



*Agency for Non-conventional Energy
and Rural Technology
(ANERT, Kerala)*

ANNUAL REPORT 2007-08

ANERT, PB No 1094, Kesavadasapuram, Pattom PO,
Thiruvananthapuram –695 004



Introduction

Financial Year 2007-08, being the first year of the 11th Five Year Plan, has been a period of total activity reorientation for ANERT as per the instructions of the Government to integrate activities of the institution with that of the “Total Energy Security Mission” programme of the State.

The Government of Kerala had decided that the major thrust in energy sector for the Eleventh five-year plan is to achieve Total Energy Security for the State and accordingly had launched the flagship project “Total Energy Security Mission”. The Mission programme targets to achieve cent percent rural electrification as well as effective fulfilment of other essential energy needs of the society.

Consecutive to this decision, Government has instructed (Ref: State Plan Budget Document 2007-08) that the plan programmes of Agency for Non-conventional Energy and Rural Technology (ANERT) are to be integrated with the Total Energy Security Mission (TESM) programme. This demanded ANERT to formulate plan programmes in line with and integrated to the programmes and projects of Local Self Government Institutions (LSGI) and ANERT had reoriented our activities accordingly.

The decision to reorient activities in line with the aspirations, priorities and schedule of LSGI had forced ANERT to delay the annual budget finalisation process during the year. Accordingly a part budget was approved for the year as on 25th June 2007 so as to initiate the activities and subsequently the re-scheduled final annual budget was approved on 3rd December 2007 only. However ANERT had utilised the period up to December for completing the spill over projects of previous year as well as for taking up initial activities of the Total Energy Security Mission and organise public awareness programmes with Central Financial

Assistance (CFA) from the Ministry of New and Renewable Energy (MNRE), so as to strengthen the field linkages and tie ups with LSGI. Thus ANERT is revamping to work together for a brighter future for the State.

However ANERT is yet to resolve the hassles of constructing an office building for ANERT even though the land was provided by State Government as back as in the year 2000-01. Purchase of land in Palakkad District for establishing the Renewable Energy and Rural Technology Centre (RERTC) is also yet to be implemented. We hope to resolve these issues in the coming financial year.

Director



Achievements

Solar Photovoltaic Energy Sector

Solar Photovoltaic Energy generation, though identified as a costly option of electricity generation, was proven to be the most convenient source of energy for the electrification of remote, isolated hamlets where the existing power grid cannot be extended. During the previous five-year plans ANERT had utilised this technology effectively to electrify about 20000 remote backward class households. Banking on this experience ANERT had submitted a proposal to the central Ministry of New and



Renewable Energy (MNRE) for assistance to take up solar electrification in other un-electrified remote backward class habitations also. The proposal was prepared based on the data collected through the district wise survey of un-electrified and partially electrified habitations, conducted by ANERT. MNRE had in principle accepted the proposal from ANERT for solar electrification of remote houses in 72 backward class colonies spread in six districts of the State covering 6120 households.

Based on our proposal Government of Kerala had declared ANERT as the Nodal Agency for Remote Village Electrification in the State vide GO (Rt) No 56/ 2008/ PD dated 03.03.2008. MNRE Officials had conducted joint field inspection of selected sites along with Officers from ANERT and Rural Electrification Corporation (REC). Accordingly vide MNRE sanction order No 1/14/1/2007-08/ RVE dated 27.03.2008, ANERT had obtained approval and Central Financial Assistance for solar electrification of remote houses in 49 remote backward class hamlets spread in five districts of the State covering 4204 households. The project is expected to be implemented in the coming financial year.

Solar Thermal Energy Sector

Solar Thermal Energy division had focused its activities to complete the spill over projects of the previous year with a target of providing Solar Water Heating Systems in domestic and service sector, so as to replace or reduce the use of electric geysers. The achievement in this sector for the financial year is installation of 468 nos of Domestic Solar Water Heaters (46800 LPD) and 17600 LPD of Institutional Solar Water Heaters. The Institutional installations include 32 nos of 300 LPD SWH installed in PHC/CHCs and 12 nos of SWHs having capacity 500 LPD or more in Taluk/ District / Medical College Hospitals. Thus these installations with the potential for generating a total of 64400 Litres of hot water every day using solar thermal energy this is equivalent to a savings of 2 Lakhs units of electricity per year.



Wind Energy Sector



Wind electricity generation potential of the State was estimated as 600 MW. Though this could be a substantial addition to the existing power grid the activities for utilising this potential had been moving at snails pace in previous years. This was mainly due to the infrastructure limitations for power evacuation and policy limitations to bring in the private sector participation. This year, in continuation of activities initiated in 2006-07, ANERT was successful to take lead role in solving the policy limitations and so far technical and administrative clearances had accorded for establishing Wind farms for generating and

supplying 28.8 MW power. These Wind farms shall come up at Agali, Palakkad (16.8 MW) and Ramakkalmedu, Idukki (12 MW)] in coming years.

However the initial activities for establishing the 5 MW wind farm at Ramakkalmedu, Idukki district as joint project of Kerala State Electricity Board (KSEB) and ANERT is still pending with KSEB.

Bio Energy Sector

Bio energy was identified as a very promising renewable source of energy in the State as it opens out a viable solution to the problems of handling degradable bio-waste and at the same time provides valuable bio-manure as bye-product. In continuation of previous year's activities ANERT had taken up implementation of community biogas plants in various institutions and the achievement of the year is 21 nos of Community Biogas plants having a total capacity of 525 cum biogas generation per day in private sector institutions for thermal application, 3 biogas plants having a total capacity of 65 cum biogas generation per day for electrical application (approximately 15kW installed capacity) and 10 plants with a total capacity of 195 cum per day (thermal application) in Government Hospitals.



Bio Energy Division of ANERT had initiated steps to take up technical consultancy and implementation support service for the institutions CUSAT and FACT at 10% consultancy charges. Moreover ANERT had also been entrusted with the implementation of the 2 cum Floating drum type Biogas plant for the Walayar Check Post, which could serve as a demonstration unit as well.

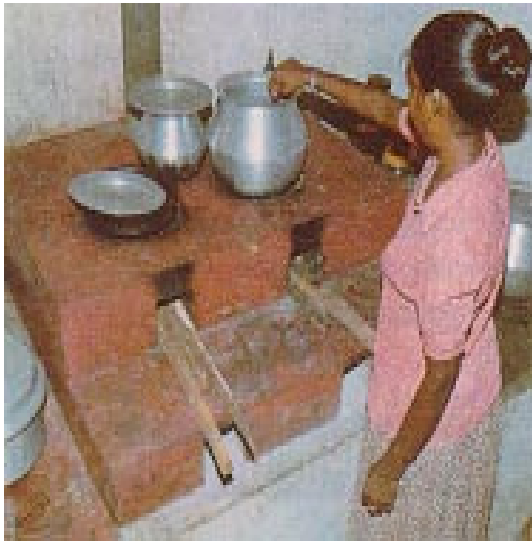
ANERT has also ventured into the new bio energy utilisation sector by taking up the high – efficiency biomass direct combustion system for replacing fossil fuel consumption in industrial establishment. The unit was established in the

Kerala Cceramics, Kundara, Kollam district with financial support from ANERT. This unit replaces the fossil fuel (SKO/Diesel) being used in their hot air generator with cheaper and

locally available biomass –ie., the empty palm fruit bunches which are disposed by Oil Palm India Ltd, as their process waste. This project was inaugurated on the 6th of February 2008 and is expected to be a model for other industries using fossil fuel for thermal applications.

Improved firewood Chulha Programme

Popularisation of improved firewood chulhas to conserve firewood and protect women from the drudgery of smoke filled kitchen atmosphere was a programme carried out by ANERT since inception, under the National Programme for improved Chulhas (NPIC) of MNES. Past achievement of ANERT in this field amounts to the installation of about eight lakhs of improved chulhas and more than 4000 trained Self-Employed Workers (SEWs) engaged in the field. Subsidies were given for all the improved chulha installations till 2001-02, with the financial



support of MNES and State Government. Afterwards the subsidy was restricted to economically backward classes and institutions only, as MNES had withdrawn the national programme. However because of the visible benefits of the device, this programmes still moves on in the State in market mode. Presently ANERT, as the Nodal Agency, restricts our involvement as a promotional and facilitation agency in general and takes up specific programmes for promoting these chulhas among economically backward classes and for community cooking applications.

During the year 2007-08 ANERT had taken up installation of 16805 domestic model improved chulhas in SC-ST households and 14337 chulhas in general category houses. More over 481 nos of community model improved chulhas were installed

in anganavadis and another 543 nos were installed in schools having noon meal programme / other institutions.

Micro Hydel Power Sector

The project taken up in 2006-07 for carrying out the pre-feasibility site investigation of the Micro Hydro Power potential of Kannur district is completed. The study covered about 80 sites spread along the western ghat ranges of the Kannur District. The final report of this study is getting ready.

It is observed that while most of the sites are in the micro range suitable for providing power to the nearby habitations, a few sites are even suitable for supplying power to the grid at least for part of the year. One of such sites, Thenamkayam in Payyavoor Panchayat having a potential of supplying 2 MW power to the grid for about 7 months in a year is taken for model DPR preparation. Civil surveys of this site are completed and the DPR preparation is on going.

ANERT had released a financial support of Rs 75,000/- for the renovation and up gradation of a Micro Hydel project at Pathenpara in Kannur district and Rs 2,25,000/- for the renovation and up gradation of Micro Hydel Project at Mamalakkandam Urulikuzhi in Kuttampuzha Grama Panchayath aimed at promoting remote electrification programmes with the most environment friendly micro hydro resources.

Research and Development



ANERT was successful in making a remarkable break through in LED lighting unit design during the current year as part of the research programme on designing LED based Solar Lighting systems. The new circuit designed by ANERT for the LED light units is having an efficiency of 96% against 80% efficiency of its counterparts available in market. LED lighting units are having 10 times more life than CFLs, with no RF interference and provide 20% reduction in electricity consumption for same light output. Hence this technology is considered as the new generation luminaries and is much relevant in energy conservation.

Renewable Energy and Rural Technology Centre (RERTC)

The task of procuring land for Renewable Energy and Rural Technology Centre (RERTC) is in progress. The meeting of the present land owners held under the chairmanship of the Palakkad District Collector in the presence of Revenue Officials concerned had arrived at the tentative land values and the process of discussions for transferring the land is ongoing.

Information, Education and Publicity Programmes

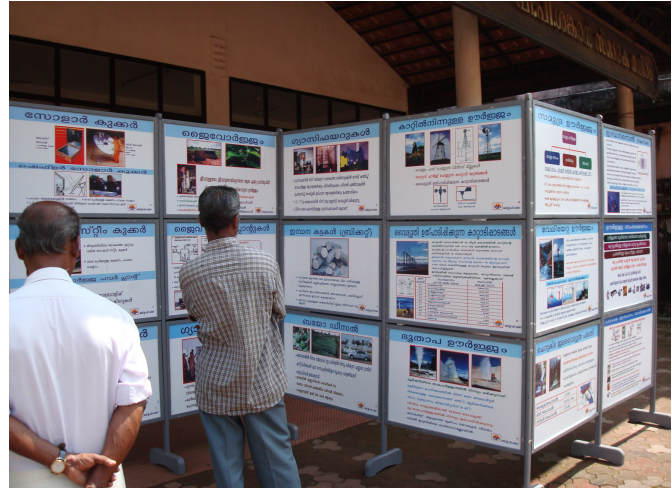
ANERT had taken up the centrally sponsored Rajiv Gandhi Akshay Urja Diwas (RGAUD 07) Publicity Campaign in a spectacular and informative manner in all the districts this year. As part of the function a Seminar on “ Bio Energy Options” was conducted at the same venue on the day. The seminar was attended by representatives of industries, entrepreneurs in bio energy sector, officials and engineers from energy related organisations. Another important function carried out as part of the RGAUD 07 was the “National Demonstration Workshop on Improved Biomass Stoves” held on 5th September 2007 at ANERT Conference Hall, Thiruvananthapuram. The workshop discussed the limitations presently faced by the improved chulha popularisation programme in Kerala and the special features of various improved chulha models being popularised in other states of India. Experts from North – East Institute of Science & Technology Jorhat, Assam, Department of Bio Energy, Tamil nadu Agricultural University, QPRE Energy (India) Pvt Ltd, Bangalore, Ottotractions, Kerala etc participated and presented papers in the workshop.



An exhibition of various improved Biomass Stove models in use within Kerala and in other States was held from 5th to 8th of September 2007, which attracted the attention of public at large. Among the various models demonstrated, the improvised models of parishad chulha and new generation biomass gasification stove models were the major attractions in the exhibition. Exhibitions, technical seminars, quiz and essay writing competitions for school students, rallies and public meetings etc, were

held in various districts also as part of the RGAUD 07 Campaign.

MNRE had also accorded sanction for ANERT to conduct general publicity programmes including participation in major exhibitions, conducting awareness programmes, bringing out brochure etc. Apart from the programmes organised as part of the RGAUD campaign, ANERT had also carried out Mobile Renewable Energy demonstrations & Awareness programmes in various parts of the State for 96 days, participated in 10 major exhibitions (of duration more than a week) with MNRE assistance and also participated in 14 small exhibitions of regional importance.



Total Energy Security Mission

The Total Energy Security Mission (TESM) is the flagship project in power sector launched by the Government of Kerala during the Eleventh Five Year plan. A Mission Group consisting of members of the State Planning Board, Principal Secretaries for Power, Local Self Government and Planning, Directors of Agency for Non-Conventional Energy and Rural Technology (ANERT) and Energy Management Centre (EMC) has been formed for providing directions to the Mission activities. The Mission is championed by ANERT and EMC, two leading agencies working on energy in the state along with the Kerala State Electricity Board. The greatest strength of the Total Energy Security Mission is the grass root level linkages that the Mission has achieved by virtue of its partnership with the local governments in the state.

As per the GO (Rt) No:69/ 2007/PD dated 26.03.2007, Government has constituted the Mission Group for implementation of programmes in the Non-conventional Energy Sector, and directed ANERT to provide the office set up and logistics for the Mission. Accordingly vide order No 445/A2/07/Admn/ ANERT dated 07.04.2007, necessary initial arrangements were made at ANERT for supporting the Mission Group. Subsequently, the 7th Meeting of the TES Mission Group (held on 9.05.2007) decided to organise District Level Conventions of Local Body Leaders, Three Regional Training Programmes and Training of Teachers and resource persons in every district in the month of May and instructed ANERT to provide immediate expenses for the TESH programme from the carry over funds available at ANERT, which will be reimbursed later from the plan fund allotted for the Mission.



Accordingly, ANERT organised the "State Level Orientation Workshop for district level key functionaries" on 27th April 2007 and the "State Level Review Meeting of the Co-ordination Committee" on 19th May 2007 both at Kudumbasree Office

Auditorium. Based on the consultations of these meetings, Government has constituted the State Level Co-ordination Committee of the Mission [GO (Rt) No 111/2007/PD dated 17.05.2007] and District Level Co-ordination Committees in every district [GO (Rt) No 1460/07/LSGD dated 21.05.2007].



The half day District Level Conventions of Local Body Leaders in all districts were conducted from 21st to 25th of May. Three Regional Training Programmes for the Resource Persons (or Trainer of Trainees) selected from each districts were held at Thrissur (on 23rd May), Thiruvananthapuram (on 24th May) and Kozhikode (on 25th May). Subsequently the District Level Teachers Training for the team of two teachers selected from each Grama Panchayat, Municipality and Corporation as primary co-ordinators of the "Energy – Environment Corp", were held as a one day orientation training in every district on the

25th and the 26th of May. This trained team of activists took lead in the conduct of a Lecture Session in all the Local Bodies of Kerala on 5th June 2007, heralding the launch of "Total Energy Security Mission" as well as building up public awareness on the relevance of Energy Security, Energy - Environment Linkages and the Renewable Energy Potential of the State.

The formal launch of the Mission was held on 5th June 2007, 10 am at Palakkad Municipal Town Hall, where His Excellency, Governor of Kerala Sri RL Bhatiya declared the Launch of the Mission. The meeting was presided over by Sri A K Balan, Hon'ble Minister for Power and Sri Paloli Muhammed Kutti, Hon'ble Minister for Local Self Government delivered felicitations in the function.

ANERT has also taken up steps for the Information, Education and Communication activities for the Mission. As part of the IEC campaign Time Table Cards with messages of the Mission were printed and distributed to the school students, Cinema Theatre Slides were prepared and distributed to all major theatres in all districts, Video - Audio Spots on the Mission Programme were prepared and telecasted through AIR and Doordarshan.

As a prelude to the formulation of projects at Local Self Government institution level, four regional workshops were held at Thiruvananthapuram, Ernakulam, Palakkad and Kozhikode for introducing TES Mission programmes and vision to the pilot Panchayats. Accordingly 302 local self government institutions (LSGIs) – ie, 290 Grama Panchayats, 9 Municipalities and 3 Corporations have taken up TESH projects for preparation of detailed energy plans and all the district Panchayats have proposed major



renewable energy projects as part of the Mission programme. The Mission had also initiated a project for survey of promising Small Hydro Electric Power projects in the State.

The State Level Faculty Orientation programme of the Mission was held at Kannapuram Grama panchayat, Kannur during the 16th and 17th of December 2007. Subsequently, the survey schedules were finalised in a workshop held at State Planning Board from 2nd January 2008. State Level Faculty Training Programme for Land Mark Mapping was held at Kolazhi Grama Panchayat, Thrissur during 14th to 16th of January 2008 and State Level Faculty Training Programme for Sample Energy Survey held at Peringara Grama Panchayat, Pathanamthitta during the 21st to 25th of January 2008. Training Programme for Power Line Mapping was conducted during the 28th of January to 1st of February 2008 at Muhamma Grama Panchayat, Alappuzha and the training programme for Mandatory Energy Survey of all un-electrified households was held at Kannapuram Grama Panchayat, Kannur from 12th to 14th of February 2008.

The district level office set up as well as the district level functionaries of ANERT, established under the Integrated Rural Energy Planning (IREP) scheme is now being deployed for the smooth functioning of the TESM activities as the IREP scheme is being stopped by the central Government. The energy surveys and renewable energy resource assessments being carried out at local body level and the Energy Development Plans being prepared as part of TESM activities along with the field experience and skill up gradation achieved by the personnel would be an asset and foundation for district level activities of ANERT in future.

Unaudited Statement of Accounts of ANERT
for the Financial Year 2007-08

(all amounts are given in Rs Lakhs)

Budget Head	Budget sub-Head	Programme	Budget Provision	Expenditure
2810-60-800-99				
	1	Non- Plan	116.00	116.00
2810-60-800-96				
	2	General Plan Expenditure	15.00	7.20
	3	ANERT Land and Building	50.00	0.00*
	4	Wind Energy Programme	5.00	9.16
	5	Bio Energy Programme	245.00	54.02
	6	R&D, Library and IT	14.00	7.76
	7	Publicity, Information and Dissemination	2.00	36.36
	8	Solar Thermal Energy Programme	12.00	18.02
	13	SPV Programme	5.00	15.41
	14	Micro Hydel Programme	2.00	6.94
		Total	350.00	154.87
2810-60-800-98				
	11	IREP Programme	150.00	126.59

*Orders are awaited



ANNEXURES

Achievements of ANERT for the year 2007-08

Sector of Activity	Achievement in brief		Remarks
Wind Energy	Wind Farms with Private Sector participation (under installation)	28.8 MW	Installation work ongoing; this will add <u>28.8 MW installed capacity to the grid</u> soon.
Bio Energy	Institutional Biogas Plants for Thermal Application	21 Nos [525 m ³]	Biogas generated in these 31 plants is being used as cooking fuel in canteens of the respective institutions. Total <u>720 m³ gas per day</u> generated is <u>equivalent to 310kg LPG per day or 22 cylinders of LPG per day</u> . At the cost of LPG for non-domestic use Rs 480/-per cyl, this amounts to generation of good quality cooking gas from waste for <u>not less than Rs 32 Lakhs a year</u> .
	Thermal Application Biogas Plants in Hospitals	10 Nos [195 m ³]	
	Biogas Plants for Electricity generation	3 Nos [65 m ³]	The electricity generated in these plants is <u>sufficient for lighting 250 nos of 18W CFLs for about 8 hours daily</u> .
Solar Thermal Energy	Domestic Solar Water Heater	468 Nos [46,800 LPD]	Total <u>64400 Liters of hot water</u> is generated every day using solar thermal energy; this is <u>equivalent to a savings of 2 Lakhs units of electricity per year</u> .
	300 LPD Solar Water Heaters for PHC/ CHC	32 Nos [9,600 LPD]	
	Larger Solar Water Heaters (>= 500 LPD) for Hospitals	12 Nos [8000 LPD]	
Improved Domestic Chulha	for SC/ ST households	16,805 Nos	
	for General households	14,337 Nos	
Community Chulha	for Anganawadi	481 Nos	
	for Schools/ institutions	543 Nos	
Solar Photovoltaic Energy	Project for electrifying 6120 remote households approved by MNRE with CFA amounting Rs 714.5 Lakhs		This project will ensure electrification of 6120 remote houses in the coming year which cannot be electrified from the KSEB grid due to forest act restrictions.

Sector of Activity	Achievement in brief	
Training programmes conducted by RERTC	Improved Chulha construction	374 persons
	Construction, repair & maintenance of domestic Biogas plants	30 persons
	Repair and maintenance of SPV devices	30 persons
Information Publicity Education	Mobile Renewable Energy demonstrations & Awareness programmes	96 days
	Participation in major exhibitions (of duration more than a week) with MNRE assistance	9 nos
	Participation in small exhibitions of regional importance	14 nos
	Renewable Energy Workshops	3 nos
	Rajiv Gandhi Akshay Urja Diwas Publicity Campaign (with MNRE assistance)	organised with various programmes in all districts
Micro Hydel Power	Pre-feasibility investigation of small hydro power sites in Kannur completed; Report being prepared	
	Renovation and upgradation of two SHP plants undertaken [Pathanpara, Kannur -5 kW and Mamalakandam, Urulikuzhi – 15 kW]	
Research & Development	96% efficient circuit designed for LED based Solar Lighting Unit (efficiency of units presently available in Market is about 80% only) This study was done with the support of Solar Energy Centre of MNRE	

- Detailed List of installations attached



Agency for Non-conventional Energy and Rural Technology

List of Wind Farms under construction

Location	Capacity	Entrepreneur
Ramakkalmedu, Idukki	12.0 MW	Westas Wind Technology India Pvt Ltd
Agali, Palakkad	9.0 MW	Sarjan Realities Ltd
Agali, Palakkad	7.8 MW	Suzlon Energy Ltd
TOTAL	28.8 MW	

List of Biogas Plants

Institutional Biogas Plants for Thermal Application:

SI No	Institution	Capacity
1	I M S Dhyana Bhavan, Paravoor Alappuzha	20 M ³
2	Kitex Garments, Kizhakkambalam Ernakulam	35 M ³
3	Ferook College, Kozhikode	20 M ³
4	Markasu Ssaquafathi Ssunniyya Karanthur Kozhikode	35 M ³
5	Shanthi Ashram, Shanthi Nagar P O Kulathara, Kozhikode	15 M ³
6	Pushpagiri Medical College, Thiruvalla Pathanamthitta	35 M ³
7	St Martin Hospital, Sultan Battery Wyanad	15 M ³

8	Kitex Garments, Kizhakkambalam, Ernakulam	35 M ³
9	Christuraja Prayer Home, Kakkad P O Piravam, Ernakulam	35 M ³
10	Steel and Industrial Forging Ltd Athani PO, Trichur	15 M ³
11	S H G Hospital, Greengardens Cherthala, Alappuzha	20 M ³
12	Sehion Retreat Centre, Thavalam P O Palakkad	20 M ³
13	Samaritan Hospital, Pazhanganad, Kizhakkambalam, Ernakulam	20 M ³
14	Sreedhareeyam Ayurvedic Eye Hospital & Research Centre, Koothatukulam Ernakulam	25 M ³
15	S H Hospital, Payankulam, Idukki	35 M ³
16	Canossian Convent, Poonthura Thiruvananthapuram	15 M ³
17	KSEB, Vydyuthi Bhavan, Pattom Thiruvananthapuram	15 M ³
18	Uniroyal Marine Exports, Kozhikode	20 M ³
19	MIMS Hospital, Govindapuram, Kozhikode	35 M ³
20	Markasu saquafathi Ssunniyya Karanthur, Kozhikode	35 M ³
21	Sidhisadanam, Lourde college of Nursing, Ernakulam	25 M ³

Thermal Application Biogas Plants in Hospitals

SI No	Name of the Hospital	Capacity in m³
1	Govt Victoria Hospital Kollam	15
2	District Hospital Kollam	15
3	Taluk Hospital Harippad	15
4	Taluk Hospital Maveikkara	20
5	Community Health Centre Nedumkandam	15
6	Ladies Hostel Ayurveda Medical College Ernakulam	15
7	Govt Hospital Perumbavoor	20
8	Medical College Kozhikode	35
9	Taluk Hospital Quilandy	25
10	District Hospital Kanhagad	20
	TOTAL	195 M³

Biogas Plants for Electricity generation

SI No	Institution	Capacity
1	Shibu Paul, Kanduthodil House Kollapally, Kottayam	25 M ³
2	Shiju Paul, Kanduthodil House Kollapally, Kottayam	25 M ³
3	Little Tree Training Centre, Govindapuram Palakkad	15 M ³
	TOTAL	65 M³



Agency for Non-conventional Energy and Rural Technology

List of Hospitals/ Community/ Primary Health Centers where 300 LPD Solar Water Heating Systems are installed

Sl. No.	District	Name & Address	Installation Status
1	Kollam	Community Health Centre, Trikkadavoor, Perinad – PO.	on going
2	“	Primary Health Centre, Kundara PO	on going
3	“	Primary Health Centre, Paripally PO	on going
4	“	Govt. Hospital Neendakara, Puthenthura PO	on going
5	“	Community Health Centre, Anchal, Kollam	on going
6	“	Govt. Ayurveda Hospital, Poruvazhy, Sasthamcotta.	on going
7	Pathanamthitta	Govt. Ayurveda Hospital, Kadampanad, Parakkode.	on going
8	“	Govt. Ayurveda Hospital, Angadicakal North PO, Kodumon.	on going
9	“	Govt. Ayurveda Hospital, Omalloor, Elanthoor.	on going
10	“	Community Health Centre, Perunad, Ranni.	on going
11	“	Primary Health Centre, Kadampanad.	on going
12	Alappuzha	Community Health Centre, Muhamma, Kanjikuzhy.	Completed
13	“	Community Health Centre, Trikkunnapuzha, Haripad.	Completed
14	“	Govt. Hospital, Chambakulam.	Completed
15	“	Govt. Ayurveda Hospital, Cherthala.	Completed
16	“	Govt. Ayurveda Hospital, Mararikulam, Kanjikuzhy.	Completed
17	Kottayam	Community Health Centre, Erumeli, Kanjirapally.	on going
18	“	Primary Health Centre, Kumarakom.	on going
19	“	Community Health Centre, Karukachal, Madapally.	on going
20	“	Community Health Centre, Paika.	on going
21	“	Primary Health Centre, Mundakunnu PO, Kalakunnam.	on going
22	“	Taluk Ayurveda Hospital.	on going
23	Idukki	Primary Health Centre, Karimannoor, Elamdesam.	on going
24	“	Community Health Centre, Nedumkandam.	on going
25	“	District Ayurveda Hospital, Paraimavu, Vazhathope.	on going
26	Thrissur	Rama Varma District Ayurveda Hospital.	Completed

27	“	Primary Health Centre, Panjal, Killimangalam	Completed
28	“	Primary Health Centre, Kaippamangalam, Koorikuzhi P.O.	Completed
29	Palakkad	Community Health Centre, Nenmara	Completed
30	“	Community Health Centre, Koduvayoor	Completed
31	“	Community Health Centre, Alathoor	Completed
32	“	Community Health Centre, Kuzhalmannam	Completed
33	“	Govt. Hospital, Chittoor	Completed
34	“	Primary Health Centre, Puthuperiyaram	Completed
35	“	District Ayurveda Hospital.	Completed
36	“	Govt. Ayurveda Hospital, Mannarkkad	Completed
37	“	Community Health Centre, Koppam	Completed
38	“	Govt. District Homeo Hospital, Kalpathy	Completed
39	“	Community Health Centre, Kadampazhipuram	Completed
40	“	Primary Health Centre, Kongadu	Completed
41	Malappuram	Primary Health Centre, Vettom.	Completed
42	“	Primary Health Centre, Nannampra, Vallikunnu, Thirurangadi.	Completed
43	“	Community Health Centre, Parathur, Tirur	Completed
44	“	Community Health Centre, Neduwa	Completed
45	“	Community Health Centre, Edappal	Completed
46	Kozhikkode	Community Health Centre, Vorkattery	Completed
47	“	Community Health Centre, Balussery	Completed
48	“	Govt. District Homeo Hospital.	Completed
49	“	Govt. Taluk Homeo Hospital, Quilandy	Completed
50	“	Vadakara Taluk Homeo Hospital, Kuningadu	Completed
51	“	Valayam Primary Health Centre, Valayam	Completed
52	Wayanad	Public Health Centre, Prounnannoor	Completed
53	Kannur	Community Health Centre, Pinarayi	on going
54	“	Community Health Centre, Mayyil	on going
55	“	Taluk Ayurveda Hospital, Thaliparamba	on going
56	“	Govt. Hospital, Payyannur	on going
57	Kasaragod	Community Health Centre, Kumbla	on going
58	“	Govt. Ayurveda Hospital, Cheemeni	on going
59	“	Community Health Centre, Baadiakka	on going
60	“	Primary Health Centre, Chittarikkal	on going

Solar Water Heating Systems for Taluk/District Hospitals

Sl. No.	District	Name of Hospital	Capacity	Installation Status
1	Thiruvananthapuram	Govt. Hospital, Parassala.	500 LPD	Completed
2	Kollam	Govt. Victoria Hospital	1000 LPD	Completed
3	Alappuzha	District Ayurveda Hospital,	500 LPD	Completed
4	Kottayam	Taluk Hospital, Vaikkom.	500 LPD	on going
5	Kottayam	Dist. Ayurveda Hospital.	500 LPD	on going
6	Kottayam	Govt. Taluk Hospital, Changanassery	500 LPD	on going
7	Ernakulam	Govt. Ayurveda Medical College, Trippunithura.	1500 LPD	on going
8	Ernakulam	Taluk Head Qrs. Hospital, Aluva.	500 LPD	on going
9	Malappuram	Taluk Hospital, Tirur.	500 LPD	Completed
10	Malappuram	Taluk Hospital, Thirurangadi.	500 LPF	Completed
11	Malappuram	Taluk Hospital, Nilambur.	500 LPD	Completed
12	Malappuram	Taluk Hospital, Ponnani.	500 LPD	Completed
13	Malappuram	Govt. Ayurveda Hospital, Ponnani.	500 LPD	Completed
14	Malappuram	Taluk Hospital, Perithalmanna.	500 LPD	Completed
15	Kozhikkode	Institute of Maternal and Child Health Medical College.	1500LPD	Completed
16	Kasaragod	District Hospital, Kahnangadu	1000 LPD	on going
17	Kannur	District Hospital.	1000 LPD	on going
18	Kannur	District Ayurveda Hospital.	1000 LPD	on going
19	Wayanad	District Hospital, Mananthvady.	1000 LPD	Completed
20	Wayanad	Govt. Taluk Hospital, Sulthan Bathery.	500 LPD	Completed
		TOTAL	14,500 LPD	

