



SECOND ANNUAL REPORT

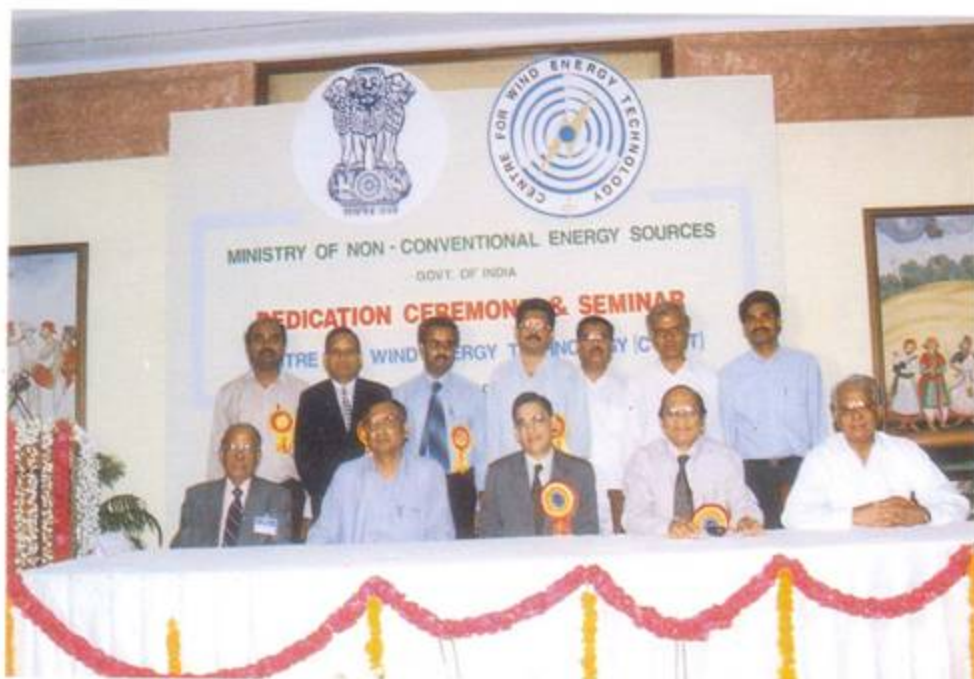
1999 - 2000

Centre for Wind Energy Technology

R-8, North Main Road,
Anna Nagar West Extension,
Chennai - 600 101.



Shri M. Kannappan, Hon' ble Union Minister of State
(Independent Charge) for Non-Conventional
Energy Sources delivering Inaugural Address at
Dedication Ceremony of C-WET at Chennai on 06.12.1999.



Team of Officials of C-WET with distinguished
invitees at Dedication of C-WET.

CENTRE FOR WIND ENERGY TECHNOLOGY

(An Autonomous Institution of Government of India)

R-8, North Main Road, Anna Nagar West Extension, Chennai - 600 101



SECOND ANNUAL REPORT 1999 - 2000

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GENERAL INFORMATION

Chairman of the Governing Council and President of the Society

Shri N.N. Mookerjee, from 15-05-1999 to 10-09-2000

Shri J.N.L. Srivastava, from 11-09-2000 to 28-11-2000

Secretary, Ministry of Non-Conventional Energy Sources, Govt. of India, New Delhi

Executive Director and Member - Secretary of the Governing Council

Shri Ajit K. Gupta,

Adviser & Head, Power Group,

Ministry of Non-Conventional Energy Source, Govt. of India, New Delhi.

Governing Council Members

Shri. C.S. Rao, AS & FA, Ministry of Non-Conventional Energy Sources, New Delhi

Shri Lal Rawna Sailo, Secretary, Energy, Government of Tamil Nadu, Chennai

Shri T.L. Sankar, Principal, Administrative Staff College of India, Hyderabad

Dr. V. Bakthavatsalam, Managing Director, IREDA, New Delhi

Dr. Vasant Gawarikar, Ex-Secretary, Department of Science and Technology, New Delhi

Shri P.S. Das, Director General, Bureau of Indian Standards, New Delhi

Dr. T.S. Prahlad, Director, National Aerospace Laboratory, Bangalore

Shri R.N. Srivastava, Chairman, Central Electricity Authority, New Delhi

Shri Anup Singh, Ex-vice Chancellor, Punjab Technical University

Shri Sarvesh Kumar, Chairman, IWTMA, Chennai

Auditors

M/s K. Gnananandulu, Co.,

Chartered Accountants

Chennai - 600 006.

Bankers

Canara Bank

Anna Nagar West Extension

Chennai - 600 101.

Registered Office :

R-8, North Main Road,

Anna Nagar West Extension

Chennai - 600 101.

ANNUAL REPORT

Formation

- Formed as a Society in the name of "Centre for Wind Energy Technology" (C-WET) on 18th February 1998.
- Registered as a Society under Section 10 of the Tamilnadu Societies Registration Act, 1975 on 21st March 1998.
- C-WET is an Autonomous Institution of Ministry of Non-Conventional Energy Sources, Government of India.
- Dedicated to the Nation by Hon'ble Shri M. Kannappan, Union Minister of State (Independent Charge) for Non-Conventional Energy Sources, on 06.12.1999.
- Recognized as a Scientific and Industrial Research Organisation by Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India, New Delhi, for a period from 08.03.2000 to 31.03.2003.

Objectives

- To serve as the technical focal point for wind power development in India, for promoting and accelerating the pace of utilization of wind energy and support the growing wind power sector in the country.
- To develop and strengthen the facilities and capabilities, evolve strategies, promote, conduct, co-ordinate and support research and development programmes to achieve and maintain reliable and cost effective technology in wind power systems.
- To analyse and assess wind resources based on the data available from various sources and prepare wind energy density maps / wind atlas / reference wind data.
- To prepare and establish standards including guidelines, procedures, protocols for design, testing and certification of wind power systems, sub-systems and components, taking into consideration the Indian conditions and in line with internationally recommended practices and standards and update the same based on the feedback.
- To establish world class facilities, conduct and / or coordinating testing of complete wind power systems, sub-systems and components according to internationally accepted test procedures and criteria, whereby the total performance such as the power performance, power quality, noise level, dynamics, operation and safety systems are tested according to agreed protocols.
- To accord type approval/type certification which verifies conformity with safety related requirements as per standards, guidelines and other rules for design, operation and maintenance, as well as adequate documentation of quality issues such as power performance, noise, life expectancy and reliability.

- To monitor the field performance of wind power systems, sub-systems and components, effectively utilise this feedback for fulfillment of the above objectives and review of certification, establish and update the data bank on a continuous basis and serve as information centre for selective dissemination.
- To undertake Human Resource Development programmes for the personnel working in the wind energy sector.
- To promote commercial exploitation of know-how, know-why results and offer various consultancy services to the customers.
- To promote the development and commercialisation of any other wind energy systems including stand-alone systems.

Management

- The Secretary, Ministry of Non-Conventional Energy Sources, Government of India shall be ex-officio president of the Society, who shall also be ex-officio Chairman of Governing Council.
- The members of the Society are appointed by Government of India.
- The affairs of the Society are managed, administered, directed and controlled, in accordance with the rules and regulations of the Society and orders/directives received from Government of India, by the Governing Council.

The Governing Council consists of 12 members:

- ♦ Secretary, Ministry of Non-Conventional Energy Sources – Chairman.
- ♦ Head, Power Group, Ministry of Non-Conventional Energy Sources – Member Secretary.
- ♦ Financial Adviser, Ministry of Non-Conventional Energy Sources
- ♦ Officials of the Central / State Governments and Undertakings to be nominated by the Government of India
- ♦ Experts / Persons of Eminence to be nominated by the Government of India.

Governing Council Members as on 31st March 2000

- | | | | |
|----|--|---|----------|
| 1. | Shri N.N. Mookerjee,
Secretary,
Ministry of Non-Conventional Energy Sources, Government of India,
New Delhi – 110 003 | - | Chairman |
| 2. | Shri Lal Rawna Sailo,
Secretary,
Energy Department,
Government of Tamilnadu,
Chennai – 600 009. | - | Member |
| 3. | Dr. T.S.Prahlad,
Director,
National Aerospace Laboratory,
Bangalore – 560 017. | - | Member |

- | | | | |
|-----|---|---|------------------|
| 4. | Shri P.S.Das,
Director General,
Bureau of Indian Standards,
New Delhi – 110 002. | - | Member |
| 5. | Shri R.N.Srivastava,
Chairman,
Central Electricity Authority,
New Delhi – 110 066. | - | Member |
| 6. | Shri Anup Singh,
Ex-Vice Chancellor,
Punjab Technical University,
Jalandhar – 144 011. | - | Member |
| 7. | Shri T.L.Sankar,
Principal,
Administrative Staff College of India,
Hyderabad – 500 082. | - | Member |
| 8. | Dr. Vasant Gowariker,
1126-A, Sriram Apartments,
Shivaji Nagar,
Pune – 411 016. | - | Member |
| 9. | Dr. V.Bakthavatsalam,
Managing Director,
Indian Renewable Energy Development Agency, Lodhi Road,
New Delhi - 110 003. | - | Member |
| 10. | Shri C.S. Rao,
Financial Adviser,
Ministry of Non-Conventional Energy Sources, Government of India,
New Delhi - 110 003. | | |
| 11. | Shri R.V.S. Marimuthu
Chairman,
Indian Wind Turbine Manufacturers Association,
19, Marshalls Road, Egmore,
Chennai - 600 008 | - | Member |
| 12. | Shri Ajit K. Gupta,
Adviser & Head, Power Group,
Ministry of Non-Conventional Energy Sources,
Government of India,
New Delhi – 110 003. | - | Member-Secretary |

PERFORMANCE DURING THE YEAR 1999-2000

Establishment:

- A request has been made to Government of Tamilnadu to allot five acres of land near Chennai. The Government of Tamilnadu have agreed in-principle to allot five acres of land at Pallikaranai Village, Velachery – Tambaram High Road, Tambaram Taluk, Kanchipuram District. The cost of the land will be about Rs.42.10 lakhs. Orders from the Government of Tamilnadu are awaited.
- Land measuring about 4.81 acres required for establishment of Wind Turbine Test Station is purchased and registered in the name of Centre for Wind Energy Technology during March, 2000.
- 33 posts of different categories have been created. Twelve employees have been recruited through direct recruitment. Seven employees have been appointed on deputation / contract basis. The services of three employees have been regularized. Supporting staff are being engaged through manpower agencies / daily rated basis. Action is being taken to recruit against the balance posts.
- Office of the Centre for Wind Energy Technology in Anna Nagar at Chennai, has been fully furnished. Equipment required for the office has been installed.
- Staff Rules and Purchase Rules have been approved and are being implemented.

Research & Development

- The literature survey of the Project on "Optimal blade angle for energy maximization" has been completed. Theoretical study on the aerodynamics of the blade element model has been initiated. Experimentation on field will be taken up during 2000-2001.
- The literature survey and data collection for the project on "failure investigation of wind farms. - grid related problems" has been initiated. The analysis of the data, followed by recommendations will be carried out during 2000 - 2001.
- A proposal on "Study of Gear Box design and failure on field" was prepared in consultation with Mechanical Engineering Department of Osmania University, Hyderabad.
- Participated in the review of the ongoing project on "Development of intelligent controller for wind turbines" and "Study on the quality of the Indian grid in relation to the wind farms" carried out by ER&DC, Trivandrum.
- The draft report submitted by Society for Technology Management (STM) on the on-going sponsored project of MNES on "Study on Spare Parts for Wind Electric Generators and development of an indigenous manufacturing base" was reviewed on 21.02.2000 in a meeting with industry, experts/consultants and MNES.
- Establishment of R&D Laboratory is in progress, initiated with installation of Oscilloscope and Multi-meters.

Wind Resource Assessment

- Selection of appropriate techniques / methodology for preparation of Wind Atlas for India in consultation with experts and institutions is in progress.
- Wind Energy Survey Project (WESP) on collection and processing of data of Wind Energy Resources for about 90 Wind Monitoring Stations has been completed. A Report will be submitted to the Ministry during September, 2000.
- Preparation of Master Plan (80 wind monitoring stations), estimation of power potential, calculation and preparation of wind power density map at 30, 40 and 50 meters level by using WAsP (Micro Survey) for 45 Wind Monitoring Stations was completed and approved by the Ministry. Preparation of Master Plan for the balance 35 stations is in progress. A Report will be submitted to the Ministry during September, 2000.
- A Special Search Programme for windy sites of North-Eastern States is in progress. A Report will be submitted to the Ministry during September, 2000.
- A project for Wind Resource Assessment Study in Karnataka State for NTPC taken up at a cost of Rs. 3.30 lakhs is in progress. The project will be completed by December, 2000.
- A project on 100% Physical Verification of Wind Electric Generating Systems under commercial projects in Tamil Nadu has been completed in the month of October, 1999. A detailed report was submitted to the Ministry of Non-Conventional Energy Sources during October, 1999.

Standards and Certification

- International Standards related to Wind Turbines Certification and Safety Systems and Indian Standards related to components of Wind Turbines have been procured.
- Indian Standard on Safety of Wind Turbines in line with IEC is under preparation. A Meeting has been convened to obtain the views of MNES, BIS, Manufacturers and Association on 07.12.1999.
- International Certification Systems have been reviewed.
- Preparation of Type Approval-Provisional Scheme - 2000 (TAPS-2000) for India in line with IEC and the Danish type approval Schemes with the technical support of RISO National Laboratory, Denmark has been completed. The same has been approved by the Ministry of Non-Conventional Energy Sources.

Testing

➤ Field Tests:

Two field tests were conducted during the period from July 1999 to September, 1999, one 500 kW of Vestas RRB make at Pazhavur Village, Muppandal in Tirunelveli district and one 250 kW of BHEL make at TPL Windfarm, Coimbatore District. The data recorded at the sites both have been analysed and Report prepared.

➤ **Wind Turbine Test Station at Kayathar:**

Land measuring about 4.81 acres required for establishment of Wind Turbine Test Station is purchased. Further, a proposal has been submitted to the District Collector, Tuticorin District to alienate land measuring about 8.64 acres of land belonging to Tamilnadu Energy Development Agency, Chennai.

- Necessary infrastructure required for Wind Turbine Test Station has been established for conducting two tests.
- Agreements for conducting Provisional Type Testing and Certification for machine V-39 type 500 kW Wind Turbine with 47 Metre Rotor Diameter with M/s Vestas RRB India Limited, Chennai and machine N-3335 type 350 kW Wind Turbine with 33.4 Metre Rotor Diameter with M/s Suzlon Energy Ltd., Ahamadabad, have been executed with a Consultancy fee of Rs. 9.00 lakhs each. The testing will be conducted for a period of six months from April, 2000.

Information, Training and Commercial Services

Development Programme / Training

- Introduction and Overview of Wind Turbine Technology by RISO National Laboratory, Denmark (RISO) at Chennai for the period from 14.06.1999 to 18.06.1999
- Training in Erection and Installation of field measurement equipment and field testing by RISO, Denmark, at Denmark for the period from 21.06.1999 to 29.06.1999
- On the job training on Field Testing Process at Field Test Site, Muppandal and Coimbatore for the period from 08.07.1999 to 20.07.1999.
- Training Programme on Quality Management System by DNV, Chennai, at Chennai for the period from 12.8.1999 to 14.08.1999.
- Institutional Development Programme by RISO at Chennai for the period from 16.08.1999 to 27.08.1999
- European Planning and Study Tour to Denmark, the Netherlands and Germany for the period from 24.10.1999 to 05.11.1999
- Test Plan Preparation and Analysis of Test Data by RISO at Chennai for the period from 25.11.1999 to 09.12.1999.
- Provisional Certification by RISO at Chennai for the period from 25.11.1999 to 10.12.1999.
- WAsP Training by RISO at Chennai for the period from 18.01.2000 to 20.01.2000
- Training on Basic Test by RISO at Denmark for the period from 24.01.2000 to 04.02.2000
- Technical Training Programme on Type Approval / Certification by RISO at Denmark for the period from 24.01.2000 to 04.02.2000.
- Short-term Course on Remote Sensing at Institute of Remote Sensing, Anna University, Chennai for the period from 24.01.2000 to 29.01.2000.

- Training on preparation of TAPS 2000 by RISO, Denmark at Chennai for the period from 16.03.2000 to 22.03.2000

Papers Presented / Published

- "Role of C-WET in the Wind Power Sector" by Shri J.P.L.N. Sastry, at TERI, New Delhi and TEDA, Chennai.
- "Optimal blade angle for energy maximization" by Shri J.P.L.N. Sastry and Shri N.S. Prasad, at the International Conference on "Wind Power" organised by ER&DC at Thiruvananthapuram and RISO, Denmark.
- "Overview of Wind Energy and Role of C-WET", by Shri J.P.L.N. Sastry in Millennium International Conference on Renewable Energy Technologies at IIT, Chennai.
- "Wind Energy Perspective - focus on grid connected horizontal axis Wind Energy Conversion Systems" - Eleventh Canara Bank Endowment Lecture - by Shri J.P.L.N. Sastry at Pondicherry Engineering College, Pondicherry on 16.02.2000

Seminar

- Dedication Ceremony of C-WET and Seminar on "C-WET - Its role in Wind Energy Sector" at Chennai on 06.12.1999.

Meetings

- Meeting on "Y2K compliance of Wind Power Sector" at Chennai on 07.10.1999.
- "Thirty Third Wind Survey Co-ordination Meeting" at Chennai on 04.02.2000.

FUTURE PLANS AND ACTIVITIES

Research and Development

- Experimentation on field will be carried for the project "Optimal blade angle for energy maximization"
- Analysis of the data, followed by recommendations will be carried out for the project "Failure investigation of wind farms - grid related problems"
- The project on "Study of Gear Box design and failures on field" will be carried out in association with industry.
- The project on "Development of Advanced Static Var Compensator of 1MVAR to cater to the reactive power of a group of wind turbines integrated together" will be sponsored and carried-out in co-ordination with ER&DC, Trivandrum / BHEL, Corporate R&D Division, Hyderabad / CED, Bangalore / IISC, Bangalore.
- The project on "Development of Wind Diesel Hybrid System" will be sponsored and will be carried-out in co-ordination with ER&DC, Trivandrum / BHEL, Corporate R&D Division, Hyderabad / TERI, New Delhi.
- Technical Assistance will be provided to Indian Wind Turbine Industry on "Design and Development of an indigenous Wind Electric Generator" of suitable capacity appropriate for Indian conditions.

- Coordination and participation of on-going sponsored project of MNES with Electric Research and Development Centre (ER&DC), National Aerospace Laboratory (NAL), Society for Technical Management (STM).
- Establishment of R&D Laboratory will be continued with installation of equipment / instruments and related software packages.

Wind Resource Assessment

- Building of Data Bank on Wind Meteorology
- Study on Laser measuring instrument for wind speed measurements developed by RISO and feasibility thereof in Indian conditions
- Study on Ruggedness Index in complex terrain - a new parameter for WAsP input.
- Case Study on Wake Losses in one of the wind farms of Tamil Nadu by using existing model.
- Preparation of Wind Energy Resource Atlas for Tamil Nadu (as a part of Indian Wind Atlas Project) - The project will be started during 2000-2001 and will continue for next three years.
- Development of suitable methodology for air-flow study over complex terrain.
- Wind Resource Assessment Project, Micro Survey of wind resources around selected wind monitoring stations and preparation of Master Plan for 25 stations, Special projects for Wind Resource Assessment in North-Eastern States with 25M mast, Special Study on Wind Resource Assessment in Northern Hilly Region comprising of Jammu & Kashmir, Punjab, Haryana, Himachal Pradesh, Uttar Pradesh and Bihar, Micro Survey (ongoing project) will be carried out as a sponsored project.
- Project for Wind Resource Assessment Study in Karnataka State for NTPC commenced during 1999-2000 will be completed during 2000-2001.

Standards and Certification

- Preparation and submission of Standards for Safety of Wind Turbines in India, in line with the IEC standard 61400-1 to BIS for establishing Indian Standards.
- Implementation of Type Approval - Provisional Scheme - 2000 (TAPS-2000) and Provisional Certification of two wind turbines as a part of TAPS-2000
- Development of Provisional Certification for components/sub-systems of wind turbine generating system.

Testing

- Field performance test for one wind turbine
- Provisional Type Approval Testing of two wind turbines at WTTS, Kayathar.

Information, Training And Commercial Services

- Publication of Half-yearly News Letter to disseminate information.

- Conducting Training Course, Seminars and Meetings.

Role of MNES

- With the continued support of Ministry of Non-Conventional Energy Sources (MNES), Government of India, the Centre has been established. The MNES has sanctioned a sum of Rs. 50 lakhs as Grants-in-aid for establishment of Centre for Wind Energy Technology for the year 1999-2000.
- A sum of Rs. 61 lakhs has been sanctioned by MNES to C-WET during the year 1999-2000 to carry out three Wind Resource Assessment Projects viz., Wind Resource Survey Project, Project of identification of windy sites in North-Eastern India and Survey of Wind Potential around identified Wind Monitoring Stations.

Role of DANIDA

- With the technical and partial financial assistance from Danish International Development Agency (DANIDA), Denmark, Wind Turbine Test Station is established at Kayathar, Thoothukudi District, as an integral part of Centre for Wind Energy Technology. Instruments worth Rs. 20.85 lakhs have been supplied by DANIDA. Necessary training to the employees of C-WET, in the areas of Testing and Standards & Certification has been imparted by DANIDA through RISO National Laboratory, Denmark, both in India and at Denmark.

Accounts and Audit

- Auditors Report along with Receipts and Payments Account, Income and Expenditure Account for the year ended 31st March 2000 and Balance Sheet as at 31st March 2000 are enclosed in the annexure.
- In the Auditors Report (point no. 5 of annexure to the Auditors Report), it is noted that there is no internal audit system commensurate with size and operation of the Centre for Wind Energy Technology. As the Centre for Wind Energy Technology is in the initial stage of operation, suitable internal audit system will be introduced in due course.

Founder (Late)

K. GNANANANDULU, G.D.A., F.C.A., CHARTERED ACCOUNTANTS

Managing Partner

K. NARASIMHAM, BA., F.C.A.,

682, MOUNT ROAD,

MADRAS - 600 006.

Phone 852 50 67

Res 434 25 23

434 19 57

Residence:

20.21, Madley Road,

T.Nagar,

Madras - 600 017.

Managers:

K. RAMAKRISHNA

K. RAVISHANKAR

AUDITORS REPORT

To

The Governing Council,
Centre for Wind Energy Technology,
W-275, III Avenue, C-Sector,
Anna Nagar West Extension,
Chennai - 600 101.

We have audited the attached Balance Sheet of Centre for Wind Energy Technology as at 31st March 2000, Receipts and Payments Account and Income and Expenditure Account for the year ended as on the date along with notes on accounts annexed there to. As required by the Tamil Nadu Societies Registration Act, 1975 and Tamil Nadu Societies Registration Rules, 1978, we report that:

1. We have obtained all the information and explanation, which to the best of our knowledge and belief, were necessary for the purpose of audit.
2. In our opinion, proper books of account as required by law have been kept by the Centre for Wind Energy Technology so far as it appears from our examination of the books.
3. The Balance Sheet, Receipts and Payments Account and Income and Expenditure Account dealt with by this report are in agreement with the books of account.
4. In our opinion and to the best of our information and according to the explanations given to us, the said accounts read together with the accounting policies and notes thereon, give the information required by the Tamil Nadu Societies Registration Act, 1975 and Tamil Nadu Societies Registration Rules, 1978, in the manner so required and give a true and fair view:
 - (i) In the case of the Balance Sheet, of the state of affairs of the Centre for Wind Energy Technology as at 31st March 2000
 - and
 - (ii) In the case of the Income and Expenditure Account of the excess of Expenditure over Income of the Centre for Wind Energy Technology for the year ended on that date.

For **K.Gnananandulu & Co.,**
Chartered Accountants

Place : Chennai.

Date : 17.08.2000.

(K.NARASIMHAM)
Partner.

Founder (Late)

K. GNANANANDULU, G.D.A., F.C.A., CHARTERED ACCOUNTANTS

Managing Partner

K. NARASIMHAM, BA., F.C.A.,

K. Gnananandulu & Co.,

682, MOUNT ROAD,

MADRAS – 600 006.

Phone 852 50 67

Res 434 25 23

434 19 57

Residence:

20.21, Madley Road,

T.Nagar,

Madras – 600 017.

Managers:

K. RAMAKRISHNA

K. RAVISHANKAR

ANNEXURE TO THE AUDITORS REPORT

1. The Centre for Wind Energy Technology has maintained proper records showing full particulars including quantitative details and situation of fixed assets. The said fixed assets have been verified by the management at the end of the year. No material discrepancies have been noticed on such physical verification. None of the assets have been revalued during the year.
2. Assets of Wind Energy Survey Project of Indian Institute of Tropical Meteorology-Field Research Unit, Bangalore as on 01.04.1999 as per the orders of Ministry of Non-Conventional Energy Sources, Government of India, are taken over for the value as assessed by the officials of Wind Energy Survey Project and Centre for Wind Energy Technology. Assets created by the Wind Energy Survey Project (WESP) during the year 1999-2000 have been taken over at purchase cost.
3. As per the information furnished, the Centre for Wind Energy Technology has not taken any loans, secured or unsecured from companies, firms or other parties. No Mortgage or Charge has been created on the Assets of Centre for Wind Energy Technology.
4. As per the information furnished, the Centre for Wind Energy Technology has not given any loans, secured or unsecured to companies, firms or other parties. No loan / advance in the nature of loans other than advance to staff and advance to WESP account have been given by the Centre for Wind Energy Technology. The said advances are free from interest.
5. In our opinion and according to the information and explanations given to us, there are adequate internal control procedures commensurate with the size and the nature of its operation. However, there is no internal audit system commensurate with the size and operation of the Centre for Wind Energy Technology.
6. The Centre for Wind Energy Technology has been generally regular in depositing Provident Fund dues with the appropriate authorities.
7. As per the records of the Centre for Wind Energy Technology and the information and explanations given to us, no personal expenses have been charged to Revenue Account other than those payable under contractual obligation or in accordance with generally accepted practice.

For **K.Gnananandulu & Co.,**
Chartered Accountants

Place : Chennai.

Date : 17.08.2000

(K.NARASIMHAM)

Partner.

BALANCE SHEET AS AT 31ST March 2000

(Value in Rs.)

	Schedule No.	As at 31.03.2000	As at 31.03.1999
Source of Funds			
1. Capital Fund	01	2,08,06,957	80,00,000
Total		2,08,06,957	80,00,000
Application of Funds			
1. Fixed Assets:			
Gross Block	05	1,03,84,971	96,215
Less: Depreciation		5,82,765	358
Net Block		98,02,206	95,857
Add: Capital Work in Progress		21,10,116	72,548
		1,19,12,322	1,68,405
2. Current Assets:			
Cash and Bank Balance	02	41,92,854	71,93,639
Loans and Advances	03	4,07,395	1,84,977
		46,00,249	73,78,616
Less: Current Liabilities	06	16,86,488	1,45,568
Net Current Assets		29,13,761	72,33,048
3. Deferred Revenue Expenditure to the extent not written off	04	1,38,337	35,119
4. Excess of Expenditure over Income		58,42,537	5,63,428
Total		2,08,06,957	80,00,000

For Centre for Wind Energy Technology

As per our Report attached
for K.Gnananandulu & Co.,
Chartered Accountants,

A. JAYARAMAN
General Manager (F&A)

J.P.L.N. SASTRY
Officer on Special Duty

AJIT K. GUPTA
Executive Director

N.N. MOOKERJEE
President / Chairman

K.NARASIMHAM
Partner

Place : Chennai.

Date : 17.08.2000

INCOME AND EXPENDITURE ACCOUNT FOR THE YEAR ENDED 31.03.2000

(Value in Rs.)

	Schedule No.	Current Year	Previous Year
INCOME:			
Interest on Term Deposit with Bank		2,91,506	1,45,050
Other Income		88,360	4,225
Total		3,79,866	1,49,275
EXPENDITURE:			
Employees Remuneration	07	23,35,431	2,09,670
Travel & conveyance	08	9,79,313	1,04,166
Administration and Other Expenses	09	17,11,809	3,86,803
Depreciation	05	5,82,407	358
Deferred Revenue expenditure written off	04	50,015	11,706
Total		56,58,975	7,12,703
Excess of Expenditure over Income		52,79,109	5,63,428
Balance brought forward from previous year		5,63,428	-
Balance carried to Balance Sheet		58,42,537	5,63,428

For Centre for Wind Energy Technology

As per our Report attached
for **K.Gnananandulu & Co.,**
Chartered Accountants,

A. JAYARAMAN
General Manager (F&A)

J.P.L.N. SASTRY
Officer on Special Duty

AJIT K. GUPTA
Executive Director

N.N. MOOKERJEE
President / Chairman

K.NARASIMHAM
Partner

Place : Chennai.

Date : 17.08.2000

RECEIPTS AND PAYMENTS ACCOUNT FOR THE YEAR ENDED 31ST MARCH 2000

(Value in Rs.)

	Current Year	Previous Year
I. Opening Balance	71,93,639	-
II. Receipts		
Grants-in-aid for C-WET	50,00,000	80,00,000
Grants-in-aid for WRA Projects	61,00,000	-
Fees received in advance	6,43,050	-
Interest Earned on Deposit with Bank	2,91,506	1,45,050
Other income	88,360	4,225
Other receipts	50,212	20,000
Total Receipts	1,21,73,128	81,69,275
Total funds available (I + II)	1,93,66,767	81,69,275
III. Payments		
(a) For C-WET		
Employees Remuneration	20,91,525	1,59,422
Travel and Conveyance	9,86,773	96,706
Administration and Other Expenses	16,59,133	3,40,502
Deposit & Advance	79,443	1,84,977
Capital Expenditure	23,57,764	86,594
Capital work in progress	20,87,453	65,293
Deferred Revenue Expenditure	1,51,823	42,142
Total	94,13,914	9,75,636
(b) For other Projects		
WESP Account (balance amount)	1,01,725	
Expenditure on WRA Projects	54,98,275	-
Expenditure on Consultancy Project	1,59,999	-
Total	57,59,999	
Total Payments III (a) + III (b)	1,51,73,913	9,75,636

(Value in Rs.)

	Current Year	Previous Year
IV. Closing Balance		
Bank Balance	41,92,839	71,93,616
Stamps on hand	15	23

For Centre for Wind Energy Technology

As per our Report attached
for **K.Gnananandulu & Co.,**
Chartered Accountants,

A. JAYARAMAN

General Manager (F&A)

J.P.L.N. SASTRY

Officer on Special Duty

K.NARASIMHAM

Partner

AJIT K. GUPTA

Executive Director

N.N. MOOKERJEE

President / Chairman

Place : Chennai.

Date : 17.08.2000

Schedule 1: Capital fund:

(Value in Rs.)

	As at 31.03.2000	As at 31.03.1999
Grants-in-aid from Govt. of India	1,30,00,000	80,00,000
Instruments and Equipment received from DANIDA /RISO, free of cost	20,85,044	-
Assets taken over from WESP (IITM-FRU), Bangalore as per the orders of MNES, Govt. of India.	57,21,913	-
	2,08,06,957	80,00,000

Schedule 2: Cash and Bank Balance :

	As at 31.03.2000	As at 31.03.1999
Cash on hand	Nil	Nil
Stamps on hand	15	23
Balance with Scheduled Bank on Current Account	41,92,839	71,93,616
Total	41,92,854	71,93,639

Schedule 3: Loans and Advances:

	As at 31.03.2000	As at 31.03.1999
Imprest Advance	2401	4,527
Rent advance	1,98,000	1,62,000
Telephone deposit	21,000	18,000
Security deposit	18,150	450
Advance for Diesel	3,594	-
Advance to Staff	21,275	-
Tax Deducted at Source	33,825	-
Stock of Stationary	7,425	-
Advance to WESP (balance amount)	1,01,725	-
Total	4,07,395	1,84,977

Schedule 4: Deferred Revenue Expenditure

	As at 31.03.2000	As at 31.03.1999
Partition and other works	1,88,352	46,825
Less : Written off during the year	50,015	11,706
Total	1,38,337	35,119

Schedule 5: Fixed Assets:

(Value in Rs.)

Description of Assets		Gross block				Depreciation			NET BLOCK	
	As on 01.04.1999	Additions	As on 31.03.2000	Upto 31.03.1999	1999 - 2000	Upto 31.03.2000	As on 31.03.2000	As on 31.03.1999		
Land	-	1,63,170	1,63,170	-	-	-	1,63,170	-		
Furniture & Fittings	96,215	3,51,024	4,47,239	358	18,852	19,210	4,28,029	95,857		
Instruments and Equipment	-	10,49,612	10,49,612	-	22,410	22,410	10,27,202	-		
Computer	-	4,29,450	4,29,450	-	28,845	28,845	4,00,605	-		
Vehicles	-	4,88,543	4,88,543	-	34,929	34,929	4,53,614	-		
Total	96,215	24,81,799	25,78,014	358	1,05,036	1,05,394	24,72,620	95,857		
Instruments from DANIDA free of cost	-	-	20,85,044	-	-	-	20,85,044			
Assets taken over from WESP	30,00,000	27,21,913	57,21,913	-	4,77,371	4,77,371	52,44,542	1,68,405		
Total	30,96,215	52,03,712	1,03,84,971	358	5,82,407	5,82,765	98,02,206	1,68,405		
Capital work in progress	-	-	21,10,116	-	-	-	21,10,116	-		
Total	30,96,215	52,03,712	1,24,95,087	358	5,82,407	5,82,765	1,19,12,322	1,68,405		
Previous year figures	-	96,215	96,215	-	358	358	-	95,857		

Schedule 6: Current liabilities:

(Value in Rs.)

	As at 31.03.2000	As at 31.03.1999
Liabilities for expenses	3,53,702	87,727
Income Tax deducted at source	9,211	4,222
Salary recoveries	37,643	12,060
Security deposit	62,865	20,000
Liabilities to suppliers	1,04,466	21,559
Balance of Grants-in-Aid	6,01,725	-
Testing Fee received in- advance	4,62,375	-
NTPC - project consultancy	54,501	-
Total	16,86,488	1,45,568

Schedule 7: Employees Remuneration:

	Current Year	Previous Year
Salaries & Allowances	19,01,013	1,39,383
Wages & labour charges	2,50,905	68,530
Contribution to Provident Fund	86,897	1,757
Contribution to Pension & Gratuity	80,762	-
Medical Reimbursement	5,041	-
Staff Welfare expense	10,813	-
Total	23,35,431	2,09,670

Schedule 8: Travel & Conveyance:

	Current Year	Previous Year
Travel & conveyance	8,81,361	79,445
Taxi hire charges	97,952	24,721
Total	9,79,313	1,04,166

Schedule 9: Administration and other expenses:

(Value in Rs.)

	Current Year	Previous Year
Rent for Office Building	3,53,700	2,97,000
Meeting and Seminar expenses	1,57,022	8,367
Electricity charges	77,953	2,894
Vehicle Maintenance	70,964	-
Guesthouse Maintenance	1,11,965	-
Postage & Courier charges	23,207	1,334
Printing & Stationeries	1,19,574	6,672
Internet expenses	12,500	-
Telephone charges	2,99,804	12,638
Books & periodicals	10,757	50
Training and Development	83,472	-
Auditors remuneration – for Audit	7,000	7,000
Auditors remuneration – for other services	3,000	3,000
Refreshment & hospitality	46,286	4,626
Advertisement	51,629	8,108
Office expenses & maintenance	77,475	5,572
Legal and Professional charges	10,000	-
Sitting Fees and Honorarium	18,600	-
Field testing expenses	1,18,699	-
Other expenses	58,202	29,542
Total	17,11,809	3,86,803

Schedule 10: Notes forming part of Accounts :

1. The Centre for Wind Energy Technology (C-WET) is an Autonomous Institution of Ministry of Non-Conventional Energy Sources, Government of India. The C-WET is formed as a Society on 18th February 1998 and registered as a society under Section 10 of the Tamil Nadu Societies Registration Act, 1975 on 21st March 1998 with the object to serve as the technical focal point for Wind Power Development in India, support Research and Development Programme, assess Wind Resources, establish Standards, Testing and Certification of wind power systems, sub-systems and components and undertake Human Resource Development Programmes.
2. All the income, movable and / or immovable properties of C-WET shall be solely utilised and applied towards the promotion of objectives as set forth in the Memorandum of Association and no profit thereof shall be paid or transferred directly or indirectly by way of dividend, bonus, profit, or in any manner whatsoever, to the present or past members of C-WET or to any of them or in any manner through anyone or more of the members. No members of C-WET shall have any personal claim on any movable and / or immovable properties of C-WET or make any profit whatsoever, by virtue of his / her membership of C-WET.
3. Memorandum of Association of C-WET has been altered by incorporating the following clauses as approved by the Members by a Special Resolution in the First Annual General Meeting held on 20.09.1999. The alterations have been duly filed with the Registrar of Societies, Chennai.
 - 6.3.0 The Institution is irrevocable.
 - 6.4.0 In case of Winding up / dissolution, the net funds would be transferred to institutions having similar objects and enjoying Exemption under Section 11 and 80G of the Income Tax Act, 1961.
 - 6.5.0 Any amendment to the instrument would be carried only with the approval of Director of Income Tax (Exemptions).
 - 6.6.0 The Activities would be confined to the territory of India.
 - 6.7.0 The activities would be of purely Research and Development nature not motivated for profit.
 - 6.8.0 The funds of the institution would be invested as per Section 11(5) of the Income Tax Act, 1961.
4. **Significant Accounting Policies:**
 - (a) The accounts are prepared in accordance with the accounting principles generally accepted in India.
 - (b) The income and expenditure are provided in the accounts on accrual basis.
 - (c) Fixed Assets are capitalised at acquisition cost inclusive of directly attributable cost, depreciation on Fixed Assets is provided at pro-rata basis on Straight Line Method at the rates prescribed under Schedule XIV of the Companies Act, 1956. No depreciation charged for the assets acquired on free of cost.

5. Land Measuring about 4.81 acres purchased for Rs. 1.63 lakhs through private negotiation at Ayyanaruthu Village, Kovilpatti Taluk, Tuticorin District, for execution of Wind Turbine Test Station, has been registered in the name of C-WET on 10.03.2000.
6. Provision towards Gratuity and Pension has been provided as per respective rules / as per terms and conditions of deputation.
7. Grants-in-aid of Rs.50 lakhs received from Government of India vide letter no. 58/1/98-WE/PG dated 17.12.1999 during the year 1999-2000 for establishment of C-WET has been accounted under the head "Capital Fund"
8. Amounts spent on partition works, venetian and vertical blinds etc. of Rs. 2,00,058/- have been treated as Deferred Revenue Expenditure and proposed to be written off in four years @ 25% each. Accordingly a sum of Rs. 50,015/- has charged to revenue account.
9. A sum of Rs. 4,62,375/- (includes TDS of Rs. 24,750/-) has been received in advance as per agreement for Provisional Type-Test Report and Certification. As the testing period starts from April, 2000 the amount received along with tax deducted at source has been classified as Current Liabilities.
10. A sum of Rs. 2,14,500/- (includes TDS of Rs. 9,075/-) has been received from National Thermal Power Corporation, Secunderabad for Wind Monitoring and Analysis, of which a sum of Rs. 1,59,999/- has been incurred for installation of masts and travel expenses. As the project is under initial stage the balance amount of Rs. 54,501/- has been classified as Current Liabilities.
11. Wind Energy Survey Project (WESP):
 - (a) The Ministry of Non-Conventional Energy Sources, Government of India, vide letter no. 51/172/97-WE/PG dated 11.08.1999 transferred the existing assets created in the erstwhile Wind Energy Survey Project of the Field Research Unit of Indian Institute of Tropical Meteorology (IITM-FRU), Bangalore w.e.f 01.04.1999 and transferred all the other ongoing projects on wind survey including the projects relating to preparation of master plan and wind resource assessment activities in North-Eastern States to C-WET.
 - (b) The instruments and equipment created by the erstwhile Wind Energy Survey Project of the Field Research Unit of Indian Institute of Tropical Meteorology Bangalore, mounted on 90 number of Wind Monitoring Stations have been taken over as on 01.04.1999 for Rs. 30,00,000/- as assessed by the officials of WESP and C-WET, and depreciation charged on the assessed value. The details are furnished below:

Sl.No.	Description	Value (Rs.)
1.	Instruments & Equipment	28,79,000
2.	Furniture & Fixtures	20,000
3.	Office Equipment	85,000
4.	Vehicles	16,000
Total		30,00,000

- (c) A sum of Rs.27,21,913/- has been spent by the Principal Investigator, Wind Energy Survey Project, Bangalore for creation of assets out of Grants-in-Aid of Rs.28,00,000/- directly released by Government of India to the Field Research Unit of Indian Institute of Tropical Meteorology (IITM-FRU), Bangalore during 1999-2000. The balance amount of Rs. 78,087/- will be refunded by IITM-FRU to the Ministry of Non-Conventional Energy Sources, directly. The assets were taken over by Centre for Wind Energy Technology at purchase cost. No depreciation charged on the instruments and equipment worth Rs.26,91,263/-, which are not put into use during the year 1999-2000. The details of assets created are:

Sl.No.	Name of the item	Quantity	Value (Rs.)
Instruments & Equipment			
1.	NRG Data Logger	20	8,35,082
2.	32 KB data chip	40	66,559
3.	# 40 Maximum Anemometers	125	4,08,177
4.	NRG # 200 P Wind Vanes (10 k)	70	4,46,227
5.	NRG # 200 P Wind Vanes (1 k)	20	1,51,715
6.	NRG Tall Towers without Anchors	3	7,59,948
7.	EE Reader II (Chip Eraser)	1	18,355
8.	Turn Buckles for 50 M Mast	25	3,250
9.	Computer Styles	1	1,950
Total (I)			26,91,263
Furniture & Fixture			
1.	Steel Cupboards	5	21,250
2.	Orient Pedestal Fans	4	7,400
3.	Electric Stove	1	2,000
Total (II)			30,650
Grand Total (I)+(II)			27,21,913

- (d) A sum of Rs. 61,00,000/- lakhs has been released by Government of India for various Wind Energy Resource Programme to C-WET, of which a sum Rs. 56,00,000/- lakhs have been transferred to WESP Account, Bangalore (a separate Current Account opened and operated by the Principal Investigator, WESP). A sum of Rs. 54,98,275/- has been incurred during the year by the Principal Investigator, Wind Energy Survey Project, Bangalore, from the above said account. The balance of Grants-in-aid of Rs. 6,01,725/- is shown under the head current liabilities. The details of the amount spent are furnished below:

Sl.No.	Name of the Project	Amount Released Rs.	Amount Spent Rs.
1.	Wind Energy survey Project	30,50,000	28,48,275
2.	Micro Survey Project	26,50,000	23,50,000
3.	North-Eastern Project	4,00,000	3,00,000
Total		61,00,000	54,98,275

- (e) The accounts of the Principal Investigator, WESP for the year 1999-2000 have been duly audited by an Auditor at Bangalore
12. Two sets of field-testing equipment / instruments costing Rs. 20,04,244/- (as assessed by customs authorities for valuation purpose) have been supplied by DANIDA/RISO, Denmark, free of cost, during July, 1999. The equipment / instruments have been utilized for the purpose of field-testing. In addition to the above computer and accessories costing Rs. 80,800/- has been purchased in India, the cost has been reimbursed by Royal Danish Embassy, New Delhi.
13. A sum of Rs. 4,92,616/- has been received from RISO, Denmark in Foreign Currency towards reimbursement of travel expenses incurred for imparting training for execution of Wind Turbine Test Station at Kayathar. There is no expenditure in Foreign Currency.
14. Contingent liabilities not provided for: NIL
15. Estimated amount of contracts remaining to be executed on Capital Account and not provided for is Rs.8,03,918/-.
16. Managerial remuneration: No salary has been paid to the Chairman / Executive Director, C-WET.
17. The figures shown in the accounts are rounded off to the nearest rupee. The previous year's figures have been re-grouped wherever considered necessary to make them comparable with current year's figures.
18. The Department of Scientific and Industrial Research, Ministry of Science and Technology, Government of India, vide their letter no. 11/378/2000-TU-V dated 16.03.2000 recognized Centre for Wind Energy Technology as a Scientific and Industrial Research Organisation for a period from 08.03.2000 to 31.03.2003. The Director of Income Tax (Exemptions), Chennai, vide order no. DIT(E) No. 2 (268) / 98-99 dated 21.10.1999, granted registration under section 12AA of the Income Tax Act, 1961, as Public Charitable Trust.

19. Schedule 1 to 10 form an integral part of Balance Sheet and Income and Expenditure Account and have been duly Authenticated.

Signatures to Schedule 1 to 10

For Centre for Wind Energy Technology

As per our Report attached
for K.Gnananandulu & Co.,
Chartered Accountants

A. Jayaraman
General Manager (F&A)

J.P.L.N. Sastry
Officer on Special Duty

Ajit K. Gupta
Executive Director

N.N. Mookerjee
President / Chairman

K. NARASIMHAM
Partner

Place: Chennai

Date: 17.08.2000

CENTER FOR WIND ENERGY TECHNOLOGY,**CHENNAI - 600 101.****NOTICE**

Notice is hereby given that the Second Annual General Meeting of the Members of Centre for Wind Energy Technology will be held at Hotel Taj Connemara, Binny Road, Chennai – 600 002 on Thursday, the 21st day of September, 2000 at 12.30 P.M., to transact the following business:

1. To receive, consider and adopt the Annual Report for the year 1999-2000, audited Balance Sheet as at 31st March, 2000, Receipt and Payments Account and Income and Expenditure Account for the year ended as on that date and Reports of the Auditors thereon.
2. To consider appointment of Auditors for the year 2000-2001

For Centre for Wind Energy Technology

(Ajit K. Gupta)
Executive Director

Place : Chennai

Date : 21.08.2000



Signing of First Provisional Type Testing &
Certification agreement with
Vestas RRB India Limited at Chennai on 21.02 .2000.



Instrumentation of metmast
at WTTS, Kayathar.