

PRINCIPAL INVESTIGATOR'S REPORT
OF AD-HOC SCHEME ON

Design and Development of Wind Turbines and its
Feasibility Studies in Kerala.

All India Co-ordinated ICAR Scheme on Renewable Sources
of Energy for Agriculture & Agro-based Industries

For Presentation at the Fifth Annual Workshop

To be held at

University of Agricultural Sciences,
Dharwad

February 9 - 12, 1988

DEPARTMENT OF FARM POWER, MACHINERY & ENERGY
FACULTY OF AGRICULTURAL ENGINEERING & TECHNOLOGY, KCAET,
KERALA AGRICULTURAL UNIVERSITY

TAVANUR - 679 573.

ACKNOWLEDGEMENT

Deep sense of gratitude is expressed to the Indian Council of Agricultural Research for sanctioning an Ad-hoc Scheme entitled "Design and Development of Wind Turbines and its feasibility studies in Kerala" in the Department of Farm Power, Machinery & Energy at the Kelappaji College of Agricultural Engineering and Technology, Kerala Agricultural University, Tavanur under All India Co-ordinated Scheme on Renewable Sources of Energy for Agriculture and Agro-based industries. The encouragement and co-operation received from the Vice-Chancellor and Director of Research, Kerala Agricultural University and Dean of the Faculty are gratefully acknowledged. Thanks are also due to all the scientists, teachers, technical and administrative staff who have helped in the preparation of this report.

Principal Investigator.

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GENERAL INFORMATION

1. Project Title : Design and Development of Wind Turbines and its feasibility Studies in Kerala.
2. Sanction No. : 1-1/84-AE dt.8-7-1985.
3. Date of start : 1-1-1986.
4. Report period : 1-1-1987 to 31-12-1987.
5. Time for completion of project : 3 years.
6. Department : Farm Power, Machinery and Energy.
7. Name of the institution: Kerala Agricultural University.
8. Location : Kelappaji College of Agrl. Engineering & Technology, TAVANUR - 679 573.
9. Technical Personnel employed:
 - a) Principal Investigator: Prof. C.P. Muhammad.
 - b) Staff position:

Sl. No.	Name, Designation and Scale of pay	Date of joining	Total No. of months spent during report period	Date of leaving	Remarks
1.	Hamza M. Mollakadavath (Research Associate (Engg) Rs.1000/- consolidated.	7-4-86	6 months	23-6-87	The post was vacant from 23-6-87 to 10-12-87.
2.	P. Mathai, Res. Associate(Engg) Rs.1000/- cons.	10-12-87	1 month	Conti-nuing.	
3.	M.N.Sreeranjini, Res. Associate (Agrl. Meteorology) Rs.900/- cons.	12.10.87	3 months	Conti-nuing.	The post was vacant till 12-10-87.
4.	M. Sivadasan, Technician Rs.800/- cons.	19.5.86	12 months	Conti-nuing.	

Financial Information

Expenditure Statement

Sl. No.	Year	Amount sanctioned by I.C.A.R. Rs.	Expenditure Rs.
1.	1986 (1-1-86 to 31-12-86)	1,55,400-00	21,300-80
2.	1987 (1-1-87 to 31-12-87)	1,49,400-00	30,631-20

Expenditure Statement for the year 1987
(from 1-1-87 to 31-12-87)

Sl. No.	Head	Expenditure upto 31-12-87 Rs.	Estimate for 1987 Rs.
1.	Pay & allowances	18,097-30	30,400-00
2.	Recurring Contingencies	333-90	13,000-00
3.	Non-Recurring Contingencies	12,200-00	1,04,000-00
	Total	30,631-20 =====	1,49,400-00 =====

The Wind Turbine Research at K.A.U.

1.1 Introduction:

Although wind mills had been invented and introduced for a variety of applications like waterpumping and corn grinding centuries back, and later abandoned at the advent of cheap and abundant fossil fuels, particularly oil, they have recently been identified as one of the major sources of renewable energy on the confirmation that the end of fossil fuel resource is not far. A variety of wind turbines have been designed and developed, many of them are proved to be very successful; still research is continued all the world over. ICAR has, in this context sanctioned an Ad-hoc Scheme namely "Design & Development of Wind turbines and its feasibility studies in Kerala". The duration is 3 years and this is the second year of implementation. The work is being carried out in the Department of Farm Power, Machinery and Energy of the KAU at TAVANUR.

1.2 Objectives:

The primary objective of the project is to substitute a substantial part of the energy need for water pumping in Kerala State with wind energy. In specific, the objective is divided into:

- (a) To conduct analytical studies to work out the possibilities and potential for using wind power for agricultural use.
- (b) To conduct comparative studies of various existing wind turbine proto types.

1.3 Practical Utility:

There is a very good potential for using wind mills for water pumping in Kerala. Although an exhaustive wind data collection from ~~every~~ every nook & corner of the State is practically not

possible within this limited period, it has been possible to identify the following places on the basis of the data collected:

1. Alleppey for 12 months.
2. Kozhikode 10 - 12 months.
3. Cannanore 5 - 8 months.
4. Vellanikkara 6 months.

In addition to these, the Dept. of Science & Technology of the State Government has identified the following places having potential for Wind Energy Utilization:

1. Kottamala
2. Kuttippuram
3. Keeloor
4. Moolathara
5. Pallissery
6. Dhanuvachapuram
7. Ambalappuzha.

1.4 Wind Data:

Wind speeds have been collected from 9 places in the State and reproduced as Appendix - I. It is evident that there are many potential parts in the State for economical exploitation of wind energy. As there are not the only places, it necessitates to collect wind data from interested farmers and others with the help of the Extension Directorate of the University for which a draft proforma is enclosed in Appendix - II. In the second phase of this project this information can be made use of for on the site evaluation of the wind mills.

2. Investigations:

The theory of wind rotors shows that those working by virtue of lift give a higher power coefficient than those working as a result of Drag; unfortunately the former have less starting torque than the latter, which is essential for pumping. It was therefore decided to try on the

following versions rotors with the aim of bringing out successful designs, blending the advantages of both.

2.1 Vertical Axis Wind Turbine with hinged straight blades:

Among the VAWT only savonius type is reported to have been used for water pumping; this is because the other types are not self starting and have low torque characteristics. The design made to do away with these draw backs is to use ~~xx~~ hinged blades as shown in Fig. 1. The blades can swing through 90° from the tangential direction to radial direction at the time of start, and later come to tangential direction during running. With this arrangement the rotor is self starting due to drag force and continue to run by lift force. Its performance evaluation and operational defects if any are yet to be studied.

2.2 Savonius rotor with deflector augmentor:

Although savonius rotors work on the principle of drag and have a power coefficient in the order of 0.2, they have been identified as an ideal contrivance for wind pumps, because of high starting torque, simple construction with a vertical shaft. With a view to improve the power coefficient, savonius rotors with a three component concentrators have been reported which increased the C_p upto 0.5 at a tip speed ratio of about 1.5. As the construction of these concentrators is very costly these are seldom used with savonius rotors. The concept of deflector augmentor has been introduced in this context and a working model is built. The preliminary observations of this version showed encouraging performance.

A full scale prototype is under fabrication. The Fig. 2 shows the details of the rotor with deflector augmentor.

2.3 A Low Cost Sail Wing Wind Pump:

The most popular wind pumps in the country use the horizontal axis multibladed wind rotors with metallic blades. This full-steel pump unit may cost about Rs.25,000/- in the actual market and is highly prohibitive for an average Indian farmer. A low cost design with sail type rotor and a set of gear trains with a single stage self priming pump is being made. The most important step to reduce the over all cost is the use of unserviceable automobile parts which is available abundantly in the country at a fairly low price. These parts are highly suitable for the low speed operations of the wind rotor. Strong & light bamboo poles are used as radial supports for the sails (Fig. 3). The design specifications for this wind pump are shown in Table - 1. The fabrication is in progress.

2.4 3 bladed, horizontal axis rotor:

A 3 bladed model with a rotor diameter of 3 metres with G.I blades of 1 M length and 10 cm camber is fabricated and installed (Fig. 4). This is expected to produce 0.1 hp at an average wind speed of 20 kmph.

It was decided in the last workshop that a wind generator would be supplied to this centre from PAU Centre, which could be coupled to this turbine. The design details of this rotor is shown in Table - 2.

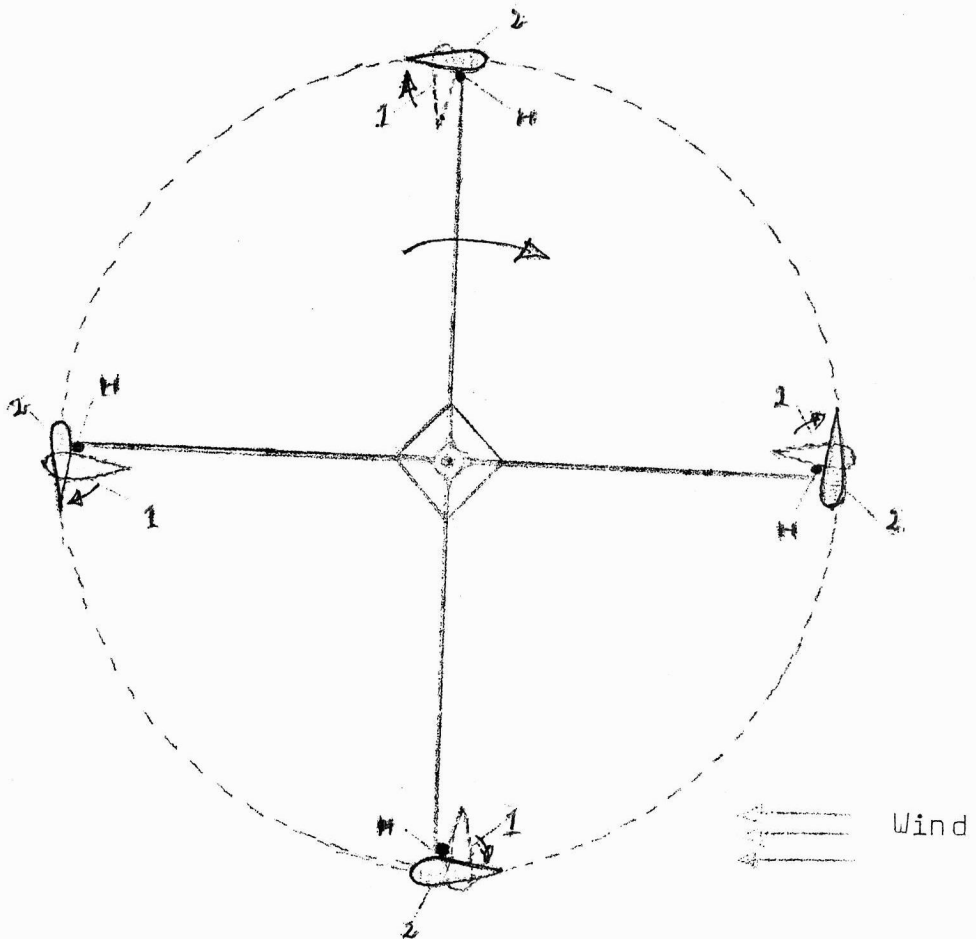
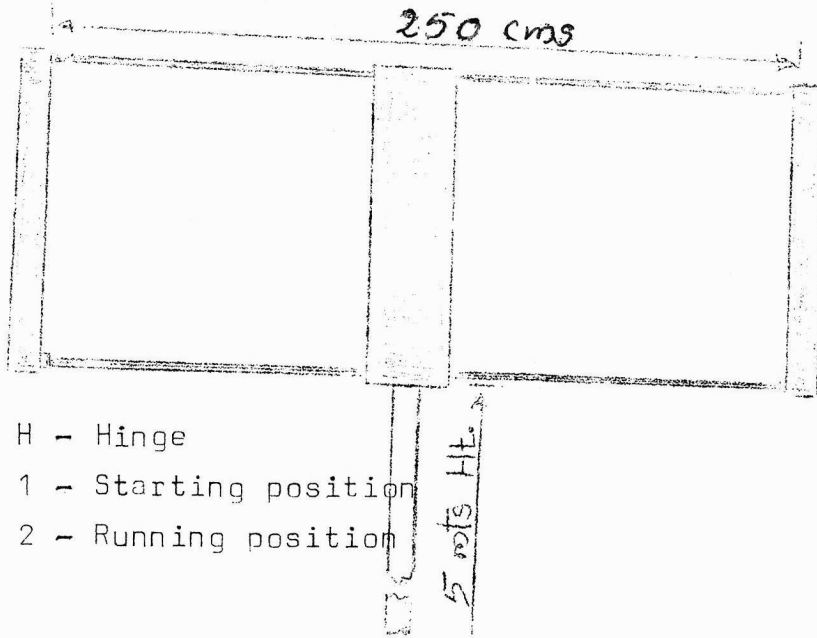


Fig.1. Vertical Axis Wind Turbine with hinged straight Blades.

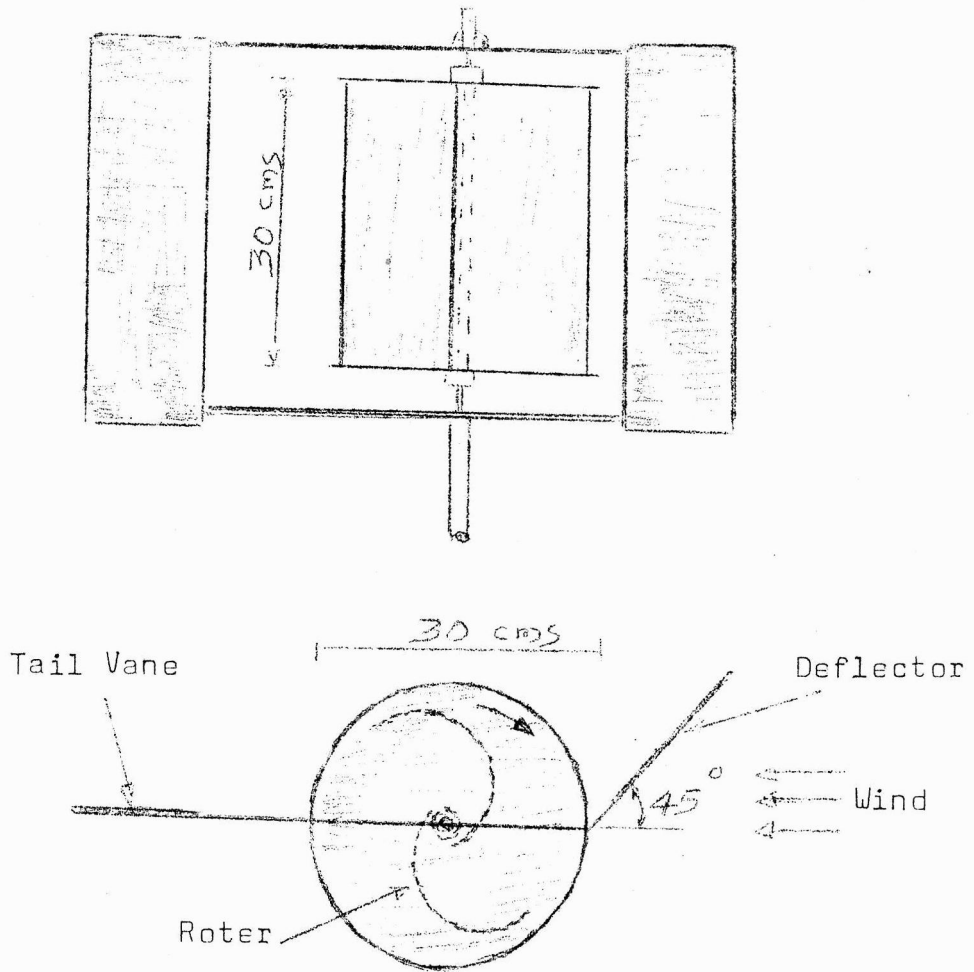


Fig.2. Savonius rotor with deflector Augmentor

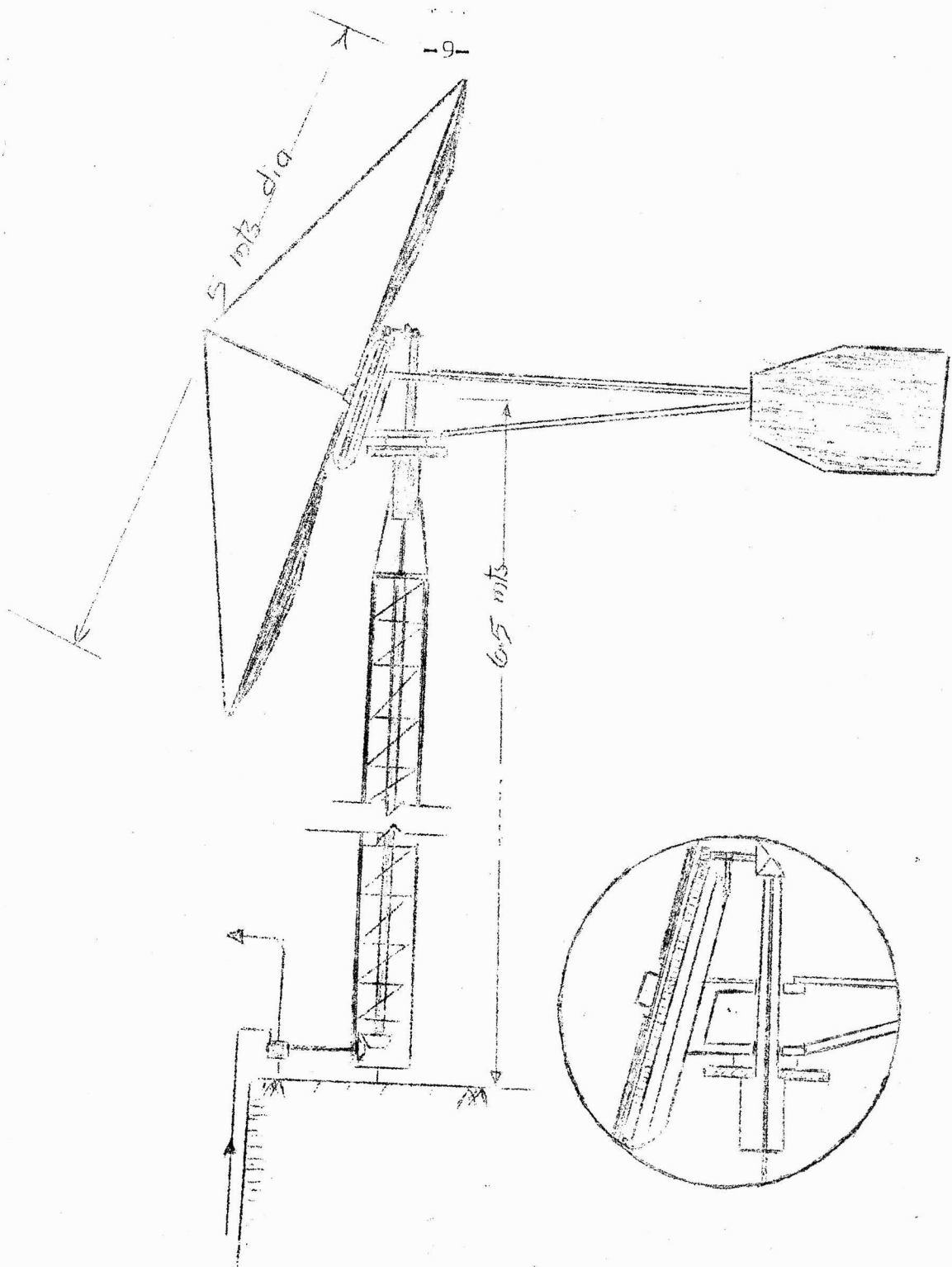
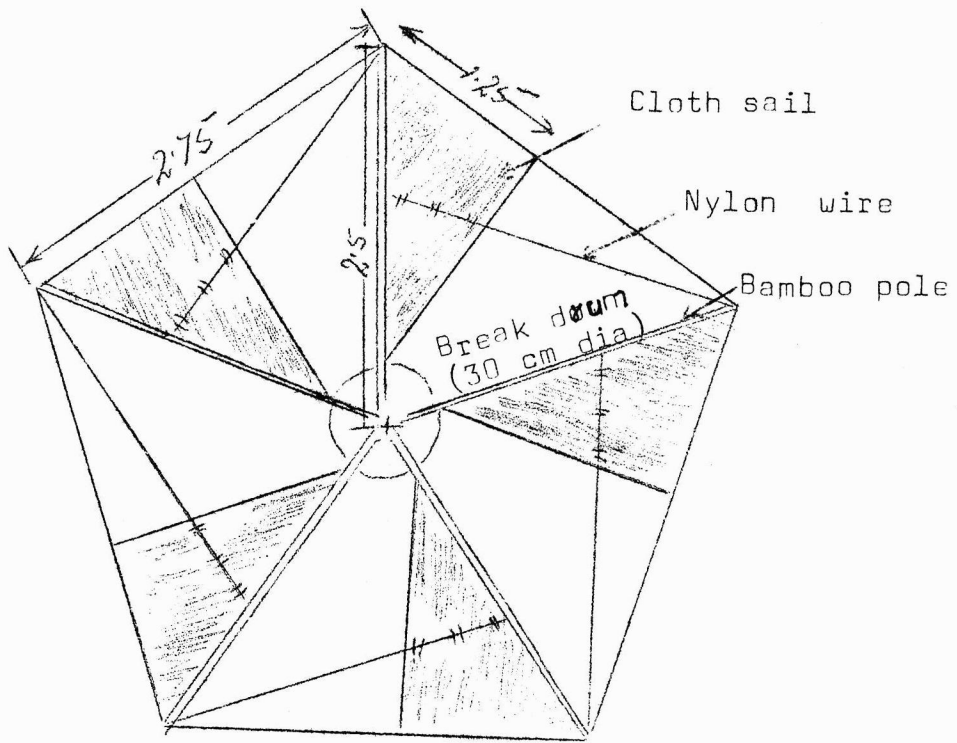


Fig.3(a) Low cost Wind Turbine

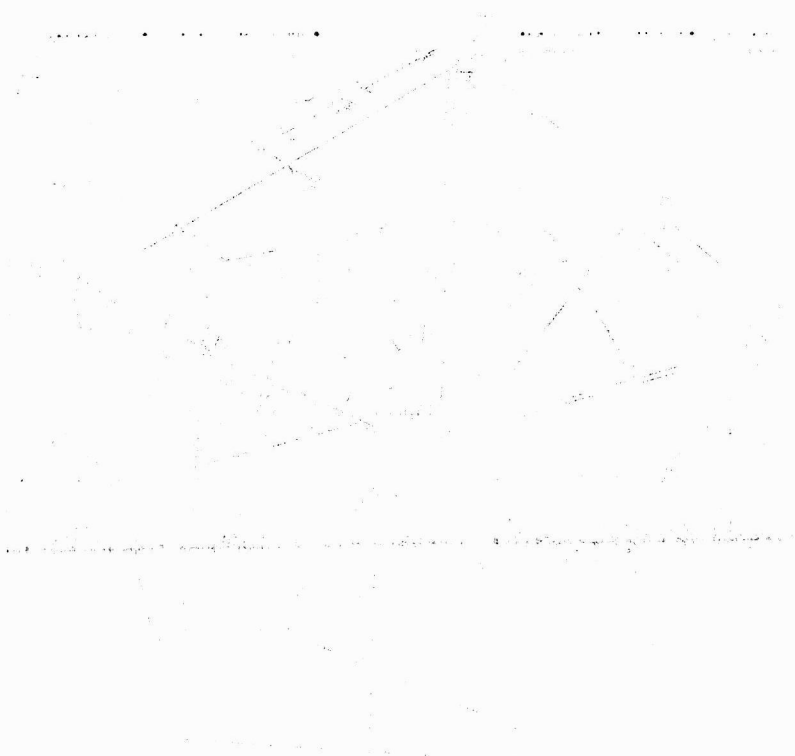


Rotor dia = 5 mts.

Fig. 3 (b) Rotor Assembly of Low Cost Wind Turbine

1944

1944



1944

1944

1944

1944

1944

1944

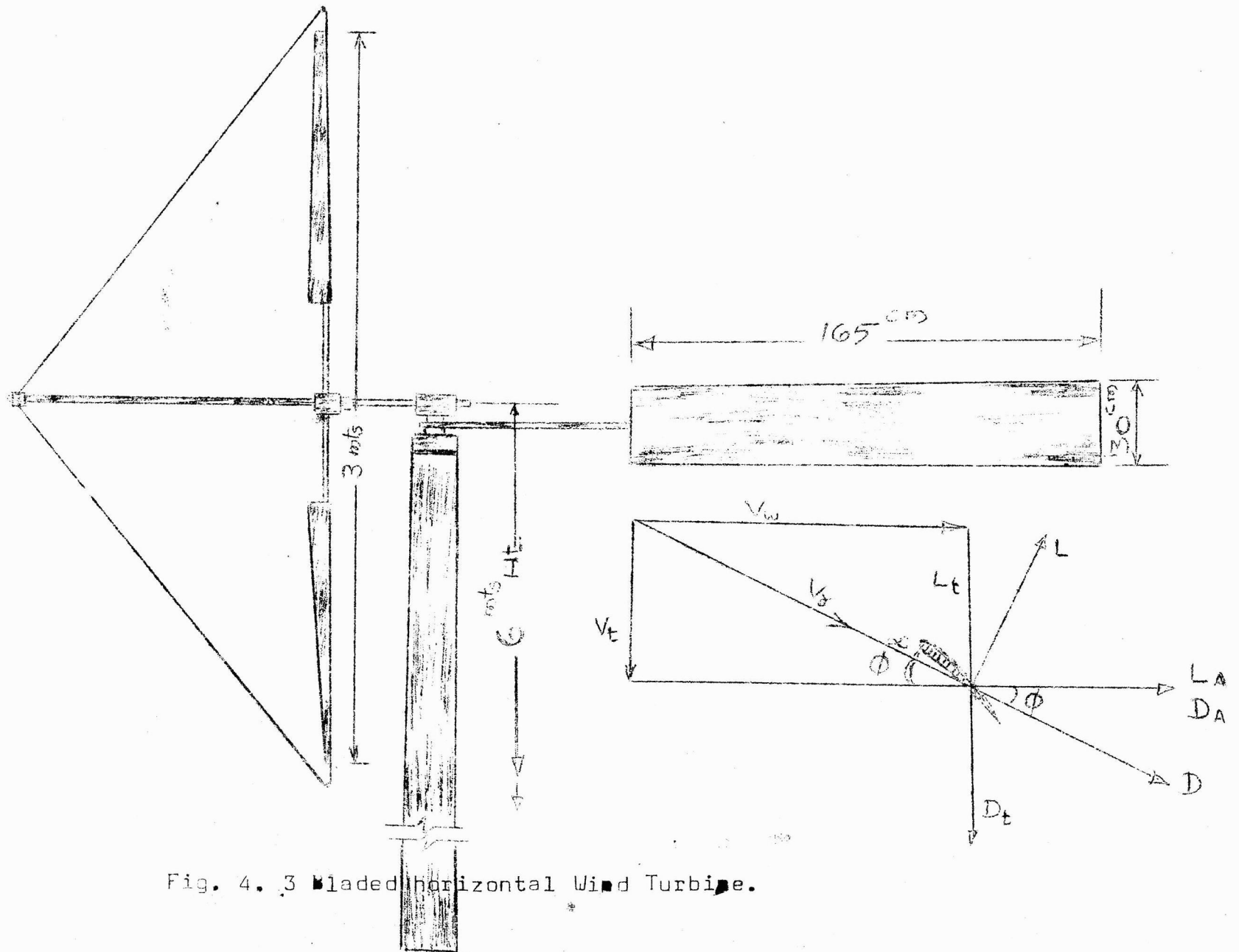


Fig. 4. 3 bladed horizontal Wind Turbine.

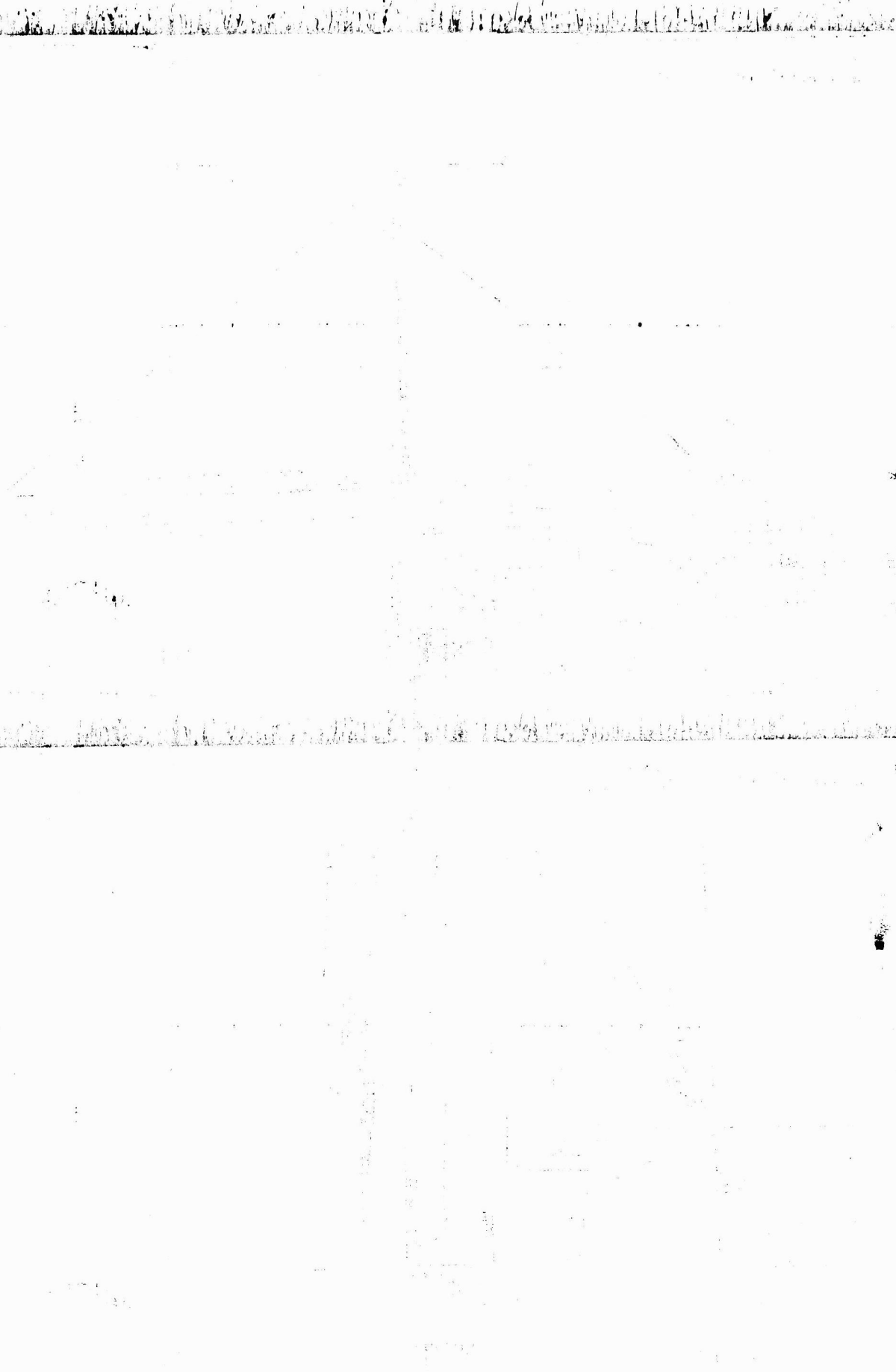


Table - 1. Design specifications of the Low Cost KAU Wind Pump:

Type : Horizontal Axis, Sail Wing.
 Rotor dia. : 5 M.
 No. of blades : 5

Wind Speed:

Working speed : 18 Kmph.
 Cut in speed : 5 Kmph.
 Furling speed : 40 Kmph
 Rated Power output: 0.5 hp
 Tower height : 6.5 M

Pump : Single Stage, Self priming Centripetal,
 25 x 25 mm size.

Performance details of pump:

		1/2 HP						
Met		6	8	10	14	18	24	28
LPM		60	57	55	50	46	38	34

3/4 HP

Materials of Construction:

Rotor : Iron, bamboo and Canvas Sails welded
 Tower : Angle iron, M.S. rods welded lattice guyed.
 Pump : Cast iron with G.M impeller.

Cost Estimate:

Rotor - Rs.1,500-00
 Supporting structure - Rs.2,000-00
 Pump with fittings - Rs.1,000-00

 Total - Rs.4,500-00

0400
 0863
 -527
 2435
 3568
 4928
 5536
 3399
 0485
 2851
 5449
 3282
 4425
 4728
 3263

Table - 2 : Design values of various parameters for the 3 bladed Rotor ($\lambda = 6$) See Fig. 4

No.	R_M	Vt	Vr	ϕ	θ	L	D	Lt	Dt	Leff	IA	DA	To Ar
1	0	0	0	0	15	0	0	0	0	0	0	0	0
2	0.1	0.4	1.08	21.80	36.80	0.08917	7.43×10^{-3}	0.0828	2.7×10^{-3}	0.0801	0.0331	6.89×10^{-3}	0.0
3	0.2	0.8	1.28	38.66	53.66	0.1252	0.0104	0.0978	6.5×10^{-3}	0.0913	0.0782	8.1×10^{-3}	0.0
4	0.3	1.2	1.56	50.19	65.19	0.1860	0.0155	0.1191	0.0119	0.1072	0.1428	9.9×10^{-3}	0.0
5	0.4	1.6	1.89	58.00	73.00	0.2730	0.0227	0.1447	0.0192	0.1255	0.2315	0.0120	0.0
6	0.5	2.0	2.24	63.43	78.43	0.3836	0.0319	0.1717	0.028	0.1437	0.3425	0.0142	0.0
7	0.6	2.4	2.60	67.38	82.38	0.5168	0.0430	0.1987	0.0396	0.1591	0.4763	0.0165	0.0
8	0.7	2.8	2.97	70.35	85.35	0.6743	0.0561	0.2266	0.0529	0.1737	0.6347	0.0188	0.0
9	0.8	3.2	3.35	72.65	87.65	0.8579	0.0714	0.2558	0.0682	0.1876	0.818	0.0212	0.0
10	0.9	3.6	3.73	74.48	89.48	1.0636	0.0886	0.2845	0.0854	0.1991	1.0248	0.0237	1.0
11	1.0	4.0	4.12	75.96	90.96	1.2977	0.1081	0.3148	0.1049	0.2099	1.2589	0.0262	1.0
12	1.1	4.4	4.51	77.20	92.20	1.555	0.1295	0.3445	0.1263	0.2182	1.5163	0.0286	1.0
13	1.2	4.8	4.90	78.23	93.23	1.8356	0.1529	0.3744	0.1496	0.2248	1.797	0.0311	1.0
14	1.3	5.2	5.30	79.11	94.11	2.1475	0.1789	0.4057	0.1756	0.2301	2.1088	0.0337	2.0
15	1.4	5.6	5.69	79.88	94.88	2.4752	0.2062	0.4348	0.2030	0.2318	2.4366	0.0362	2.0
16	1.5	6.0	6.08	80.54	95.54	2.8361	0.2355	0.4645	0.2322	0.2323	2.7876	0.0387	2.0

2.5 Comparison of the existing wind pumps:

Under the National Windmill Demonstration Project the Murugappa Chettiar Polytechnic, Madras has offered two wind pumps for installation at the College Campus, Tavanur and University headquarters, Vellanikkara. One unit is already received and the other is expected shortly. The brick foundation for both these pumps are over.

2.6 Future Programme of Work:

1. The fabrication of the low cost 'sail type wind pump will be completed and tested.
2. A prototype savonius rotor with deflector augmentor will be made and tested.
3. The performance for electric power generator of the 3 bladed rotor will be studied on receiving the low speed wing generator from PAU Centre.
4. Studies on pre-fabricated RCC poles as supporting structure will be conducted.

2.7 Procurement of Instruments for wind velocity studies:

Action has already been taken for the purchase of indicating and recording type anemometers and related instruments and it is in the final stage. The copies of last letters from the firms are given in appendix - III.

Appendix I

TABLE NO.1.1 (WIND VELOCITY DATA FROM 1st JANUARY 1982 to DECEMBER 1982
AT ALLEPPY (KMPH) TIME - 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	04	06	08	06	64	18	04	02	04	04	04	64
2	04	08	04	08	04	04	04	02	04	04	08	04
3	06	06	04	20	04	64	04	04	04	04	08	04
4	06	04	04	20	C	08	04	02	04	06	06	04
5	12	04	06	16	04	06	04	04	06	08	12	04
6	04	06	06	10	10	06	04	04	04	04	06	04
7	04	04	06	06	04	06	04	04	06	06	06	06
8	06	04	04	12	04	04	04	08	10	06	08	04
9	06	06	06	06	04	12	04	06	06	04	08	04
10	18	04	06	06	02	14	04	04	06	12	06	04
11	12	04	04	04	04	06	04	04	06	06	04	04
12	04	06	04	04	04	08	06	12	04	06	06	04
13	12	04	06	04	04	12	08	06	04	04	C	02
14	06	04	04	04	06	06	06	06	10	06	04	06
15	12	06	04	04	06	10	04	12	02	04	C	04
16	04	06	10	04	04	08	04	12	06	04	06	04
17	04	06	08	04	06	04	06	06	04	06	04	04
18	04	04	04	04	04	14	20	08	06	06	C	04
19	08	04	06	06	04	08	04	04	06	04	C	04
20	04	06	08	04	06	04	16	12	04	04	04	04
21	04	08	08	04	04	06	04	06	06	06	04	04
22	04	06	06	06	04	04	04	20	04	04	04	04
23	04	06	06	06	04	20	04	06	06	10	C	08
24	08	06	04	14	04	10	06	08	04	06	04	04
25	04	06	06	06	C	12	06	06	04	06	04	04
26	04	04	06	04	04	06	04	04	04	06	04	04
27	04	04	08	12	04	06	04	06	04	06	C	C
28	04	04	08	06	06	12	06	06	04	04	16	C
29	04		04	04	04	06	04	04	04	06	C	C
30	04		06	04	04	04	06	04	04	02	02	04
31	06		04		04		02	04	xx			04

C - Calm

TABLE NO.1.1 (WIND VELOCITY DATA FROM 1st JANUARY 1962 to DECEMBER 1962
AT ALLEPPY (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	18	08	16	32	06	12	10	06	14	12	08	12
2	08	12	14	22	14	16	08	12	18	14	06	04
3	20	16	14	26	16	C	10	06	14	14	06	06
4	22	18	12	26	16	04	06	08	16	10	08	04
5	14	14	18	32	12	06	12	08	14	10	08	12
6	18	18	18	22	20	20	18	28	12	08	08	10
7	20	12	16	20	18	22	10	06	10	18	04	12
8	16	16	18	14	18	20	10	04	12	12	10	12
9	16	08	14	14	14	30	06	10	14	12	18	12
10	20	18	12	16	16	06	06	10	22	16	12	10
11	08	16	16	14	12	08	16	10	16	04	18	10
12	12	12	18	14	18	12	08	04	16	12	12	06
13	14	12	14	14	14	12	06	08	20	14	16	10
14	12	16	12	14	12	04	08	24	16	14	16	04
15	10	14	16	14	14	30	38	14	18	14	10	10
16	12	12	22	16	14	04	06	06	14	12	14	12
17	18	12	32	16	20	04	10	16	12	04	06	06
18	16	10	18	14	10	18	22	06	10	12	10	06
19	14	12	24	14	10	04	08	08	06	10	12	12
20	18	12	20	14	14	06	06	14	08	14	12	10
21	16	14	26	12	12	08	06	14	08	10	16	10
22	12	12	24	20	10	10	10	12	12	10	16	14
23	14	12	30	14	04	10	10	14	06	12	18	08
24	20	08	12	16	14	12	12	10	10	08	18	06
25	16	16	26	20	10	10	08	10	08	08	14	10
26	20	12	22	16	22	18	08	06	14	08	04	10
27	14	16	24	18	12	10	12	14	06	10	10	10
28	10	14	26	18	16	20	02	14	06	10	10	10
29	14		22	16	06	14	22	14	12	12	10	10
30	12		22	14	18	18	04	12	12	08	06	08
31	14		22		18		06	16		08		10

Appendix I

TABLE NO.1.1 (WIND VELOCITY DATA FROM 1st JANUARY 1983 to DECEMBER 1983

AT ALLEPPY (KMPH) TIME - 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	04	06	06	04	06	20	06	06	C	06	04	08
2	04	04	04	06	04	22	24	22	06	06	04	10
3	04	04	04	06	04	16	04	06	C	10	04	12
4	06	04	04	06	04	06	08	10	C	12	04	C
5	06	06	06	04	02	06	08	04	38	10	06	12
6	04	04	06	06	04	06	08	06	04	06	06	08
7	04	06	06	04	06	06	04	04	12	06	10	14
8	04	06	04	06	06	02	06	12	04	08	10	04
9	04	06	06	08	08	06	C	18	02	04	10	06
10	06	04	06	06	22	06	08	C	C	06	12	04
11	06	04	04	06	08	06	06	0	02	06	10	04
12	06	06	06	04	28	18	18	C	04	06	08	04
13	04	04	04	06	16	32	12	02	04	06	06	06
14	04	06	06	06	14	C	08	C	04	06	06	04
15	04	06	04	04	C	18	06	02	06	04	08	04
16	06	06	06	06	10	C	04	C	06	06	06	04
17	06	08	06	04	06	06	08	38	06	04	08	04
18	04	04	06	06	04	08	08	06	04	06	C	04
19	06	04	16	06	14	08	16	18	04	04	10	04
20	04	04	10	04	02	06	22	04	04	08	12	04
21	06	04	04	06	06	08	22	18	04	04	06	04
22	08	04	34	04	04	12	06	C	04	04	12	04
23	06	04	06	04	C	22	08	C	08	04	12	10
24	06	06	06	06	06	24	14	C	04	08	10	04
25	04	04	06	06	04	18	10	04	04	04	10	06
26	04	04	04	04	10	18	02	C	04	06	06	06
27	04	04	04	04	18	18	04	04	04	04	08	06
28	04	06	04	06	10	40	02	04	10	04	C	04
29	06		06	06	14	18	06	C	06	04	C	04
30	04		04	04	22	24	10	C	06	06	10	06
31	06		04		28		10	C		04		08

C - Calm

Appendix I

TABLE NO.1.1 (WIND VELOCITY DATA FROM 1st JANUARY 1983 to DECEMBER 1983
AT ALLEPPEY (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
1	08	16	24	12	18	26	16	02	06	14	10	12
2	12	18	26	20	18	22	30	08	08	16	08	14
3	14	16	18	20	18	20	30	06	10	16	08	14
4	12	18	22	20	18	24	28	10	12	24	14	14
5	12	22	20	14	16	20	24	12	14	18	14	16
6	14	16	18	16	26	26	20	12	16	12	10	16
7	10	16	22	20	24	22	24	14	12	12	32	12
8	12	22	16	16	16	12	12	04	08	08	18	08
9	06	14	12	20	28	18	16	02	22	10	16	06
10	12	14	16	22	16	18	02	08	20	10	18	14
11	14	12	18	16	30	30	06	10	20	14	18	12
12	16	20	18	30	32	24	20	12	08	14	30	12
13	16	18	18	20	18	16	22	10	12	16	18	08
14	18	12	20	20	22	20	28	08	08	12	14	14
15	12	16	12	20	26	C	14	22	06	10	14	08
16	14	20	16	20	10	08	12	28	04	14	14	08
17	16	20	20	22	28	18	06	26	04	10	16	16
18	14	06	18	22	14	18	08	12	10	10	22	10
19	14	18	04	24	08	10	12	22	06	08	14	10
20	14	18	20	22	12	12	12	12	10	06	12	08
21	12	18	20	18	12	16	10	18	08	06	18	06
22	14	20	32	22	16	24	02	12	14	12	06	06
23	14	16	20	24	18	18	14	06	06	12	14	18
24	14	18	16	14	28	16	24	22	10	06	16	10
25	14	20	20	14	18	24	06	04	06	10	14	10
26	14	16	18	20	22	24	06	14	14	08	08	04
27	16	18	20	18	14	24	10	18	10	08	12	06
28	12	18	18	18	10	24	18	16	18	08	10	10
29	24		14	10	22	24	14	06	12	14	12	12
30	10	20	22	10	24	36	10	14	22	12	18	06
31	14		18		26		06	22		08	14	08

C - Calm

Appendix I

TABLE NO.1.1 (WIND VELOCITY DATA FROM 1st JANUARY 1984 to DECEMBER 1984)

AT ALLEPPEY (KMPH) TIME - 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	04	08	08	06	06	12	16	14	10	12	08	06
2	08	06	08	06	04	22	20	10	10	08	06	12
3.	08	06	08	04	04	18	36	12	08	16	08	10
4.	04	04	06	06	06	10	12	10	06	08	10	06
5.	06	10	08	04	04	10	16	08	08	10	06	06
6.	08	06	12	06	06	06	10	10	08	08	10	08
7.	06	04	06	08	06	34	08	10	10	08	03	06
8.	04	04	06	04	08	10	14	10	10	12	06	10
9.	04	04	06	08	08	08	12	10	08	12	06	04
10.	04	06	04	04	10	10	10	C	08	04	08	06
11.	08	06	04	06	08	10	12	06	04	08	10	08
12.	06	06	04	04	06	16	36	14	08	12	10	08
13.	06	08	06	06	06	18	12	10	08	08	12	12
14.	08	06	06	04	10	14	10	10	10	24	08	08
15.	04	06	06	08	08	12	08	08	10	10	08	10
16.	04	06	12	06	08	28	10	10	10	06	08	10
17.	08	04	06	06	04	08	16	10	10	10	06	06
18.	10	08	06	06	08	04	10	10	10	06	08	12
19.	04	06	04	10	06	16	08	06	10	08	06	06
20.	06	08	06	06	06	04	12	06	08	10	08	10
21.	06	04	04	04	06	08	10	10	08	06	10	14
22.	04	06	08	06	10	20	06	06	06	04	08	12
23.	08	06	06	08	12	04	20	10	08	12	04	10
24.	04	04	04	04	08	08	06	06	10	10	08	06
25.	06	06	06	04	18	08	06	12	06	20	04	10
26.	06	08	04	04	08	10	04	12	06	16	10	08
27.	06	06	06	04	06	08	08	06	08	10	06	08
28.	04	04	04	26	08	06	04	04	06	04	06	08
29.	04	04	06	04	10	20	06	18	08	06	14	08
30	06		04	04	14	24	10	06	08	10	04	10
31.	04		06		10		20	08		06		06

C - Calm

Appendix I

TABLE NO.1.1 (WIND VELOCITY DATA FROM 1st JANUARY 1984 to DECEMBER 1984
AT ALLEPPEY (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	14	16	12	14	04	18	18	10	08	16	12	12
2	08	08	12	14	14	40	28	20	20	24	24	06
3	06	10	08	22	18	12	12	18	10	08	16	14
4	12	08	08	12	20	08	22	06	12	18	22	12
5	10	08	10	08	28	08	20	34	16	12	12	12
6	08	04	04	10	36	10	12	12	12	04	14	18
7	10	14	14	10	18	08	08	28	14	14	12	14
8	10	06	08	12	20	06	18	18	14	12	14	16
9	12	16	14	18	28	34	14	10	12	16	16	16
10	10	14	14	18	24	12	14	08	12	12	18	20
11	06	12	16	12	18	14	18	16	08	14	24	14
12	04	06	14	12	30	10	16	18	08	18	12	14
13	10	16	16	17	26	24	24	14	18	06	08	16
14	14	08	12	10	20	20	12	12	24	12	14	14
15	06	08	16	18	24	10	20	14	24	10	20	16
16	10	14	14	16	20	10	18	12	22	12	14	14
17	10	10	12	18	14	06	20	08	12	14	12	16
18	06	10	14	14	18	06	34	12	18	12	12	24
19	20	12	14	20	10	08	10	08	22	16	08	14
20	12	20	10	14	18	16	08	14	18	14	12	10
21	14	16	14	22	16	18	12	16	18	26	14	18
22	08	12	18	24	20	26	30	14	10	12	14	16
23	30	14	12	34	14	14	14	14	10	20	16	14
24	18	16	14	32	14	14	12	20	20	28	12	16
25	10	10	16	24	22	12	12	18	18	26	12	16
26	08	16	14	32	16	12	26	14	12	08	16	24
27	10	12	14	34	20	20	16	16	04	08	16	24
28	14	16	14	24	10	22	10	22	22	08	18	20
29	14	06	16	30	14	14	20	12	26	08	16	20
30	10		12	20	18	14	26	10	20	16	16	14
31	06		12		18		16	10		22		12

Appendix I

TABLE NO.1.1 (WIND VELOCITY DATA FROM 1st JANUARY 1985 to DECEMBER 1985

AT ALLEPPEY (KMPH) TIME - 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	10	04	06	08	16	08	22	12	12	10	06	02
2	08	10	C	06	08	14	14	10	10	08	08	04
3	10	08	08	06	04	08	10	---	---	12	08	10
4	06	04	08	08	08	06	08	06	06	14	14	08
5	04	10	08	08	10	14	08	---	---	10	10	06
6	02	06	C	08	10	14	12	12	12	12	14	10
7	C	10	06	C	08	12	18	06	06	16	08	12
8	04	08	06	08	12	10	20	14	14	08	04	06
9	08	10	08	08	10	10	22	06	06	08	10	04
10	16	08	06	08	08	08	14	14	14	10	06	14
11	08	10	06	06	06	08	18	12	12	12	10	08
12	10	06	C	06	06	06	14	08	08	06	14	10
13	06	10	C	08	10	14	10	---	---	18	06	06
14	08	10	08	08	08	06	08	14	14	10	06	10
15	10	12	06	08	04	18	06	---	---	08	14	08
16	06	08	06	10	10	10	24	06	06	08	---	10
17	08	08	06	04	06	28	18	10	10	14	04	08
18	06	10	06	08	10	10	04	04	04	08	08	12
19	08	08	C	16	08	10	08	---	---	10	20	02
20	10	06	C	08	10	12	16	---	---	12	C	04
21	08	06	C	08	04	10	06	---	---	12	02	06
22	08	12	C	C	04	08	16	04	04	08	04	04
23	06	12	C	08	08	16	06	---	---	10	04	04
24	08	08	08	08	06	38	16	04	04	16	06	08
25	06	10	06	06	14	14	---	---	---	16	06	10
26	08	08	08	06	10	14	16	---	---	08	06	10
27	10	C	08	10	10	14	10	---	---	10	02	08
28	08	08	06	06	26	20	10	06	06	06	08	10
29	08	---	C	04	36	28	10	---	---	12	C	08
30	08	---	C	06	20	16	06	---	---	10	02	14
31	06		06		24	14		---	---	08		10

C - Calm

TABLE NO.1.1 (WIND VELOCITY DATA FROM 1st JANUARY 1985 to DECEMBER 1985)

AT ALLEPPEY (KMPH) TIME - 1730IST												
DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	22	20	22	24	26	06	08	16	08	16	12	10
2	08	18	20	06	32	36	14	14	08	24	16	14
3	22	08	16	12	34	30	16	12	08	16	10	16
4	12	14	24	16	26	20	12	10	08	20	10	14
5	18	10	24	18	22	16	16	16	08	10	12	12
6	14	14	04	06	---	20	22	10	12	24	08	14
7	14	24	24	12	16	20	22	04	09	20	08	16
8	14	18	24	20	16	12	44	16	04	08	16	20
9	24	20	20	22	16	10	16	16	10	20	14	08
10	12	26	32	24	16	20	12	20	14	22	12	22
11	14	20	20	12	20	16	10	16	10	24	18	20
12	16	24	08	24	24	12	18	14	18	12	06	26
13	18	22	06	18	16	14	18	16	18	24	20	20
14	14	22	22	12	14	12	12	44	12	12	08	11
15	08	20	22	18	22	20	12	---	08	14	12	18
16	20	32	22	14	22	38	14	---	04	12	08	18
17	18	20	24	22	24	16	10	12	16	22	04	20
18	14	24	20	22	24	12	12	28	12	24	04	10
19	18	14	22	24	24	40	14	---	16	30	04	10
20	22	22	02	22	16	22	12	---	06	22	06	10
21	18	20	20	20	30	26	10	---	06	20	08	22
22	16	14	16	18	34	24	08	---	18	14	04	12
23	22	18	18	32	24	18	20	---	16	12	14	20
24	20	12	16	24	10	40	02	12	12	16	08	14
25	16	16	10	30	06	10	---	---	10	12	06	14
26	16	16	16	24	16	16	12	44	12	14	16	26
27	16	14	18	26	42	36	18	---	16	14	12	06
28	12	22	22	24	14	14	16	---	14	24	08	20
29	16	---	26	18	22	10	18	---	16	20	02	24
30	16	---	20	22	08	10	16	16	16	18	12	18
31	18	---	22	---	12	---	16	---	---	26	---	22

C - Calm

Appendix I

TABLE NO.1.1 (WIND VELOCITY DATA FROM 1st JANUARY 1986 to DECEMBER 1986)
 AT ALLEPPEY (KMPH) TIME -- 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	06	08	18	14	14	08	16	10	12	10	10	10
2	08	08	10	08	16	06	10	12	20	16	10	08
3	10	06	10	20	14	06	14	10	14	10	12	14
4	08	06	10	18	12	12	20	18	12	14	22	06
5	10	06	10	16	24	12	18	16	14	10	08	10
6	16	10	16	12	12	14	10	04	16	12	08	10
7	12	10	10	10	08	12	14	02	10	12	08	12
8	16	08	08	12	04	14	12	06	12	10	10	10
9	08	08	14	16	12	12	16	02	10	10	08	10
10	06	12	10	10	10	16	16	16	20	12	08	12
11	10	10	10	16	14	18	10	14	14	10	C	10
12	08	06	10	10	12	30	30	16	16	08	06	10
13	12	06	12	12	06	30	18	08	10	10	06	10
14	10	12	10	08	06	36	14	14	06	16	06	10
15	14	06	18	08	04	14	1 2	16	06	14	08	06
16	10	12	10	10	08	12	12	14	10	14	08	10
17	14	14	12	22	06	18	18	16	06	12	08	12
18	12	10	12	10	04	14	16	14	04	10	06	12
19	10	1 2	08	16	20	16	12	22	10	10	06	08
20	10	06	10	12	04	14	14	16	12	10	12	06
21	10	08	3 14	08	06	10	10	10	12	18	08	08
22	08	14	12	12	06	10	14	12	10	10	10	14
23	08	06	12	16	06	08	12	1 2	12	10	06	14
24	10	08	14	10	04	14	20	16	06	08	06	12
25	04	14	12	10	06	16	10	10	10	10	12	10
26	12	10	10	14	04	34	12	18	10	10	10	10
27	06	12	10	12	04	16	10	10	06	16	12	10
28	12	18	10	24	04	08	10	14	08	12	08	08
29	12		16	10	12	14	14	10	10	10	10	10
30	08		10	16	06	10	10	14	16	08	08	08
31	10		10		04		10	10		14		08

C - Calm

Appendix I

TABLE NO.1.1 (WIND VELOCITY DATA FROM 1st JANUARY 1936 to DECEMBER 1936
AT ALLEPPEY (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
1	15	20	14	23	42	10	20	20	30	16	23	12
2	15	20	23	30	24	14	18	18	24	14	14	12
3	14	18	20	24	33	22	14	16	14	14	12	10
4	12	14	22	20	22	33	3	26	18	23	23	20
5	10	06	30	30	28	22	20	06	22	14	02	14
6	22	14	24	14	26	22	18	36	12	10	33	16
7	20	26	32	24	18	20	18	06	18	22	02	16
8	12	22	22	22	12	30	16	36	10	18	12	22
9	16	23	22	32	28	16	14	26	22	20	06	06
10	12	32	10	34	24	24	22	12	30	14	34	14
11	14	23	22	26	28	20	26	18	08	14	08	14
12	20	32	16	28	26	22	22	20	14	10	16	16
13	24	26	26	34	28	22	14	12	18	16	16	18
14	26	24	26	30	18	13	14	20	20	12	18	20
15	28	20	22	22	12	20	20	16	18	16	14	20
16	18	30	18	26	08	22	18	16	16	22	14	20
17	20	26	33	36	20	12	10	20	18	04	12	12
18	22	32	26	36	20	33	22	16	18	18	13	26
19	22	36	14	22	28	24	23	20	16	26	10	12
20	32	30	36	26	24	06	18	24	20	14	18	24
21	23	26	20	16	10	14	22	18	14	12	18	16
22	22	28	26	32	10	16	14	20	08	14	10	16
23	26	24	22	14	06	18	22	14	08	16	16	18
24	22	32	22	23	12	26	18	14	12	10	18	14
25	22	14	34	20	18	30	20	14	14	14	10	18
26	22	24	30	20	18	24	16	20	12	14	12	12
27	28	20	22	14	14	12	22	20	12	14	14	--
28	24	20	18	16	12	24	16	24	12	20	12	12
29	24		26	40	06	12	22	20	14	22	14	12
30	14		30	22	20	18	26	24	12	18	14	22
31	22		32		12		26	22		16		22

Appendix I

TABLE NO. 1.2. (WIND VELOCITY DATA FROM 1st JANUARY 1982 to DECEMBER 1982

AT CANNANORE (KMPH) TIME - 0030IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	08	08	05	06	04	C	C	C	06	C	08	C
2	01	06	C	08	C	C	C	C	C	06	10	C
3	08	08	C	C	C	C	C	C	8	08	08	16
4	04	08	C	08	C	C	C	08	08	C	10	C
5	08	C	C	06	C	C	C	08	C	08	C	C
6	14	12	C	C	10	C	C	08	10	06	06	10
7	14	12	C	C	10	C	C	08	10	06	06	10
8	08	C	C	C	10	C	C	08	C	08	08	10
9	08	08	C	C	10	C	C	06	C	C	08	10
10	06	08	C	C	10	C	C	06	C	08	08	16
11	C	10	C	C	10	08	C	06	C	10	C	14
12	08	C	C	C	10	C	C	06	C	08	10	08
13	C	04	08	C	10	C	C	06	04	06	C	08
14	08	C	C	C	10	C	C	06	C	C	12	10
15	08	C	10	C	10	C	C	06	12	08	C	08
16	06	12	06	C	10	10	C	06	08	C	12	06
17	10	06	10	C	10	C	C	06	08	08	06	12
18	06	06	08	C	10	C	C	06	08	06	10	10
19	03	06	C	C	10	C	C	06	08	C	06	16
20	12	06	06	C	10	C	C	06	08	08	06	12
21	08	C	08	C	10	C	C	06	08	06	10	06
22	08	C	06	C	10	C	C	06	08	08	04	14
23	08	C	06	C	10	C	C	06	06	08	10	06
24	C	06	06	C	10	08	C	06	C	10	08	C
25	06	10	06	C	10	C	C	06	06	08	06	10
26	08	08	08	C	10	C	C	06	C	C	08	C
27	10	10	C	C	10	C	C	06	C	10	06	C
28	05	06	04	C	10	C	C	06	C	C	C	14
29	08		08	C	10	C	C	06	06	C	10	C
30	10		06	C	10	C	C	06	06	08	10	C
31	08		06		10		C	06		06		C

C - Calm

Appendix I

TABLE NO.1.2 WIND VELOCITY DATA FROM 1st JANUARY 1982 to DECEMBER 1982
AT CANNANORE (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
1	12	10	08	10	08	C	08	12	C	C	C	C
2	14	06	12	10	08	C	10	C	C	10	C	16
3	08	08	10	12	04	C	06	08	08	10	C	C
4	10	10	06	10	04	C	06	C	C	C	C	C
5	10	12	08	10	08	C	C	10	C	C	C	C
6	08	10	14	10	08	C	06	C	C	C	C	C
7	10	06	16	C	06	C	C	C	C	C	C	C
8	06	12	14	06	08	06	08	C	C	C	C	08
9	06	12	16	08	10	10	C	C	C	12	C	08
10	08	12	10	08	10	C	C	C	10	08	C	14
11	08	12	14	06	12	C	C	C	C	10	C	10
12	06	10	12	08	06	06	08	C	C	C	C	10
13	08	08	14	04	14	08	C	C	C	C	C	10
14	06	08	08	06	06	08	06	C	10	C	C	10
15	10	10	14	06	08	C	12	C	C	C	C	08
16	08	10	12	12	C	C	C	C	C	C	12	12
17	08	14	12	06	C	C	C	C	14	06	08	08
18	06	12	14	16	08	C	10	C	C	C	12	14
19	06	10	12	04	04	06	C	10	12	C	08	12
20	08	12	14	04	10	C	C	C	C	C	10	10
21	06	08	08	12	08	C	C	C	C	C	06	12
22	08	12	12	08	08	C	C	C	C	06	08	08
23	08	10	14	08	04	12	C	C	C	C	10	10
24	C	08	16	06	06	10	C	C	C	C	10	12
25	12	12	14	18	04	08	C	06	C	C	08	06
26	06	10	10	06	06	C	06	C	C	C	06	10
27	08	06	16	12	08	C	06	10	06	C	08	C
28	06	12	06	04	06	10	C	C	06	C	10	06
29	08		16	04	C	10	C	06	06	C	C	06
30	06		06	08	C	12	C	C	08	C	C	06
31	10		10		C		C	C		C		08

C - Calm

Appendix I

TABLE NO. 1.2 WIND VELOCITY DATA FROM 1st JANUARY 1983 to DECEMBER 1983
AT CANNANORE (KMPH) TIME 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	08	C	C	C	C	12	08	C	C	C	C	08
2	06	C	10	C	06	10	C	C	04	C	10	10
3	06	C	C	08	06	08	C	C	C	C	06	06
4	04	C	C	C	C	C	C	C	10	C	C	06
5	08	06	C	06	C	C	10	C	C	06	C	12
6	06	C	C	C	C	C	08	C	C	C	C	12
7	C	06	08	C	08	C	06	10	C	04	C	06
8	06	C	C	08	C	C	C	06	C	04	06	06
9	08	C	C	C	14	C	C	C	C	04	04	08
10	06	C	C	08	08	10	C	C	C	04	10	10
11	10	06	C	C	C	C	12	C	C	C	08	C
12	08	C	C	08	06	C	C	C	C	C	06	10
13	08	C	06	10	08	06	C	10	C	02	10	06
14	08	C	06	C	C	10	C	08	C	C	08	08
15	12	06	08	08	C	C	10	C	C	C	C	10
16	06	C	C	10	C	06	C	C	C	C	10	08
17	10	C	10	C	08	C	C	08	C	C	06	08
18	10	C	06	08	C	10	06	C	C	C	10	06
19	10	C	C	C	C	C	12	C	C	C	08	08
20	C	C	C	C	C	06	06	C	C	04	10	08
21	C	C	C	C	C	08	C	C	C	06	06	08
22	08	C	C	C	C	06	12	C	C	C	10	14
23	C	C	06	06	C	C	C	06	C	C	08	C
24	06	C	C	06	C	08	08	C	C	C	08	06
25	10	08	06	08	C	12	C	C	02	C	08	10
26	C	C	04	08	C	12	C	C	C	10	06	06
27	08	C	08	04	06	12	C	C	04	C	08	08
28	C	C	C	04	06	06	08	C	C	C	06	C
29	C		C	C	08	10	06	C	02	C	06	C
30	C		C	C	12	06	C	C	C	C	10	06
31	C		08		08		C	C		C		04

C - Calm

Appendix I

TABLE NO. 1.2 WIND VELOCITY DATA FROM 1st JANUARY 1983 to DECEMBER 1983

AT CANNANORE (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	C	10	12	12	10	20	06	C	C	06	C	10
2	08	12	14	03	06	18	06	12	C	06	C	10
3	C	14	10	12	12	10	06	C	06	04	C	10
4	C	08	08	14	10	16	12	C	C	04	10	10
5	10	C	12	10	08	10	14	06	C	20	C	06
6	10	C	10	06	16	06	10	10	08	08	08	06
7	10	14	10	14	10	08	12	12	C	08	10	08
8	10	08	10	18	12	10	12	14	C	06	10	10
9	10	06	10	14	12	12	16	C	C	04	08	12
10	C	C	12	14	22	08	C	C	C	08	08	C
11	08	08	12	08	16	10	C	C	C	12	10	16
12	06	10	10	10	15	12	C	C	14	08	12	12
13	C	06	12	08	16	20	10	C	C	04	C	10
14	C	06	12	12	16	06	C	C	06	08	C	12
15	C	14	12	10	10	26	C	10	C	14	08	12
16	C	12	12	08	08	C	12	10	04	12	10	10
17	12	10	12	08	14	C	06	C	08	14	12	14
18	08	12	12	12	16	16	12	10	C	08	12	16
19	08	10	14	10	10	06	C	C	C	C	C	12
20	C	10	12	12	14	12	C	10	04	C	04	10
21	12	10	10	08	10	12	C	C	04	10	10	10
22	10	32	12	12	10	C	C	C	C	10	10	10
23	10	14	16	14	10	08	12	C	C	06	10	C
24	C	14	12	14	12	C	C	C	C	C	10	10
25	12	C	10	12	10	10	10	08	04	10	10	08
26	12	10	14	16	12	10	10	C	04	12	10	12
27	14	08	12	14	16	10	C	C	04	06	C	12
28	12	08	08	08	16	12	08	C	C	C	08	10
29	12		16	10	16	26	C	C	C	C	10	10
30	C		10	08	18	C	12	C	04	C	12	10
31	C		14		16		C	08		C		10

C - Calm

Appendix I

TABLE NO. 1.2 WIND VELOCITY DATA FROM 1st JANUARY 1984 to DECEMBER 1984
AT CANNANORE (KMPH) TIME - 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	06	C	06	C	06	C	08	C	C	C	C	08
2	C	C	06	C	08	06	08	C	C	C	06	C
3	08	12	10	C	08	12	C	08	C	C	C	06
4	08	04	06	08	08	08	C	C	C	C	C	C
5	06	06	06	C	06	C	06	C	C	C	08	C
6	08	C	08	C	08	04	C	C	C	08	C	C
7	06	06	C	C	04	12	C	C	C	C	06	C
8	06	C	06	C	06	07	C	06	08	06	08	C
9	06	06	08	06	06	C	08	C	08	06	C	C
10	12	06	06	08	06	10	C	C	C	06	C	12
11	12	C	C	08	06	C	06	06	C	06	06	10
12	06	08	06	08	04	08	08	C	C	06	10	08
13	06	08	C	C	C	C	C	C	C	06	C	08
14	06	08	08	C	08	16	10	C	C	06	12	04
15	08	06	06	C	06	06	C	C	06	06	06	10
16	C	10	C	C	08	06	C	10	C	06	06	08
17	C	C	C	C	06	08	06	C	C	06	C	04
18	08	C	08	C	C	C	10	C	C	06	C	08
19	06	08	08	C	08	06	C	C	C	06	08	08
20	C	C	C	10	C	C	06	C	08	06	C	08
21	06	06	06	C	06	C	04	C	C	06	C	08
22	C	C	08	C	08	C	C	C	C	06	C	08
23	C	06	06	C	06	06	08	C	C	08	08	02
24	C	06	C	06	06	C	C	C	C	C	08	C
25	06	08	08	C	04	C	C	C	C	C	06	16
26	08	06	C	C	10	C	06	C	C	C	08	04
27	06	C	C	08	10	C	C	06	C	C	06	02
28	C	10	C	C	08	C	C	C	C	C	10	06
29	C	06	06	08	C	C	C	C	C	C	06	10
30	08		C	08	06	10	08	C	C	C	C	06
31	06		C		08		C	C		C		08

C - Calm

Appendix I

TABLE NO.1.2 WIND VELOCITY DATA FROM 1st JANUARY 1984 to DECEMBER 1984
AT CANNANORE (KMPH) TIME - 1730DIST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
1	12	10	10	08	14	08	10	C	12	14	08	10
2	10	18	12	10	14	08	14	10	12	06	08	14
3	12	10	08	12	14	10	C	12	14	08	05	10
4	08	10	C	04	14	10	10	08	08	10	08	C
5	08	08	C	12	12	06	04	06	10	10	10	10
6	10	10	12	10	14	10	14	C	12	10	C	10
7	10	10	C	12	14	C	10	C	12	10	C	10
8	06	12	C	12	14	C	10	10	14	C	10	C
9	14	12	10	18	14	C	06	10	06	06	C	10
10	10	14	10	10	12	12	10	C	10	C	10	12
11	10	10	12	10	14	C	10	08	C	08	10	08
12	C	08	10	10	16	08	10	08	C	12	08	12
13	10	12	10	10	16	08	10	10	C	C	12	10
14	10	12	12	C	18	14	06	08	10	C	08	08
15	06	10	10	10	16	10	10	10	10	C	08	08
16	10	12	10	10	18	C	10	12	12	C	04	08
16	08	10	12	12	16	06	12	08	14	10	C	08
17	06	08	12	12	18	C	08	08	10	10	C	10
18	10	10	10	10	18	10	10	10	10	10	C	10
19	10	12	12	12	08	08	08	C	C	04	10	10
20	10	10	14	14	12	10	10	08	14	C	C	10
21	10	08	18	18	14	C	12	10	12	C	10	02
22	10	08	18	18	14	C	12	10	12	C	10	02
23	22	10	12	10	16	10	12	10	C	10	C	08
24	12	10	10	10	14	C	14	08	06	10	10	C
25	10	10	12	12	16	12	10	12	10	10	04	C
26	10	12	10	10	14	10	08	14	14	10	10	06
27	08	05	12	12	16	C	10	10	14	14	10	02
28	10	12	10	14	14	10	10	10	C	C	10	08
29	12	10	12	16	16	C	10	08	10	10	10	02
30	12		12	16	16	C	10	08	10	10	10	02
31	12		10		04		10	08		C		02

Appendix I

TABLE NO. 1.2 WIND VELOCITY DATA FROM 1st JANUARY 1985 to DECEMBER 1985
AT CANNANORE (KMPH) TIME - 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	C	08	06	06	C	C	C	C		C	C	C
2	C	08	C	C	C	C	C	C		C	C	C
3	C	08	C	C	C	C	C	C		C	C	C
4	C	C	C	C	08	C	C	C		C	C	C
5	12	08	06	C	C	C	08	C		C	C	C
6	06	04	C	C	C	C	C	C		C	C	C
7	C	C	06	C	04	C	C	C		C	C	C
8	C	C	06	C	C	C	C	-		C	C	C
9	04	C	04	C	C	C	C	C		C	C	C
10	C	C	06	08	C	C	C	C		C	C	C
11	C	C	C	C	C	08	C	C		C	C	C
12	10	C	06	C	C	08	C	C		C	04	06
13	06	C	C	C	C	08	C	C		C	C	C
14	10	C	C	C	06	08	C	C		C	C	C
15	10	C	C	C	C	08	C	C		C	10	C
16	02	C	C	C	06	08	C	12		C	04	C
17	C	C	06	08	C	08	C	C		C	04	C
18	06	C	C	C	C	08	C	C		C	C	C
19	06	C	C	C	C	08	C	C		C	C	C
20	C	C	C	06	C	08	C	C		C	C	04
21	C	C	C	C	22	08	C	C		C	C	06
22	C	04	C	C	08	08	C	C		C	C	06
23	08	C	C	C	06	08	C	C		C	C	C
24	12	C	C	C	C	10	C	C		C	C	C
25	08	C	C	C	C	14	C	C		C	08	C
26	08	10	06	C	C	08	C	C		C	06	06
27	06	08	C	08	C	10	C	C		C	C	06
28	06	06	C	06	C	14	C	C		C	06	C
29	C		C	C	C	C	C	C		C	06	06
30	06		C	C	C	C	C	C		C	06	08
31	06		C		10		C	C		C		12

Data not available

Appendix I

TABLE NO. 1.2 WIND VELOCITY DATA FROM 1st JANUARY 1985 to DECEMBER 1985
AT CANNANORE (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	12	14	14	10	10	C	C	C		C	C	C
2	12	14	14	10	10	C	C	C		C	C	C
3	08	C	10	14	14	C	C	C		C	C	C
4	04	14	12	10	10	10	10	10		C	C	C
5	06	12	12	14	15	C	10	16		C	C	C
6	C	12	12	10	14	C	C	14		C	C	C
7	06	16	12	12	10	C	10	C		C	C	C
8	08	14	10	14	08	C	10	-		C	C	C
9	04	-	10	14	10	C	C	C		C	C	C
10	04	14	10	14	C	10	C	10		C	C	C
11	08	12	12	10	10	C	14	C		C	C	C
12	12	14	12	10	12	C	C	C		C	10	C
13	06	14	12	10	10	10	C	C		C	08	C
14	06	10	12	12	14	C	10	12		C	12	C
15	04	12	10	12	10	10	C	14		C	12	C
16	04	14	10	12	10	C	C	C		C	12	C
17	04	10	14	14	10	C	C	14		C	C	C
18	10	14	10	10	12	C	C	10		C	C	04
19	08	14	12	12	06	10	C	10		C	C	08
20	06	14	14	10	10	10	10	14		C	C	08
21	10	12	14	12	12	12	12	13		C	C	08
22	10	08	10	14	12	C	C	18		C	C	08
23	10	08	12	14	12	10	C	C		C	C	08
24	12	14	12	10	12	C	14	10		C	C	08
25	10	06	14	14	10	26	C	12		C	C	C
26	10	08	10	10	C	23	C	14		C	C	C
27	12	12	12	14	10	10	06	10		C	C	10
28	10	12	10	14	C	10	10	10		C	08	C
29	10		10	10	C	C	12	12		C	C	C
30	12		14	14	06	10	14	14		C	06	C
31	08		10		C		14	12		C		08

Data not available

C - Calm

Appendix I

TABLE NO. 1.2 WIND VELOCITY DATA FROM 1st JANUARY 1986 to DECEMBER 1986

AT CANNANORE (KMPH) TIME - 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	C	C	C	C	C	C	C	C	C	C	C	C
2	08	C	C	C	C	C	C	C	C	C	06	06
3	10	C	C	C	C	C	C	C	C	C	C	C
4	08	C	C	C	C	C	C	C	C	C	06	06
5	06	C	C	C	C	C	C	C	C	C	C	C
6	08	C	C	C	C	C	C	C	C	C	10	10
7	14	C	C	C	C	C	C	C	C	C	06	06
8	10	06	C	C	C	C	C	C	C	C	06	06
9	C	C	C	C	C	C	C	C	C	C	12	12
10	C	C	C	C	06	C	C	C	C	C	C	C
11	06	C	C	C	C	C	C	C	C	C	C	C
12	08	C	C	C	C	C	C	C	C	C	C	C
13	C	C	C	C	C	C	C	C	C	C	C	C
14	C	C	C	C	C	C	C	C	C	C	C	C
15	10	C	C	C	C	C	C	C	C	C	06	06
16	C	C	C	C	C	C	C	C	C	C	06	06
17	08	C	C	C	C	04	C	08	C	C	C	C
18	06	C	C	C	C	C	C	06	C	C	C	C
19	C	C	C	C	C	C	C	C	C	C	C	C
20	06	C	C	C	C	C	C	C	C	C	06	06
21	08	C	C	C	C	C	C	08	C	C	04	04
22	C	C	C	C	C	C	C	06	C	C	C	C
23	C	C	C	C	C	06	C	C	C	C	08	08
24	C	C	C	C	C	C	C	C	C	C	08	08
25	C	C	C	C	C	C	C	C	C	C	C	C
26	10	C	C	C	C	C	C	C	C	C	08	08
27	12	C	C	C	C	C	C	C	C	C	10	10
28	08	04	C	C	C	C	C	C	C	C	08	08
29	04		C	10	C	C	C	C	C	C	C	C
30	C		C	C	06	C	08	C	C	C	C	C
31	C		C	C	06	08	08	C	C	C	C	C

C - Calm

Appendix I

TABLE NO. 1.2 WIND VELOCITY DATA FROM 1st JANUARY 1986 to DECEMBER 1986
AT CANNANORE (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	NOV	OCT	DEC
1	C	12	08	12	14	04	C	C	12	C	C	C
2	C	12	06	14	14	10	04	06	12	12	12	12
3	C	14	10	10	14	C	C	C	10	C	12	10
4	06	14	C	14	06	06	06	C	10	C	12	10
5	16	10	10	14	08	08	06	C	08	C	C	04
6	10	12	C	16	06	04	C	C	08	12	12	10
7	06	14	08	12	08	C	04	C	06	10	C	06
8	12	C	10	14	08	10	06	C	12	12	C	06
9	10	10	C	12	12	C	08	C	10	C	C	10
10	C	04	08	14	12	C	08	C	12	C	12	08
11	C	06	12	14	14	C	10	C	14	12	14	08
12	10	08	C	14	16	C	C	06	12	C	C	08
13	10	10	10	14	08	C	C	C	12	C	12	08
14	12	10	14	14	06	C	C	12	14	C	C	C
15	C	10	14	14	12	08	06	C	14	C	14	08
16	10	08	C	14	08	C	C	14	08	C	C	C
17	12	14	C	12	10	C	06	08	12	12	14	06
18	10	12	10	14	08	10	C	12	14	C	12	C
19	C	12	12	14	08	04	06	12	10	C	10	06
20	12	12	12	14	14	C	C	10	14	C	C	C
21	10	10	10	12	06	C	C	12	C	06	12	10
22	12	10	10	C	10	04	06	10	C	C	C	C
23	14	10	10	12	08	04	06	12	C	C	10	C
24	10	08	08	14	08	C	06	14	12	C	10	C
25	12	08	08	14	06	C	08	10	C	C	C	C
26	14	C	10	14	08	C	12	10	C	C	C	C
27	14	06	10	14	10	C	14	14	C	C	C	12
28	10	C	C	C	12	C	12	12	C	C	C	12
29	10		14	14	14	C	08	12	C	C	12	12
30	14		14	C	10	C	06	10	12	C	C	12
31	12		14		04		02	14			08	10

C - Calm

Appendix I

TABLE NO. 1.3. WIND VELOCITY DATA FROM 1st JANUARY 1982 to DECEMBER 1982
AT KOTTAYAM (KMPH) TIME 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
1	02	C	05	C	02	04	04	02	04	04	C	C
2	04	02	04	04	04	04	04	04	04	04	C	04
3	C	C	C	C	C	04	04	04	C	C	C	04
4	02	C	C	C	C	04	C	04	06	C	C	04
5	04	C	C	C	04	04	C	C	04	04	C	C
6	C	C	C	04	C	C	04	C	04	04	C	C
7	C	C	C	C	04	C	04	06	C	C	C	04
8	C	C	C	C	02	C	04	C	C	C	C	04
9	04	04	04	C	04	04	04	C	C	C	C	04
10	C	04	04	C	04	C	C	06	C	C	C	C
11	C	C	C	C	04	C	C	C	C	04	C	C
12	02	C	C	04	04	C	06	C	C	C	C	C
13	04	C	C	02	04	04	C	C	04	C	C	C
14	04	02	C	04	02	04	04	C	C	C	C	04
15	C	04	C	04	C	04	C	C	C	C	C	C
16	C	C	04	04	06	04	C	C	C	C	C	C
17	C	C	C	04	04	C	C	02	C	04	04	C
18	04	C	04	C	02	04	04	04	04	04	C	04
19	C	02	04	04	C	04	C	04	C	04	C	C
20	C	02	04	C	C	04	C	04	04	04	C	04
21	C	C	04	C	04	C	C	04	04	04	C	C
22	C	C	C	C	04	C	06	02	C	04	C	C
23	C	C	04	C	C	04	02	C	C	04	C	C
24	C	04	C	C	C	04	04	02	C	04	C	C
25	C	C	04	C	C	04	C	C	04	04	C	C
26	C	C	06	04	04	04	04	04	04	04	C	C
27	04	C	04	C	C	04	04	C	C	04	C	C
28	04	02	C	C	C	04	C	C	C	04	04	C
29	04		04	C	C	04	C	C	C	C	C	04
30	04		C	02	C	04	04	C	C	04	04	C
31	04		C		C		02	04		C		04

C - Calm.

Appendix I

TABLE NO.1.3. WIND VELOCITY DATA FROM 1st JANUARY 1982 to DECEMBER 1982

AT KOTTAYAM (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
1	04	06	04	04	04	08	04	04	06	06	04	04
2	06	04	06	06	04	08	04	06	04	06	06	04
3	04	04	04	06	04	06	06	06	04	08	06	06
4	04	04	04	04	06	04	04	06	06	04	04	04
5	04	06	04	04	06	06	06	06	06	06	04	06
6	06	04	04	04	04	04	06	04	06	04	04	04
7	04	06	04	04	04	04	04	06	04	04	04	04
8	04	04	04	04	06	06	04	04	04	04	06	04
9	04	04	04	04	06	06	06	04	04	C	04	04
10	04	06	04	04	06	04	04	06	04	06	04	04
11	04	04	04	04	06	06	04	04	04	04	06	04
12	04	04	04	04	04	04	06	04	04	04	04	04
13	23	04	04	04	04	06	04	04	04	06	04	04
14	06	04	04	08	04	04	06	04	04	06	04	06
15	04	06	04	04	06	04	04	04	04	04	06	06
16	04	04	06	06	06	04	04	06	04	04	04	06
16	04	04	06	06	06	04	04	06	04	04	04	06
17	04	06	04	06	06	04	04	04	04	04	04	06
18	04	06	06	04	04	08	04	04	06	04	04	04
19	04	06	04	06	04	04	04	04	04	04	04	04
20	04	04	04	04	06	04	06	04	06	06	04	06
21	06	04	06	06	06	06	06	04	04	06	04	04
22	06	06	04	06	04	06	04	04	04	04	04	04
23	04	04	04	06	06	04	04	04	06	06	04	04
24	060	06	06	04	06	06	06	04	04	04	04	04
25	04	06	04	04	06	04	06	04	04	06	04	04
26	06	06	04	04	08	06	06	04	06	06	04	04
27	04	04	06	04	06	06	06	06	04	08	04	04
28	06	06	04	08	06	06	06	06	04	04	04	04
29	06		06	04	04	06	06	04	04	04	06	04
30	06		06	06	04	06	06	04	06	04	06	04
31	04		04		04		04	06		04		04

C -- Calm

Appendix I

TABLE NO.1.3. WIND VELOCITY DATA FROM 1st JANUARY 1983 to DECEMBER 1983
AT KOTTAYAM (KMPH) TIME - 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
1	C	C	C	C	C	04	04	C	C	04	04	04
2	C	C	C	C	C	C	04	02	C	C	04	04
3	C	C	C	C	C	C	C	C	C	C	C	04
4	C	04	C	C	04	C	C	C	04	C	C	C
5	C	C	C	C	C	C	04	C	06	04	C	04
6	C	C	C	04	C	C	C	04	C	04	C	C
7	C	C	C	04	04	C	C	02	02	C	C	C
8	C	C	C	C	C	C	04	04	C	04	C	-
9	C	C	C	C	C	C	04	C	C	C	C	04
10	C	04	04	06	C	C	C	04	C	C	C	04
11	C	C	C	04	04	C	C	02	C	C	04	C
12	C	04	C	C	04	02	02	C	C	04	C	C
13	C	04	C	04	C	06	C	04	04	C	C	04
14	04	C	C	04	04	04	02	04	04	C	04	04
15	04	C	C	C	02	02	C	C	04	C	C	04
16	04	C	C	04	04	04	02	C	04	C	C	C
17	04	C	C	C	04	C	02	04	C	C	C	C
18	04	C	C	C	02	04	C	C	02	C	C	C
19	02	C	C	04	C	C	04	02	C	04	C	04
20	C	C	C	C	C	04	04	04	04	04	C	04
21	C	C	C	04	C	C	06	C	C	C	C	C
22	C	C	C	04	04	C	04	04	C	C	C	C
23	C	04	C	04	04	06	C	04	C	C	C	04
24	C	C	C	04	04	C	02	C	C	04	C	C
25	C	C	04	04	04	C	02	C	C	04	C	C
26	C	C	C	04	04	06	C	C	04	C	C	04
27	C	04	C	04	04	04	C	C	C	04	04	04
28	C	C	04	04	04	06	C	C	C	04	04	04
29	C		C	04	04	04	C	C	C	C	C	C
30	C		04	C	04	04	C	C	04	04	04	C
31	C		C		C		C	C		04		C

C - Calm

Appendix I

TABLE NO.1.3 WIND VELOCITY DATA FROM 1ST JANUARY 1963 to DECEMBER 1963
AT KOTTAYAM (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
1	04	10	04	04	04	04	04	04	04	04	06	04
2	04	04	04	04	04	04	04	06	04	04	04	04
3	04	04	04	04	04	04		04	04	04	04	06
4	04	04	04	04	06	04	04	04	04	04	04	06
5	04	04	04	04	04	04	04	06	04	04	04	04
6	04	04	04	04	04	06	C	04	04	-	04	06
7	23	06	04	04	04	06	04	06	04	04	04	06
8	04	04	04	04	04	04	04	06	04	04	04	06
9	04	04	06	06	04	06	04	04	04	04	04	06
10	04	04	04	06	04	06	04	04	04	04	04	06
11	04	06	06	04	06	04	06	04	04	04	04	06
12	04	04	04	04	04	06	04	06	04	04	04	06
13	04	04	04	04	04	06	04	06	04	06	04	06
14	04	04	04	04	04	06	06	04	04	04	04	06
15	06	04	06	04	04	06	04	04	04	04	04	-
16	04	04	04	04	06	06	04	06	04	04	04	04
17	04	04	04	04	04	04	04	06	04	04	04	04
18	04	04	04	04	04	04	04	04	04	06	04	04
19	04	04	04	04	06	04	04	06	04	04	04	04
20	04	04	04	04	04	06	06	04	04	04	04	04
21	04	04	04	04	04	04	06	04	04	04	04	04
22	04	04	04	04	06	04	04	04	04	04	02	04
23	04	04	04	04	04	04	06	04	04	04	04	04
24	04	04	04	04	04	06	04	06	04	04	04	04
25	04	06	06	06	04	04	04	04	04	06	04	04
26	04	06	06	06	06	04	06	04	04	04	04	04
27	04	06	06	06	04	04	06	04	04	04	04	04
28	04	06	06	06	04	04	06	04	04	04	04	04
29	04		06	06	06	04	04	06	04	04	04	04
30	04		06	04	04	04	04	04	04	06	04	04
31	04		06		04		04	04		06		04

C - Calm

Appendix I

TABLE NO.1.3 WIND VELOCITY DATA FROM 1ST JANUARY 1984 to DECEMBER 1984
AT KOTTAYAM (KMPH) TIME - 0630IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
1	C	C	C	C	C	05	C	01	C	04	04	C
2	C	C	C	04	C	02	04	C	C	04	C	06
3	C	C	C	C	C	04	02	C	C	04	04	C
4	C	C	02	04	C	C	04	C	C	04	C	C
5	C	C	C	C	C	04	C	C	C	C	04	C
6	C	C	02	C	C	04	04	C	C	C	04	C
7	C	C	C	02	04	C	04	04	04	04	C	C
8	C	04	C	04	C	C	02	C	04	C	C	C
9	C	04	C	04	C	C	04	04	C	04	04	C
10	C	04	C	C	C	C	04	04	C	C	C	C
11	04	04	C	04	C	02	04	C	C	C	04	C
12	C	04	C	C	C	02	04	C	C	C	C	C
13	C	04	C	C	C	04	04	04	04	04	C	04
14	04	04	04	04	C	C	C	C	04	04	C	C
15	04	04	C	02	C	04	C	04	C	C	C	02
16	C	04	C	C	C	04	04	04	04	04	04	C
17	04	04	C	C	06	06	04	C	C	04	04	C
18	C	C	C	C	06	04	04	C	04	04	04	C
19	C	04	C	04	06	04	04	C	C	04	C	C
20	04	C	C	04	06	04	04	C	C	C	C	C
21	C	04	C	C	06	04	C	C	C	C	C	02
22	C	04	C	04	04	04	C	04	04	C	C	C
23	C	C	C	C	04	04	04	04	04	C	C	C
24	C	C	C	C	C	C	C	C	C	C	04	C
25	04	C	C	C	C	04	C	C	C	04	C	C
26	C	C	C	C	C	04	04	C	C	C	C	04
27	C	C	C	C	C	04	C	04	04	C	C	04
28	C	04	C	C	C	04	C	04	04	C	04	02
29	C	C	C	C	C	04	C	04	04	C	C	04
30	C		C	04	C	02	C	04	C	04	04	C
31	C		C		C		C	04		C		04

C - Calm

Appendix I

TABLE NO.1.3 WIND VELOCITY DATA FROM 1ST JANUARY 1984 to DECEMBER 1984
AT KOTTAYAM (KMPH) TIME -1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	04	04	04	04	04	04	04	04	10	04	04	04
2	04	02	04	04	04	06	06	04	06	04	04	04
3	04	02	04	04	04	04	04	04	04	04	--	04
4	04	03	04	04	04	04	04	04	04	04	06	04
5	04	02	06	04	04	04	04	03	04	04	06	04
6	04	04	06	04	04	04	06	04	04	04	06	04
7	04	04	06	06	04	05	04	04	04	04	04	04
8	04	04	06	04	04	04	04	04	04	04	04	04
9	04	04	04	04	04	04	04	04	04	04	04	04
10	04	04	04	04	04	04	04	04	04	04	04	04
11	04	06	04	06	04	04	04	04	04	04	04	04
12	04	04	04	04	04	06	04	04	04	04	04	04
13	04	06	04	04	04	04	06	04	04	04	04	04
14	04	04	04	04	04	04	04	04	04	04	04	04
15	04	06	04	06	04	06	04	04	04	04	04	04
16	04	06	04	06	04	06	06	04	04	04	04	04
17	06	04	04	04	04	06	04	04	04	04	04	04
18	04	04	04	04	04	04	04	04	04	04	04	04
19	04	04	04	04	04	04	04	04	04	04	04	04
20	04	04	04	04	04	04	04	04	04	04	04	04
21	04	04	04	04	04	06	04	04	04	04	04	04
22	04	04	04	04	04	06	04	04	04	04	04	04
23	04	04	04	04	04	04	04	04	04	04	04	04
24	04	04	04	04	04	04	04	04	04	04	04	04
25	04	04	04	04	04	04	04	04	04	04	04	04
26	04	04	04	04	--	04	04	04	04	04	04	04
27	04	04	04	04	04	04	04	04	04	04	04	04
28	04	04	04	04	04	04	04	04	04	04	04	04
29	06	04	04	04	04	04	04	04	04	04	04	04
30	04		04	04	04	06	04	04	04	04	04	04
31	04		06		04		04	04		04		04

Appendix I

TABLE NO.1.3. WIND VELOCITY DATA FROM 1ST JANUARY 1985 to DECEMBER 1985
AT KOTTAYAM (KMPH) TIME 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	C	04	C	04	C	04	04	04	04	04		
2	C	04	C	C	04	04	04	04	04	04		
3	04	C	C	04	04	04	04	04	04	04		
4	C	C	C	04	04	04	04	04	04	04		
5	C	04	C	C	C	04	04	04	04	04		
6	C	04	C	04	04	04	04	04	04	04		
7	04	02	C	C	04	04	04	04	04	04		
8	04	C	C	04	02	04	04	04	04	04		
9	04	C	00	04	06	04	04	04	04	04		
10	02	C	C	04	04	04	04	04	04	04		
11	04	C	04	04	C	04	04	04	04	04		
12	C	04	04	04	C	04	04	04	04	04		
13	C	C	C	C	04	04	04	04	04	04		
14	C	C	C	04	04	02	02	04	04	04		
15	C	C	C	04	04	04	04	04	04	04		
16	04	C	C	04	02	04	04	04	04	04		
17	C	C	C	04	04	04	04	04	04	04		
18	C	C	06	04	04	04	04	04	04	04		
19	04	04	04	04	C	04	04	04	04	04		
20	04	C	04	C	04	04	04	04	04	04		
21	04	C	02	C	04	04	04	04	04	04		
22	04	C	04	04	C	04	04	04	04	04		
23	04	02	04	C	04	04	04	04	04	C		
24	04	C	C	04	04	04	04	04	04	04		
25	04	C	04	04	04	04	04	04	04	04		
26	C	C	04	04	04	04	04	04	04	04		
27	C	C	04	04	04	04	04	04	04	04		
28	04	C	04	04	04	04	04	04	04	04		
29	C		04	04	04	04	04	04	04	04		
30	C		04	04	04	04	04	04	04	04		
31	04		C		04		04	04		04		

Data Not Available

Data Not Available

C - Calm

Appendix I

TABLE NO.1.3 WIND VELOCITY DATA FROM 1ST JANUARY 1985 to DECEMBER 1985

AT KOTTAYAM (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	04	04	23	04	04	04	04	04	06	04		
2	06	06	04	04	04	04	04	04	04	04		
3	06	04	04	08	04	04	04	04	04	04		
4	06	04	04	04	04	04	04	04	04	04		
5	04	04	04	04	04	04	04	04	04	04		
6	04	04	04	04	04	04	04	04	04	04		
7	04	04	04	04	04	04	04	04	04	04		
8	04	04	04	04	04	04	04	04	04	04		
9	04	04	04	04	04	04	04	04	04	04		
10	04	04	04	04	04	04	04	04	04	04		
11	04	04	04	04	04	04	04	04	04	04		
12	04	04	04	04	04	04	04	04	04	04		
13	04	04	04	04	02	04	04	04	04	04		
14	04	04	04	04	04	04	04	04	04	04		
15	04	04	04	04	04	04	04	04	04	04		
16	04	04	04	04	04	04	04	04	04	04		
17	04	04	04	04	04	04	04	04	04	04		
18	04	04	06	04	06	04	04	04	04	04		
19	06	04	04	04	04	04	04	04	04	04		
20	04	04	04	04	04	04	04	04	04	04		
21	04	04	04	04	04	04	04	04	04	04		
22	02	04	04	04	04	04	04	04	04	04		
23	04	04	04	04	06	04	04	04	04	04		
24	04	04	04	04	06	04	04	04	06	04		
25	04	04	04	04	04	04	04	04	04	04		
26	04	04	04	03	04	04	04	04	04	04		
27	04	04	04	04	04	02	04	04	04	04		
28	04	04	04	06	04	04	04	04	04	04		
29	04		04	04	04	04	04	04	04	04		
30	04		04	04	04	04	04	04	04	04		
31	04		06		04		04	04		04		

Data Not Available

Data Not Available

C - Calm

Appendix I

TABLE NO.1.3. WIND VELOCITY DATA FROM 1ST JANUARY 1936 to DECEMBER 1936
AT KOTTAYAM (KMH) TIME 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	C	C	03	C	05	04	04	02	04	02	04	04
2	C	C	--	C	04	04	04	04	04	04	04	D
3	C	C	C	C	04	04	04	04	04	02	04	04
4	C	C	C	C	C	04	04	04	04	04	C	04
5	C	C	04	C	--	04	02	04	04	04	04	04
6	C	C	C	C	C	04	04	04	04	04	02	06
7	04	C	C	02	02	04	04	04	04	04	04	04
8	C	C	02	C	C	--	C	04	C	02	C	02
9	C	C	C	02	02	04	04	04	--	04	04	C
10	C	C	C	C	--	04	C	06	--	04	04	04
11	C	C	C	C	04	04	04	04	04	--	04	04
12	C	C	C	C	04	04	04	04	04	04	04	C
13	C	C	C	C	02	04	04	04	04	02	C	04
14	C	C	C	C	04	04	04	04	02	04	C	04
15	C	01	C	C	C	04	04	04	04	04	04	04
16	C	01	C	C	04	04	04	04	C	04	C	04
17	C	C	C	C	02	04	04	02	04	04	04	04
18	C	C	C	C	--	04	04	02	04	04	04	--
19	C	C	C	C	04	04	04	04	02	04	C	C
20	C	C	02	C	04	04	04	04	04	04	C	--
21	C	01	C	C	04	04	04	04	04	04	C	04
22	C	C	C	C	C	04	04	04	04	04	04	04
23	02	C	04	C	04	04	04	04	02	04	C	04
24	02	C	C	C	04	04	04	04	--	02	04	C
25	02	02	C	02	04	04	04	04	04	04	04	04
26	02	C	C	04	04	04	04	04	02	04	04	C
27	02	C	--	C	04	04	04	02	04	04	04	C
28	02	01	--	C	04	04	04	04	C	04	04	04
29	02	--	C	C	04	04	04	C	04	04	04	04
30	02		C	C	04	04	04	02	04	04	04	04
31	02		C		02		04	C		04		04

C - Calm

Appendix I

TABLE NO.1.3.WIND VELOCITY DATA FROM 1ST JANUARY 1986 to DECEMBER 1986

AT KOTTAYAM (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	04	02	04	04	04	04	04	04	04	04	04	04
2	04	02	04	04	04	04	04	04	04	04	04	04
3	04	01	04	02	04	04	04	04	04	04	06	04
4	04	01	04	04	04	04	04	04	04	--	04	04
5	04	02	04	04	04	04	04	04	04	04	04	04
6	04	01	04	04	04	04	04	04	04	04	04	04
7	04	02	04	04	10	04	04	04	04	04	04	04
8	04	01	04	04	04	04	04	04	04	04	04	04
9	04	02	04	04	04	04	04	04	04	04	04	04
10	C	02	04	04	04	04	02	10	04	04	04	04
11	04	02	04	02	04	04	04	06	04	04	04	04
12	04	04	04	04	04	04	04	04	04	04	04	06
13	04	02	04	02	04	02	04	04	04	04	04	04
14	04	02	04	04	04	04	04	04	04	04	04	06
15	02	02	04	04	04	06	04	04	04	04	04	04
16	04	02	04	04	04	04	04	04	04	--	04	04
17	04	02	04	04	02	04	04	04	04	04	04	04
18	04	02	04	04	04	06	02	04	04	04	04	04
19	04	02	04	04	04	08	04	06	04	04	04	04
20	04	01	04	04	04	04	04	04	04	04	04	04
21	04	04	04	04	04	04	04	04	04	04	04	04
22	04	02	04	04	04	04	04	04	04	04	04	04
23	04	02	04	04	04	04	04	04	04	04	04	04
24	04	02	04	04	04	04	04	06	04	04	04	04
25	04	02	04	04	04	06	04	02	02	--	06	04
26	02	02	04	04	08	04	04	04	--	04	04	04
27	04	02	04	04	04	06	04	04	04	04	06	--
28	04	02	04	02	04	02	04	04	04	04	04	04
29	04		04	04	04	04	04	04	04	04	04	10
30	04		04	04	04	04	04	04	04	04	04	04
31	04		04		04		04	04		04		04

Appendix I

TABLE NO.1.3. WIND VELOCITY DATA FROM 1ST JANUARY 1937 to DECEMBER 1937

AT KOTTAYAM (KMPH) TIME - 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	02	C	04	C	C	04	04	C	04	C		
2	04	02	C	--	04	04	04	C	C	C		
3	04	C	04	04	06	04	04	06	C	02		
4	04	02	02	C	C	04	04	C	04	C		
5	04	C	C	04	04	04	04	C	C	C		
6	04	04	04	C	C	04	04	C	C	C		
7	C	02	02	C	02	04	04	C	C	04		
8	04	C	C	02	04	04	04	C	04	C		
9	C	04	04	04	02	04	04	C	C	C		
10	04	04	04	C	04	04	04	02	C	04		
11	04	04	C	04	04	04	04	C	C	C		
12	C	04	C	C	04	04	04	04	C	04		
13	04	04	02	04	04	04	04	04	C	C		
14	04	04	C	02	04	04	04	04	04	04		
15	04	04	C	02	04	04	04	04	C	04		
16	02	04	04	04	04	04	04	C	04	C		
17	04	04	02	C	04	04	04	04	C	04		
18	04	04	04	02	02	04	04	04	C	04		
19	C	04	04	04	02	04	04	C	04	04		
20	C	04	04	04	C	04	04	04	04	04		
21	04	04	C	04	04	04	04	C	C	C		
22	C	04	04	04	04	04	04	04	C	C		
23	04	04	04	04	02	04	04	04	04	04		
24	02	04	04	04	06	04	04	04	06	04		
25	04	04	04	04	04	06	04	--	--	04		
26	04	04	04	04	04	04	04	04	04	04		
27	04	04	04	04	04	04	04	04	04	04		
28	04	04	02	04	04	04	04	04	04	04		
29	04		04	04	04	04	04	04	04	04		
30	04	--	04	04	04	04	04	04	04	04		
31	04	--	04	--	02	--	04	04	--	04		

Data Not Available

Data Not Available

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Appendix I

TABLE NO.1.3 WIND VELOCITY DATA FROM 1ST JANUARY 1987 to DECEMBER 1987

AT KOTTAYAM (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	04	04	04	04	08	04	04	04	04	04		
2	04	04	04	04	04	04	04	06	04	06		
3	04	04	04	06	04	04	04	06	04	04		
4	04	04	04	06	04	04	04	04	C	04		
5	04	04	04	04	04	04	04	04	04	04		
6	04	04	04	04	04	04	04	04	04	04		
7	04	04	04	04	04	04	04	04	04	06		
8	04	04	06	04	04	04	04	04	04	04		
9	04	04	04	04	04	04	04	04	04	04		
10	04	04	04	04	04	04	04	04	04	04		
11	04	04	04	04	04	04	04	04	04	04		
12	04	04	04	04	04	--	04	04	04	04		
13	04	04	04	04	04	04	04	04	04	04		
14	04	04	04	04	06	06	04	04	04	04		
15	04	04	04	04	06	04	04	04	04	04		
16	04	04	04	04	06	04	04	04	08	04		
17	04	04	04	04	06	04	04	04	04	06		
18	04	04	04	04	04	04	04	04	04	04		
19	04	04	04	04	04	04	04	04	--	04		
20	04	04	04	04	04	04	04	04	04	06		
21	04	04	04	04	04	06	04	04	02	04		
22	04	04	04	04	04	04	04	04	04	C		
23	04	04	04	04	04	04	04	04	04	04		
24	04	04	04	04	06	04	04	04	--	04		
25	04	04	04	06	04	06	04	--	--	04		
26	04	04	04	04	04	04	04	04	04	04		
27	04	04	04	04	04	04	04	04	04	04		
28	04	04	04	04	04	04	04	04	04	04		
29	04		04	04	04	04	04	04	04	04		
30	04		04	04	04	04	04	04	04	04		
31	04		04		06		04	04		04		

Data Not Available

Data Not Available

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Appendix I

TABLE NO.1.4 WIND VELOCITY DATA FROM 1ST JANUARY 1982 to DECEMBER 1982.

AT CALICUT (KMPH) TIME - (0301ST)

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	12	06	06	06	06	C	04	06	04	06	04	08
2	12	08	06	06	06	04	C	08	04	08	04	12
3	10	08	06	06	08	04	10	06	06	04	04	10
4	06	06	06	08	04	06	04	C	04	08	12	06
5	06	06	06	08	06	C	04	06	06	20	C	08
6	08	08	06	06	08	C	06	08	C	C	06	04
7	10	04	06	C	06	10	04	04	06	04	10	12
8	10	05	08	06	06	10	04	06	08	02	10	08
9	10	06	08	06	08	04	06	06	06	06	06	08
10	06	06	06	06	04	06	04	C	C	08	06	10
11	10	10	06	06	04	12	06	C	C	08	08	10
12	08	04	12	04	06	06	10	C	C	04	C	08
13	08	06	06	08	06	05	08	10	12	C	06	06
14	06	06	C	06	06	06	04	C	06	04	04	12
15	12	06	06	06	C	06	09	C	06	04	06	10
16	06	06	06	04	06	04	04	04	04	04	06	12
17	06	08	C	04	06	10	10	08	06	C	04	06
18	12	06	06	16	C	06	08	06	04	04	06	10
19	08	06	06	06	C	08	12	06	04	06	12	10
20	10	06	06	08	C	10	12	04	04	06	06	08
21	08	06	C	C	04	10	10	C	06	04	06	12
22	12	08	06	06	C	06	12	C	04	04	04	10
23	08	06	10	C	04	C	C	06	06	06	06	12
24	08	08	06	06	04	10	08	C	C	10	06	06
25	12	06	06	13	C	C	04	06	04	06	06	12
26	08	08	06	06	04	06	C	10	04	06	06	04
27	04	08	08	08	C	08	06	06	06	06	06	10
28	10	08	C	08	06	04	C	04	06	08	08	12
29	06		06	06	08	12	08	08	00	04	06	06
30	08		04	06	04	08	C	04	06	04	08	12
31	06		04		06		08			08		10

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Appendix I

TABLE NO.1.4 WIND VELOCITY DATA FROM 1ST JANUARY 1982 to DECEMBER 1982

AT CALICUT (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	10	12	20	20	24	10	10	14	12	08	12	12
2	10	10	20	24	14	14	14	12	14	16	04	14
3	10	14	16	16	14	06	10	04	14	12	04	10
4	14	18	10	24	12	20	12	08	12	10	12	08
5	06	14	20	24	14	24	10	18	12	08	12	08
6	18	12	20	20	16	12	04	06	14	12	08	08
7	10	18	12	14	24	20	10	16	10	06	02	10
8	12	20	22	20	18	20	10	18	10	06	14	08
9	14	18	14	24	18	30	14	10	14	08	06	08
10	18	16	12	16	18	14	08	08	12	08	14	10
11	10	16	14	16	18	16	C	08	14	10	12	08
12	08	14	14	14	14	12	C	06	12	10	14	08
13	18	24	24	12	10	14	10	14	14	08	16	10
14	12	14	12	18	20	06	24	06	18	04	14	10
15	10	14	14	12	12	14	12	10	14	12	10	10
16	14	30	22	18	08	14	10	12	10	12	08	08
17	12	18	14	12	12	C	10	10	10	04	10	10
18	14	14	18	18	12	12	12	04	18	06	10	C
19	10	18	20	14	14	08	12	08	12	08	10	14
20	16	18	24	16	20	12	04	10	06	10	10	10
21	18	12	12	14	18	20	08	06	08	08	12	08
22	12	14	20	20	12	06	10	06	10	06	10	08
23	12	24	18	14	10	14	18	04	14	10	10	06
24	18	14	14	20	06	08	12	04	20	08	10	12
25	14	12	14	24	10	20	10	06	08	12	08	10
26	12	12	26	22	12	08	06	14	10	08	10	12
27	12	14	18	24	08	04	06	06	12	08	14	10
28	08	14	14	20	18	20	04	12	16	08	10	10
29	12		14	14	04	20	06	14	14	08	10	12
30	10		12	14	10	12	04	12	12	10	14	12
31	14		24		12		14	10		14		10

C - Calm

Appendix I

TABLE NO.1.4 WIND VELOCITY DATA FROM 1ST JANUARY 1983 to DECEMBER 1983

AT CALICUT (KMPH) TIME 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	12	06	22	C	12	10	04	02	06	06	04	10
2	08	04	04	06	14	16	06	12	04	04	C	10
3	10	08	06	06	06	12	C	04	06	C	06	04
4	08	06	08	04	C	08	02	08	08	08	06	02
5	08	06	06	04	04	10	06	02	04	06	06	04
6	12	06	04	04	08	12	04	06	08	04	04	06
7	10	04	04	C	06	06	10	04	06	06	C	08
8	12	C	06	C	06	04	02	04	06	06	06	12
9	08	04	04	06	04	06	C	06	02	C	12	04
10	08	06	08	10	06	18	C	02	02	C	12	06
11	12	06	04	04	12	04	06	10	08	10	02	08
12	08	04	08	08	08	18	08	06	02	08	12	04
13	08	06	04	C	10	C	08	18	06	08	08	06
14	08	06	04	06	22	06	C	04	14	04	04	07
15	08	08	06	04	02	08	04	08	C	04	10	04
16	10	06	04	06	C	06	04	C	04	04	08	04
17	10	08	08	08	04	02	C	06	02	C	12	04
18	08	06	04	02	06	06	06	C	04	02	08	08
19	10	06	02	06	C	C	08	04	02	C	08	04
20	06	C	02	02	C	C	14	02	08	06	06	06
21	10	02	04	06	08	04	04	02	08	C	06	08
22	10	04	10	C	04	12	06	06	C	02	08	12
23	06	C	08	06	04	04	10	04	04	06	08	04
24	06	08	04	08	10	04	02	C	04	06	08	C
25	12	04	06	12	04	24	06	06	06	02	04	12
26	06	06	06	04	12	20	C	02	04	04	04	04
27	04	08	06	04	04	28	04	C	04	06	06	08
28	06	04	06	06	06	14	C	06	04	C	02	C
29	06		08	04	C	20	04	C	C	04	04	06
30	06		06	04	06	14	06	04	C	08	04	06
31	06		06		10		06	C		C		08

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TABLE NO.1.4 WIND VELOCITY DATA FROM 1ST JANUARY 1983 to DECEMBER 1983

AT CALICUT (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	08	15	28	20	16	36	10	06	16	12	06	08
2	10	20	28	16	24	20	06	06	12	08	04	10
3	12	14	28	14	16	14	16	06	04	20	04	06
4	14	12	20	14	16	20	10	14	06	12	08	04
5	12	20	24	20	10	10	16	20	08	14	10	14
6	18	16	20	18	12	14	14	08	18	08	14	12
7	12	10	24	24	24	12	22	10	20	08	12	12
8	10	22	20	16	22	14	14	10	10	10	08	12
9	12	14	20	20	22	10	04	12	12	16	14	14
10	14	16	20	24	18	14	06	06	06	10	08	16
11	14	12	24	18	20	28	10	16	28	22	14	16
12	12	06	24	24	28	C	06	18	12	10	08	10
13	12	10	16	20	20	04	06	06	18	20	12	12
14	12	14	24	14	20	04	04	18	10	10	10	14
15	12	20	22	12	24	56	08	06	C	18	08	08
16	12	14	16	28	10	08	20	18	20	16	10	08
17	14	16	16	26	16	10	02	10	06	06	12	12
18	18	24	14	24	14	12	06	20	14	10	12	18
19	14	11	16	24	C	C	06	06	12	08	12	10
20	18	22	14	16	16	08	20	08	06	10	16	04
21	12	14	24	20	14	22	C	32	14	08	06	08
22	14	18	22	12	10	30	10	08	06	12	06	04
23	12	12	24	16	22	C	14	10	12	10	12	06
24	14	16	12	32	18	10	04	10	08	08	08	18
25	20	14	14	12	20	24	10	08	24	08	14	16
26	14	14	24	20	14	20	10	12	12	10	08	14
27	14	18	18	16	12	24	10	12	08	08	08	20
28	20	24	18	24	20	22	10	12	10	06	06	18
29	20		14	18	12	20	14	12	14	20	10	16
30	16		20	24	28	20	14	10	08	16	06	10
31	14		14	16	18		12	14		06		20

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TABLE NO.1.4 WIND VELOCITY DATA FROM 1ST JANUARY 1984 to DECEMBER 1984
 AT CALICUT (KMPH) TIME - 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	06	04	06	06	04	12	04	12	C	04	08	08
2	04	06	04	C	06	18	20	04	C	C	04	10
3	04	10	06	02	10	04	12	C	C	C	04	C
4	04	04	04	04	04	04	C	04	04	06	04	04
5	06	10	08	06	06	C	04	04	04	04	C	04
6	08	06	10	C	C	04	C	04	04	06	04	10
7	04	06	04	02	02	20	06	06	04	14	06	04
8	04	04	06	06	04	06	02	06	04	16	04	06
9	04	04	04	06	02	C	C	06	02	08	06	06
10	06	04	04	04	04	02	06	04	06	04	04	04
11	08	06	06	08	02	04	02	04	10	06	06	08
12	08	04	04	08	04	04	16	06	08	04	04	10
13	04	04	04	C	04	04	C	02	10	04	04	10
14	12	06	06	04	02	14	10	10	C	06	04	04
15	04	04	06	06	06	06	02	06	04	04	06	06
16	02	06	04	04	06	06	08	04	C	06	04	06
17	02	04	04	04	04	04	C	10	06	04	020	08
18	02	06	04	04	C	10	24	06	06	06	08	06
19	06	04	06	06	02	10	06	C	02	04	04	08
20	04	04	06	04	04	020	04	C	04	08	C	06
21	08	06	04	06	C	04	02	06	C	02	08	10
22	02	04	06	04	C	C	04	C	04	02	02	08
23	06	06	04	04	04	04	06	C	10	02	06	04
24	06	04	08	02	06	C	02	C	06	02	C	04
25	06	06	04	06	C	C	04	04	06	04	06	04
26	08	06	04	04	14	04	C	04	04	C	04	04
27	04	04	04	04	14	02	04	C	04	08	04	04
28	06	08	04	06	02	04	02	04	C	04	06	04
29	C	04	06	04	C	04	04	C	04	04	06	06

Appendix I

TABLE NO.1.4 WIND VELOCITY DATA FROM 1ST JANUARY 1984 to DECEMBER 1984
AT CALICUT (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	12	20	06	10	10	10	08	08	08	14	10	10
2	14	10	20	20	14	22	20	06	04	06	10	08
3	16	12	14	20	12	C	C	10	06	08	14	14
4	14	10	04	20	14	04	08	08	02	04	06	12
5	10	10	10	04	16	04	10	06	06	14	06	14
6	12	10	12	10	20	06	06	10	08	20	08	06
7	14	10	24	16	14	10	14	08	08	14	14	08
8	12	10	08	20	16	04	06	06	10	14	06	08
9	10	20	14	20	14	12	10	06	08	12	14	18
10	12	20	08	06	18	04	20	06	10	08	08	10
11	12	14	24	14	14	08	20	08	10	C	12	06
12	06	16	14	08	20	04	10	04	10	08	10	10
13	06	12	14	12	24	12	06	08	10	20	06	04
14	14	06	2	08	2	20	20	14	20	14	10	14
15	06	20	20	06	242	24	04	14	14	14	C	12
16	10	20	16	06	20	10	06	08	14	10	20	12
17	16	20	14	10	16	C	20	04	10	10	04	14
18	12	10	18	14	14	12	14	08	10	08	04	10
19	18	14	14	20	14	04	28	06	06	10	12	10
20	12	10	10	10	10	2	12	10	08	08	08	10
21	10	12	12	14	14	04	06	08	10	06	10	08
22	08	12	14	08	20	10	06	08	12	06	04	14
23	14	16	18	14	14	10	14	12	04	14	04	12
24	10	14	24	08	20	02	10	12	14	12	14	10
25	12	14	16	12	14	08	08	10	10	08	06	14
26	06	10	16	20	26	04	10	06	14	10	12	10
27	20	18	20	14	10	08	08	12	02	08	18	14
28	18	10	10	20	14	08	08	20	06	C	10	14
29	06	12	20	08	04	12	C	04	06	10	06	14
30	08		12	24	20	10	08	50	12	12	06	06
31	04		20		20		12	20		10		14

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Appendix I

TABLE NO.1.4 WIND VELOCITY/ DATA FROM 1ST JANUARY 1965 to DECEMBER 1965
AT CALICUT (KMPH) TIME - 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	06	04	04	04	06	C	C	06	02	04	04	04
2	06	04	04	10	10	C	C	04	02	04	02	C
3	10	04	C	C	06	C	C	C	C	08	04	C
4	04	04	04	04	12	04	C	C	02	06	04	C
5	04	08	02	04	04	24	04	10	04	06	04	08
6	04	08	04	04	06	06	C	06	04	04	04	06
7	C	04	04	04	06	02	06	06	C	06	C	C
8	04	02	04	06	C	04	04	06	04	C	C	04
9	02	04	06	04	06	C	06	02	02	C	08	04
10	08	06	04	08	C	C	04	12	02	02	04	06
11	06	02	06	C	C	02	C	C	02	C	C	02
12	02	04	02	04	C	06	C	06	04	C	04	04
13	12	04	04	04	C	06	C	04	02	C	02	06
14	14	06	04	08	06	C	04	C	C	C	05	C
15	08	04	06	C	C	C	06	C	C	06	05	04
16	06	04	02	06	C	12	06	02	02	06	05	C
17	06	02	04	10	04	04	C	C	04	06	02	04
18	04	C	C	08	06	08	06	06	06	04	C	02
19	04	02	04	02	02	04	02	04	02	06	04	04
20	04	06	C	04	C	C	06	C	04	08	C	06
21	04	04	04	06	12	C	14	04	02	04	08	12
22	10	02	C	02	C	C	C	08	08	10	02	06
23	04	06	04	02	08	C	C	04	02	04	08	06
24	0800	08	C	06	C	06	C	04	06	C	04	06
25	08	04	C	C	06	14	06	C	06	08	C	04
26	08	04	02	12	C	04	C	02	08	08	02	06
27	04	06	C	04	04	C	C	08	10	04	02	04
28	04	04	02	06	04	06	04	C	02	06	04	10
29	06		04	C	C	C	02	C	06	08	C	06
30	02		04	04	08	C	04	02	C	04	06	06
31	08		04		08		04	08		04		06

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Appendix I

TABLE NO.1.4 WIND VELOCITY DATA FROM 1ST JANUARY 1985 to DECEMBER 1985

AT CALICUT (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	16	12	14	12	20	06	20	C	06	10	08	06
2	14	18	20	10	18	04	06	12	10	08	08	06
3	20	06	10	14	24	20	04	06	14	04	06	06
4	08	10	14	12	24	16	06	20	10	06	08	04
5	14	16	12	12	16	06	10	12	08	04	02	14
6	10	12	20	14	24	06	14	C	08	06	08	08
7	12	14	16	10	18	04	14	06	08	06	C	04
8	06	14	14	20	12	10	08	04	06	10	04	04
9	12	12	12	14	12	C	08	12	08	10	06	04
10	18	14	20	24	10	12	08	06	12	06	C	06
11	12	14	06	18	14	08	08	06	20	16	14	04
12	12	10	14	18	10	10	13	10	10	20	12	12
13	12	14	14	16	24	08	06	10	10	08	10	10
14	14	16	18	12	12	04	06	C	10	08	12	06
15	16	20	16	14	14	06	C	02	18	12	14	06
16	10	20	10	12	16	10	C	06	10	20	06	10
17	08	16	16	14	14	20	08	06	12	08	08	12
18	14	14	14	14	14	10	10	14	08	14	10	14
19	10	04	16	20	06	12	04	14	06	12	06	10
20	08	12	14	24	14	10	04	10	14	14	12	08
21	10	10	06	10	18	06	06	14	08	14	12	08
22	12	12	14	14	20	14	C	06	12	08	08	10
23	14	20	14	18	12	04	06	19	08	08	12	08
24	06	12	14	14	14	08	C	08	10	14	06	10
25	14	14	16	16	20	28	05	05	05	10	10	06
26	08	10	06	22	C	04	06	06	04	12	06	08
27	12	12	14	24	10	04	20	02	14	12	12	08
28	12	18	20	10	04	14	10	08	02	14	06	06
29	18		14	14	C	20	08	08	08	02	06	08
30	10		14	20	04	C	10	06	10	08	C	08
31	12		14		04		10	10		06		08

C - Calm

Appendix I

TABLE NO.1.4 WIND VELOCITY DATA FROM 1ST JANUARY 1986 to DECEMBER 1986

AT CALICUT (KMPH) TIME - 0830 IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
1	08	C	08	C	C	06	04	C	04	08	04	06
2	04	04	06	08	04	04	06	C	C	C	08	C
3	02	04	08	06	04	04	06	C	C	04	06	06
4	08	08	C	06	C	08	10	08	C	02	06	06
5	06	06	08	08	08	C	06	06	C	C	08	14
6	06	08	08	06	08	08	C	08	C	C	08	10
7	08	04	06	04	C	06	06	10	C	04	12	08
8	06	10	04	10	10	06	06	06	16	08	06	06
9	08	04	06	02	10	04	04	C	C	C	06	06
10	02	04	06	04	08	06	C	12	C	C	06	04
11	02	08	06	06	12	06	C	C	04	06	C	C
12	04	06	06	C	08	04	08	C	04	C	08	08
13	02	08	04	04	02	08	C	04	C	06	04	04
14	06	02	04	06	04	C	C	C	C	06	C	08
15	C	02	06	08	06	14	C	C	08	04	06	08
16	06	08	06	06	04	08	04	04	04	04	06	08
17	06	06	06	08	10	04	C	08	C	C	06	06
18	04	04	04	06	06	06	C	04	04	C	08	06
19	06	08	C	06	06	06	C	04	06	C	06	04
20	10	06	C	04	C	C	04	C	04	C	10	08
21	06	0	06	06	06	C	C	04	06	C	08	C
22	08	06	04	06	06	C	C	04	04	02	06	08
23	10	10	06	C	06	12	04	08	C	02	06	06
24	08	08	C	C	06	C	C	C	C	08	10	06
25	08	10	04	C	12	C	C	06	C	C	06	06
26	08	C	06	08	08	02	C	C	C	04	04	04
27	10	04	04	C	06	C	C	08	06	C	04	04
28	06	08	06	C	08	12	C	08	C	C	08	04
29	04		08	10	06	04	C	C	08	06	06	04
30	06		04	C	18	C	06	06	10	04	04	06
31	02		04		06		C	04		04		06

C - Calm

Appendix I

TABLE NO.1.4 WIND VELOCITY DATE FROM 1ST JANUARY 1986 to DECEMBER 1986
AT CALICUT (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEPT	OCT	NOV	DEC
1	18	16	10	14	10	00	12	00	00	10	12	04
2	00	12	14	16	06	22	21	14	10	06	00	18
3	18	18	06	18	00	00	16	14	14	06	04	10
4	00	12	20	10	14	10	10	00	14	16	04	00
5	10	02	16	12	14	18	04	06	20	00	10	10
6	06	12	16	16	10	14	10	12	00	00	06	00
7	06	16	10	20	14	04	06	C	06	02	04	04
8	00	10	14	14	22	04	06	06	00	12	06	00
9	00	10	16	10	24	00	14	06	00	10	00	10
10	00	16	14	16	10	00	06	06	06	10	06	12
11	10	10	14	22	16	10	04	06	06	20	00	00
12	06	10	06	10	00	14	22	12	12	04	10	14
13	00	22	16	12	14	10	02	12	10	04	10	14
14	00	20	10	14	16	04	06	04	10	12	06	00
15	12	16	22	24	10	14	10	06	04	14	14	12
16	12	16	10	10	10	05	06	00	12	04	10	12
17	00	22	14	22	10	06	14	10	04	10	06	10
18	10	10	22	16	10	10	16	14	10	16	10	12
19	00	12	10	16	16	C	14	12	12	16	06	06
20	10	16	20	20	10	C	24	12	16	04	10	12
21	14	10	22	20	16	10	04	12	14	10	10	10
22	14	10	20	16	12	06	12	20	12	06	00	10
23	10	10	14	10	10	00	04	12	12	10	10	10
24	10	10	22	20	14	C	04	06	12	00	00	12
25	14	10	16	14	16	10	00	00	16	00	10	16
26	12	24	10	14	16	00	12	14	00	C	00	10
27	12	14	20	12	14	06	14	00	00	C	06	00
28	10	10	20	12	10	02	06	06	12	04	16	00
29	14		16	12	12	04	12	14	10	12	00	04
30	12		10	12	20	00	14	06	10	00	12	12
31	12		22		00		16	10		12		10

C ... Calm

Appendix I

TABLE NO.1.5 WIND VELOCITY DATA FROM 1ST JANUARY 1984 to DECEMBER 1984

AT PUNALUR (KMPH) TIME - 1730 IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1		C	C	02	02	02	02	02	02	02	02	04
2	C	02	2	C	02	02	C	02	02	02	02	C
3	C	C	C	C	C	02	02	02	02	02	02	04
4	C	C	C	C	C	02	02	02	02	02	02	C
5	C	02	02	C	C	02	C	02	02	02	02	04
6	C	C	C	02	02	02	C	02	02	02	02	04
7	C	C	C	C	C	02	02	02	02	02	02	02
8	02	C	C	02	C	C	C	02	02	02	02	04
9	C	C	C	C	02	02	C	02	02	02	02	02
10	C	C	02	02	02	02	C	02	02	02	02	02
11	02	C	02	C	C	C	C	02	02	02	02	02
12	C	C	C	C	02	02	C	02	02	02	02	04
13	C	C	C	02	02	02	02	02	02	02	02	02
14	C	C	C	C	C	02	02	02	02	02	02	04
15	02	C	C	02	02	02	C	02	02	02	02	04
16	02	02	C	C	02	C	C	02	02	02	02	02
17	C	02	C	C	C	02	C	02	02	02	02	02
18	02	02	C	C	C	02	02	02	02	02	02	04
19	C	02	C	C	C	C	C	02	02	02	02	04
20	C	C	C	02	C	C	02	02	02	02	02	04
21	C	C	C	02	02	C	C	02	02	02	02	04
22	02	C	02	02	C	C	02	02	02	02	02	04
23	02	C	02	C	02	C	02	02	02	02	02	02
24	C9	C	C	C	02	02	02	02	02	02	02	02
25	C	C	C	02	02	C	02	02	02	02	02	02
26	02	02	C	C	C	C	020	02	02	02	02	02
27	C	C	C	02	02	C	02	02	02	02	02	02
28	C	C	C	02	C	C	02	02	02	02	02	04
29	02	C	C	02	C	C	02	02	02	02	02	02
30	C		C	02	02	C	02	02	02	02	02	04
31	02		C	02	02		02	02		02		02

C - Calm

Appendix I

TABLE NO.1.5 WIND VELOCITY DATA FROM 1ST JANUARY 1985 to DECEMBER 1985

AT ETUNALUR (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	04	04	02	04	04	04	04	04	04	04	04	04
2	04	04	04	02	04	04	04	04	04	02	02	04
3	02	C	04	01	01	04	04	04	04	04	04	C
4	04	04	04	04	04	04	04	04	04	04	04	C
5	04	04	04	C	06	04	04	04	04	04	02	C
6	04	04	04	04	04	04	04	04	04	04	C	C
7	04	04	04	04	04	04	04	04	04	04	C	C
8	02	02	04	04	04	04	04	04	04	04	04	C
9	04	04	04	04	04	04	04	04	04	04	04	C
10	04	04	04	04	04	04	04	04	04	04	04	C
11	04	04	04	04	04	04	04	04	04	04	04	C
12	02	04	04	02	04	04	04	02	04	04	04	02
13	04	04	04	04	04	04	04	04	02	04	C	04
14	04	04	04	04	04	04	04	04	04	04	02	C
15	02	04	04	04	04	04	04	04	04	04	02	C
16	02	02	04	04	04	04	04	04	04	04	C	C
17	02	04	04	04	04	04	04	04	04	04	02	C
18	02	04	04	04	04	04	04	04	04	04	04	C
19	02	02	04	04	04	04	04	04	04	04	C	C
20	04	04	04	04	04	04	04	04	04	04	04	C
21	04	04	04	04	04	04	C	04	04	04	02	04
22	04	04	04	04	04	04	04	04	04	04	C	C
23	02	04	04	04	04	04	04	04	04	04	06	C
24	04	02	04	04	04	04	04	04	04	04	04	C
25	04	04	04	04	04	04	04	02	04	04	04	04
26	02	04	04	04	04	04	04	02	04	04	C	C
27	04	04	04	04	04	04	04	02	04	04	C	C
28	02	04	04	04	04	04	04	02	02	04	04	C
29	02		04	04	04	04	04	02	02	04	C	04
30	04		04	04	04	04	04	02	02	04	C	04
31	04		04		04		04	02		04		C

C - Calm

Appendix I
 TABLE NO. 1.6 WIND VELOCITY DATA FROM 1ST JANUARY 1984 to DECEMBER 1984
 AT PALGHAT (KMPH) TIME - 0030IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	08	03	03	03	03	03	03	03	00	03	03	
2	00	03	03	C	03	03	03	03	03	C	03	
3	00	03	00	03	03	03	03	00	03	03	03	
4	00	03	03	03	03	03	03	03	03	03	03	
5	00	00	00	03	03	03	03	03	03	03	03	
6	00	03	03	03	03	03	00	03	03	03	03	
7	00	03	03	03	03	03	00	00	03	C	03	
8	00	03	03	03	03	03	03	03	03	03	03	
9	00	03	03	03	03	03	03	03	03	03	03	
10	00	03	03	03	03	03	03	03	03	03	00	
11	00	03	03	00	03	03	03	03	00	03	C	
12	00	03	03	00	03	03	03	03	00	03	C	
13	00	03	03	03	03	03	00	00	03	03	03	
14	00	03	03	03	03	03	00	03	03	03	00	
15	03	03	03	C	030	03	03	03	03	03	03	04
16	00	03	03	03	03	03	03	00	03	03	03	00
17	00	03	03	C	03	03	00	03	03	03	03	00
18	03	03	C	03	03	02	03	03	00	C	00	
19	00	03	C	03	03	03	03	C	C	03	03	
20	00	03	03	00	03	03	03	03	C	03	00	
21	00	03	03	03	03	03	03	03	C	03	03	
22	00	03	03	03	03	03	03	03	03	03	03	00
23	00	03	03	03	03	03	03	03	03	03	03	03
24	00	03	03	03	03	00	03	03	C	03	00	
25	00	03	03	03	00	03	00	00	C	C	00	
26	00	00	03	03	00	03	03	03	03	03	03	00
27	00	00	03	03	04	03	03	03	03	C	00	
28	00	03	C	00	00	03	03	03	00	00	03	
29	00	03	03	03	00	03	03	00	C	03	03	
30	00		03	03	00	03	C	03	C	03	03	
31	00		C		03		03	00		03		

Data Not Available

C - Calm

Appendix I

TABLE NO.1.5 WIND VELOCITY DATA FROM 1ST JANUARY 1984 to DECEMBER 1984

AT PALGHAT (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	00	03	03	00	00	03	00	03	00	03	03	
2	03	03	03	00	00	03	00	00	00	03	C	
3	03	03	03	03	00	00	03	03	00	03	03	
4	03	03	03	00	03	03	03	00	00	C	03	
5	03	03	03	03	00	03	00	00	00	C	C	
6	03	03	03	03	00	00	03	03	00	03	C	
7	03	03	03	03	00	00	00	03	00	C	03	
8	03	03	03	03	00	03	03	03	00	00	00	04
9	03	00	03	03	04	C	03	03	00	00	C	
10	03	03	03	03	00	03	00	00	00	00	C	
11	03	03	00	03	00	C	03	03	00	03	C	
12	03	03	00	03	00	03	03	00	03	00	03	
13	02	03	00	03	00	03	00	00	00	03	03	
14	03	03	03	03	00	03	03	03	00	03	03	
15	03	03	03	03	00	03	03	00	00	03	C	
16	03	03	03	03	00	00	03	00	00	00	03	
17	03	03	03	00	00	00	03	00	00	00	03	
18	03	03	03	00	00	03	03	00	00	03	00	
19	03	03	C	C	00	03	00	03	03	00	03	
20	03	03	03	00	00	03	03	03	00	03	C	
21	03	03	03	03	00	00	03	03	03	03	03	
22	03	03	03	C	00	03	00	03	00	03	03	
23	03	03	03	03	04	00	03	00	00	00	03	
24	00	03	03	03	04	03	03	03	00	00	03	
25	03	03	03	00	00	00	03	00	00	03	03	
26	00	00	03	00	00	03	03	00	03	00	03	
27	00	03	03	00	00	03	00	03	03	03	03	
28	00	00	03	00	00	03	03	03	03	C	03	
29	03	03	00	00	00	03	03	00	C	03	03	
30	03		03	00	03	03	03	03	C	C	C	
31	00		03	00	00		03	00		03		

Data Not Available

C - Calm

Appendix I

TABLE NO.1.6 WIND VELOCITY DATA FROM IST JANUARY 1985 to DECEMBER 1985

AT PALGHAT (KMPH) TIME - 0830IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	02	04	04	02	06	02	02	06	06	02	10	02
2	02	06	06	06	06	03	03	03	03	02	10	04
3	04	06	06	02	06	00	08	06	06	04	10	06
4	00	06	10	02	04	04	04	02	02	06	04	04
5	06	04	02	02	06	04	04	04	04	04	04	08
6	06	02	04	02	02	04	04	04	04	00	04	02
7	06	C	04	04	02	02	02	06	06	00	06	10
8	06	02	02	06	04	06	06	06	06	00	02	06
9	06	06	06	04	02	04	04	04	04	03	03	03
10	04	04	04	06	02	04	04	06	06	04	02	10
11	06	06	10	06	06	04	04	06	06	00	02	10
12	06	04	00	06	06	04	04	04	06	04	02	08
13	04	06	04	03	02	06	06	06	04	06	02	04
14	08	06	04	06	06	10	10	04	00	04	02	02
15	10	04	06	06	02	04	04		02	06	02	04
16	08	06	04	06	04	04	04	06	04	00	02	08
17	10	04	04	06	02	00	00	04	08	06	02	10
18	00	06	02	06	04	10	10	04	04	04	02	02
19	10	00	02	00	02	06	06	02	08	02	04	08
20	10	06	04	04	04	04	04	06	02	02	04	08
21	08	00	04	04	06	06	06	02	04	04	02	10
22	10	06	04	08	08	04	04	02	06	06	02	10
23	04	06	04	06	00	06	06	04	06	02	02	08
24	04	06	06	06	00	00	00	00	06	00	04	08
25	06	04	02	06	00	02	02	10	02	02	02	08
26	06	04	04	06	06	06	06	08	02	02	06	10
27	12	02	06	08	06	06	06	04	02	00	06	10
28	06	02	06	06	02	06	06	06	02	06	06	08
29	00		08	02	08	04	04	06	04	10	08	08
30	04		08	06	06	04	04	04	00	04	08	10
31	06		02		04		04	04		04		10

C - Calm

Appendix I

TABLE NO.1.6 WIND VELOCITY DATA FROM 1st JANUARY 1985 to DECEMBER 1985

AT PALGHAT (KMPH) TIME - 1730 IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	04	04	04	12	10	04	06	03	03	06	02	04
2	C	04	10	02	03	03	04	04	03	06	02	04
3	06	04	10	02	10	03	06	02	06	02	10	03
4	06	04	10	04	03	06	06	04	04	02	02	06
5	03	02	03	06	10	03	04	03	04	04	02	02
6	04	02	10	04	10	03	02	06	10	06	04	02
7	04	03	10	03	10	06	02	12	04	10	02	02
8	04	C	04	03	04	04	06	10	04	04	02	02
9	04	03	03	03	02	03	06	06	06	10	04	01
10	06	06	06	03	03	06	06	03	03	06	04	04
11	04	06	03	03	03	10	04	03	06	06	02	02
12	04	03	04	03	06	06	06	04	03	04	02	04
13	04	06	06	03	06	04	06	--	06	02	02	04
14	06	06	04	10	06	10	04	03	10	06	02	02
15	06	04	04	10	03	03	10	--	10	03	04	04
16	04	03	06	03	06	06	04	--	10	03	04	04
17	04	04	03	12	10	04	04	--	10	04	02	03
18	04	04	10	03	03	06	03	--	06	04	02	04
19	10	06	04	10	06	03	10	05	04	04	02	04
20	10	02	10	03	03	04	10	03	04	06	10	10
21	10	04	04	10	10	04	06	06	06	06	02	03
22	04	02	04	12	06	04	04	06	03	06	02	04
23	04	02	03	06	03	03	06	10	04	02	02	06
24	04	04	12	03	10	04	06	06	04	02	02	03
25	04	03	10	10	06	06	03	--	02	02	02	04
26	04	02	12	10	02	04	04	03	04	04	02	04
27	04	04	03	10	10	02	03	06	06	02	02	03
28	02	02	12	10	03	06	06	03	06	02	02	06
29	04		10	03	03	10	06	10	06	02	02	03
30	04		12	03	03	02	03	03	06	02	02	03
31	04		04		04	12		10		02		03

C - Calm

Appendix I

TABLE NO.1.6 WIND VELOCITY DATA FROM 1st JANUARY 1986 to DECEMBER 1986
AT PALGHAT (KMPH) TIME - 0030IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	10	C	08	08	02	---	02	04	06	02	02	06
2	10	02	02	04	02	04	08	06	06	02	06	06
3	10	06	04	02	02	08	06	06	06	02	06	06
4	10	02	08	---	06	04	10	06	10	02	02	04
5	08	04	08	---	04	04	10	10	06	02	02	08
6	10	10	08	---	08	06	02	08	06	02	C	06
7	08	08	08	---	08	06	04	06	04	04	04	10
8	10	---	06	02	04	10	08	06	08	06	06	10
9	06	---	06	02	06	10	08	10	08	08	C	06
10	04	10	02	04	08	08	02	06	08	04	02	06
11	04	08	08	---	06	08	04	06	02	---	06	06
12	---	10	06	---	08	06	06	06	04	---	C	04
13	08	08	06	02	04	06	08	08	---	02	C	06
14	04	02	08	04	06	04	04	10	---	04	02	08
15	02	C	04	02	06	06	02	06	---	04	10	10
16	02	02	02	04	06	06	06	06	---	04	02	10
17	10	02	08	08	06	04	08	06	---	04	02	04
18	08	04	06	08	06	06	10	04	06	02	02	08
19	06	02	02	06	10	06	04	06	02	04	06	06
20	08	06	06	02	06	04	08	06	04	02	04	10
21	04	04	04	08	08	08	02	06	02	06	06	06
22	08	08	08	02	04	04	08	04	06	02	02	06
23	08	08	02	02	06	06	08	04	04	02	02	08
24	06	10	02	02	06	08	06	02	04	02	06	08
25	---	09	04	04	10	06	04	02	06	02	04	06
26	---	---	02	02	06	06	06	04	04	02	06	06
27	08	10	---	---	10	04	06	06	06	02	08	08
28	08	06	---	02	06	04	06	06	04	02	08	06
29	08	---	---	02	04	08	06	04	06	02	04	06
30	08	---	---	C	06	08	04	04	02	02	08	10
31	02	---	---	---	06	---	06	08	---	02	---	08

C - Calm

Appendix I

TABLE NO.1.6 WIND VELOCITY DATA FROM 1st JANUARY 1986 to DECEMBER 1986

AT PALGHAT (KMPH) TIME - 1730IST

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	06	06	04	04	04	06	08	10	08	04	04	08
2	08	06	--	08	06	06	08	08	08	04	02	04
3	08	04	02	--	08	06	10	08	10	02	04	06
4	08	02	08	08	05	10	10	08	10	06	02	02
5	08	04	08	10	05	08	08	04	10	06	02	04
6	04	04	04	--	10	08	06	08	10	02	C	04
7	08	08	02	--	08	08	08	10	08	06	04	--
8	02	--	02	--	08	08	08	08	10	06	04	04
9	08	--	04	08	10	06	10	08	06	08	C	02
10	04	02	06	10	06	08	04	06	10	--	06	06
11	02	02	04	--	06	10	08	04	02	--	C	04
12	04	02	08	--	06	10	06	08	06	--	06	02
13	08	04	04	04	06	08	06	08	--	--	02	04
14	04	02	--	06	08	08	02	10	--	02	C	04
15	08	08	08	06	06	08	08	08	--	04	--	02
16	02	06	06	10	08	06	06	10	--	04	02	06
17	--	08	08	10	06	04	10	08	--	06	02	02
18	04	04	02	08	08	06	10	08	02	02	02	02
19	02	06	10	10	08	08	10	06	08	04	02	04
20	02	04	08	08	10	02	08	08	06	02	02	06
21	02	02	--	08	08	08	10	08	04	02	02	--
22	04	04	04	06	06	08	08	06	04	02	--	08
23	02	04	08	06	06	10	10	06	06	02	--	04
24	02	04	10	08	08	10	06	06	08	02	02	04
25	--	06	10	08	06	04	06	08	04	04	06	06
26	--	--	--	06	06	08	06	06	06	06	04	02
27	06	09	--	06	02	02	08	08	06	02	06	02
28	04	08	--	04	06	06	08	10	04	04	04	04
29	02	--	--	04	08	10	08	10	08	04	04	08
30	02	--	--	08	04	08	04	08	04	02	08	02
31	04	--	10	--	04	--	06	08	--	02	--	02

C - Calm

Appendix I

TABLE NO.1.7 DAILY MEAN WIND VELOCITY DATA FROM 1st JANUARY 1986
to DECEMBER 1986 AT PATTAMBI (KMPH)

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	4.0	2.1	3.7	4.5	3.1	3.3	2.3	3.7	4.5	4.0	1.8	7.7
2	3.5	1.4	2.4	3.7	3.3	3.2	1.9	5.3	3.7	3.1	3.1	7.2
3	3.2	2.2	3.1	3.9	3.4	3.7	3.5	5.5	3.7	3.7	1.3	5.4
4	3.4	2.2	4.3	4.0	1.8	3.7	2.1	5.8	3.1	3.4	3.1	7.1
5	2.7	1.8	4.3	3.5	2.3	3.9	4.2	4.3	3.7	2.9	2.3	4.7
6	2.6	2.4	4.2	3.9	3.5	2.2	4.0	4.5	3.5	3.2	2.4	4.0
7	5.6	3.9	4.0	3.9	4.0	2.7	5.3	6.1	3.1	2.1	2.4	6.6
8	4.0	3.2	4.2	3.7	3.5	2.7	4.0	5.0	4.5	2.6	1.8	3.1
9	3.5	1.9	2.7	3.9	2.7	2.8	3.7	6.9	4.5	2.6	2.9	2.7
10	3.5	4.2	5.6	4.0	5.0	2.7	3.40	4.2	4.3	3.9	1.8	1.6
11	2.3	3.5	7.9	4.2	5.3	2.7	4.2	3.7	4.3	2.9	2.1	2.7
12	1.9	3.4	4.7	4.0	5.8	3.7	3.7	3.4	4.0	2.3	1.8	2.9
13	3.4	3.7	3.4	3.7	5.0	4.8	1.8	3.9	4.2	2.9	1.8	2.4
14	2.9	0.5	2.6	3.2	2.4	2.7	2.7	4.8	3.7	2.1	2.1	2.4
15	2.7	2.4	2.1	4.0	2.9	1.3	2.3	4.0	3.2	2.3	1.0	1.9
16	2.3	2.6	3.2	3.5	3.9	0.6	2.9	4.7	2.9	2.3	1.3	2.3
17	2.7	3.9	3.7	4.0	3.5	1.1	3.7	5.6	3.4	3.2	1.0	3.5
18	3.4	3.2	3.7	4.3	4.2	2.4	4.8	6.1	3.4	2.9	1.0	5.5
19	3.2	2.6	3.1	4.8	4.0	1.6	4.7	6.3	2.9	2.3	2.1	2.4
20	2.7	2.9	3.1	3.1	5.3	2.1	6.0	5.8	4.2	9.4	2.4	6.0
21	2.1	2.6	2.7	3.9	4.5	1.8	2.4	7.2	3.2	0.6	2.6	3.5
22	5.3	3.4	3.4	3.4	4.3	3.1	3.4	5.6	1.1	1.3	2.3	6.1
23	7.9	3.5	2.9	4.3	3.9	2.6	4.3	4.0	2.6	1.8	1.8	7.7
24	5.1	4.3	3.5	3.1	3.7	4.7	3.9	5.5	2.1	2.6	2.4	6.0
25	3.4	4.0	3.4	2.9	4.7	1.4	3.9	2.7	3.7	1.4	2.9	4.3
26	5.0	5.8	3.4	3.5	3.1	3.9	2.9	3.7	2.1	1.3	3.9	4.7
27	5.0	5.8	3.1	1.9	4.2	2.3	3.9	5.3	2.3	2.1	3.4	5.1
28	5.3	6.1	3.5	2.6	3.7	1.1	3.5	4.5	2.3	1.9	3.8	6.0
29	6.4	4.0	3.4	2.7	2.4	3.5	3.7	3.7	2.1	1.1	3.5	6.1
30	4.0	4.0	4.5	2.4	5.6	2.4	4.2	3.4	3.1	2.6	8.5	6.3
31	2.4	5.0	3.9		2.7		5.5	4.2		1.4		3.7

Appendix I

TABLE NO.1.7 DAILY MEAN WIND VELOCITY DATA FROM 1st JANUARY 1987 to
DECEMBER 1987 AT PATTAMBI (KMPH)

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	0.7	3.5	3.9	5.1	4.5	3.9	2.4	3.2	4.2	2.9	1.8	2.4
2	6.	3.4	3.4	4.7	4.2	3.5	2.4	3.1	4.2	1.4	1.9	1.8
3	6.3	3.5	4.7	3.4	4.8	6.4	5.3	2.6		2.3	2.1	
4	4.8	3.7	5.	5.8	5.6	2.1	2.1	2.7		3.3	1.9	
5	6.	4.5	4.7	3.9	5.	3.9	2.9	3.4		2.6	1.3	
6	3.5	3.9	5.6	4.	4.3	1.9	2.7	2.4		3.1	2.8	
7	5.6	--	6.1	4.2	5.3	2.4	3.2	3.1		1.9	2.4	
8	3.7	5.3	4.2	4.8	4.	4.7	5.	1.4		1.4	2.1	
9	2.4	4.8	3.4	5.1	3.5	3.9	4.	2.1		2.9	1.6	
10	2.6	4.7	3.7	4.2	5.6	2.3	3.2	2.9		1.3	1.3	
11	1.1	5.1	3.4	4.3	3.5	2.1	3.5	3.9		1.9	1.4	
12	1.8	8.	5.	5.1	3.9	2.9	3.7	4.2		2.3	1.3	
13	2.7	6.	3.9	5.3	5.	1.9	2.7	2.7		1.3	1.3	
14	4.2	5.	3.9	5.	2.3	1.3	3.2	4.		1.9	1.8	
15	6.	4.5	3.4	4.3	3.5	2.9	3.2	4.		1.9	1.8	
16	5.5	4.	3.9	4.3	3.5	2.9	3.5	3.7		1.9	1.4	
17	4.	3.5	4.7	5.	3.5	3.2	4.	4.		3.7	1.8	
18	9.2	3.2	5.3	4.2	3.7	2.6	4.2	4.		2.3	1.3	
19	7.9	3.7	4.	3.2	3.	4.	3.5	3.4		2.7	2.3	
20	10.9	4.7	4.7	4.3	3.5	3.4	3.1	3.5		2.1	2.6	
21	10.	3.7	4.6	4.2	3.5	4.3	3.5	5.5		1.9	2.1	
22	6.6	4.5	3.5	3.9	3.1	4.3	3.9	3.9		2.6	1.1	
23	6.4	4.2	3.5	4.7	3.7	5.	3.9	3.5		2.9	2.6	
24	5.6	4.	5.6	4.	3.2	3.5	4.7	3.4		4.	2.7	
25	7.4	3.9	5.6	3.4	3.9	2.9	5.1	2.6		2.4	3.4	
26	5.8	3.5	4.	4.3	2.9	2.7	5.6	2.1		1.3	1.8	
27	5.3	3.5	3.5	4.	4.2	3.7	3.9	3.9		2.6	2.4	
28	2.7	3.5	3.9	3.7	3.7	1.9	3.7	4.2		1.3	1.9	
29	4.2		3.4	5.8	4.5	2.7	3.7	3.4		2.1	1.8	
30	3.5		2.9	3.5	3.4	3.7	4.	4.3		2.4	3.4	
31	3.7		4.		4.		3.4	3.9		6		

Data Not Available

Data Not Available

Appendix I

TABLE NO.1.8 DAILY MEAN WIND VELOCITY DATA FROM 1st AUGUST 1986 to
 DECEMBER 1986 AT TAVANUR (KMPH)

DATE	AUG	SEP	OCT	NOV	DEC
1	3.9	5.8	3.7	4.5	5.7
2	4.0	4.4	6.4	4.2	8.3
3	4.2	6.1	6.7	3.0	6.7
4	8.8	4.4	2.8	2.8	8.3
5	7.0	5.0	5.6	4.3	7.5
6	6.7	5.2	1.6	4.8	5.7
7	8.7	3.8	3.0	5.5	6.9
8	5.1	5.5	4.0	5.5	4.3
9	7.9	6.8	3.3	6.1	3.0
10	6.4	6.5	4.0	3.5	2.3
11	2.7	6.3	4.8	3.3	3.7
12	2.7	5.5	4.5	3.3	4.7
13	2.3	7.6	5.0	3.4	3.6
14	4.0	1.9	3.1	3.1	3.8
15	3.9	4.3	3.0	2.9	3.2
16	5.4	4.7	4.1	3.8	4.0
17	4.0	4.6	4.1	2.5	4.5
18	8.8	3.9	4.7	2.9	5.4
19	8.8	4.0	2.7	3.1	3.4
20	10.6	5.7	5.0	2.0	4.7
21	10.8	4.6	2.2	3.3	4.4
22	7.1	3.9	2.6	1.5	3.9
23	15.8	3.5	3.7	4.9	7.6
24	5.6	3.3	4.3	4.7	2.3
25	4.8	4.2	2.8	4.4	1.9
26	3.2	1.8	4.1	4.6	11.4
27	4.2	4.0	3.3	4.1	5.1
28	7.1	7.3	4.1	6.1	5.2
29	4.2	4.0	3.0	4.3	5.0
30	2.5	3.4	3.4	9.4	6.3
31	4.5		3.6		6.0

Appendix I

TABLE NO.1.8 DAILY MEAN WIND VELOCITY DATA FROM 1st JANUARY 1987 to
DECEMBER 1987 AT TAVANUR (KMPH)

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	7.4	4.1	5.6	5.6	5.0	4.8	3.6	3.4	3.8	4.7	3.5	2.9
2	6.6	4.1	4.7	6.1	5.0	5.5	3.8	3.4	3.9	3.1	3.3	2.8
3	10.1	4.1	5.8	4.2	5.7	6.0	5.2	3.2	3.7	4.6	4.2	2.5
4	4.3	4.1	6.0	5.8	9.0	4.7	2.1	2.9	3.7	3.4	3.7	3.7
5	4.0	4.7	5.0	4.0	7.9	5.6	3.5	3.6	3.7	4.6	3.3	3.7
6	6.1	6.5	3.3	4.7	5.6	3.8	4.0	3.1	3.9	3.6	3.7	4.3
7	4.7	7.5	7.7	4.2	7.6	2.1	5.7	3.1	3.7	3.4	3.5	2.9
8	4.9	5.2	7.5	4.9	4.5	5.6	9.4	2.2	5.1	4.3	2.2	8.5
9	4.9	8.4	3.0	6.1	10.3	5.0	3.6	2.6	5.2	4.2	2.2	5.7
10	1.9	6.1	4.4	4.7	5.6	3.0	4.2	6.8	5.1	4.2	9.4	--
11	1.8	6.0	4.2	6.2	5.2	3.3	4.8	6.3	7.2	4.2	7.4	18.7
12	6.5	6.2	4.2	4.7	5.8	3.6	4.8	4.0	7.2	4.2	2.6	6.57
13	4.8	5.5	7.6	3.7	7.5	3.1	4.8	4.1	7.2	4.2	2.9	--
14	4.7	6.7	5.2	2.9	3.1	3.1	3.8	4.5	6.5	2.4	2.6	7.9
15	4.7	4.8	4.9	5.2	5.4	2.5	3.1	4.5	5.4	1.2	3.8	3.8
16	5.0	5.4	4.7	5.2	4.4	4.7	4.2	4.5	5.2	5.0	2.5	3.6
17	5.5	4.2	4.6	9.2	5.1	3.7	4.3	6.4	5.4	5.0	--	6.2
18	3.9	4.5	7.7	9.1	3.7	4.4	5.8	6.3	5.4	4.8	5.54	7.6
19	9.9	5.1	6.0	9.5	4.7	5.9	4.6	3.0	5.4	3.9	3.4	2.8
20	13.4	5.0	6.8	4.8	4.6	5.0	5.0	7.7	5.4	3.9	4.2	3.1
21	11.6	4.9	6.2	5.8	3.9	6.9	4.9	4.1	5.4	5.1	2.8	1.4
22	6.0	5.1	5.2	4.9	3.8	7.0	5.5	4.4	5.4	4.6	3.7	5.85
23	6.7	4.9	5.0	5.6	5.4	8.5	5.2	8.1	5.4	4.5	4.3	3.7
24	6.6	5.5	5.0	4.5	3.3	4.8	7.7	11.9	5.4	5.5	3.9	3.94
25	6.8	5.5	8.3	4.5	4.7	5.5	7.2	3.7	1.2	3.8	4.03	7.95
26	6.4	1.7	5.4	4.6	2.3	3.3	7.1	3.7	2.7	4.3	2.2	11.7
27	6.4	8.5	5.1	6.6	4.8	4.7	7.1	3.7	3.5	4.3	3.1	10.4
28	5.2	5.7	3.3	5.1	4.8	3.1	7.1	3.7	5.2	3.1	3.2	12.6
29	4.1		5.0	3.7	3.1	5.6	3.7	4.3	3.2	--	--	11.4
30	4.8		5.4	5.1	3.8	5.2	6.3	3.7	4.3	4.1	7.7	17.4
31	5.1		4.1		4.4		4.3	3.7		2.0		8.3

Appendix I

TABLE NO.1.9 DAILY MEAN WIND VELOCITY DATA FROM 1st JANUARY 1986 to
 DECEMBER 1986 AT VELLANIKKARA (KMPH)

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	13.3	4.7	7.4	5.8	5.4	7.3	3.5	7.4	5.3	5.04	5.1	21.7
2	14.92	5.7	9.5	6.2	4.7	5.9	5.5	6.7	5.04	4.5	1.6	19.8
3	12.5	8.5	10.4	6.2	5.3	5.13	4.3	7.3	5.2	4.8	3.5	19.5
4	10.7	10.8	12.2	5.5	6.1	5.6	4.8	5.8	5.8	3.9	3.5	17.6
5	11.3	11.2	9.8	5.7	5.1	7.0	5.3	4.8	6.2	4.1	4.3	15.1
6	10.4	9.4	10.7	6.2	7.8	5.2	6.4	9.3	5.1	3.5	4.0	14.2
7	16.7	10.9	10.4	5.2	4.7	5.2	6.4	5.8	6.5	4.3	4.5	9.5
8	11.5	7.8	7.8	6.3	6.3	6.4	5.9	8.4	5.9	3.8	7.9	8.2
9	10.2	8.2	13.8	9.2	6.3	6.4	5.9	7.1	6.9	3.5	4.0	6.7
10	12.8	9.2	22.0	5.9	7.3	4.8	5.5	4.5	5.2	4.1	4.8	12.8
11	10.6	7.9	14.2	5.9	7.6	7.1	7.3	6.1	4.6	3.9	3.3	6.9
12	15.7	6.7	6.9	5.8	8.0	8.6	5.4	5.9	4.8	4.8	3.3	8.5
13	12.9	4.8	6.5	5.1	7.3	5.5	6.2	6.3	4.8	3.5	2.6	7.6
14	7.9	5.2	5.5	8.8	4.7	9.4	5.6	5.9	4.7	3.0	3.9	8.1
15	4.9	5.3	5.9	6.6	7.3	4.3	5.3	6.1	4.8	3.3	8.8	11.1
16	6.1	5.9	4.9	6.3	6.5	3.8	6.4	7.2	4.4	3.8	4.1	14.1
17	6.4	5.9	5.9	5.6	6.3	4.9	6.8	9.4	5.0	3.8	3.9	15.0
18	6.2	5.3	4.6	6.6	5.3	4.5	7.3	7.7	4.8	4.4	4.5	10.4
19	6.1	5.5	5.5	5.8	6.3	4.4	7.3	7.8	7.1	2.7	8.6	1.9
20	8.3	7.0	4.4	5.7	6.9	6.3	4.6	7.2	4.9	3.3	9.4	15.0
21	19.8	10.3	5.1	6.3	6.9	7.8	5.5	8.4	3.5	4.6	9.0	17.1
22	21.1	10.8	4.6	6.5	6.2	6.8	6.9	7.9	3.6	5.0	8.3	17.2
23	16.1	9.2	5.6	5.3	5.4	8.0	5.3	7.5	4.7	3.8	6.4	16.2
24	13.2	9.4	5.5	5.8	5.8	3.5	5.9	5.1	5.4	2.8	14.3	14.7
25	18.1	15.1	5.1	6.4	6.3	4.9	4.7	4.4	3.9	3.0	11.4	12.0
26	15.1	14.5	5.3	5.0	5.4	4.8	4.9	5.3	3.8	2.9	10.9	13.0
27	18.2	16.9	7.0	6.9	5.8	6.2	3.9	6.1	4.6	3.8	14.8	18.2
28	15.7	10.2	6.2	4.5	4.8	3.7	4.3	5.5	3.9	3.3	17.9	19.7
29	11.54	9.5	6.5	5.8	2.8	4.2	5.1	5.0	3.7	3.8	19.9	14.7
30	6.8	12.7	6.7	6.8	6.6	3.8	6.7	6.8	4.7	3.4	14.6	11.0
31	5.1		6.5		4.3		6.8	4.6		3.9		10.2

Appendix I

TABLE NO.1.9 DAILY MEAN WIND VELOCITY DATA FROM 1st JANUARY 1987 to
DECEMBER 1987 AT VELLANIKKARA (KMPH)

DATE	JAN	FEB	MAR	APR	MAY	JUN	JULY	AUG	SEP	OCT	NOV	DEC
1	14.8	6.9	6.7	6.9	5.7	8.1	4.2	4.3	3.9	4.2	3.1	4.4
2	14.7	6.0	7.0	3.8	5.3	7.3	4.8	4.3	3.6	3.4	3.5	3.5
3	15.9	8.9	10.1	7.6	6.7	5.6	4.3	3.5	3.3	4.6	3.6	3.3
4	13.5	11.4	9.6	4.9	6.3	6.2	2.6	3.4	3.3	4.0	2.9	3.8
5	15.8	16.5	12.5	5.0	6.0	3.1	4.0	3.4	3.8	4.7	3.9	7.5
6	17.5	18.1	13.8	4.9	6.3	3.5	3.4	3.7	3.3	4.3	4.3	4.3
7	15.7	13.4	8.2	5.4	6.0	6.2	4.7	2.5	3.4	3.2	3.4	12.7
8	6.8	10.9	4.8	5.7	6.1	5.3	3.1	2.4	3.9	4.7	3.4	7.1
9	5.0	9.7	5.1	4.9	3.1	3.1	3.2	3.7	4.1	3.5	3.4	10.2
10	3.9	12.9	4.3	5.0	8.9	3.0	4.8	4.4	4.3	3.5	3.7	7.4
11	6.5	19.3	6.3	5.6	5.1	3.7	4.2	3.3	4.6	3.7	3.9	6.6
12	9.2	18.2	5.5	6.1	7.2	3.1	3.1	2.6	4.6	3.1	3.1	5.7
13	14.4	11.8	5.5	6.1	4.8	2.5	3.9	2.8	4.2	3.4	2.5	3.5
14	18.1	9.3	5.5	5.1	6.1	3.6	4.7	3.5	5.0	3.4	4.6	5.9
15	16.6	6.8	6.7	5.1	4.9	3.6	5.3	5.6	2.9	3.9	3.8	10.1
16	14.2	4.9	5.7	7.3	6.3	7.8	4.8	4.3	2.9	5.3	2.9	7.1
17	13.4	4.5	6.1	7.0	5.4	3.6	4.8	4.3	2.9	5.3	2.9	7.1
18	21.3	6.5	5.8	4.2	5.3	5.5	3.4	4.2	2.9	4.9	2.8	4.5
19	25.0	9.9	6.0	5.4	4.9	4.1	4.1	3.9	5.2	4.9	2.9	3.5
20	24.9	9.4	5.4	5.6	5.5	5.6	3.9	6.0	5.2	4.9	3.4	6.6
21	17.3	10.0	5.3	4.9	5.2	5.7	4.6	4.1	4.9	6.5	5.8	8.9
22	16.8	6.8	4.7	5.9	5.6	7.7	4.6	4.1	4.9	6.5	5.8	8.9
23	14.5	7.2	9.4	6.0	4.5	5.0	5.7	5.1	5.4	6.7	5.9	4.9
24	13.6	6.5	11.7	5.2	5.6	5.7	4.4	4.2	3.4	5.9	6.0	10.4
25	17.2	5.6	9.1	5.8	3.6	8.2	5.2	2.9	3.9	4.4	3.9	18.2
26	12.2	4.8	7.1	5.2	6.1	6.8	4.1	4.5	3.7	4.1	4.9	19.9
27	13.4	4.9	4.9	4.7	5.5	3.8	4.8	4.9	3.9	3.6	6.3	18.9
28	9.8	11.6	8.5	6.7	5.9	3.7	4.5	2.1	3.4	3.8	6.4	16.2
29	11.9		5.2	4.7	5.0	4.7	5.1	3.9	3.8	3.6	8.4	15.3
30	13.5		7.8	5.9	5.4	3.7	4.0	3.8	2.6	1.8	8.4	15.2
31	8.8		8.6		5.8		4.7	3.8		2.8		16.4

APPENDIX - II (a)

Proforma for collecting wind speed from interested farmers, farmers club members and others:

Dear Sir,

We are happy to learn that you are highly interested in the agricultural development of the State. You may be aware that we are blessed with many renewable energy sources which can be used for irrigation etc. in the crop production activities. These sources are often ignored thus not tapped; wind is one of these. Being in the sloping side of the Western Ghats many places in Kerala have good wind speed, but a clear data are not available. You may kindly help us to exploit the wind energy potential by returning the proformas enclosed in the sequence indicated.

Expecting your kind co-operation,

Yours faithfully,

Principal Investigator,
Wind Turbine Scheme.

To

Sri.

A/B/C Proforma relating to wind data

- 1. Name :
- 2. Address :
- 3. Do you feel that your area experiences good wind : Yes / No.
- 4. If yes, please fill the following:

<u>Visible Wind Effects</u>	<u>Period in months of the year</u>
-----------------------------	-------------------------------------

From

- i. Calm: Smoke rises vertically. From . . . To . . .
- ii. Direction of wind shown by smoke drift, but not by wind vane. From . . . To . . .
- iii. Wind felt on face, leaves rustle, ordinary vane moved by wind. From . . . To . . .
- iv. Leaves and twigs in constant motion, wind extends light flag. From . . . To . . .
- v. Raises dust, loose paper, small branches are moved. From . . . To . . .
- vi. Small trees with leaves begin to sway, crested welvets from/on inland waters
~~begin to sway, crested welvets from~~
- vii. Large branches in motion; wistling heard in telegraph wires, umbrellas used with difficulty. From . . . To . . .
- viii. Whole trees in motion; in convenience felt in walking against wind. From . . . To . . .

5. Are you interested to instal a wind pump : Yes / No.

6. If yes, at what cost : Rs.

7. Details of wind pump you need:

- a) Source of water : Tube well/open well/river.
- b) Depth of water : Meters.
- c) Height to be pumped : meters.
- d) Distance from source to point of delivery :
- e) Approx. quantity of water required: lit/day.
- f) Others if any :

8. Your commends if any:

Date : 3 Signature

Note: Please despatch Form A immediately, form B after one year and form C after 3 years.

APPENDIX - II (b)

Quantitative Description of Wind Speed:

Windspeed			Visible Wind Effects
(mph)	(kmph)	m/s	
0-1	0.62	0-.44	Calm: smoke rises vertically.
2-3	.62-5	.44-1.3	Direction of wind shown by smoke drift but not by wind vanes.
4-7	6-11	1.6-3.1	Wind felt on face; leaves rustle; ordinary vane moved by wind.
8-12	12-19	3.9-5.4	Leaves and twigs in constant motion; wind extends light flag.
13-18	20-28	5.7-8.0	Raises dust, loose paper, small branches are moved.
19-24	29-38	8.4-10.6	Small trees in leaf begin to sway, crested wavelets from/on inland waters.
25-31	39-49	12.2-13.6	Large branches in motion; whistling heard in telegraph wires, umbrellas used with difficulty.
32-38	50-61	15.3-16.7	Whole trees in motion; inconvenience felt in walking against wind.

			smoke drift but not by wind vanes.
		1.6-3.1	Wind felt on face, leaves rustle; ordinary vane moved by wind.
		3.9-5.4	Leaves and twigs in constant motion; wind extends light flag.
		5.7-8.0	Raises dust, loose paper, small branches are moved.
		8.4-10.6	Small trees in leaf begin to sway, crested wavelets from/on inland waters.
		12.2-13.6	Large branches in motion; whistling heard in telegraph wires, umbrellas

Appendix (III) (a)

ELECTRONIC INSTRUMENTS COMPANY

Stockist & Suppliers of:

Scientific, Electrical, Electronic & Industrial
Instruments

44, Cawasji Patel Street, FORT, BOMBAY-400 001.

Date: 11.12.87.

The Administrative Officer,
Kerala Agricultural University,
Kalappaji College of Agrl.
Engineering & Technology,
TAVANUR.

Dear Sir,

Sub: Supply of Anemometer and Tachometer.

We acknowledge with thanks receipt of your order dated 5.12.87 for one number of Anemometer and Digital Tachometer.

We request you to please let us know the name and address of your bankers through whom we may forward despatch documents.

Please also let us know if we can send agreement for of Maharashtra State Government Stamp Paper.

Thanking you,

Yours faithfully,
For Electronic Instruments Company.

Sd/-sd/-
Manager.

//True Copy//

Note: Copy of the last letter received from the firm dated 11.12.87.

Appendix (III) (b)

"LYNX"

LAWRENCE & MAYO (INDIA) PRIVATE LIMITED
SCIENTIFIC & ENGINEERING INSTRUMENT DIVISION
68, ANNA SALAI MADRAS-600 002.

Our Ref. HOM:6327/M-3232/OP (EH)

Date: 28.1.88

The Dean Incharge
Kerala Agricultural University
Kelappaji College of Agricultural
Engineering & Technology,
Tavanur - 679 573.

Dear Sir,

Ref: Yr.order No:C1-6403/84 dt.5.12.87 - LM-14-208
Wind Equipment.

...

Further to our letter of 10.12.87 we are pleased to inform you that the above equipment had been despatched from our factory and is under clearance at Madras. We shall arrange to despatch the same to you in about a weeks' time.

We also confirm that we shall prepare the Agreement and send you the Security Deposit with the Goods Receipt. This is for your kind information.

Thanking you and at your service, we remain,

Yours faithfully,
For LAWRENCE & MAYO (I) PVT.LTD.,

Sd/-
BRANCH MANAGER

//True Copy//

Note: Copy of the last letter received from the firm dated 28.1.88.