HYDROLOGY OF RODRIGUES AND AGALEGA

Rodrigues

Rodrigues Island is situated some 560 kilometres to the East of Mauritius. It is located between latitudes 19° 40' S and 19° 47' S and between longitudes 63° 20' E and 63° 30' E. It is about 18 Km long and 6.5 Km wide with an area of 110 Km^2. The shape is that of a whale back with a central ridge and deep cut valleys. The highest peak, Mt. Limon, is 398 m a.m.s.l. (Fig. 7.3)

Precipitation

The average annual precipitation is 1348 mm which is equivalent to 150 Mm^3/yr. The wettest month is February and the driest month is October. Total daily rainfall is measured at 13 stations. Monthly, Annual and Long Term Mean rainfall data for Plaine Corail Airport and Pointe Canon stations are provided in Table 7.1.

Station Name: Plaine Corail													
PERIOD	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**YEAR**
2001	45	60	17	111	67	60	66	40	167	64	18	2	717
2002	132	40	214	103	50	60	37	57	45	58	14	54	864
2003	116	116	145	301	90	106	41	25	76	32	20	14	1082
2004	226	57	116	251	191	48	37	33	43	25	23	38	1088
2005	66	172	212	119	129	125	94	33	87	13	43	33	1126
Long Term Mean 1971-2000	122	168	125	100	72	62	53	46	32	32	64	70	946
Station Name : Pointe Canon													
PERIOD	**JAN**	**FEB**	**MAR**	**APR**	**MAY**	**JUN**	**JUL**	**AUG**	**SEP**	**OCT**	**NOV**	**DEC**	**YEAR**
2001	61	72	35	101	102	103	111	30	131	65	61	11	883
2002	127	66	189	62	81	69	76	154	46	63	14	50	997
2003	91	87	365	336	115	61	65	35	69	24	56	16	1320
2004	208	55	110	264	164	66	41	83	56	19	31	37	1134
2005	68	179	143	230	105	125	94	76	96	23	43	47	1229
Long Term Mean 1971-2000	150	185	131	117	78	78	81	59	44	41	71	70	1105

Table 7.1- Monthly Rainfall Data (mm) for 2001-2005

Hydrology

The Island of Rodrigues has been divided into 20 major river basins and 10 minor ones. The catchment areas vary between 1.08 Km^2 and 6.73 Km^2 as shown in Fig 7.2.

The deep cut valleys with steep gradients and the absence of impounding reservoirs in Rodrigues result in most of the rainfall over the island being lost to the sea as high velocity runoff. Due to negligible infiltration to groundwater, base flow of rivers is very low. The flows range from 1.4 l/s in Riv.Grenade to 56.9 l/s in Riv. Baie aux Huitres.

Hydrogeology

The Island of Rodrigues was formed some ten million years ago from a crater of a sea-mount and consisted of theolitic lavas which have been observed as far as the eastern coast of the island. Subsequently, other eruptions consisting of pyroclasts and lavas (prismatic, hawaites etc.) contributed to the formation of the present island.

Detailed and systematic geological and hydrogeological studies of Rodrigues were undertaken in 1996 and were completed in 1999. The aquifers of the central caldera, alluvial valleys and the relatively small western caldera accounts for most of the groundwater resources in Rodrigues.

The groundwater production in Rodrigues during normal season has been estimated at 8000 m^3/day.

The yield in m^3/hr of the most productive boreholes drilled during the period 1996 to 2001 are given hereunder in Table 7.2

Borehole	***Wet Season***	***Dry Season***	***Extremely Dry Season***
Les Choux	10	6	6
Lataniers	40	30	27
Dans Bébé	9	4	0
Malabar	25	10	6
Bois Noir	30	25	20
Bassin Gallard	20	15	10
Mourouk FAC	40	30	20
Cascade Victoire	5	5	3
Mont Lubin	-	-	55
Nassola	-	-	35
Les Choux	-	-	16
Graviers	-	-	10
Camp du Roi	-	-	12
Total abstraction- (m^3/hr)			220
Abstraction (m^3/day)			**5280**

Table 7.2 Yield (m^3/hr) of boreholes drilled during period 1996-2001

The location of the five boreholes equipped with data loggers is shown in Fig 7.1. The geological map of Rodrigues shown in Fig. 7.3 was prepared under FAC project. The well characteristics are given in Table 7.3.

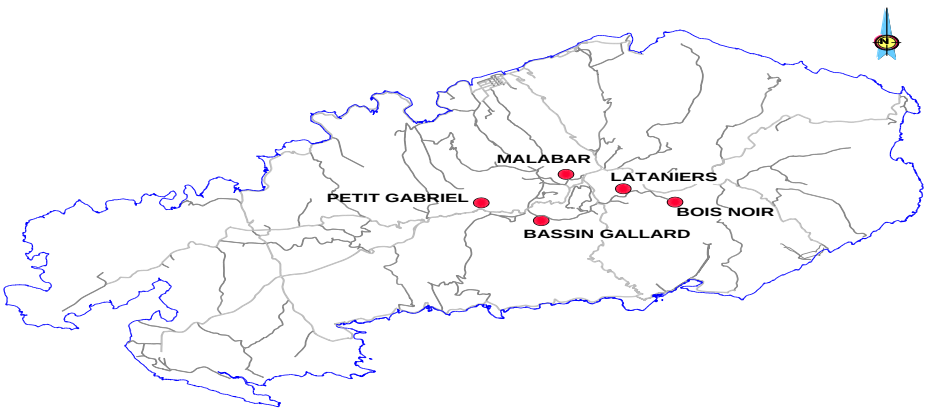

Fig7.1 Location of Data Loggers in Rodrigues