

ANNUAL REPORT 2005-06
Agency for Non-conventional Energy and Rural Technology
(ANERT, Kerala)



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INTRODUCTION

The programmes and activities of ANERT – the Agency for Non-Conventional Energy and Rural Technology – for the year 2005-06 had been mostly continuation of the previous year only.

The programmes for popularising utilisation of Bio Energy as well as propagation of fuel saving improved wood burning chulhas taken up during 2004-05 were continued. Rajiv Gandhi Akshay Urja Diwas 2005 was celebrated all along the State with colourful programmes targeted to spread our message to the general public. The scheme for providing financial support to Student Projects in the field of Renewable Energy and Energy Conservation was also continued for encouraging the educational institutions to take up studies and research in the field of renewable energy and energy conservation.

However as the internal technical teams were disbanded achievements in the project implementation sector stand much below the expected targets.



Activities and achievements of 2005-06

1. Project Implementation Programmes

Wind Energy Programme

Data collection continued at the two wind monitoring stations established at Pasavadikumbe in Kasaragod District and Kalyanathandu area in Idukki District Under the National Programme for Wind Resource Assessment of MNES.

Memorandum of understanding had been signed between Kerala State Electricity Board and ANERT for development of a 5 MW wind farm at Ramakkalmedu in Idukki district.

Bio Energy Programme

A subsidy scheme for promoting the installation of biogas plants having individual capacity not less than 15 cu.m announced during the year 2004-05 was continued this year also. A subsidy @ Rs.3000/ per cu.m was made available for Biogas plants for thermal application and subsidy @ Rs.4000/ per cu.m was made available for Biogas plants for electricity generation. Accordingly 8 biogas plants for thermal application with a total capacity of 205 cum were installed during the year. (List of these Biogas Plants given as Annexure 1.)

Programme for Dissemination of Improved Chulhas

The target of the scheme for providing subsidy for the popularisation of improved firewood chulhas in the year 2005-06 was 23000 numbers of domestic (2+1 model) chulhas in SC/ST households and 2000 numbers of community chulhas in Anganwadies and schools. However the achievement in this sector is only 4012 domestic (2+1 model) chulhas in SC/ST households and 540 community chulhas. (District wise list of current year's chulha installations is given as Annexure 2)

Integrated Rural Energy Programme (IREP)

Under the scheme Integrated Rural Energy Programme ANERT maintains one district level office in each of the districts of the State. These offices are functioning as the extended arms of ANERT, reaching out to the masses with the message of Renewable Energy and Energy Conservation as well as gathers real grass root level data on the energy needs and problems of the community. The programmes on Bio energy and improved chulha to the organization of publicity programmes, were carried out through these offices.

2. Publicity and Awareness Creation Programmes

Rajiv Gandhi Akshay Urja Diwas Celebrations

This year also 20th August, the birthday of late Prime Minister Sri Rajiv Gandhi was celebrated as “Rajiv Gandhi Akshay Urja Diwas” as directed by MNES. The day was demarcated for organising various programmes for creation of awareness on renewable energy sources and devises. Renewable energy sources are identified to have a definite significance in the power scenario of the State as the source of energy for the electrification of a number of remote isolated hamlets as well as the support to the existing grid to a considerable extent. Hence, the celebrations of RGAUD 05 were not restricted for one day, but were spread over for about a week, ensuring wider coverage of the population, especially students and women.

The RGAUD 05 celebrations of the State had two distinct levels – 1. The State Level Programmes organised directly by ANERT, the State Nodal Agency (SNA) of MNES, and 2. The District Level Programmes organised by the District Collectors in coordination with District Level Offices of ANERT. The programmes organised by ANERT, the State Nodal Agency comprised of activities with State wide coverage, complimentary to the district level programmes and various programmes held at State Head Quarters on 20th August 05. The district level programmes mainly included specific activities appropriate to the individual areas, but all the districts

carried out a wide range of common programmes targeting students and public.

One of the major programmes organised by all the districts specifically targeting students, who are the planners, researchers, implementers and beneficiaries of tomorrow, was various levels of competitions on 'Renewable Energy,' like Painting Competition for Primary School Students, Quiz Competition for High School Students and Essay Writing Competition for Higher Secondary School Students. Certificates and gifts of Renewable Energy/ Energy Conservation Devices were presented to the District Level Prize winners of these competitions. Colourful Processions, Rallies and Mass Runs were also organised in various districts in which Students and Public participated with placards depicting messages of Renewable Energy. A Pledge to popularise and utilise Renewable Energy was taken in School Assemblies. Exhibition of various Renewable Energy, Energy Conservation Devices were also organised in every district, which received good response from the Public. Lectures and demonstration programmes were arranged in some districts aimed at a deeper awareness creation. Display of banners and posters in offices and public places was another mode of campaign tried out in some of the districts. Renewable Energy Seminars, Awareness Classes and Public Meetings were organised in various districts spreading our messages to people from every walk of life.

Various forms of Cultural Programmes specifically designed to articulate the messages of Renewable Energy had been the distinctive attraction of this year's Rajiv Gandhi Akshay Urja Diwas Celebrations. A Renewable Energy Ottamthullal Programme formulated at ANERT Head Quarters had toured through the districts in advance along with the Mobile Renewable Energy Demonstration Unit (MREDU) and a Van displaying Banners with RE messages. "Renewable Energy Sangeetha Yathra" of Kasaragod District, "Renewable Energy Magic Show" of Palakkad District, "Renewable Energy Skit & Song Parade" of Ernakulam District and "Energy Conservation Kathaprasangam" of Idukki District were the other such programmes attracted wider public attention.

The State Level Programmes of RGAUD 2005

The programmes with state wide coverage organised by ANERT complimentary to the district level programmes were

(i) Organisation of a 'Vilambara Jatha':

The Vilambara Jatha comprised of a Mobile Renewable Energy Exhibition and a cultural programme with messages of Renewable Energy. The Mobile Renewable Energy Demonstration Unit (MREDU) of ANERT and another Van decorated with Posters and Banners on renewable energy and energy conservation were arranged for the mobile exhibition. This unit travelled from Kasaragod, the northern most district of Kerala to Thiruvananthapuram the southern most district during the period 8th to 19th of August 05, stopping at 2-3 prearranged venues for demonstrations to public. A team of artists travelled along with this mobile exhibition and performed 'the traditional art form with new message', which was an "Ottamthullal" on Renewable Energy. Ottamthullal is one of the most famous and dynamic traditional art form of Kerala enjoyed by people from all walks of life irrespective of their social or educational status. This art form has the unique potential to address and articulate the real life problems of common man. Thus with the help of a traditional Ottamthullal Performer we prepared a Renewable Energy Ottamthullal and it was performed in 22 stages through out the State along with the Mobile Renewable Energy Exhibition. This programme received high appreciation from all sectors and got wide media coverage. It is estimated that above 25,000 spectators viewed this programme.

(ii) Brochures and Exhibition Display Panels:

75,000 Brochures on renewable energy sources and technologies were printed and distributed through out the State. Standard display materials on various renewable energy sources and technologies were also prepared and distributed to all the districts for use in the exhibitions organised by them.

(iii) News Paper Advertisement:

A quarter page advertisement on Rajiv Gandhi Akshay Urja Diwas was released in all Kerala editions of three Major Malayalam dailies on 20th August 2005.

Apart from the above ANERT had organised various programmes at Thiruvananthapuram, the State Head Quarters on 20th August 2005 as the State Level Celebration of the event. The Major programmes thus organised were the following-

1. State Level Renewable Energy Seminar:

The Seminar was conducted at Kanakakunnu Palace Hall on 20th August 2005 with title as "Renewable Energy for Energy Self Reliance of Villages". Smt.Lizzy Jacob, Principal Secretary to Govt of Kerala, Power Department inaugurated the seminar. Sri.S Girijathmajan, Director, ANERT presided over the function and the keynote address was delivered by Dr. PS Chandramohan Nair, Professor, Department of Electrical Engineering, College of Engineering, Thiruvananthapuram. A few case studies on the successful renewable energy projects implemented in the State during the past few years were also presented before the gathering. This included presentations on 'Market waste based Biogas Plant of Pathanapuram Grama Panchayat' presented by Smt. Fathima Khan, President of Pathanapuram Grama Panchayat, 'Small Hydro Power Generation at Panchayat Level – success story of Mankulam Panchayat' presented by Sri Dharesan Unnithan, Joint Director, Energy Management Centre, 'Solar Village Electrification of Rosemala Village in Western Ghats' presented by Sri G Raju, a beneficiary of the scheme, 'People's Campaign for Energy Conservation - the Kathirur Experience' presented by Sri. Sajeevan Kavumkara, activist of KENCOS (an NGO working in Energy front) from Kathirur Grama Panchayat. Participants of the seminar were mainly elected representatives of various panchayats and officers from various institutions.

2. Renewable Energy Exhibition:

The Exhibition of various Renewable Energy devices were held in the Kanakakunnu Palace Grounds on 20th August 05, organised jointly with the Thiruvananthapuram District office. Various manufacturers and suppliers of Renewable Energy devices exhibited their products in the show and demonstrated them to the enthusiastic spectators. More than a thousand people visited the exhibition.

3. Renewable Energy Rally:

The mass rally organised jointly by ANERT and the Thiruvananthapuram District office was held in the evening of 20th August. About 1500 people (students, representatives of various residence associations in Thiruvananthapuram, representatives of various NGOs and Mahilasamajams and activists of All India Women's Conference) participated in the rally with placards on messages of Renewable Energy. The procession comprised of elephants decorated with banners of the Rajiv Gandhi Akshay Urja Diwas, School Bands, cycling teams and a few folk art forms (Ottamthullal and Theyyam). The participants were given T-shirts received from MNES. Sri N Ayyappan, District Collector, Thiruvananthapuram flagged off the rally from SMV school, Thampanoor and the rally ended at Kanakakunnu Palace Premises, with the performance of Renewable Energy Ottamthullal.

The District Level Programmes of RGAUD 05

District wise list of programmes organised in connection with the Rajiv Gandhi Akshay Urja Diwas celebrations 2005 is given as Annexure 3. These itself do reflect the intensity and variety of programmes carried out through out the State. Thus on the whole the celebration of "Rajiv Gandhi Akshay Urja Diwas 05" had turned out to be a fortnight long, focussed, State wide Awareness Creation Campaign on Renewable Energy and Energy Conservation.

Exhibitions

Participation in various exhibitions is one of the major publicity programmes taken up by ANERT every year. Thus during 2005-06 also ANERT participated in various exhibitions and organised Renewable Energy Demonstration programmes at various locations. This includes organisation of Demonstration programmes at various locations using the Mobile Renewable Energy Demonstration Unit (MREDU) and small exhibition stalls operated in 16 exhibitions.

Apart from these ANERT also participated in a big way in four exhibitions on behalf of MNES with their financial support. Approximate number of spectators of this exhibition may be about 10 lakhs. List of exhibitions participated with 100% sponsorship from MNES is given as Annexure 4.

3.Promotional & Human Resource Development Programmes

Training Programmes

A Training Programme on Renewable Energy Sources and Technologies for the faculties of Engineering Colleges in Kerala and Refresher Training for Officers and Engineers of IREP/ANERT was conducted on the 27th and the 28th of October 2005. Altogether 41 Teachers from various Engineering Colleges of the State, 14 Engineers of IREP, ANERT and 4 Officers of ANERT Head Quarters participated in the Training Programme as delegates.

Sponsoring Student Projects

A scheme for providing financial support to the projects works in the area of Renewable Energy or Energy Conservation taken up by students, as a part of their curriculum towards their degree / diploma and higher degree / diploma courses was another major programme launched by ANERT during the year 2004-05. This scheme was continued in 2005-06 also. Under this programme, applications were invited through newspaper advertisement. Final selection of project works to be supported was done through a two level evaluation- first level evaluation of the merit of the proposed project work as per the technical proposal submitted and second level evaluation by direct oral presentation by the project team to assess their commitment and clarity. The selected project works are provided a financial assistance of Rs. 10,000/- or the actual project cost which ever is lower. Though it was envisaged to provide financial support to 40 projects, only 18 teams were qualified in the evaluation process. These projects are now on going with the financial support from ANERT. List of Student Projects being supported under this scheme is given as Annexure 5



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Annexures

Annexure 1	District wise list of Biogas plants sanctioned in the year 2005-06
Annexure 2	District wise list of chulha installations of the year 2005-06
Annexure 3	District wise list of programmes organised in connection with the Rajiv Gandhi Akshay Urja Diwas 2005
Annexure 4	List of exhibitions participated with 100% sponsorship from MNES
Annexure 5	List of Student Projects supported under ANERT scheme for the year 2005-06

Annexure 1:

District wise list of Biogas plants installed in the year 2005-06

Location	Capacity of Biogas Plants installed In Cum
Ferook College, Kozhikode	20
Markasu Ssaquafathi Sunniyya, Karanthur, Kozhikode	35
Shanthi Ashram, Kulathara, Kozhikode	15
Pushpagiri Medical College, Thiruvalla Pathanamthitta	35
St Martin Hospital, Sulthan Batheri Wayanad	15
Kitex Garments, Kizhakkambalam, Ernakulam	35
Chrituraja Prayer Home, Kakkad, Ernakulam	35
Steel and Industrial Forging Ltd, Athani, Thrissur	15
TOTAL	205

Annexure 2

District wise list of chulha installations of the year 2005-06

District	Number of Chulhas installed		
	Domestic Chulha (2+1 model)	Community Chulha for Anganavadi	Community Chulha for Schools
Thiruvananthapuram	149	45	13
Kollam	100	9	18
Pathanamthitta	156	2	34
Alappuzha	422	0	58
Kottayam	29	0	18
Idukki	59	0	15
Ernakulam	541	0	8
Thrissur	480	0	21
Palakkad	473	5	21
Malappuram	495	2	29
Kozhikode	323	33	59
Wayanad	500	2	11
Kannur	231	22	28
Kasaragod	54	63	24
TOTAL	4012	183	357

Annexure 3

District wise list of programmes organised in connection with the Rajiv Gandhi Akshay Urja Diwas 2005

Sl no	District	Programme envisaged
1	Thiruvananthapuram	Quiz Competition for High School Students 1st round
		Painting Competition for Primary School Students
		Essay writing Competition for Higher Secondary Students
		Renewable Energy Pledge in Schools
		Exhibition of NRSE Devices
		Seminar on Renewable Energy
		Printing and distribution of brochures, advt by banners & Hoardings, T-shirts with RE message to volunteers
2	Kollam	Printing and displaying Banners
		Seminar on Renewable Energy in Colleges
		Quiz, Essay writing and painting Competitions for Students
		Press Conference
		Renewable Energy Run; distributing Solar Caps & T-shirts to participants
		Printing and distribution of brochures
		District level Renewable Energy Seminar
3	Pathanamthitta	Quiz Competition for High School Students 1st round
		Essay writing Competition for Higher Secondary Students
		Exhibition of NRSE Devices
		Seminar on Renewable Energy and Energy Conservation
		Final round of quiz competition, Public Meeting and Prize Distribution
4	Alappuzha	Vehicle Rally & Mobile Exhibition (Aroor to Ochira)
		Kalajatha
		Renewable Energy Pledge in Schools
		Public Meeting in all 12 Block Panchayats
		Seminar on Renewable Energy at District Head Quarters
		Exhibition of NRSE Devices at District Head Quarters
5	Idukki	Exhibition of Renewable Energy & Energy Conservation equipments [Energy -Eco -Expo 2005] 20.08.2005 to 23.08.2005
		Cycle Rally on 20.08.2005
		Essay writing, Quiz & Painting Competition for School/ College Students
		Seminar on Renewable Energy on 23.08.2005
6	Kottayam	Printing and displaying Banners & posters in public places & Govt offices

		Renewable Energy Pledge in Schools
		Printing & distributing brochures to educational institutions
		RE Run at Dist HQ (sports persons, youth & students)
		Exhibition of NRSE Devices at SB College
		Quiz Competitions
		Printing and displaying Sticker messages on RE
		Public meeting at Dist HQ
7	Ernakulam	Seminar on Renewable Energy
		Quiz Competition
		Exhibition of NRSE Devices at District Head Quarters
		Awards to individuals, industries and NGOs pioneering in the field
8	Thrissur	Vehicle Rally & Mobile Exhibition 17.08.2005 to 20.08.2005
		Exhibition 22.08.2005 to 25.08.2005
		Quiz Competition
		Renewable Energy pldge in Schools on 19.08.2005
		Essay writing Competition for College Students
		Cycle Rally of Students (with T-shirts & Renewable Energy Messages)
		Seminar on RE, Public Meeting (prize distributions) on 20th
9	Palakkad	District level Essay writing and Quiz competitions for High School, Higher Secondary and College Level Students (Separately) on 13.08.2005
		25 Awareness classes & demonstrations on Renewable Energy & Energy Conservation in High Schools
		25 Awareness classes & demonstrations on Renewable Energy & Energy Conservation for Women at various centres.
		Renewable Energy pldge in Schools on 19.08.2005
		Rally at District Head Quarters on 20.08.2005
		Seminar, Exhibition and Public Meeting (prize distributions) on 20th
		Display of banners & posters at various locations
		Distribution of notices, brochures and stickers with messages of Renewable Energy to public; Distribution of stickers and name slips with messages of Renewable Energy to Students
10	Malappuram	Vehicle Announcement of NRSE messages (18.08.05 to 19.08.05)
		Exhibition of NRSE devices (18.08.05 to 20.08.05)
		Quiz competition for High School Students
		Renewable Energy pldge in Schools on 19.08.2005
		Essay writing Competition for College Students
		Cycle Rally of Students (with T-shirts & Renewable Energy Messages)
		Seminar and Public Meeting (prize distributions) on 20.08.2005

11	Kozhikode	Essay writing Competition for School and College Students
		Quiz Competition for School and College Students
		Painting Competition for School and College Students
		Elocution Competition for School and College Students
		NRSE Exhibition and Video show on 20th
		Banners and Posters printed and displayed in Offices & Public places
		Press Conference on NRSE
		Human Chain and Run
		Rally of school children
		Seminar and Public Meeting (prize distributions) on 20.08.2005
12	Wayanad	NRSE Exhibition and District level Trainers Training (to 100 trainers (students form various educational institutions) preparing to engage classes to Public on Karshaka Divas ie, Aug 17th)
		NRSE Awareness Classes to Farmers in all 25 Grama Panchayats on Aug 17th
		Renewable Energy Classes in Schools & Colleges
		Preparation & Distribution of Booklets
		Establishing "Solar Centre" - a Technical Unit capable of attending to the repair & maintenance of various solar energy installations in the district (to be established with the help of Kudumbasree Unit). Official inauguration of the Solar Centre to be held on Rajeev Gandhi Akshaya Urja Divas.
13	Kannur	District Renewable Energy Award Programme
		Seminar on RE (6 nos) in various Engineering colleges & Polytechnics
		Cartoon, Painting, Essay writing and Quiz Competition for students
		Rally of Students & Public Meeting on 20.08.2005
		Display of banners & posters at various locations, printing and distribution of brochures
		Press Conference
		Publishing Souvenir on "Akshaya Urja Divas"
14	Kasaragod	Display of banners in all Grama Panchayats & posters in Schools and Govt Offices
		Quiz and essay writing competition for students
		Mass run on 20th by Scouts & Guides and NSS Volunteers
		Public Seminar on 20th
		Exhibition of NRSE devices

Annexure 4

List of exhibitions participated with 100% sponsorship from MNES

SI No	Name of Exhibition	Central Financial Assistance (Actual Expenditure) received Rs.
1	Ochira Panthrandu Vilakku Mahotsavam, Kollam	69,891.00
2	Nattika Beach Festival, Thrissur	29,538.00
3	Palode Agricultural Fair, Thiruvanantha puram	52,015.00
4	Thirumandamkunnu Utsavam, Malappuram	38649.00
	TOTAL	1,90,093.00

Annexure 5

List of Student Projects supported under ANERT scheme for the year 2005-06

SI No	Project Title	Institution
1	Solar Thermo-electric Refrigerator	College of Engineering, Perumon, Kollam
2	Generation of Electricity from Wind Energy	MBC College of Engineering and Technology, Peermedu, Idukki
3	Wave Energy Power Plant	MES College of Engineering, Kuttippuram, Malappuram
4	Bio-Diesel as an alternate in Diesel Engines and an experimental study on performance evaluation and Exhaust Gas Analyser	MES College of Engineering, Kuttippuram, Malappuram
5	Methods to improve the efficiency of biogas plant	MES College of Engineering, Kuttippuram, Malappuram
6	Solar Powered Lamp	Mohandas College of Engineering and Technology, Thiruvananthapuram
7	Development of Solar Powered Sodium Lamp Street Light	College of Engineering, Perumon, Kollam
8	Jatropha Biodiesel - The Ultimate Alternate Fuel for CI Engines	Sree Chitra Thirunal College of Engineering, Thiruvananthapuram
9	Biodiesel production from Waste Vegetable Oils	Sree Buddha College of Engineering, Alappuzha
10	Microbial Fuel Cell	Sahradaya College of Engineering & Technology, Thrissur
11	Bio-Hydrogen - Prosperity without Pollution	Sahradaya College of Engineering & Technology, Thrissur

12	Waste to Energy - Options in Paper Industry	College of Engineering, Thiruvananthapuram
13	Energy from Coir Pith through Anerobic Digestion	College of Engineering, Thiruvananthapuram
14	Rural Technology and Quality of Life of Rural Women	Loyola College of Social Sciences, Sreekariyam, Thiruvananthapuram
15	Experimental Investigation on the improvement of system efficiency in a Photo Voltaic Stand Alone System with Tracking Mechanism	Amal Jyothi College of Engineering, Kottayam
16	Microbial Fuel Cell-Microbes Come to Power	Mohandas College of Engineering and Technology, Thiruvananthapuram
17	Solar Dryer	BCM College, Kottayam
18	Solar Thermal Water Pump	Govt Polytechnic College, Kannur