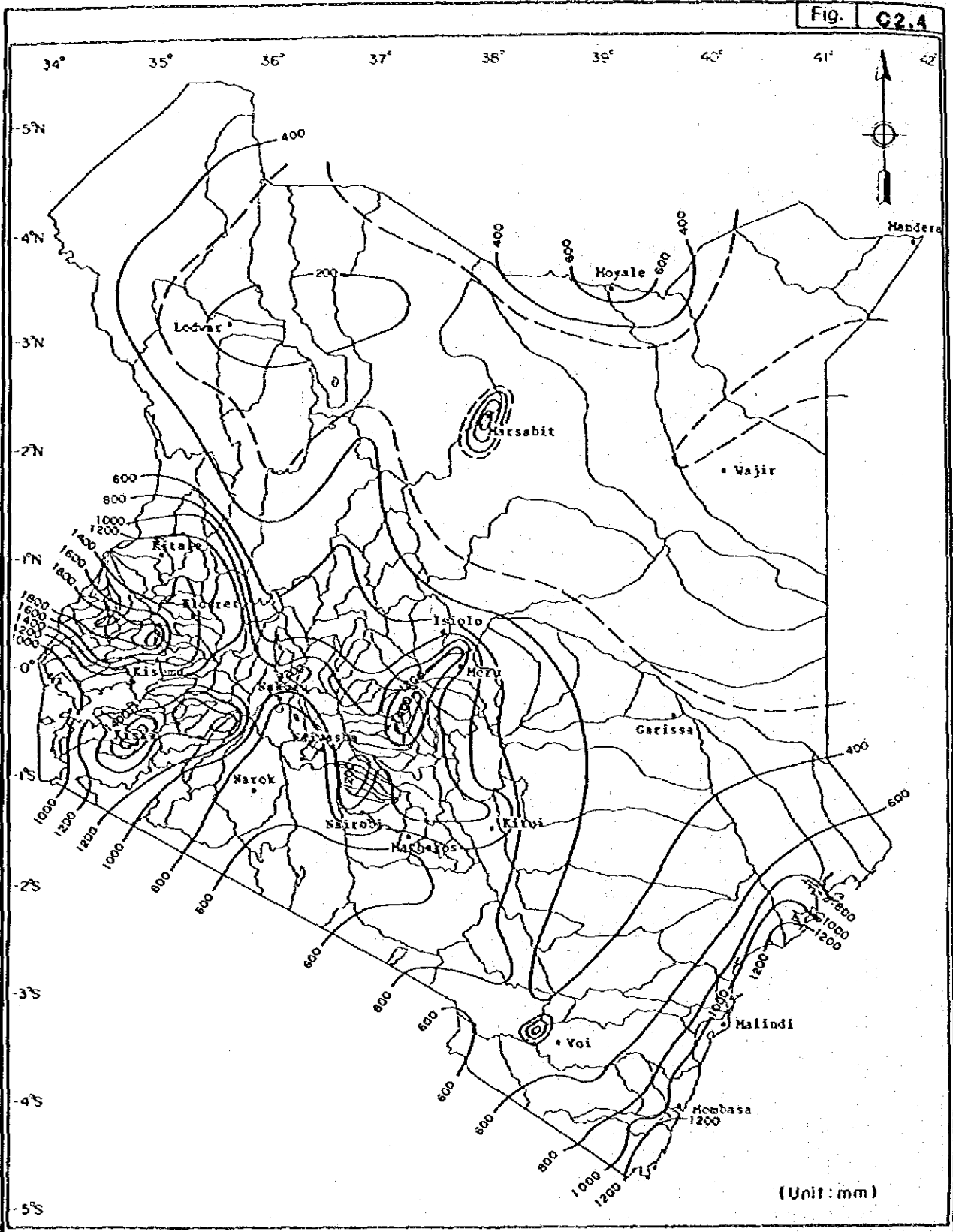


Figure C2.4 Annual rainfall depth

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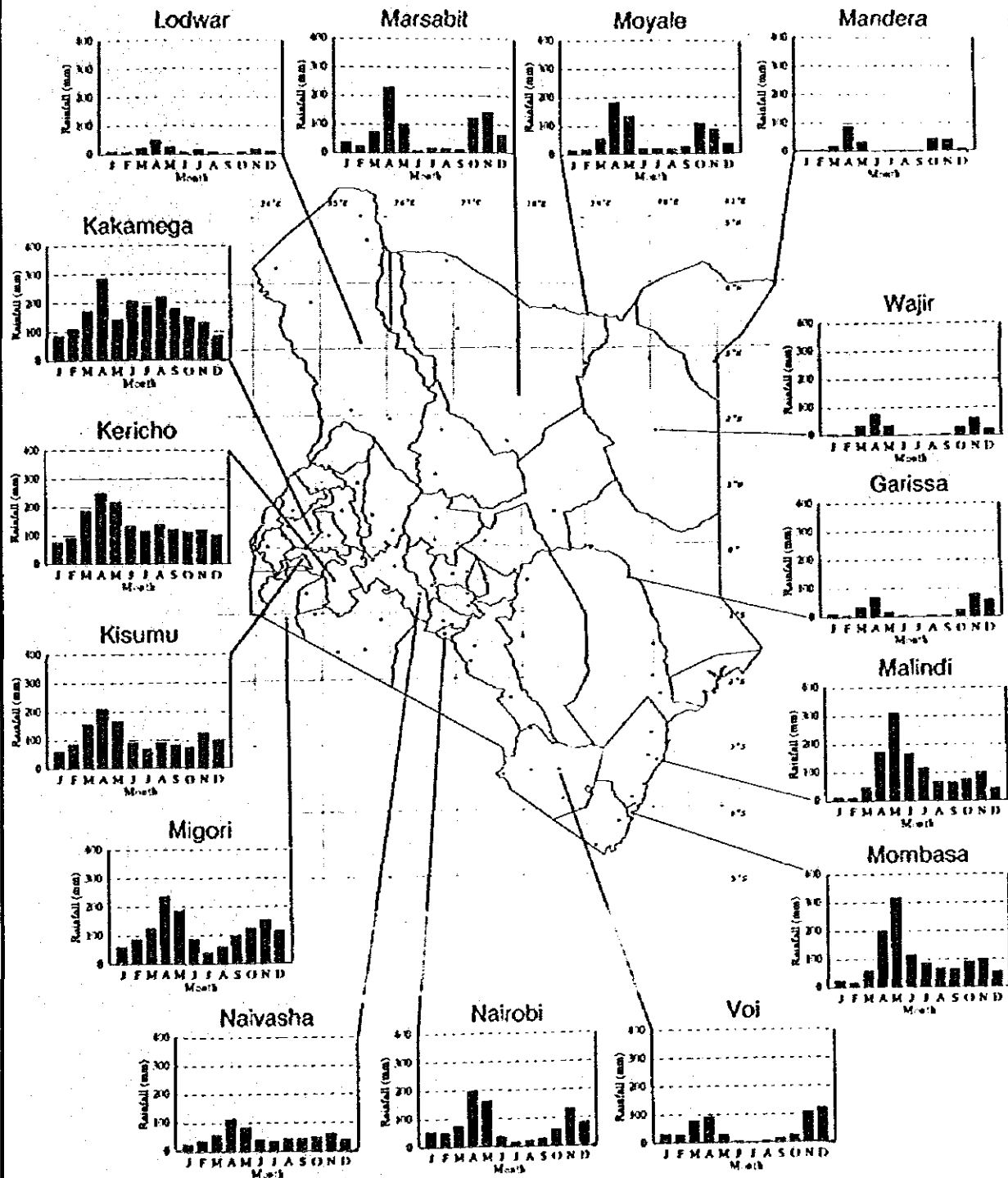


Figure C2.5 Variation of monthly rainfall depth at representative rainfall gauging stations

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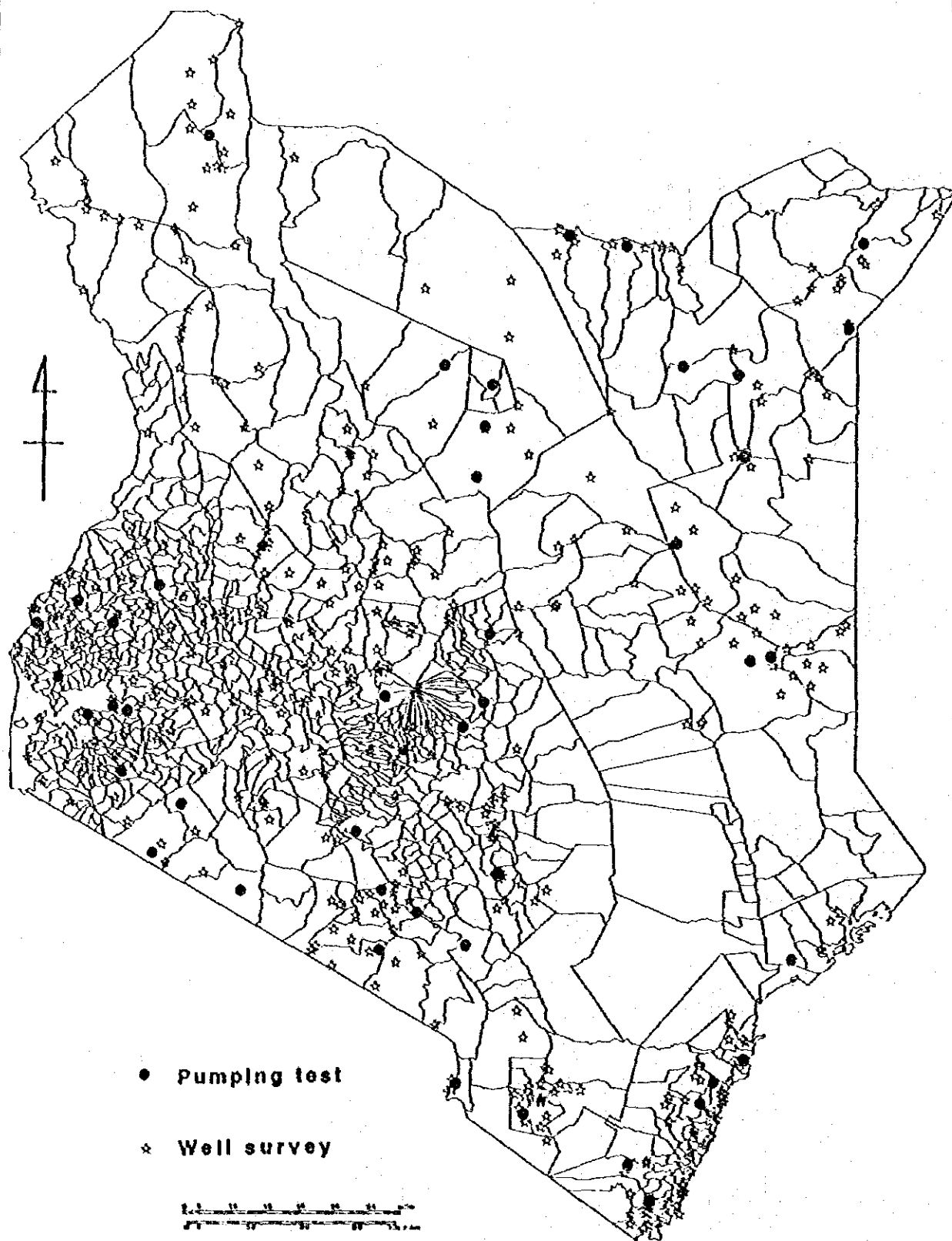


Figure C3.1 Location map of boreholes served for well survey

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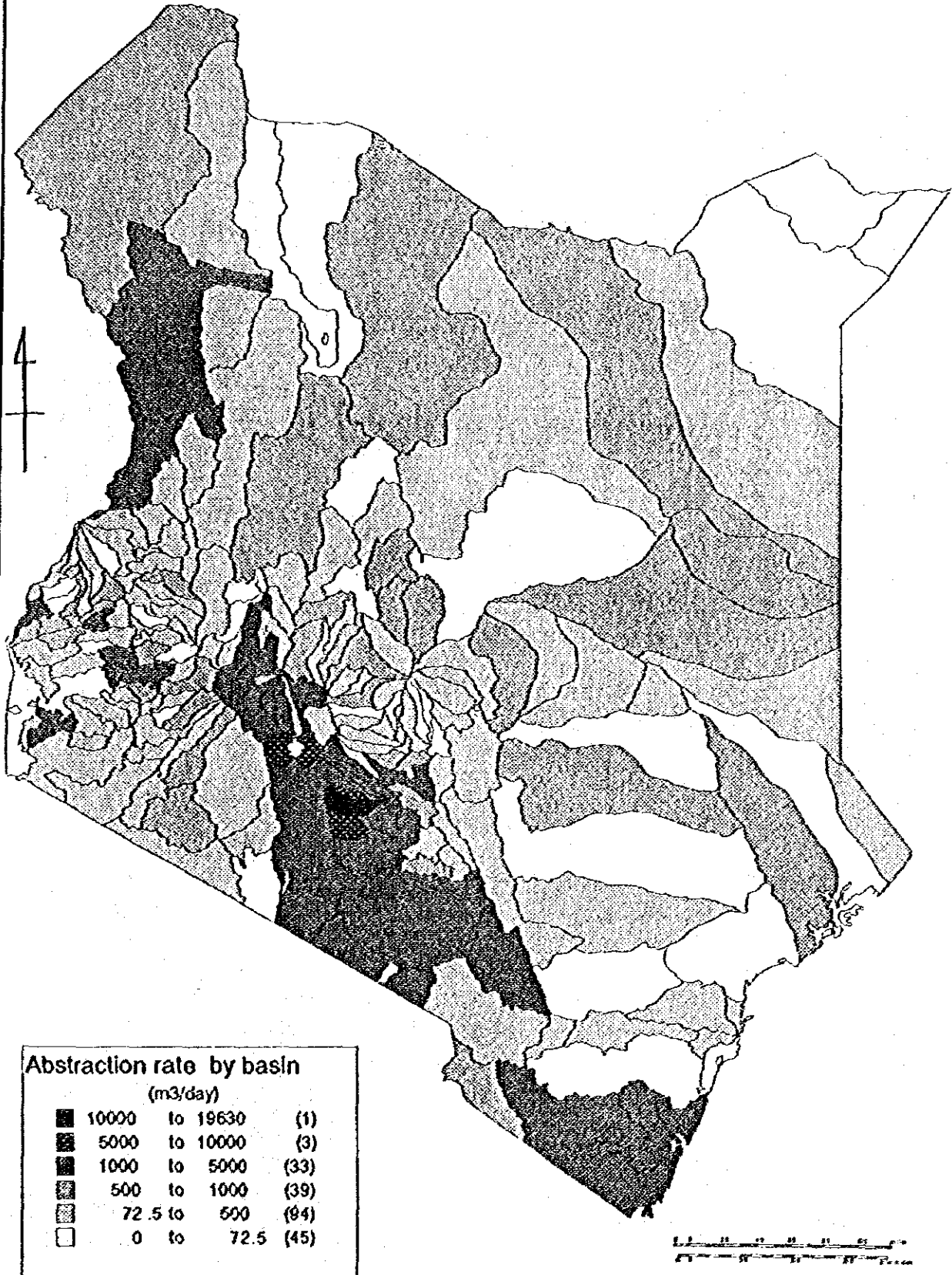
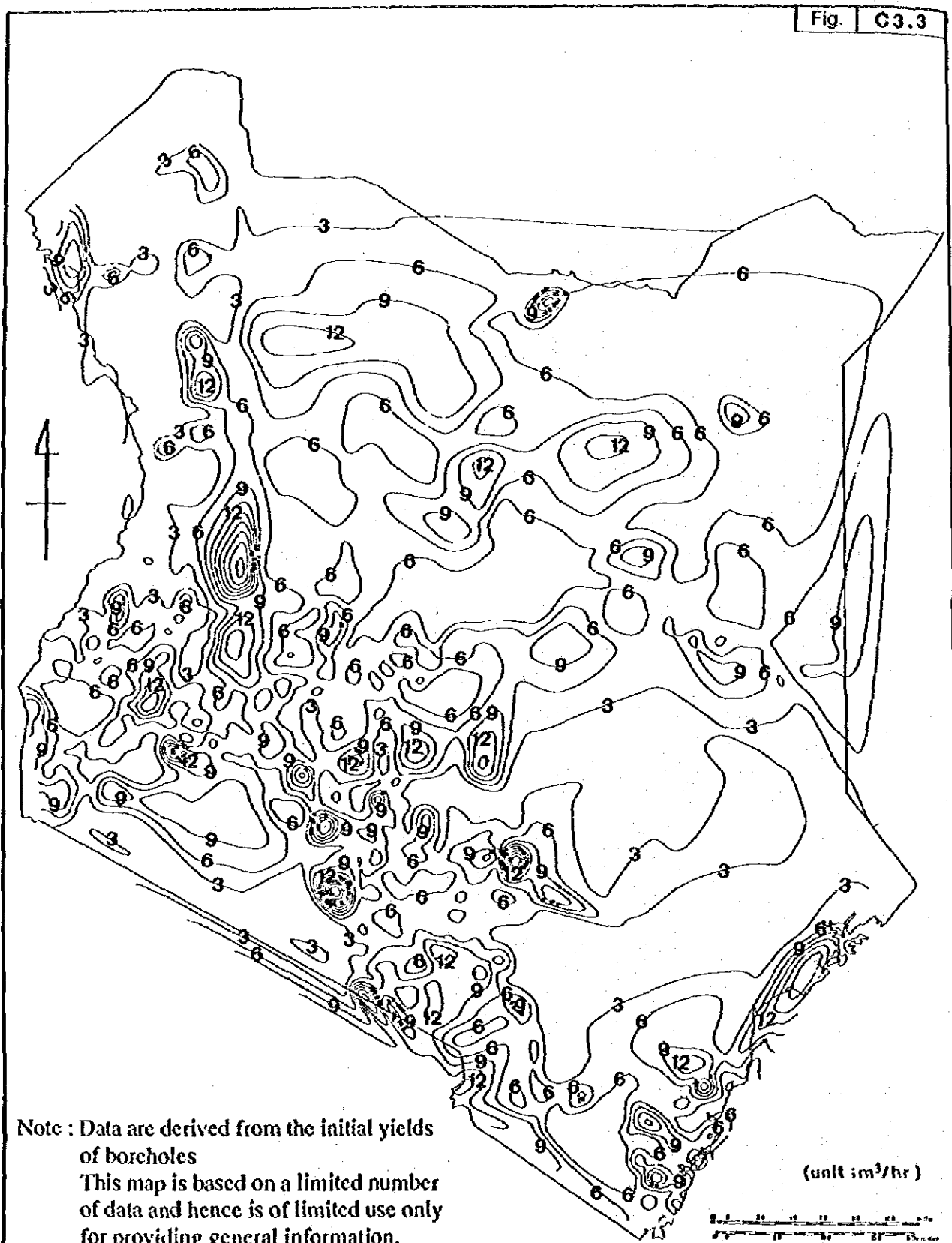


Figure C3.2 Present abstraction rate by basin

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Note : Data are derived from the initial yields of boreholes
This map is based on a limited number of data and hence is of limited use only for providing general information.

Figure C3.3 Groundwater yield

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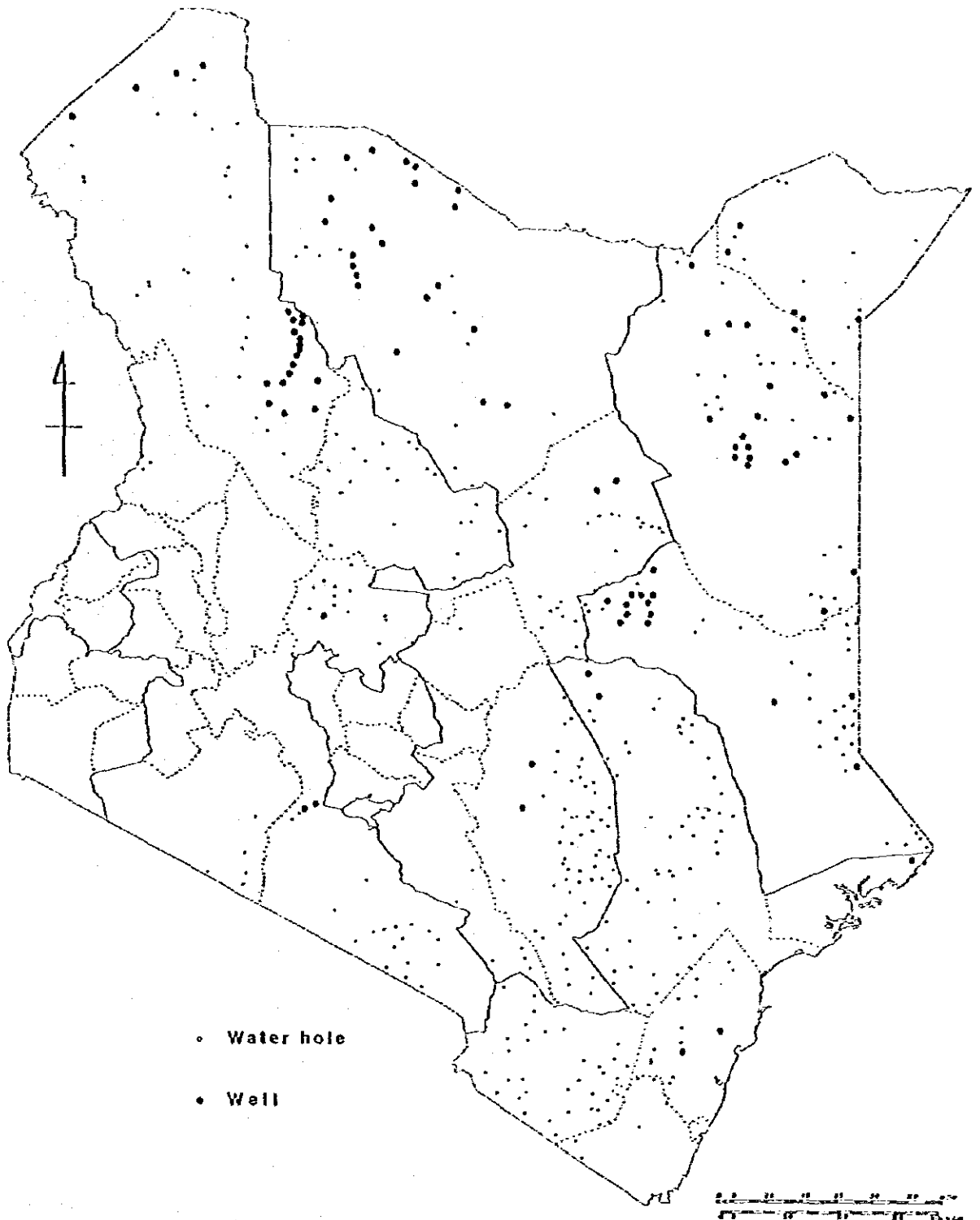


Figure C3.4 Location map of water holes and wells

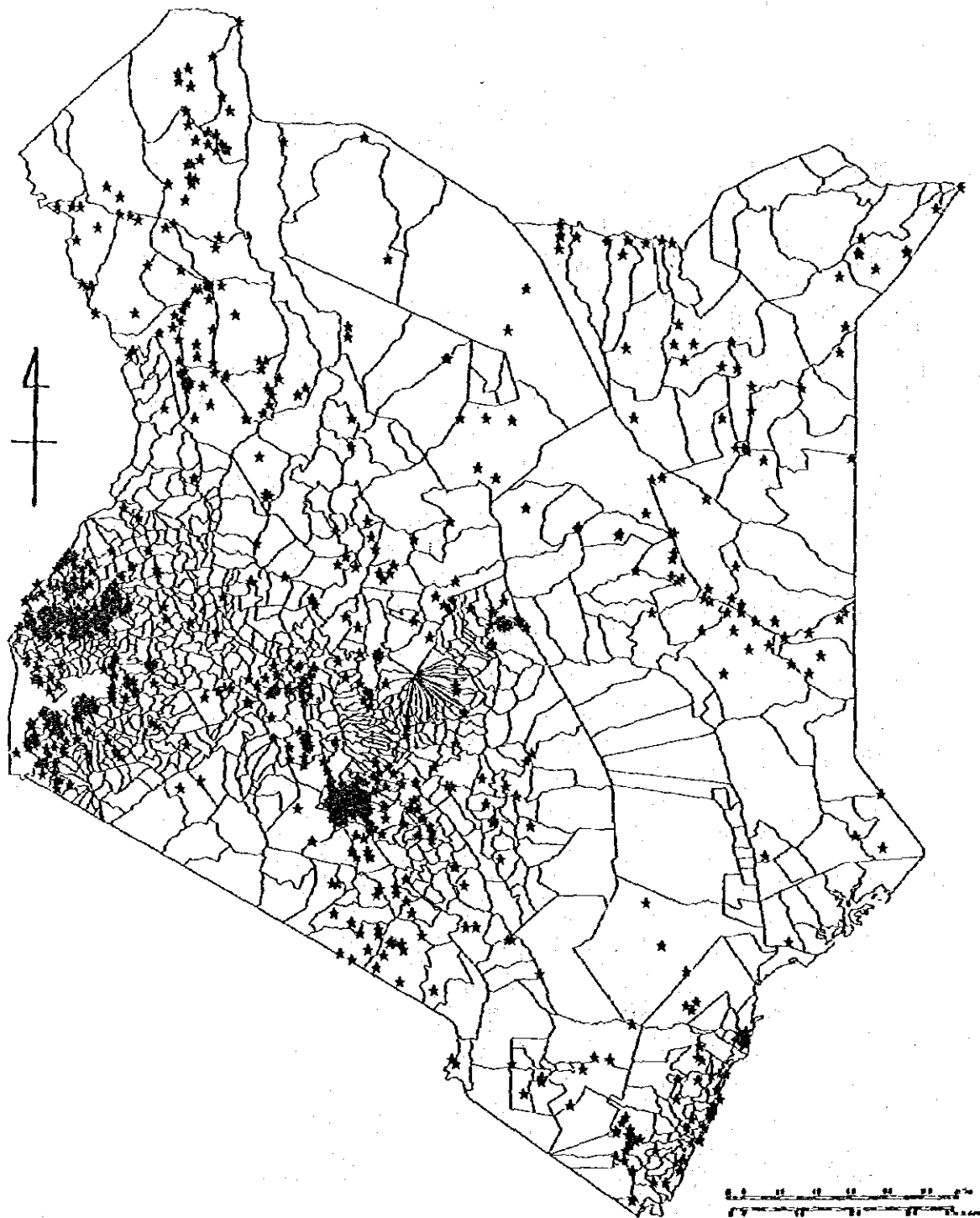


Figure C3.5 Location map of boreholes with electrical conductivity data

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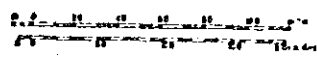
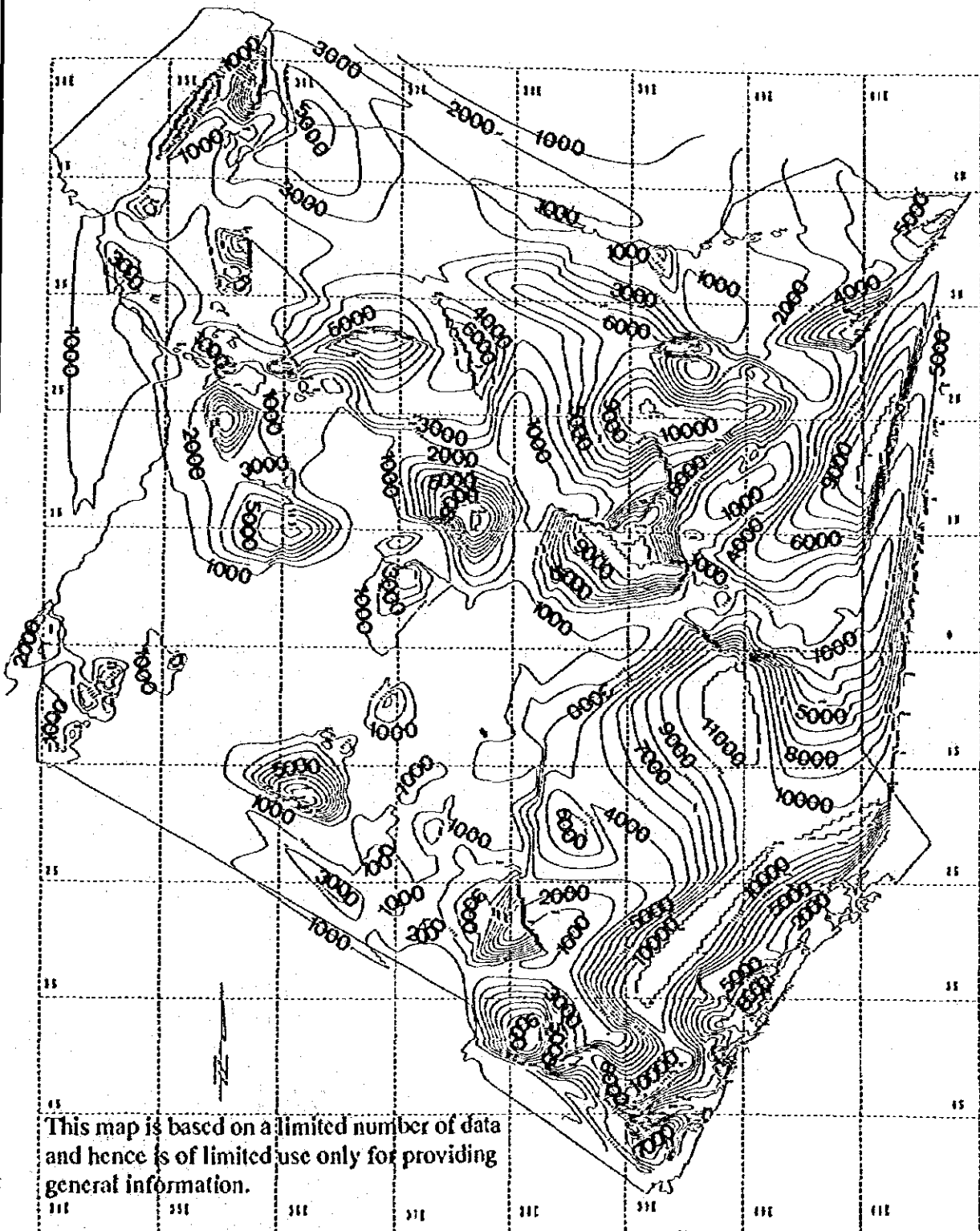


Figure C3.6 Contour map of electrical conductivity (micro S/cm)

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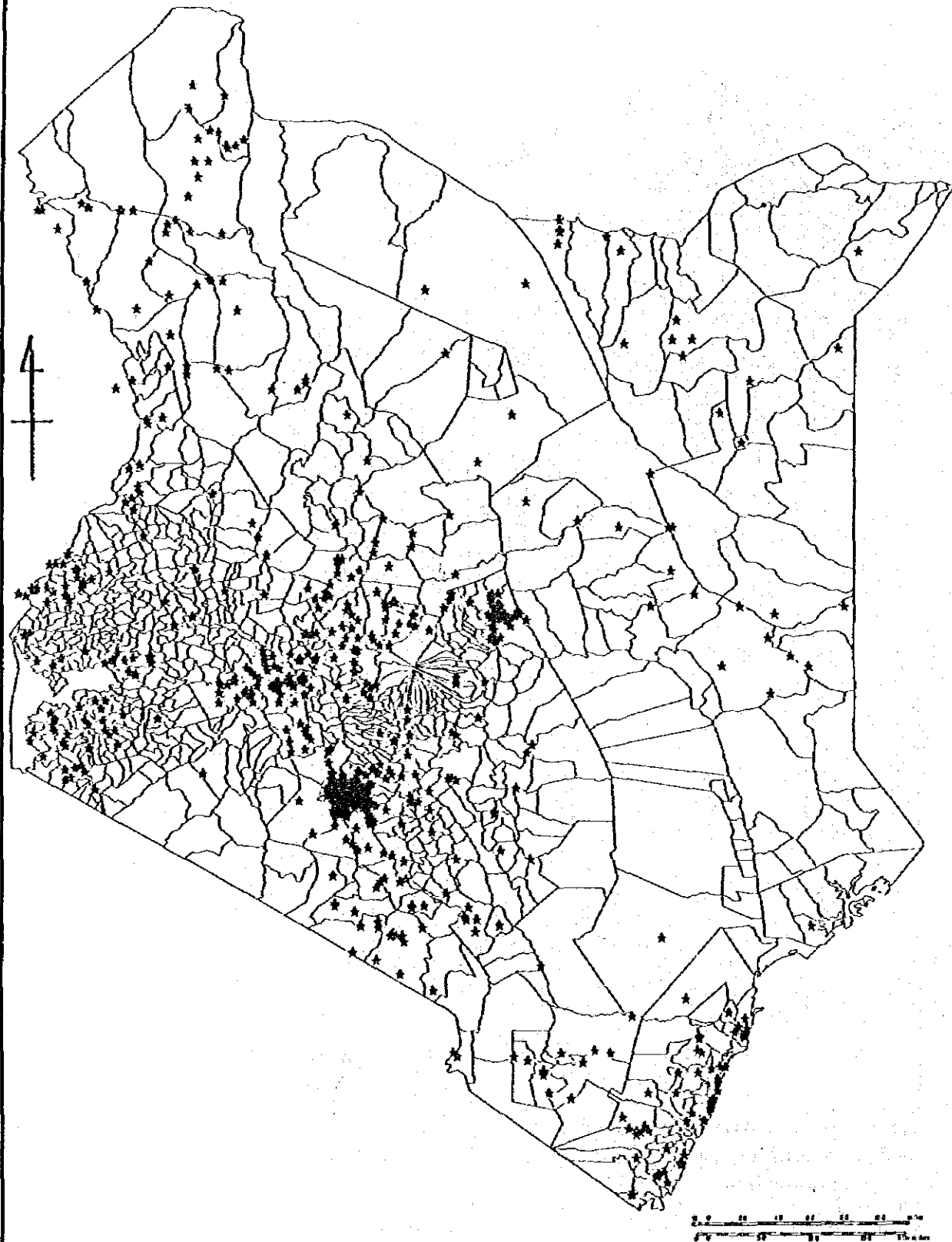
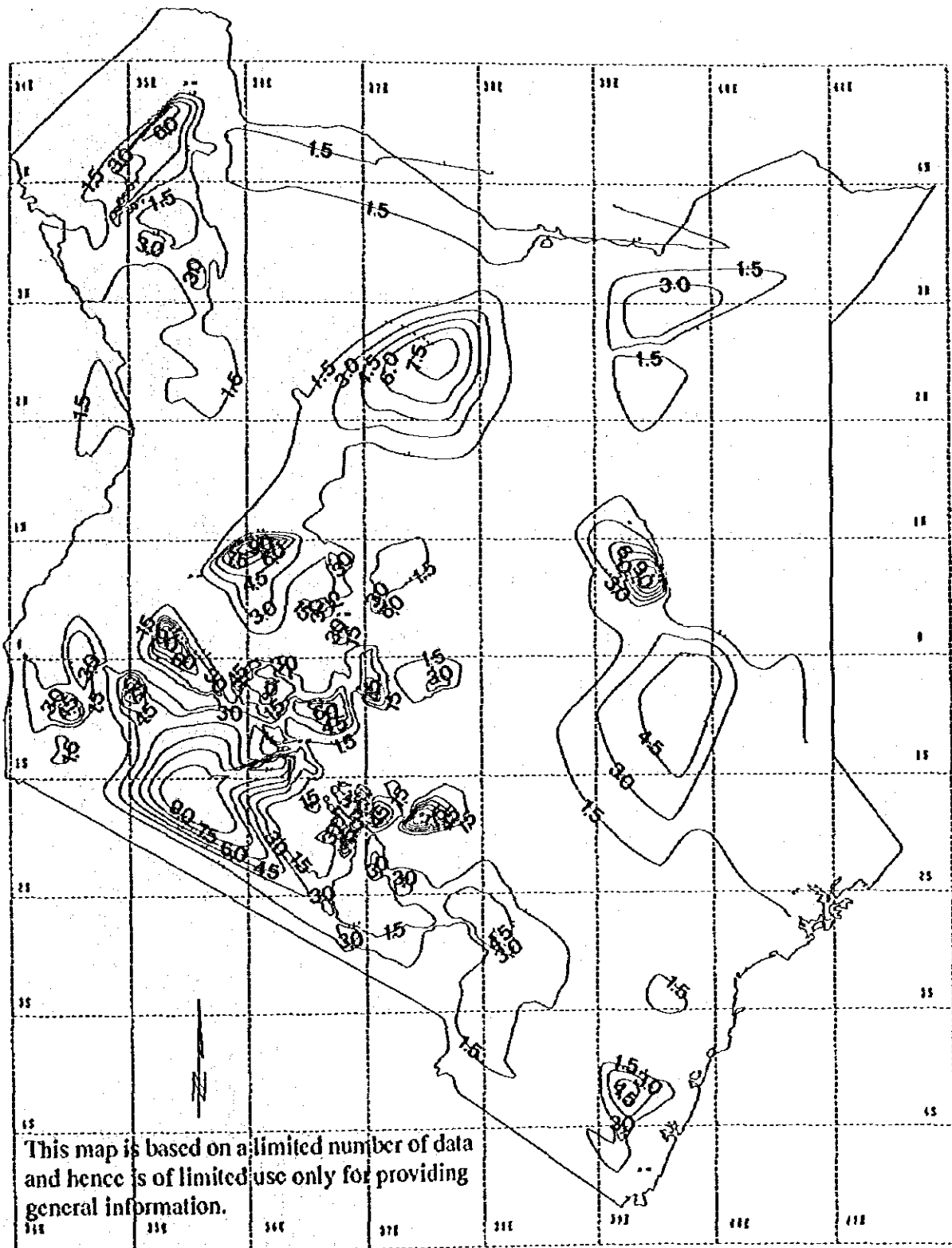


Figure C3.7 Location map of boreholes with fluoride data

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This map is based on a limited number of data and hence is of limited use only for providing general information.

Figure C3.8 Contour map of fluoride (mg/l)

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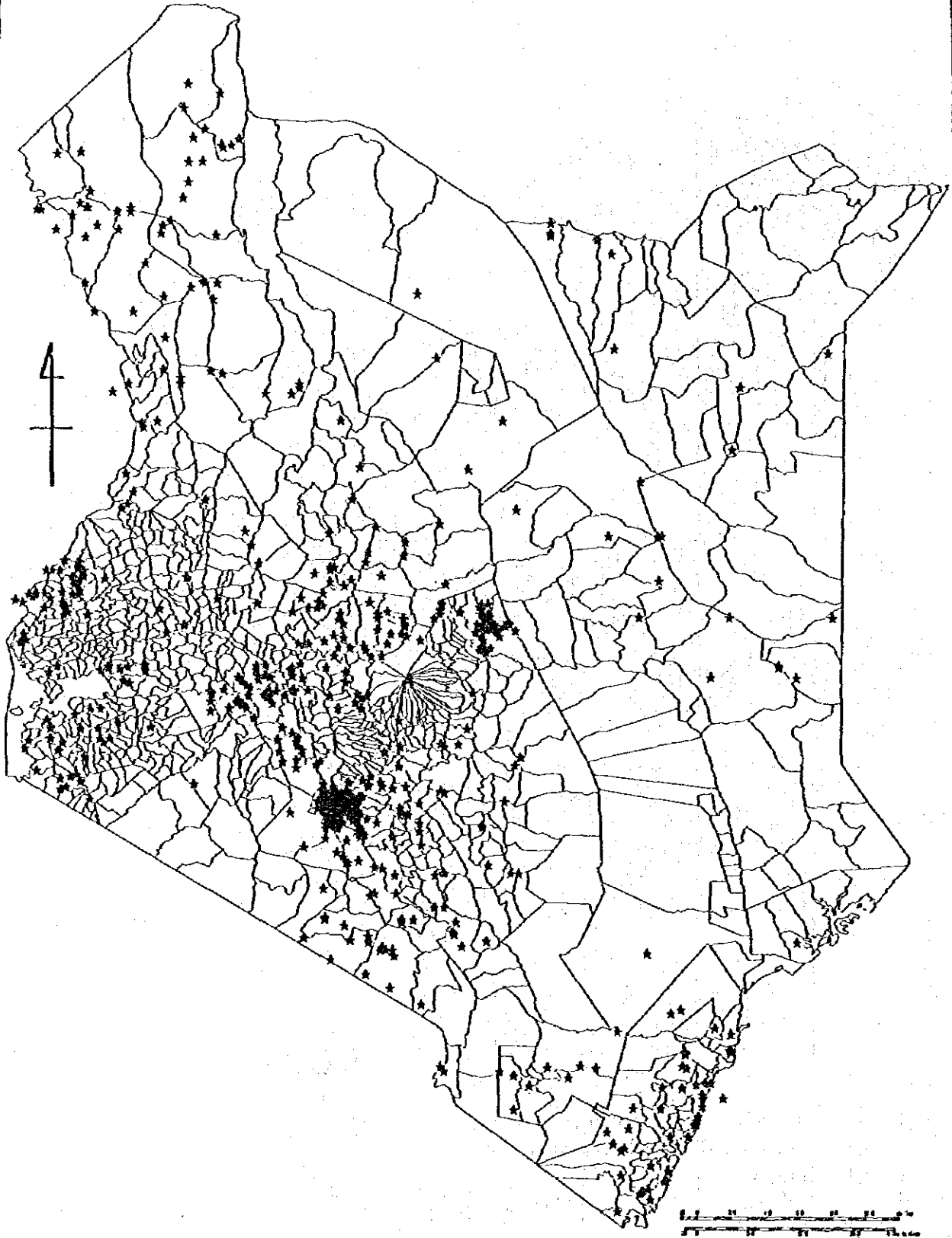
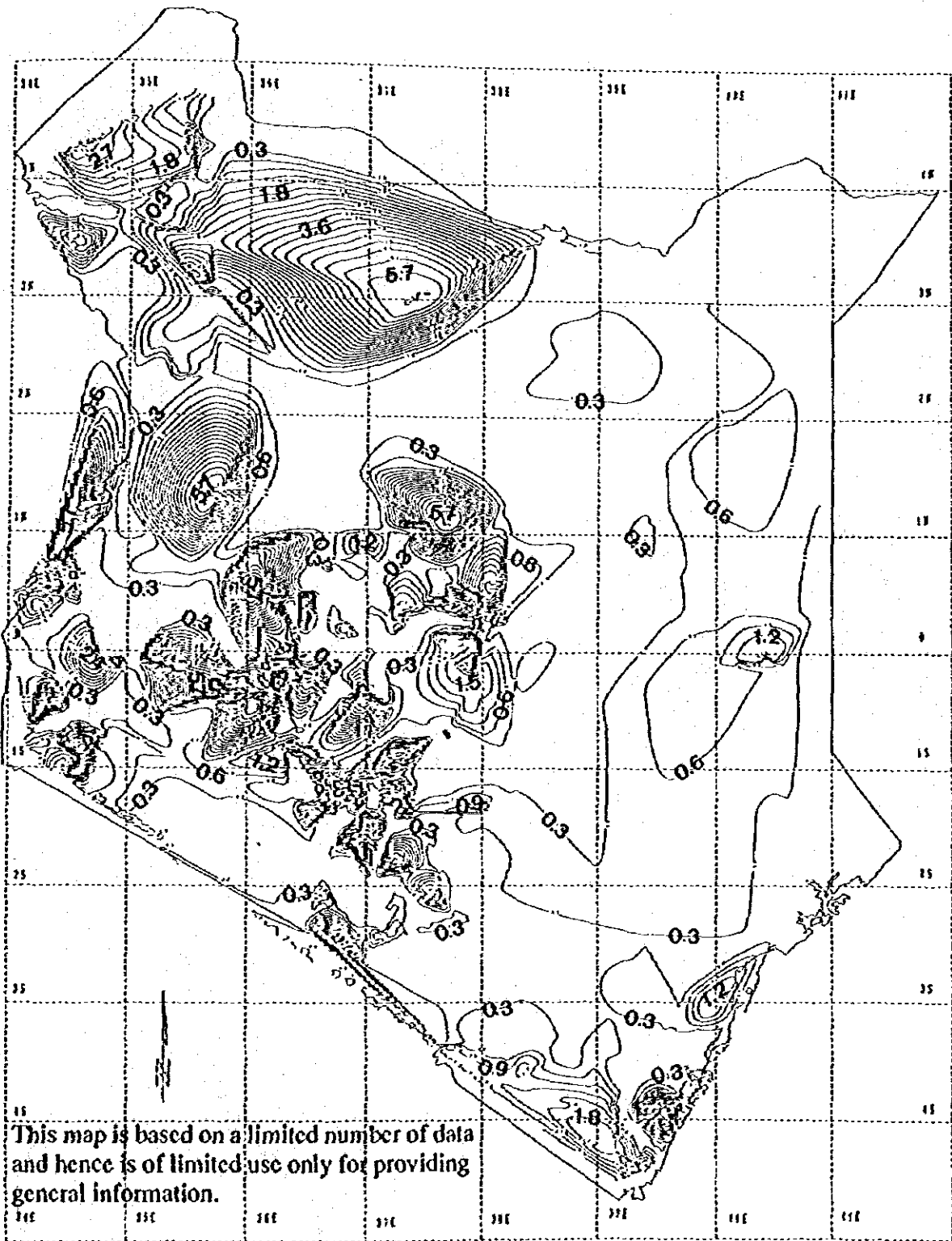


Figure C3.9 Location map of boreholes with iron data

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This map is based on a limited number of data and hence is of limited use only for providing general information.

Figure C3.10 Contour map of Iron (mg/l)

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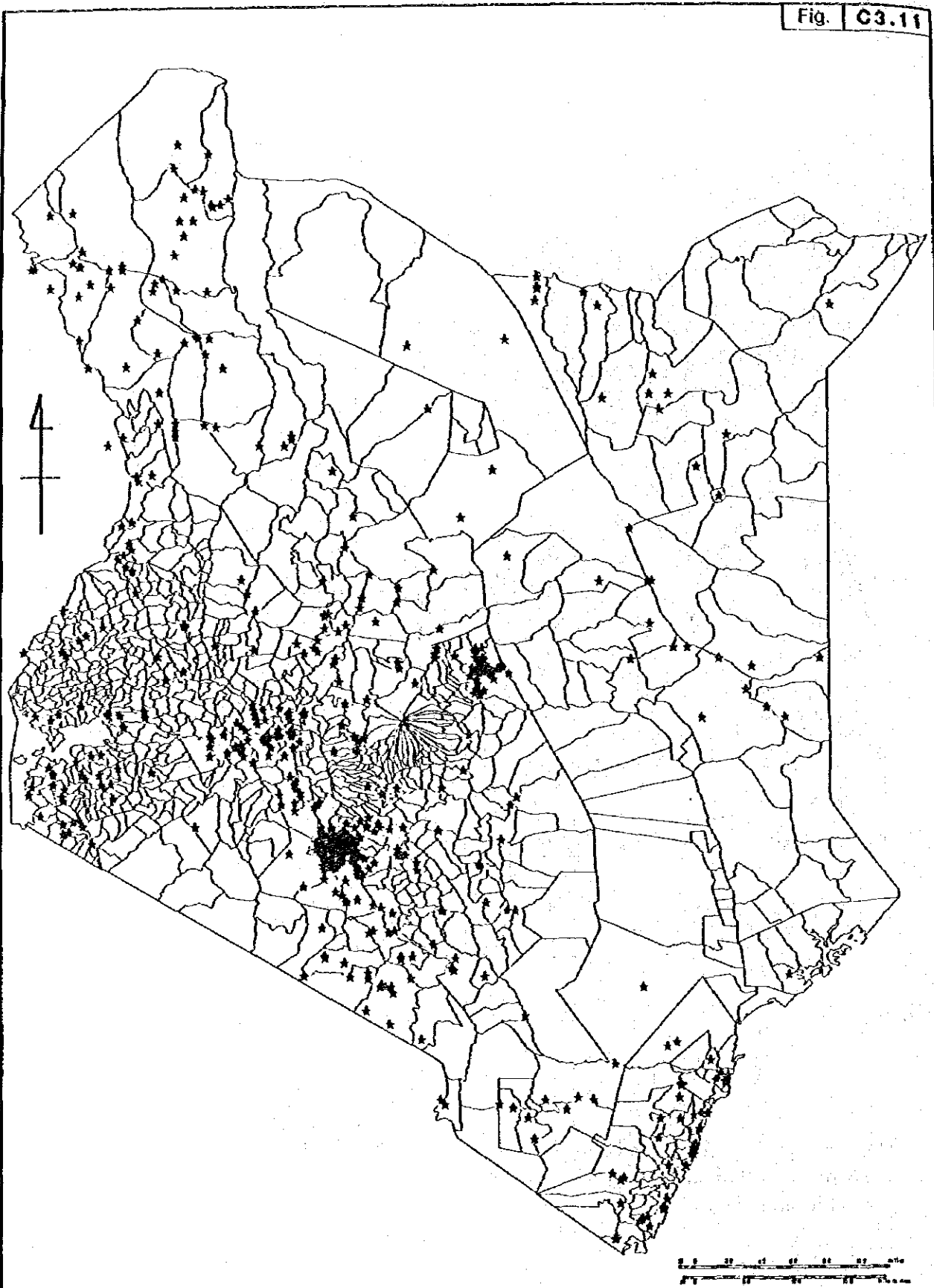
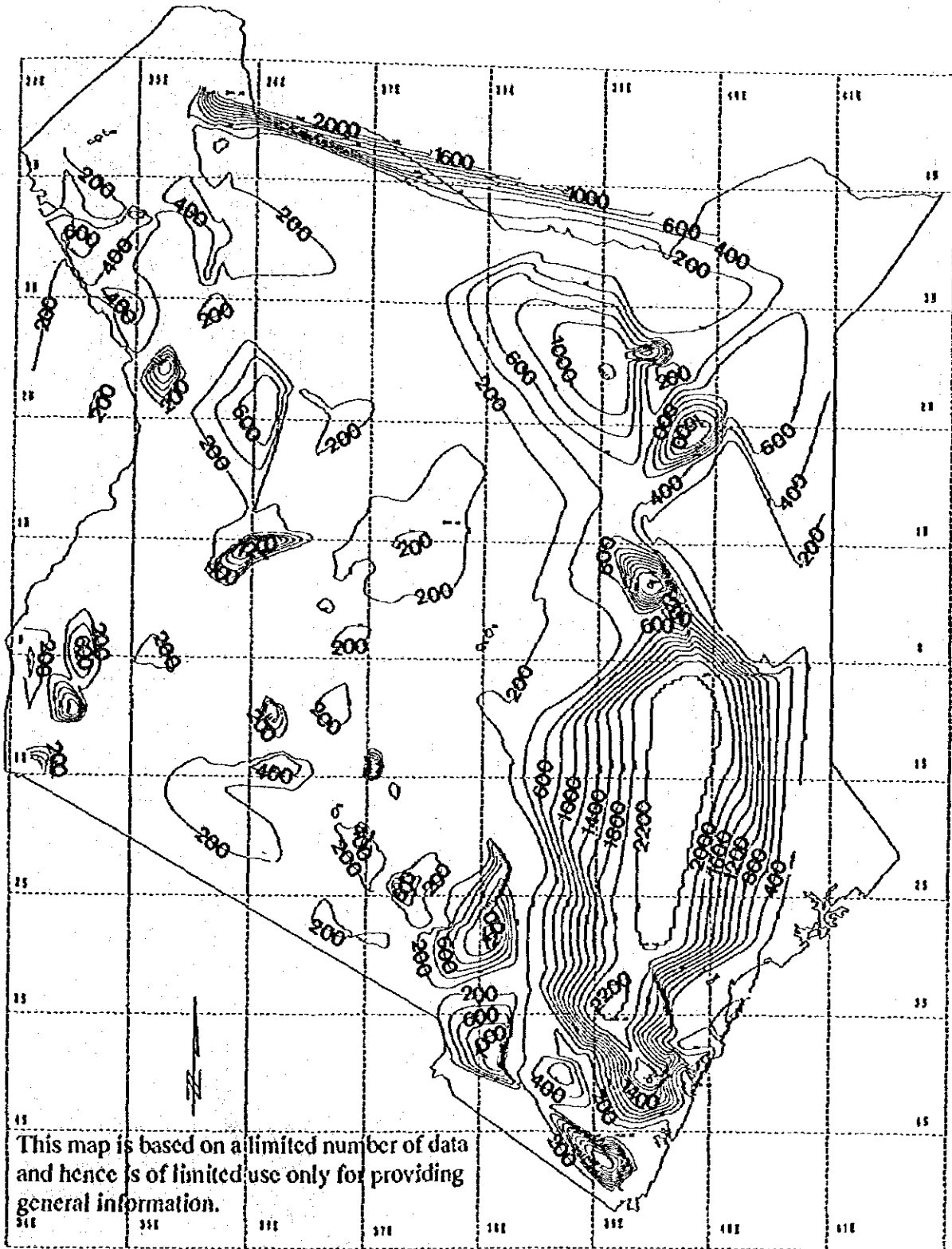


Figure C3.11 Location map of boreholes with sodium data

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This map is based on a limited number of data and hence is of limited use only for providing general information.

Figure C3.12 Contour map of sodium (mg/l)

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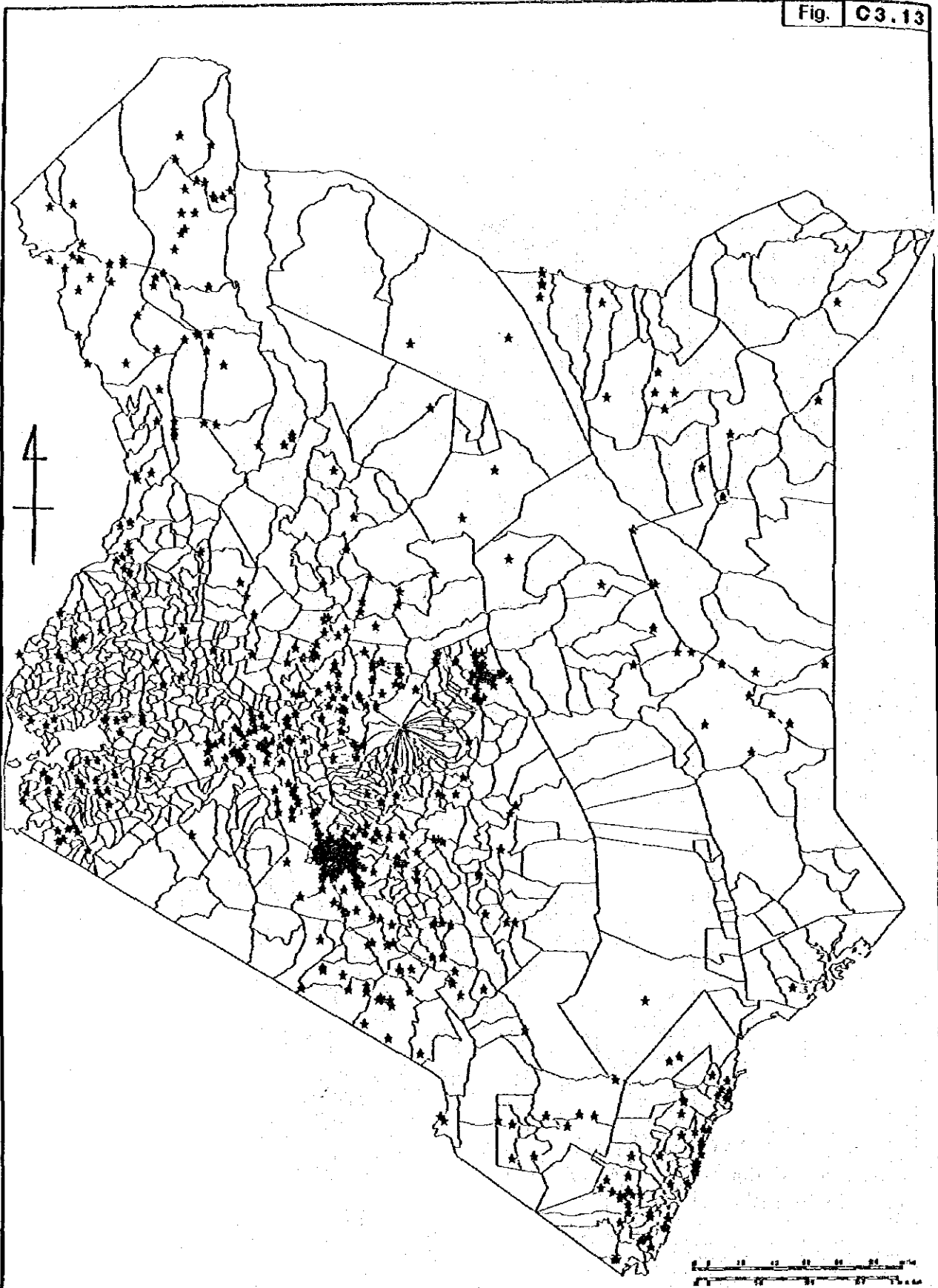
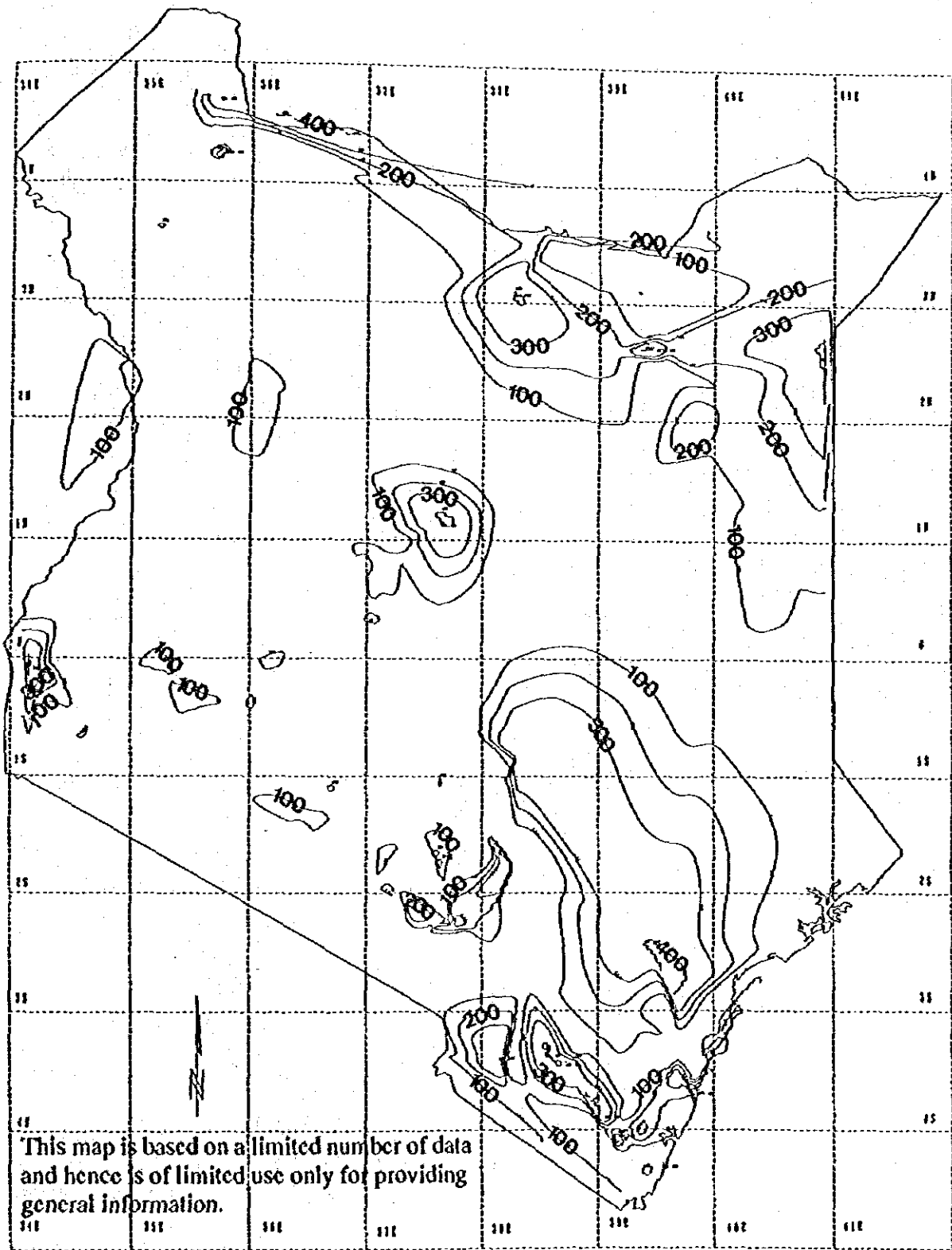


Figure C3.13 Location map of boreholes with calcium data

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Fig. C3.14



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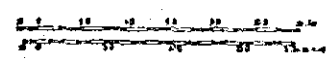


Figure C3.14 Contour map of calcium (mg/l)

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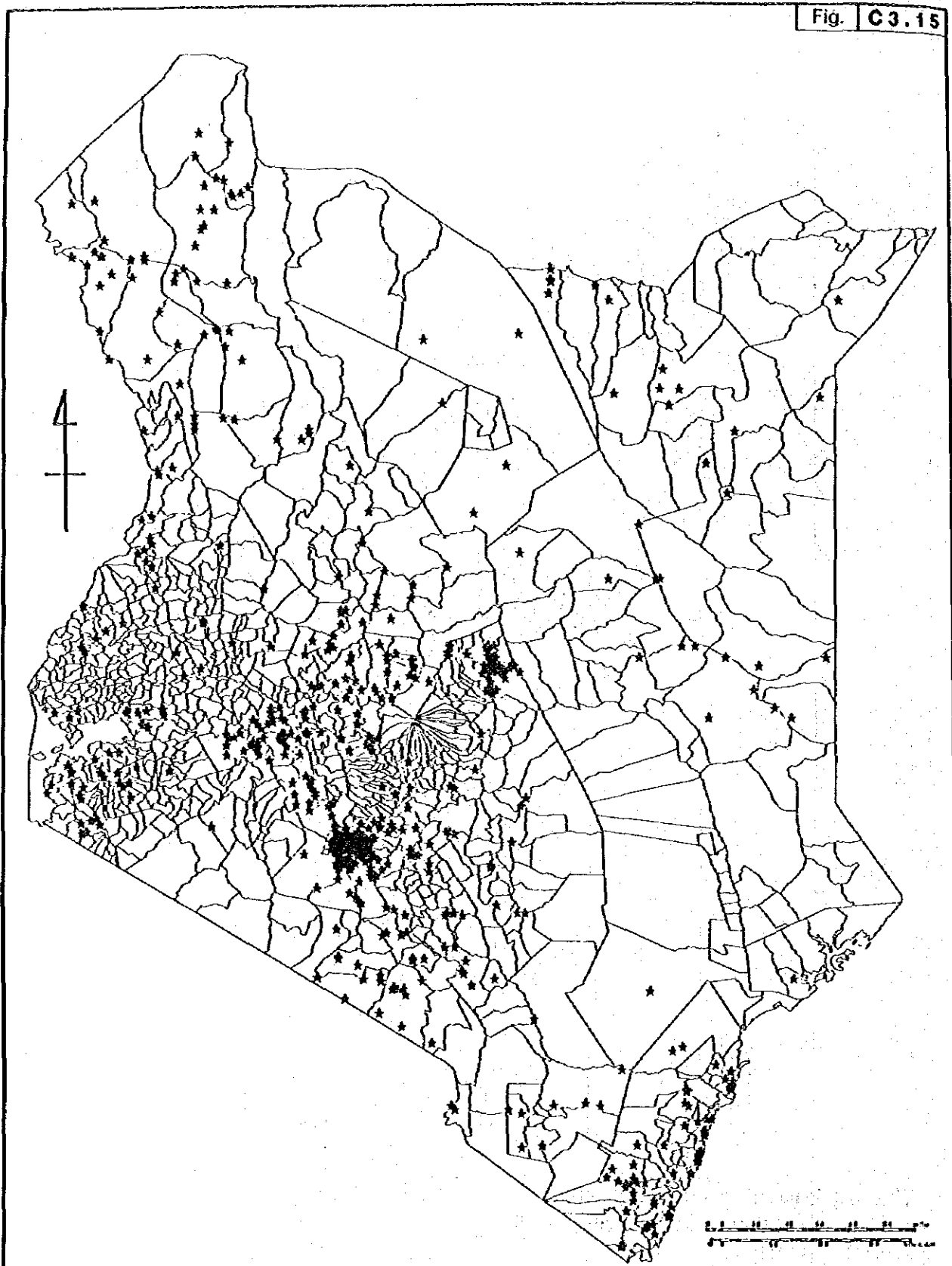


Figure C3.15 Location map of boreholes with magnesium data

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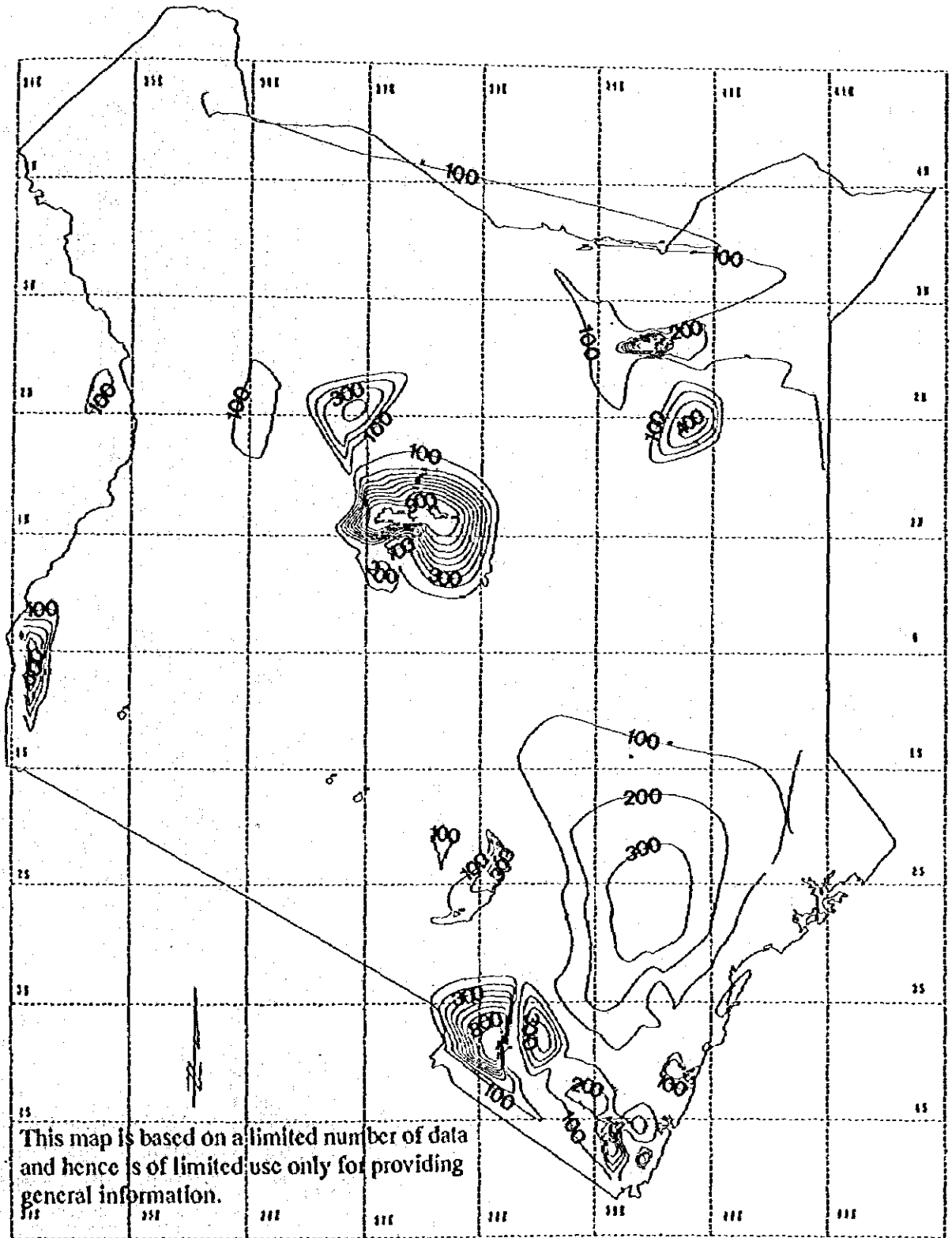


Figure C3.16 Contour map of magnesium (mg/l)

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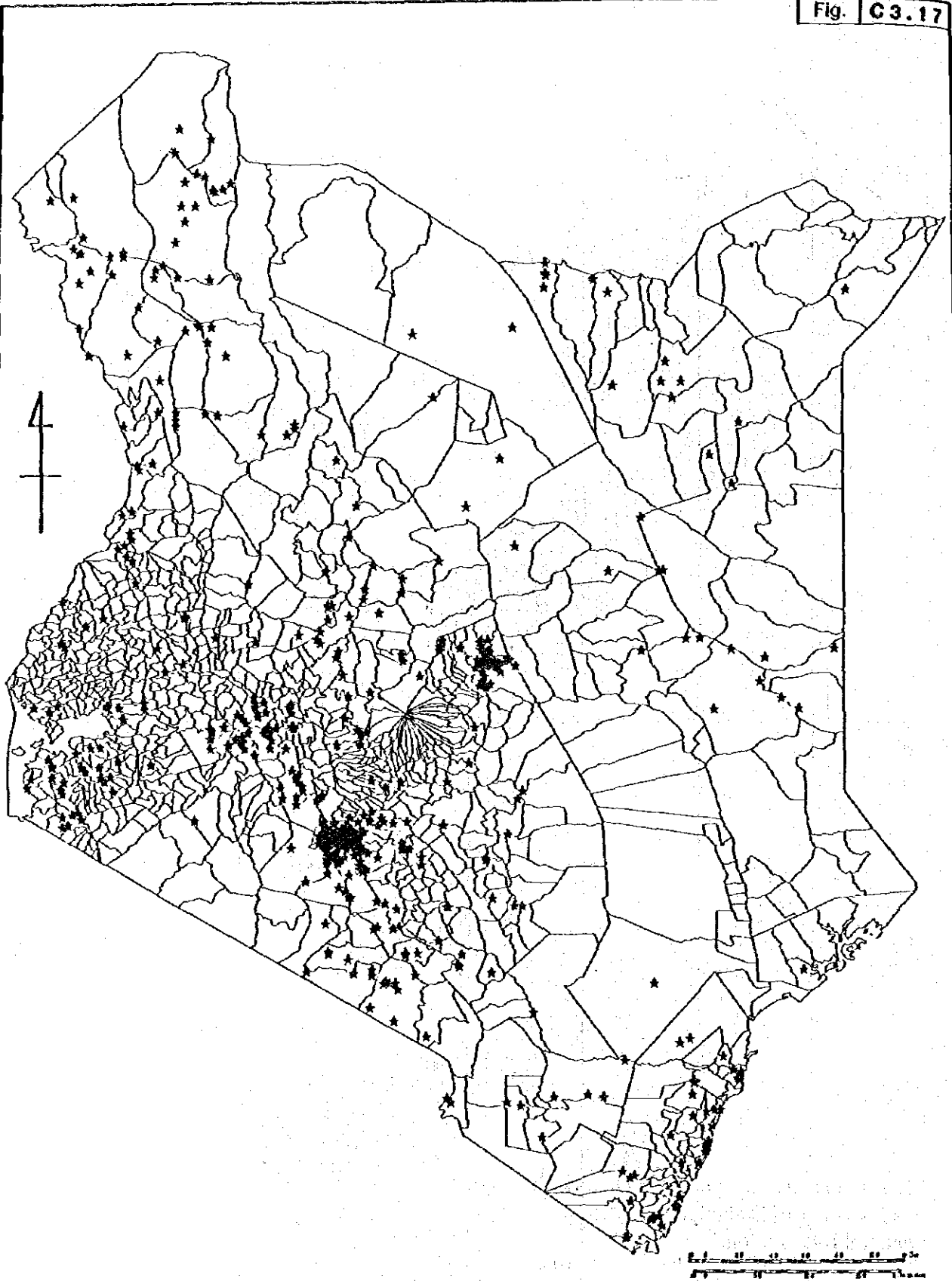
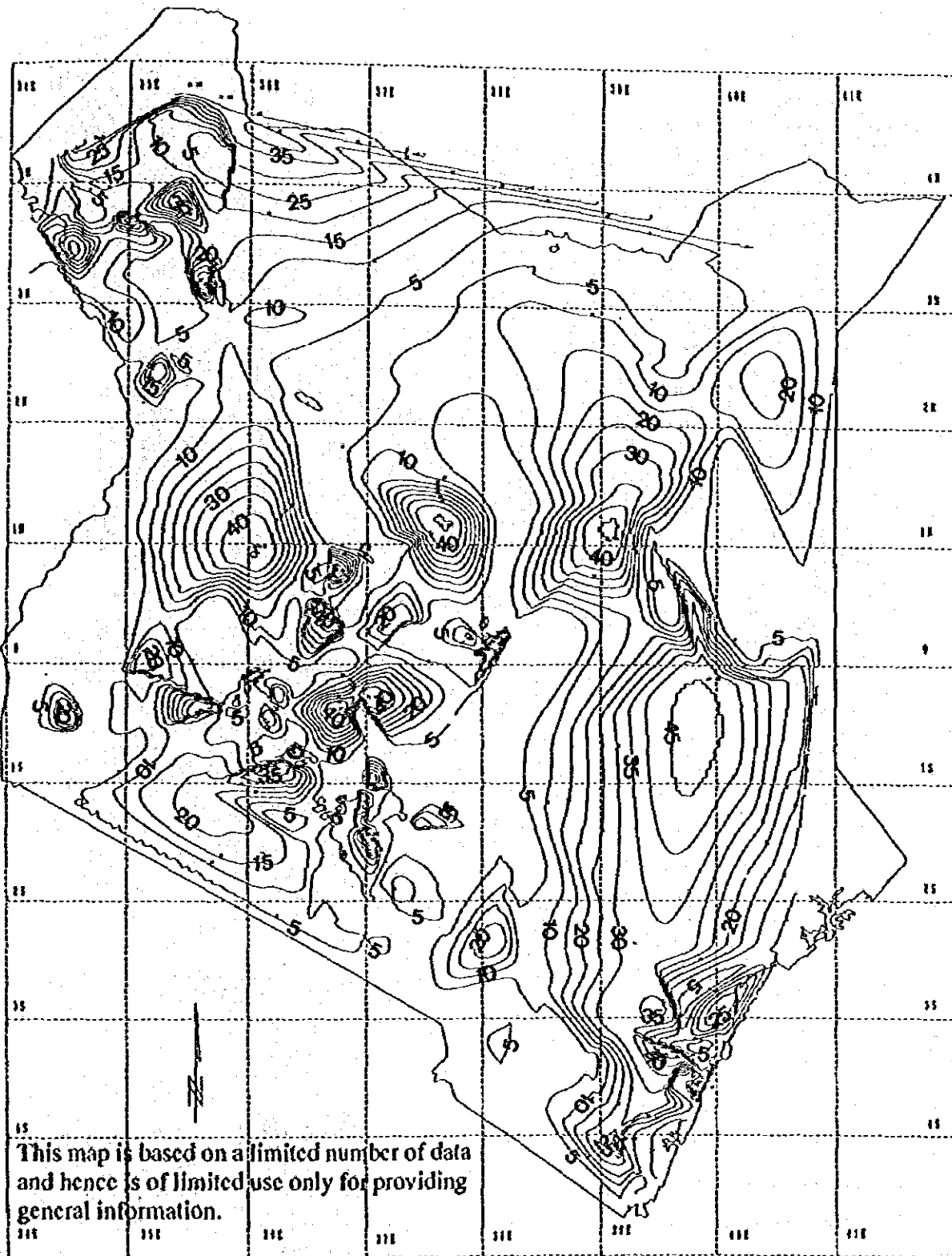


Figure C3.17 Location map of boreholes with sodium absorption ratio data

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Figure C3.18 Contour map of sodium absorption ratio

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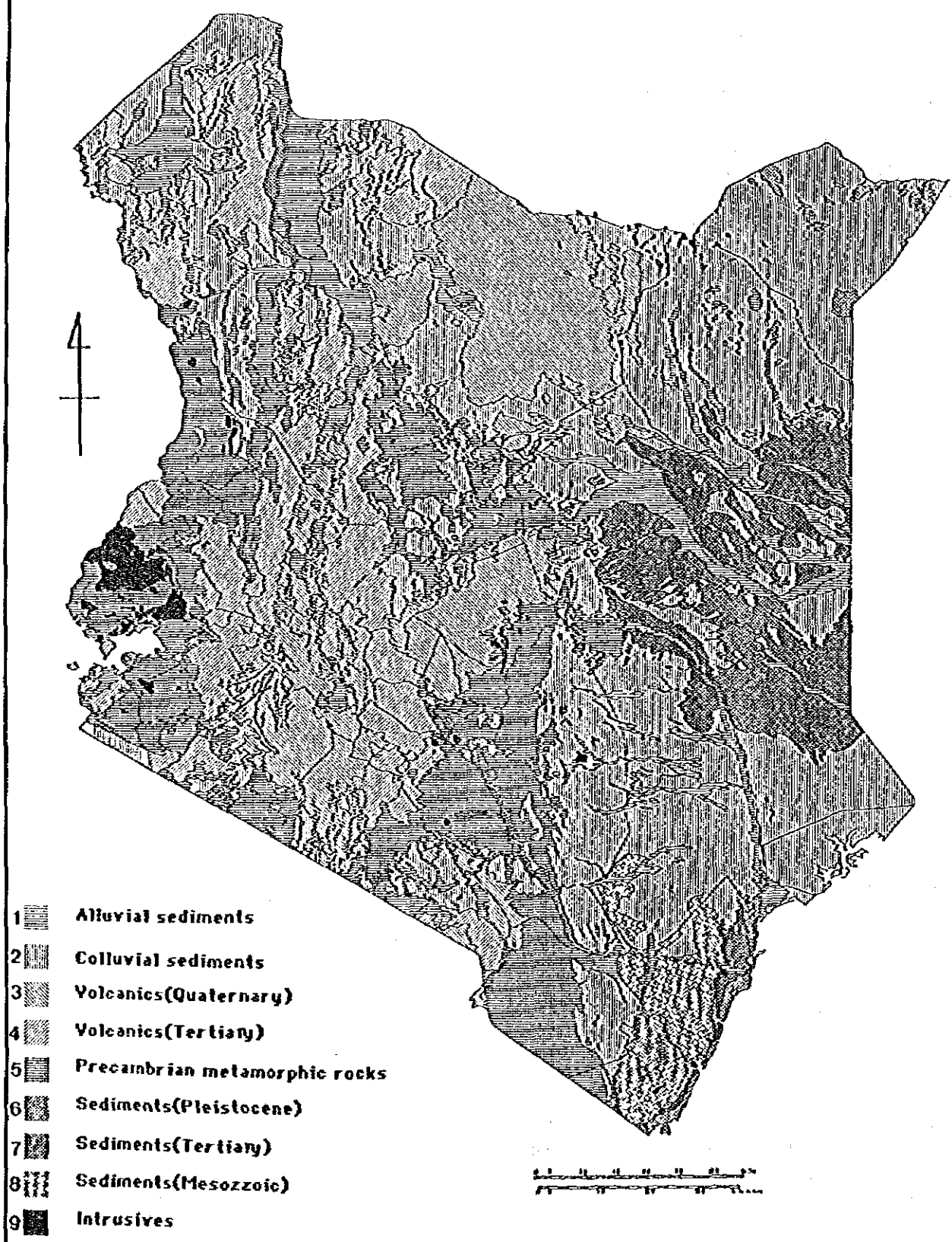
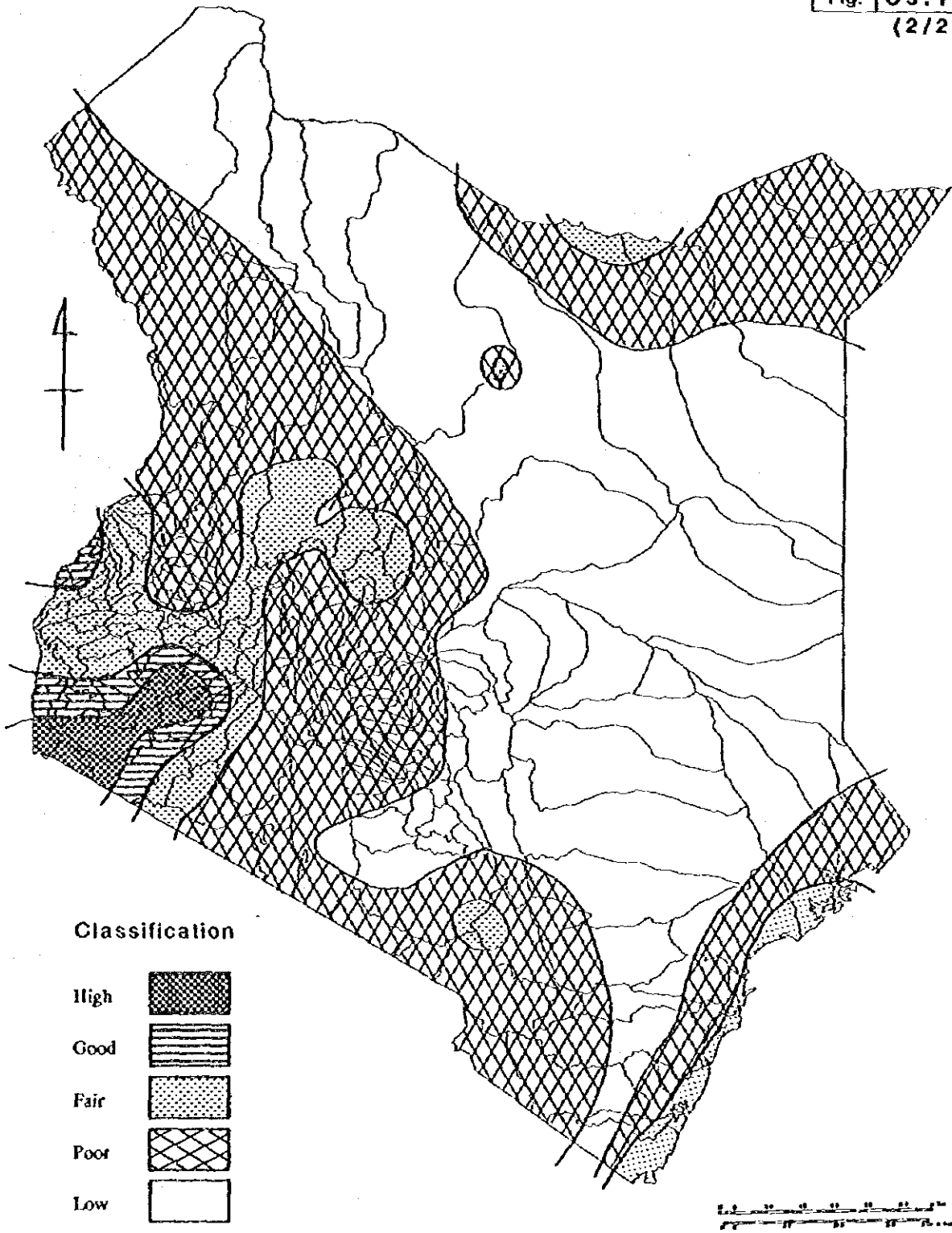


Figure C3.19 (1/2) Hydrogeological maps--Geological potential--

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Cf. Appendix C.6

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Figure C3.19 (2/2) Hydrogeological maps--Groundwater potential--

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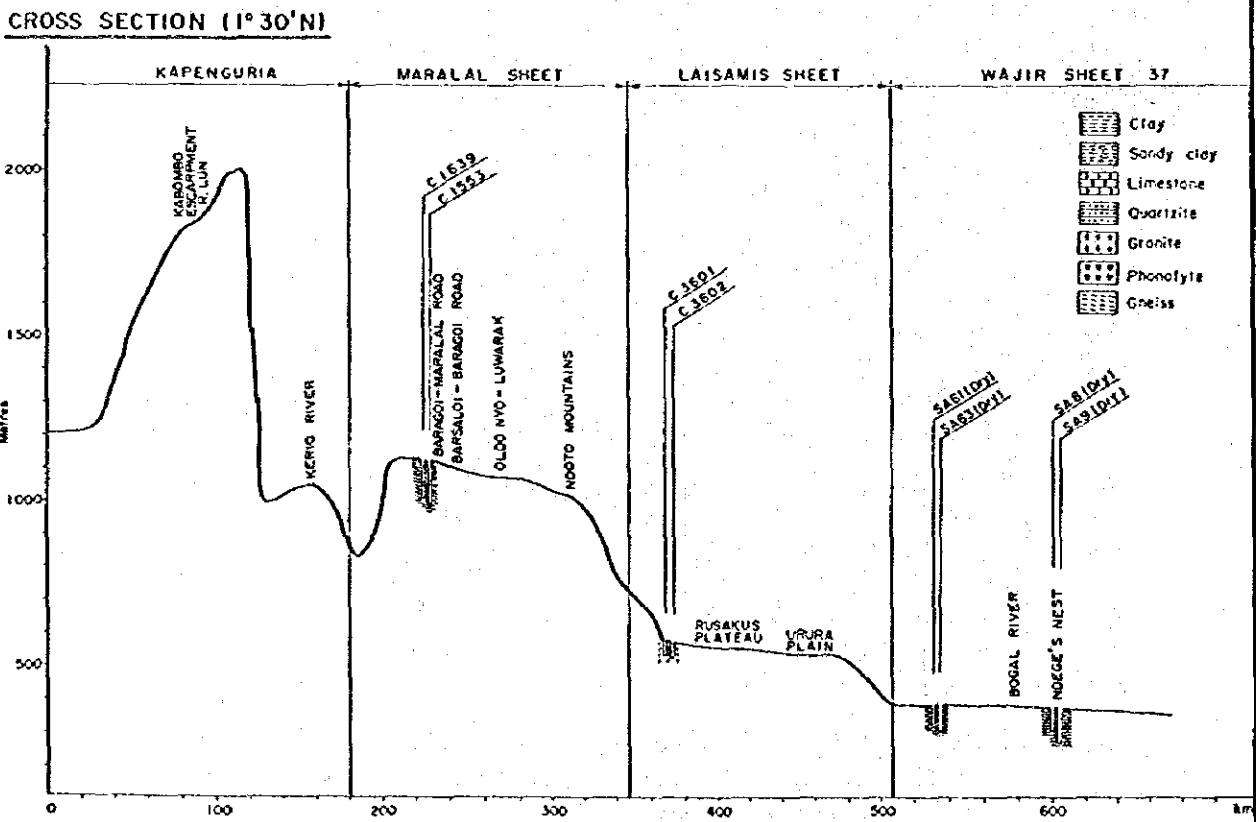
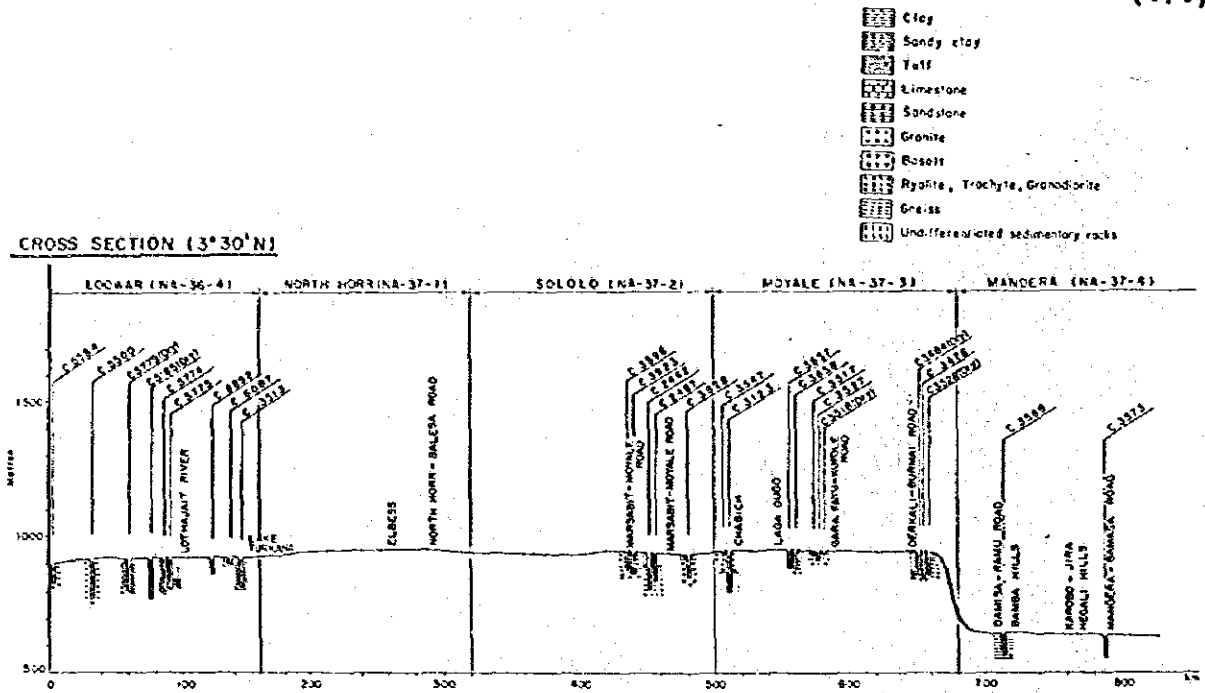


Figure C3.20 (1/6) Hydrogeological cross section map

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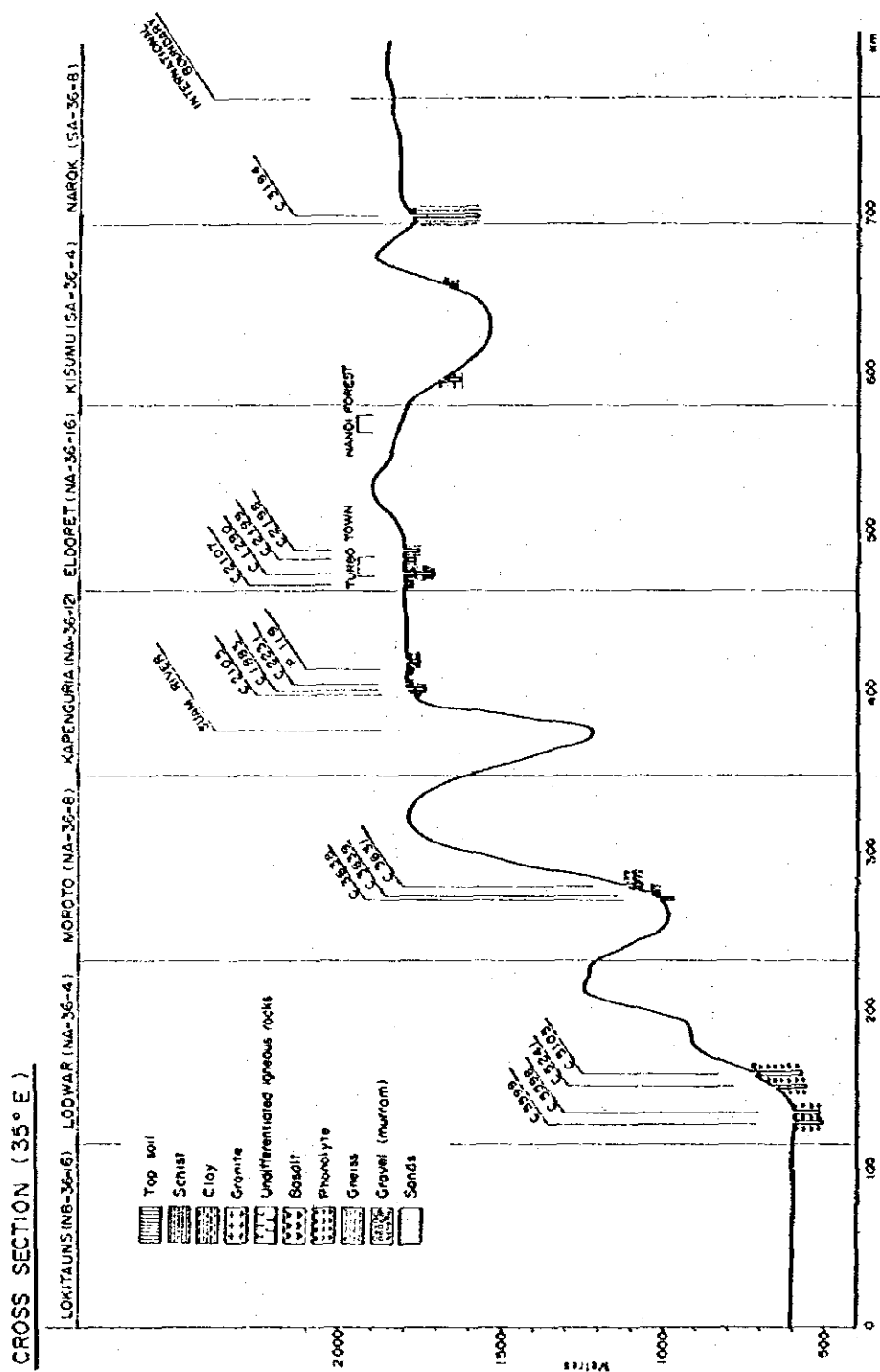


Figure C3.20 (3/6) Hydrogeological cross section map

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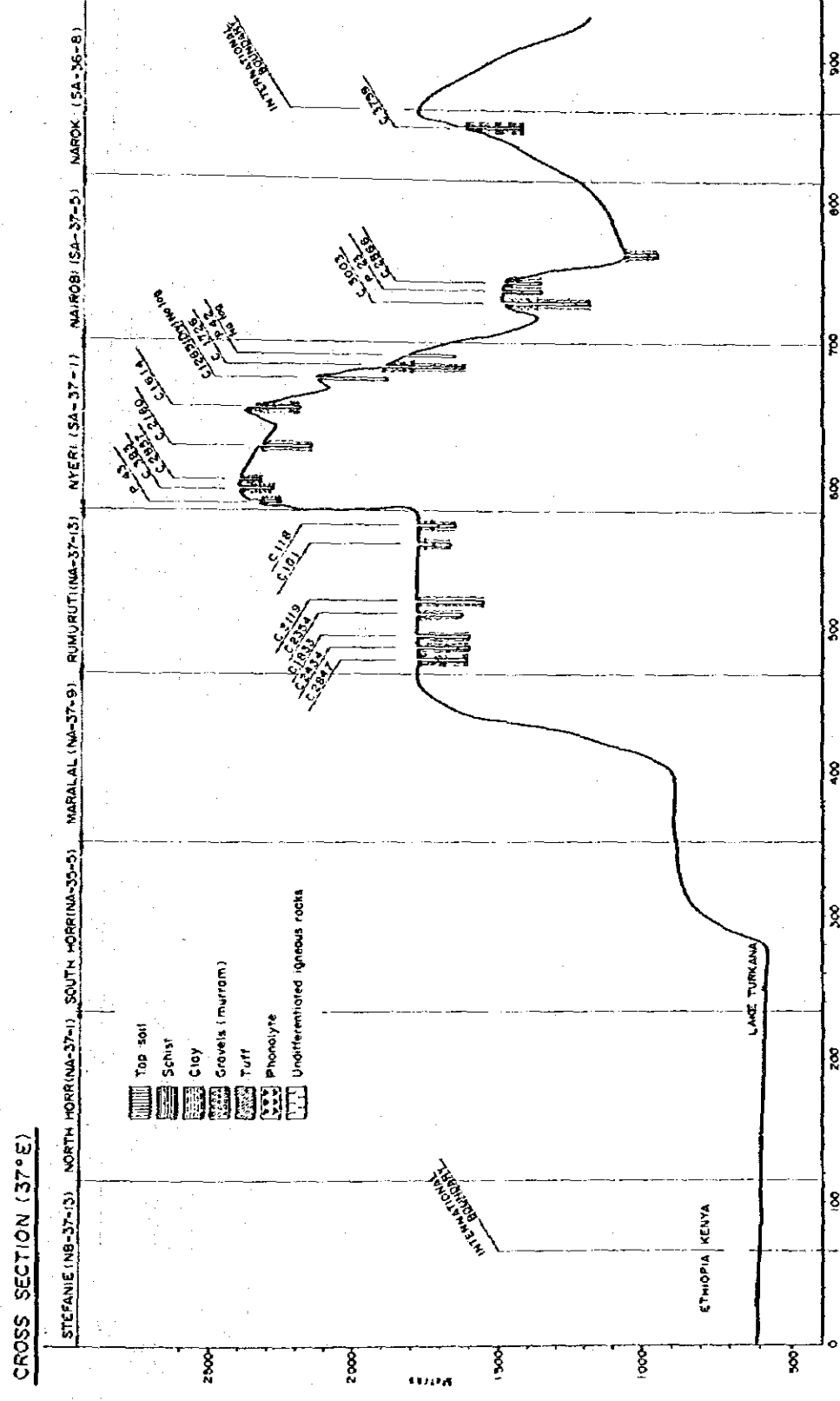


Figure C3.20 (4/6) Hydrogeological cross section map

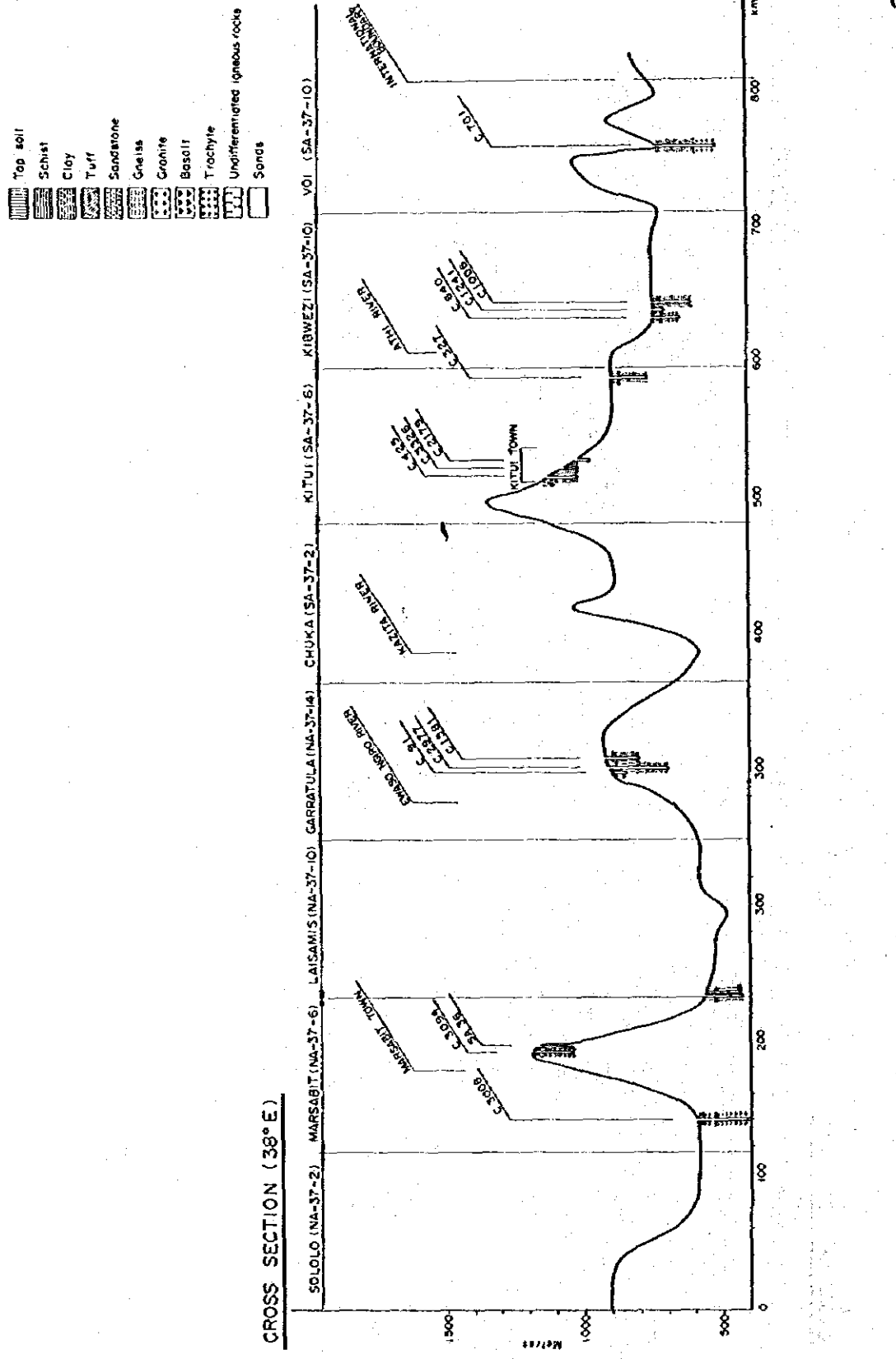


Figure C3.20 (5/6) Hydrogeological cross section map

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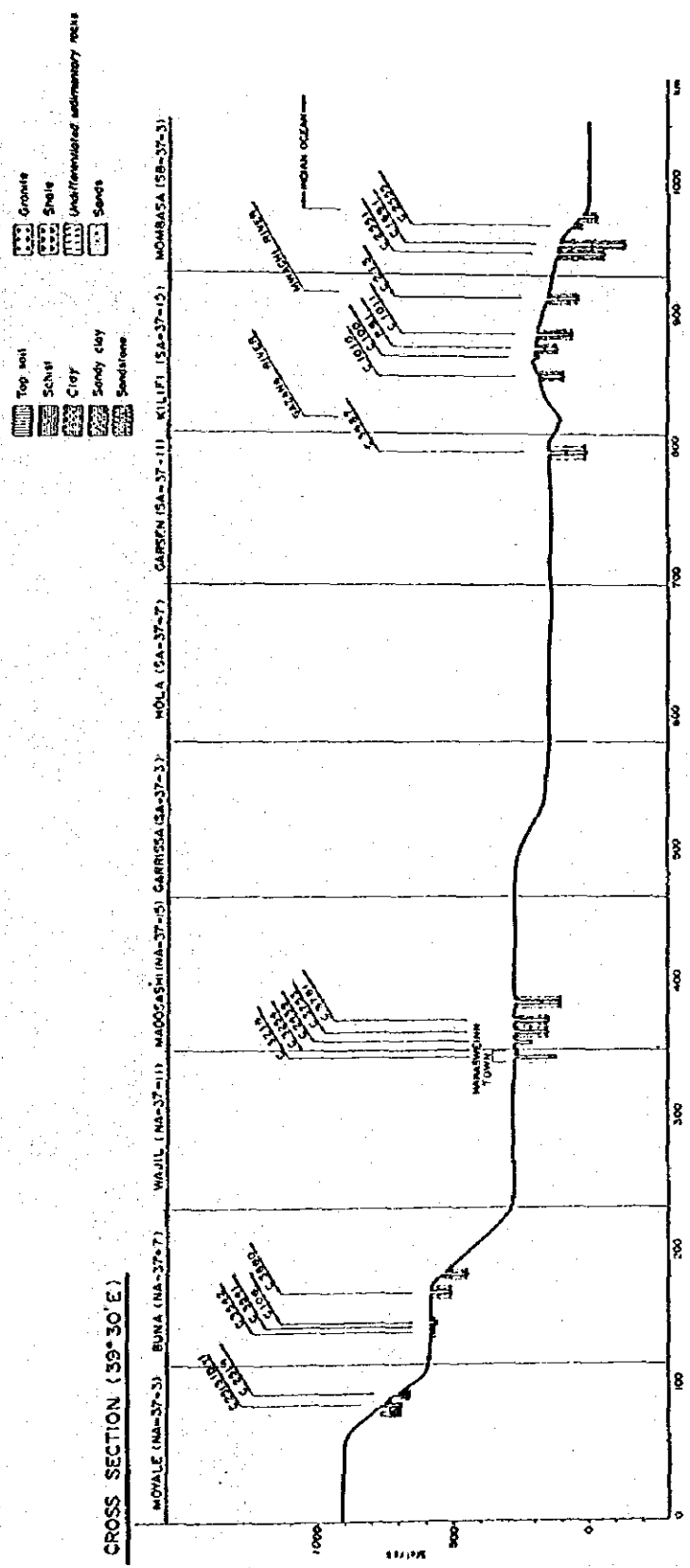


Figure C3.20 (6/6) Hydrogeological cross section map

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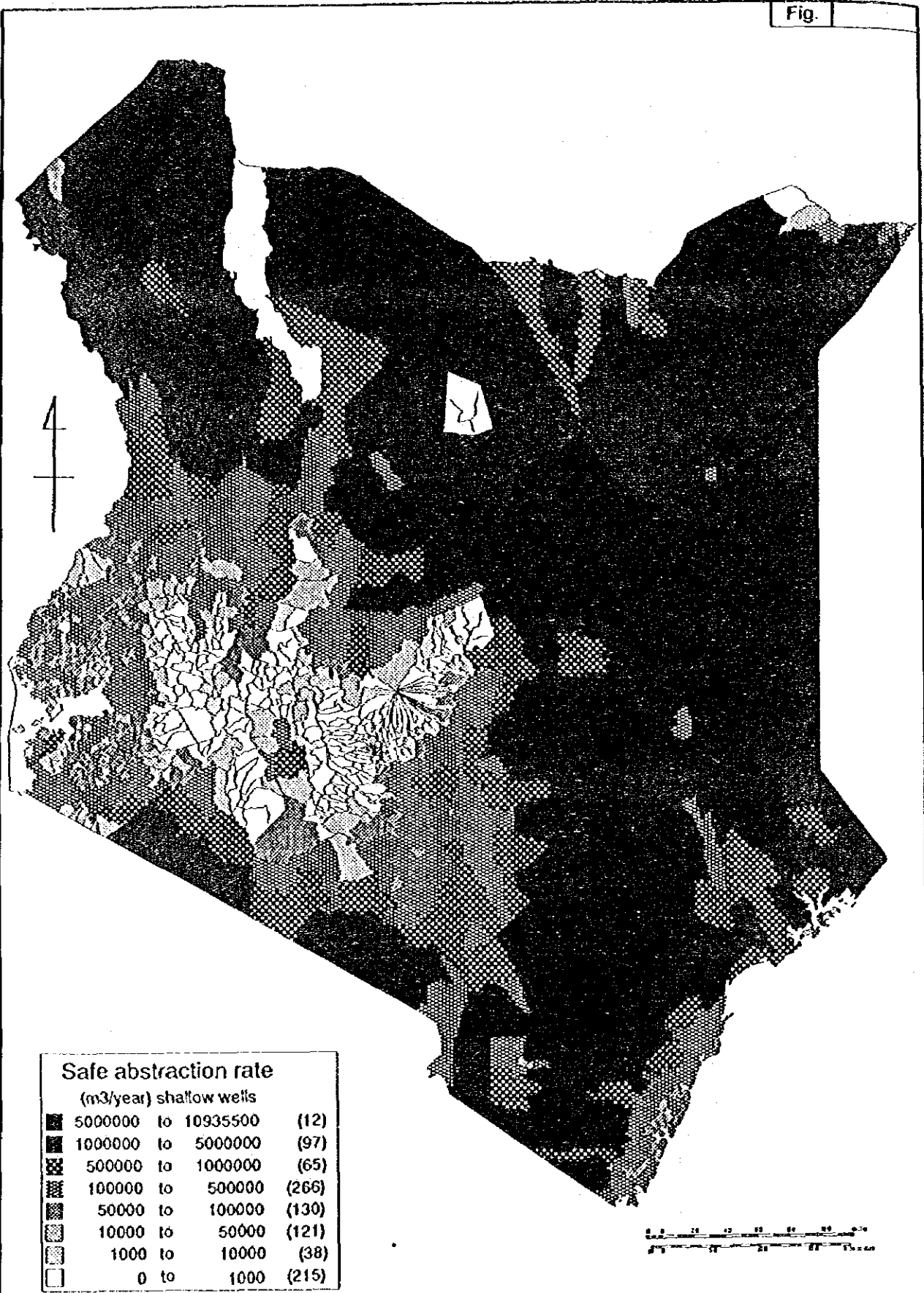
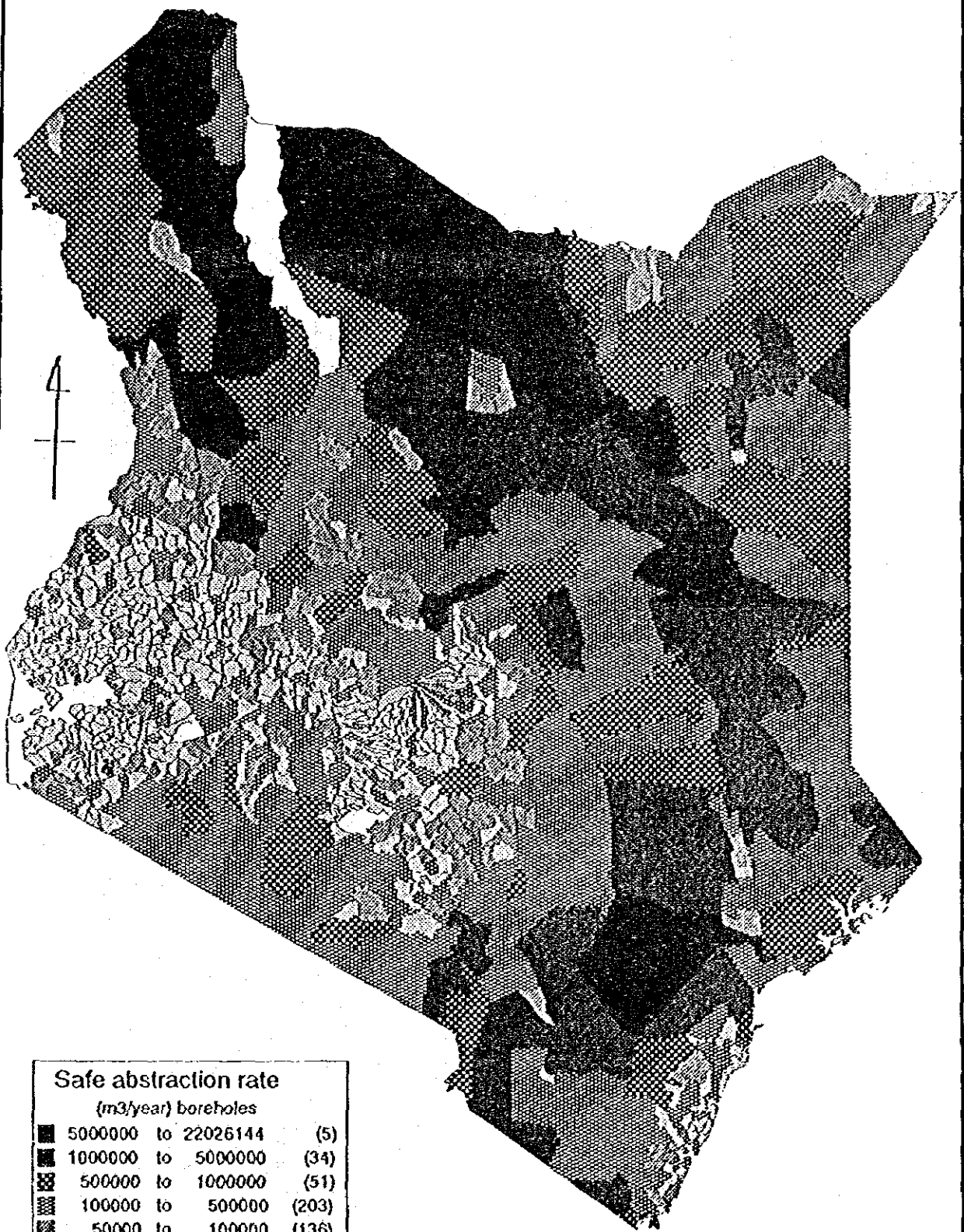


Figure C4.1 Safe abstraction rates of shallow wells by location



Safe abstraction rate (m ³ /year) boreholes		
■	5000000 to 22026144	(5)
■	1000000 to 5000000	(34)
▨	500000 to 1000000	(51)
▨	100000 to 500000	(203)
▨	50000 to 100000	(136)
▨	10000 to 50000	(395)
▨	1000 to 10000	(112)
□	0 to 1000	(8)

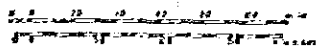


Figure C4.2 Safe abstraction rates of boreholes by location

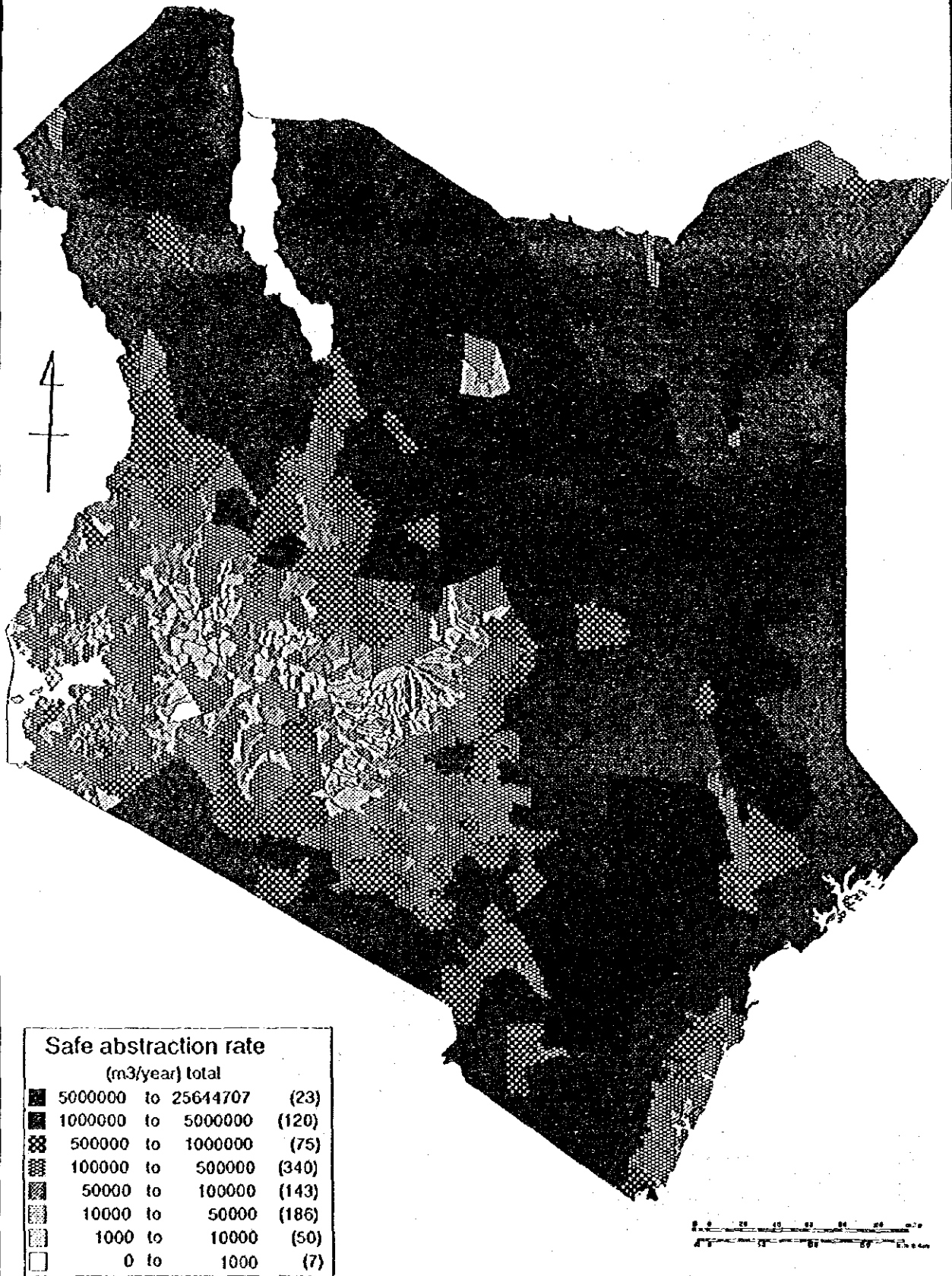
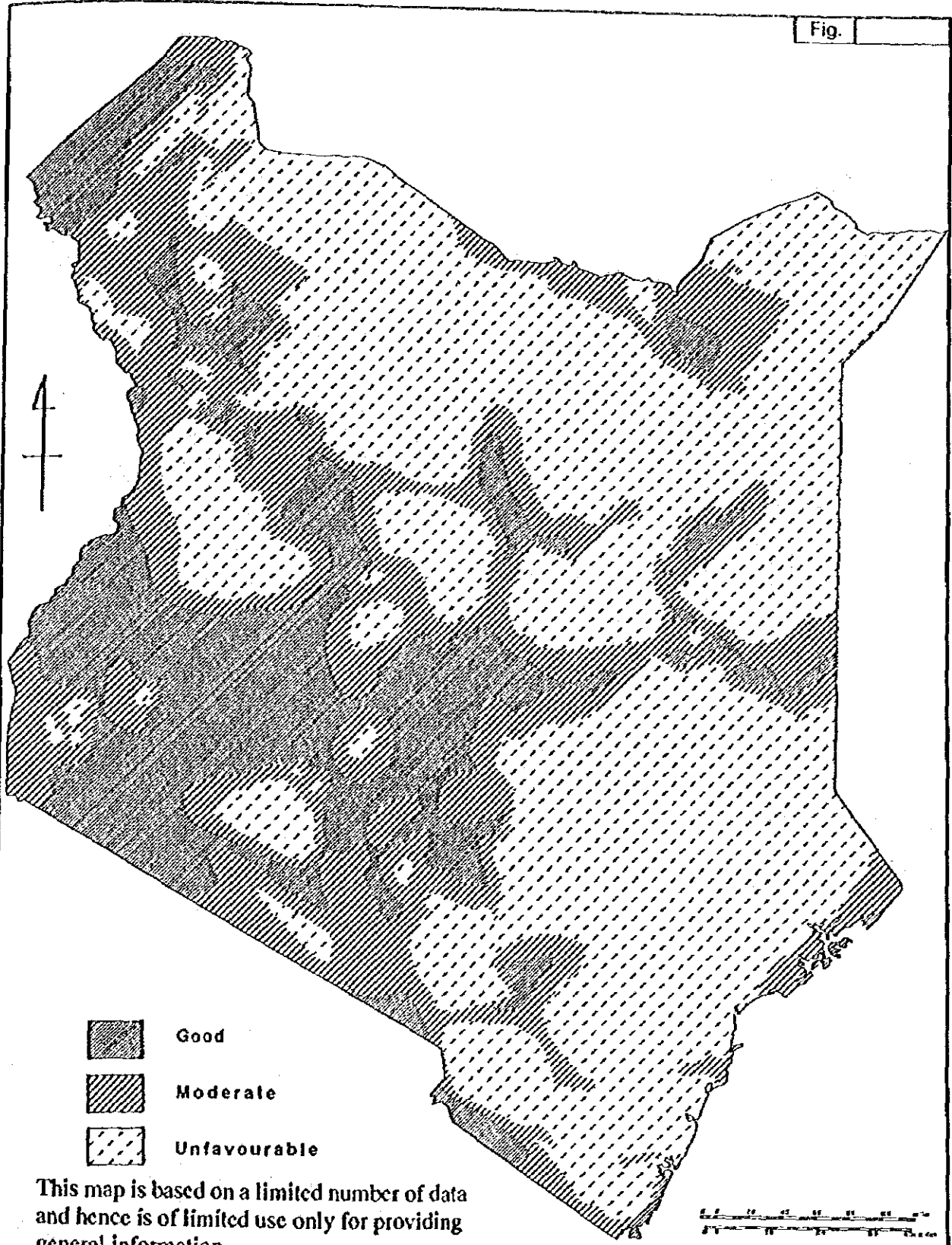
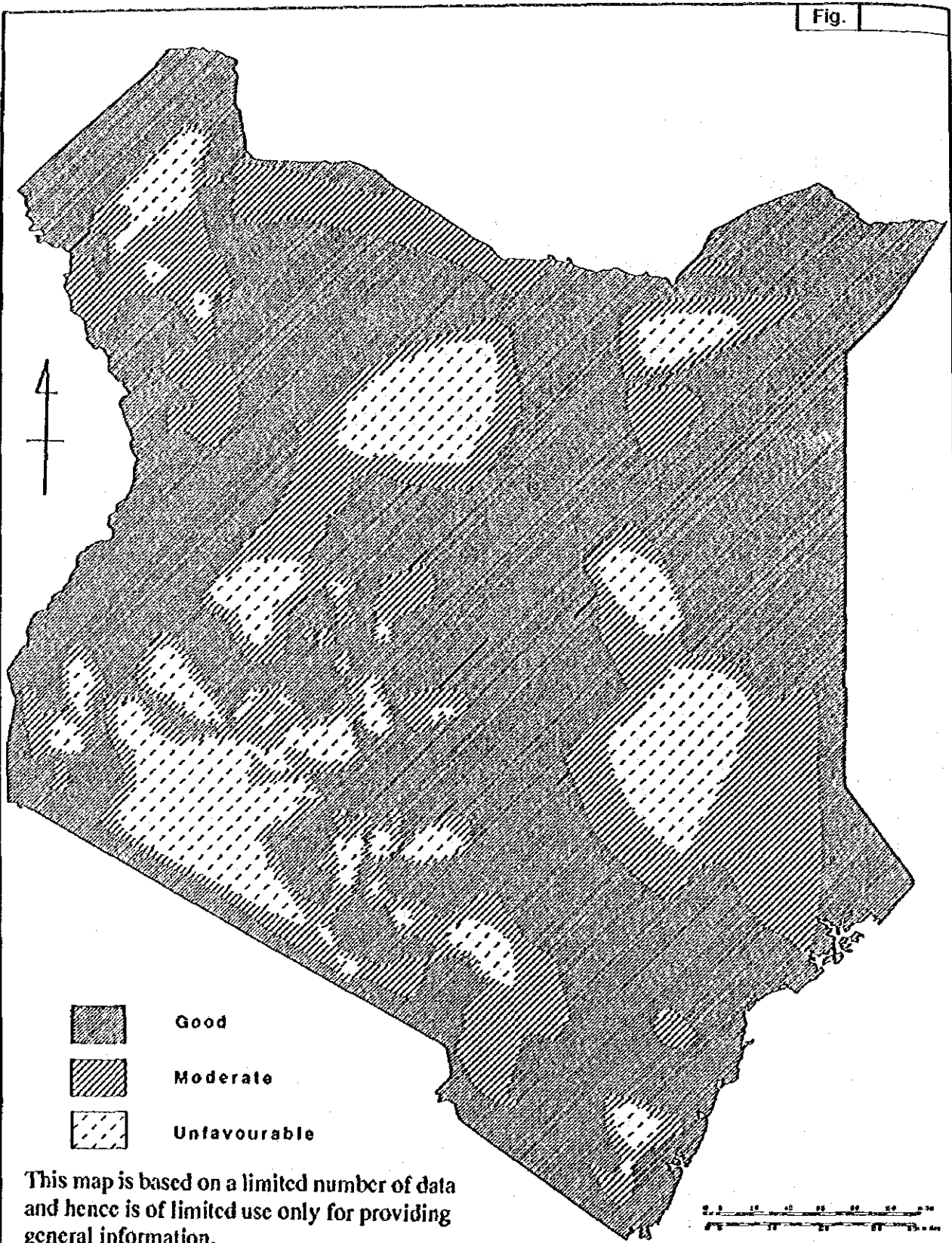


Figure C4.3 Total safe abstraction rates of by location



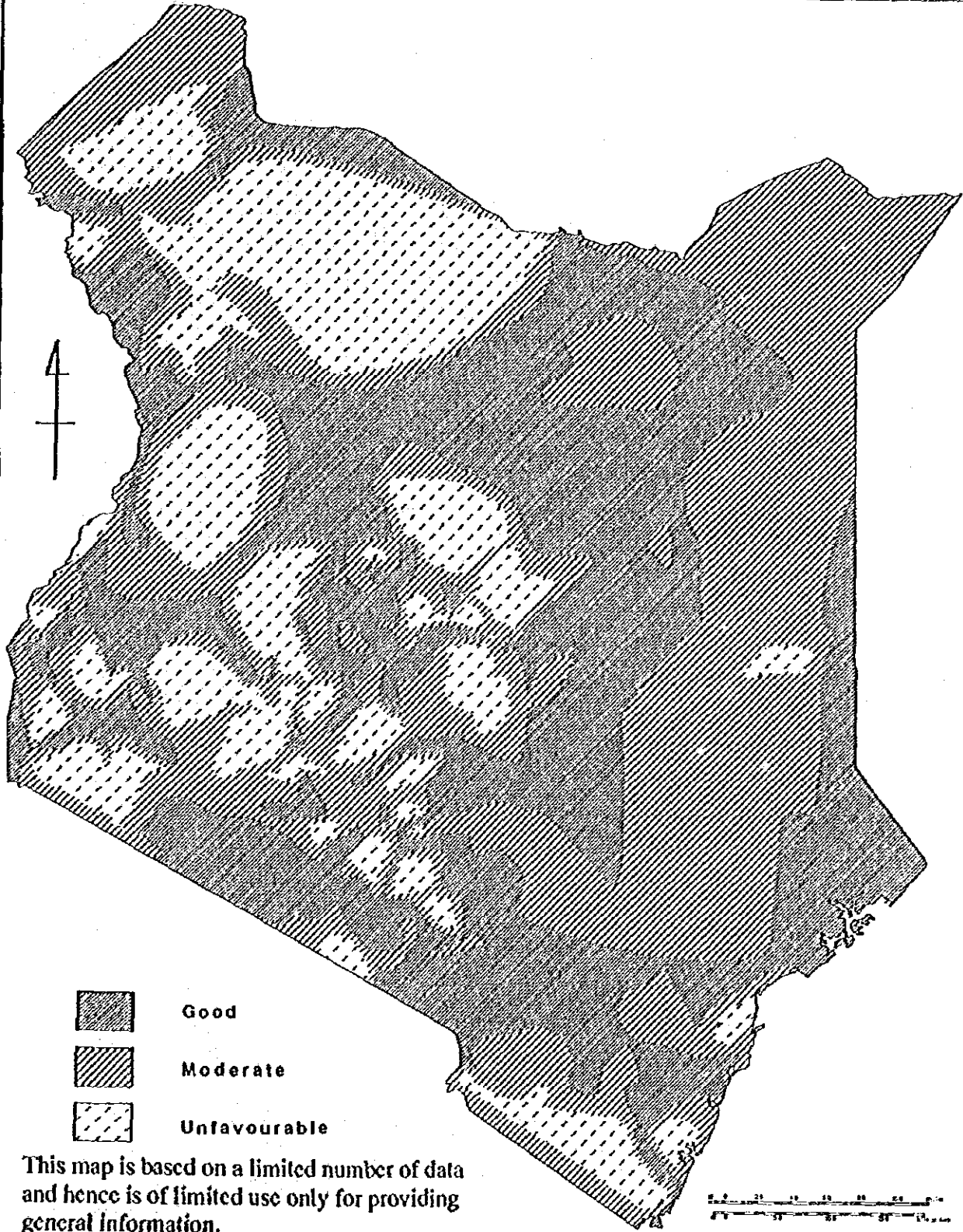
This map is based on a limited number of data and hence is of limited use only for providing general information.

Figure C4.4 Drinking water risk (electrical conductivity)



This map is based on a limited number of data and hence is of limited use only for providing general information.

Figure C4.5 Drinking water risk (fluoride)



This map is based on a limited number of data and hence is of limited use only for providing general information.

Figure C4.6 Drinking water risk (Iron)