

EnConTea

A Quarterly Newsletter of the Project -
Energy Conservation in Small Sector Tea Processing Units in South India



TIDE

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EDITORIAL

Mr. R. Ambalavanan, IA & AS,
Executive Director, Tea Board
National Project Director

PROJECT IN BRIEF

The project - Energy Conservation in Small Sector Tea Processing Units in south India, has been initiated by the Tea Board to remove barriers to energy conservation and energy efficiency that inhibit the realization of large energy saving potential in the tea sector. This 4-year project is supported by the United Nations Development Programme - Global Environment Facility. The project's objective is to remove barriers and to develop replicable strategies for energy efficiency and energy conservation interventions in the tea processing industry in south India. The objective would be achieved by:

- Awareness creation among the target sector about energy efficiency/renewable energy technologies and their relation to profitability
- Elimination of financial barriers that inhibit investment in energy conservation equipment
- Adoption and procurement of energy efficiency/renewable energy equipment/practice
- Learning, knowledge sharing and replication



As we completed three years of the project period, clear direction and momentum to reduce energy stress in the sector could be seen as a priority. Adoption of energy efficient equipment, especially electrical energy equipment has picked up pace and I do not see any further resistance to its adoption. At the moment, there is a huge shortage of fire wood, which would eventually result in high cost of production, and we would reach a stage sooner or later, where fire wood would not be available even for higher cost. Trucks that carry firewood from as far as 200 kms into the beautiful tea gardens highlight only a short term problem, but this issue has long term consequences. Hence, the industry needs to plan other alternative options to mitigate this problem through technology and conservation.

One of the considered options for the fuel security of the sector is that tea estates must opt for energy plantations on their lands, secure their fuel source and reduce dependency on firewood traders. Our calculations show that if about 5% of the area under tea plantation can be set aside by an estate for intensive bamboo cultivation or any other high yielding fire wood species, factories would have secured their own fuel consumption. Bought leaf factories can go in for briquettes and the project is working to provide easy sourcing for the same. But tremendous challenges are ahead to make these options operational.

In order to continue the efforts of energy conservation and renewable energy options for the tea sector, Shri Dinesh Sharma, Chairman, Tea Board, myself along with Ms. Svati and Prof. Madhavan and UNDP

representatives met Shri Deepak Gupta, the Secretary, MNRE, GOI on 25th Feb 2011 to request him to appoint the Tea Board as a nodal agency for implementation of MNRE schemes in the tea sector. We received very positive responses and expect this arrangement to be operational soon. This would enable the stakeholders to easily get the benefit of MNRE schemes through the Tea Board.

Conserving tea biodiversity is important and one way of doing it is by reducing the use of pesticides and inorganic fertilizers in the tea gardens to the barest minimum. We need to compile data on man animal conflict and the use of pesticides and then look for solutions to further enhance the economy of the sector. These actions could lead us to eco-tea tourism and, who knows, open up another revenue stream for the sector.

The project is now engaged in completion of activities like producing of video films on energy efficient equipment, so that the sector would have all information available in an easy to use form. These video tutorials are also directed at operators in tea factories and they should be able to refer to them often for any information about energy efficient equipment. We are close to completing 100 energy audits and we would like to bring out a comprehensive report on the findings from those 100 audits.

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(For Internal Circulation Only)



THE AFRICAN EXPERIENCE OF TEA DRYING

Vinod D. Vadera, Director, Kakonde Tea Estate, Kampala, Uganda

1. Thank you, Sir, for talking to EnConTea. We are happy to be talking to someone from Uganda. Is

the tea making process and equipment in Uganda similar to that in India?

By and large the manufacturing processes in tea factories are similar. Tea manufacture in south India is in many ways closer to the processes in Uganda than to the processes in Assam, particularly with respect to the use of thermal energy. The major similarity is that Uganda uses firewood for withering and drying of tea.

2. Are tea estates in Uganda located in hilly regions?

In Uganda, tea is grown in the highland areas, where there is adequate rainfall and temperatures are low. There is a great potential for exploitation of hydro power in Ugandan tea plantations. However, energy for tea drying is a challenge. There is an acute shortage of firewood, although it is still the cheapest fuel for tea drying. We buy huge quantities of firewood and store them for 3 - 6 months before usage, in order to ensure that the wood is properly dried. The forest cover in Uganda is rapidly decreasing and this is becoming a growing concern for us.

Tea companies are trying to buy private land and plant trees there to meet their energy requirements. About 480 hectare (ha) of wood are required for each factory to meet 100% of its energy needs.

3. Using air heaters for tea drying is very common in south India. How is hot air produced in Ugandan tea factories?

Air heaters are just not used in Uganda. More than 95% of the tea factories use boilers. As you know, the quality of Ugandan tea is very good. We use boilers because it

gives a uniform temperature and ensures that the quality is not compromised due to uneven temperature.

4. Do you buy cut wood or huge logs of wood, because hot water generators require wood of a particular quality?

The boilers used in Uganda require fuel of a particular size. The size of the wood fed into the boiler never exceeds 40 cms in length. As we store the wood for 3 – 6 months, the moisture content is also quite low – about 18% as compared to the wood used in the Nilgiris, which is typically at 30%.

5. Do you do energy audits and measure the wood consumption for the drying of tea?

We are more focused on measuring the firewood consumption, owing to the severe shortage of wood. We regularly measure the wood consumed for tea drying. The term Drier Mouth Tea (DMT) is used very commonly for boilers. The specific wood consumption is less than 0.6 kg per kg of DMT for boilers. I think our techniques of using firewood are better developed, whereas in the Nilgiris techniques for the reduction of electrical energy consumption are better developed.

6. What aspects of the EnConTea project interest you the most?

I am happy with the scientific approach adopted by the project and the generation of a large amount of data, which largely facilitates decision making aspects. However, I would be especially interested in the performance of the thermal gasifier that you have recommended for green tea panning in Glenmorgan. This would be a new technology for Uganda and I would like to see it work here for some time, before I consider its deployment in Uganda.

ENCONTEA PROJECT EMBARKS ON AN INVESTMENT CONSENSUS

Compiling and disseminating investment in energy conservation equipment during the project period is important for several reasons.

It is:

A measure of the credibility and the quality of the energy audits

A measure of the confidence that the sector has shown in the recommendations of the audit

An indication of the support that the project has offered to the sector, for the conversion of recommendations to implementations

A measure of the energy stress currently faced by the industry and its commitment to save energy

We hope that the numbers published in the table will inspire confidence among tea factories. Investment in energy conservation is rapidly gaining momentum, and as can be seen, the time to change and experience the benefit is now.

ENERGY INVESTMENT IN ABOUT 110 FACTORIES

No	Equipment	Quantity	Cost (Rs.)
THERMAL ENERGY			
1	Hot Water Generator	17	7 07 82 825
2	Wood Splitter	58	1 47 17 719
3	Wood Shed	30	80 95 980
4	ID Fan Controller	47	44 06 814
Total			9 80 03 338
ELECTRICAL ENERGY			
1	EE Motors	23	60 04 025
2	Flat Belt Transmission	32	32 43 963
3	APFC / MD Controller etc	78	82 26 631
Total			1 74 74 619
Grand Total			11 54 77 957 (Rs 11.5 crores)

FAQs ON BEEMA BAMBOO CULTIVATION AS AN ENERGY CROP

Bamboo plantations have captured the imagination of the tea sector and many estates are opting for bamboo plantations. Nonetheless, some questions remain. In this article, Dr. Barathi of Growmore Biotech Ltd. answers FAQs (Frequently Asked Questions).

1. Is bamboo classified as a forest produce or a horticultural crop?

Cultivated bamboo comes under the department of horticulture, whereas wild bamboo belongs to the forest department. Bamboo cultivation is promoted by the Government of India through the National Bamboo Mission under the Ministry of Agriculture, functioning through the Commissioner of Horticulture at the national level. At the state level, it is operating through the Directorate of Horticulture. When bamboo is being grown on private land, its cultivation and harvest are considered like that of any other horticultural crops.



Beema bamboo plantation at Growmore Biotech Ltd.

2. Can I plant bamboo saplings on my own land and harvest it whenever I wish to?

Yes. As private lands are not forest lands, you can plant on your own land and harvest at will. Many farmers have already started cultivating bamboo as a horticultural crop.

3. Can bamboo be grown on degraded soil / barren land? Does it bring down the soil fertility and water table depth?

It can be grown on degraded soil, but only after making required soil factor corrections. The yield of bamboo to a great extent depends on climatic conditions such as high relative humidity, rainfall and water availability. If these factors are positive, barren land can also be converted into a plantation. The soil EC (electrical conductivity) should be less than 2 millimhos and the pH should be between 4.5 and 9.0. As this is fast growing bamboo, it removes nutrients from the soil faster than other plants. However, nutrient depletion for every ton of biomass produced is similar to all other plants and trees. Hence, the application of fertilizers is required to help the plants to retain high growth rate and yield.

4. Does the cultivation of bamboo degrade the soil?

Bamboo does not degrade the soil. Bamboo generates

a large quantity of leaves which keep falling on the soil, increasing the organic matter in the soil and improving its fertility.

5. Is bamboo regenerative / Will bamboo re-grow on cutting? Does it flower?

Yes, bamboo is regenerative in nature. It is a ratoon forming, rhizomatous crop, similar to banana and sugarcane and can be propagated by rhizomes and cutting. The tissue cultured plants give higher yield and superior quality. Beema bamboo flowers, but the flowers are sterile, and the crop continues to live and give good yield.

6. What is the growth rate and yield of Beema bamboo?

Beema bamboo is a very fast growing species with a potential shoot growth rate of 1 to 1.5 feet per day. Under high density plantation, the height of Beema bamboo can reach up to 15 or 20 feet in the first year and 25 to 30 feet after 3 years. The ultimate height of Beema bamboo is 40 to 50 feet, which occurs after 5 years, when it is grown at a spacing of 15 feet x 15 feet. Under cultivation and proper management it can yield 40 to 60 tons / acre / year, with an average yield of 50 tons of biomass (air dried / acre). Harvest can begin two years after plantation.

The annual yield is given below (per acre):

2nd Year end: 30 tons

3rd Year end: 40 tons

4th Year end and onwards: 50 tons

7. Can Beema bamboo grow at high altitude? (say > 5000 ft MSL)

Yes, Beema bamboo can grow at altitudes of 5000 feet. Other species of bamboo, like *Dendrocalamus Hamiltoni*, *Dendrocalamus Brandisi*, *Bambusa Nutans*, *Bambusa Tulda* and *Phyllostachys Bambusoides*, can also be grown at an altitude of 5000 feet or more. It cannot be grown at sub zero or very low temperatures.



Using Beema bamboo as a source of energy

8. How much irrigation is required?

Depending on the age, weather condition and soil moisture condition, 10 to 20 liters of water are required for one plant on a daily basis.

9. How many saplings can be planted per hectare?

Using intensive farming, 2,500 saplings can be planted in one hectare, with a spacing of 4 feet between plants in a row and 10 feet space between rows of bamboo. Under conventional farming, 500 plants can be planted per hectare, with a spacing of 15 feet x 15 feet. In the conventional mode, harvest begins after 4 years, whereby the yield is comparable to that of the second year in intensive farming.

10. Can it be grown as an intercrop?

Yes. However, intercropping will be dependent on the spacing adopted for the primary crop. Bamboo is often recommended and grown as a mixed crop, border crop and shade crop.

11. How can one source bamboo saplings?

The Beema bamboo clone, developed by Growmore Biotech Ltd., is multiplied by tissue culture and is available at Growmore Biotech Ltd. in Hosur and Tamilnadu. In Hosur, the cost of each plant is Rs. 25, excluding transportation, and the minimum order is for 1000 plants.

12. If I have adequate land for cultivation, what are the other costs?

The expenditure per acre will be approximately Rs. 80,000 for the first year, Rs. 22,000 for the second year and for the third and subsequent years Rs. 20,000.

13. Is this for intensive cultivation?

Yes. In intensive cultivation, the harvesting starts towards end of the second year of planting. These figures are based on average input costs and can vary according to local conditions, soil, availability of water, labour costs and the size of the plantation.

14. Is it profitable to grow bamboo?

The numbers speak for themselves ...

Economics for one acre of Beema bamboo:

First year investment:	Rs. 80,000
Total investment in the first 10 years:	Rs. 260,000
Expected biomass yield in 10 years:	400 tons / acre
Average cost of production of biomass:	Rs. 650 / ton



A cut portion of Beema bamboo

Profit (assuming Rs. 2000 / ton of biomass)

Sales value:	Rs. 800,000
Investment	Rs. 260,000
Profit:	Rs. 540,000

Average annualized profit is Rs. 54,000 for a capital investment of Rs. 80,000 to Rs. 100,000, excluding the cost of land.

15. What are the fuel characteristics of Beema bamboo?

The density is 400 kgs / m³ and the average calorific value is 4000 kcal / kg. All varieties of bamboo are suitable as biomass fuel, but high density bamboo like Beema bamboo will generate more biomass, more heat and less ash compared to other varieties. If the lowest temperature of climatic condition is lower than zero degree, the usage of other species like *Dendrocalamus Hamiltoni* and *Dendrocalamus Brandisi* is recommended.

16. What should be the area under cultivation for a factory producing 15 lakh kg / year of tea?

A factory producing 15 lakh kg / year of tea requires 2000 tons of firewood annually. It would require about 50 acres under Beema bamboo cultivation.

17. Are there any statutory obligations with regard to bamboo cultivation?

No, because the Government of India has classified bamboo as a horticultural crop. Bamboo is also eligible for subsidy under the National Bamboo Mission. A farmer can avail a subsidy of Rs. 4000 / hectare (ha) in the first year and Rs. 4000 per ha for the second year, for a maximum area of 4 ha. Nationalized banks provide agricultural loans for the cultivation of bamboo.

For more information on the cultivation of Beema bamboo, please contact:

Growmore Biotech Ltd.

#41-B, SIPCOT Phase-II, Hosur - 635 109, Tamilnadu, India.

Phone: +91 04344 260564 ; E-Mail: info@growmorebiotech.com

The TIDE Technical Team (TTT) has been conducting performance studies in tea factories that have undergone energy audits and implemented recommended energy conservation schemes. Details of performance studies, a service which is offered by the project for free, are compiled and documented in form of reports, which contain key findings and performance measures of interventions implemented

in tea factories. The main purpose of these TTT performance study reports is to give a detailed analysis of energy consumption patterns post implementation of EnCon schemes. This forms the basis for tea factories to evaluate the performance of energy conservation implementations.

More than 70 technical reports have been prepared based on the request made by tea factories.

The break-up of the performance studies and reports is as below:

Performance Studies conducted by TIDE TECHNICAL TEAM (T T T) - April '10 to March '11									
#	Electrical Energy						Thermal Energy		
	1	2	3	4	5	6	7	8	9
	ID Fan Controller for Fuel Optimization in Furnace of the Drier	House - keeping (Factory Maintenance)	Implementation of ENCON Schemes	Energy Efficient Motors	Flat Belt Performance Evaluation	Star Connection for Lowly Loaded Motors (Energy Optimization)	Withering Study (specific to Fans)	Thermal Study (Hot Air Generator +Drier)	Thermal Study (Hot Water Generator + Drier)
1	AVT - Katary	Akshaya	Balanoor Plantations	Akshaya	BBTC - Anaimudi	AVT - Chulika	AVT - Caradygoody	AVT - Pasuparai	AVT - Chulika
2	BBTC - Dunsandle	AVT - Katary	BBTC - Dunsandle	BBTC - Dunsandle	BBTC - Mukkotumudi	Balanoor Plantations	BBTC - Dunsandle	BBTC - Dunsandle	
3	Balanoor Plantations	BBTC - Dunsandle	Hittakkal	Balanoor Plantations	Highfield	Poabs Enterprises	AVT - Chulika	BBTC - Mukkotumudi	
4	Glenmorgan	Balanoor	HRD	Devon Plantations	Kaikatty Indco	Tyford	Highfield	Glenmorgan (Panning)	
5	Highfield- CTC	Chamraj	Kairbetta	Highfield	Tyford		Tyford		
6	Highfield Orthodox	Doddabetta	Mailoor	Jayshree - Sholayar & Kalayar					
7	HRD	Haileyburia	Poabs Enterprises	Sri Bathma					
8	Kadamane	Highfield	Ripon	Tyford					
9	Kelagur	Kaikatty Indco	Snowdon						
10	Kotagiri Estates Tea	Karumbalam Indco	Sri Bathma						
11	Mailoor	Korakundah							
12	Parisons - Talapoya	Mailoor							
13	Ripon	Mercunad Indco							
14	Silver Cloud	Semnivalley							
15	Sogathorai Vani Vilas	Singara							
16	Tantea Tiger Hill	Tyford							
17	The Mysore Plantation Ltd								
18	Wayanad Agro Movement								
SUM	61						10		

These technical reports have been prepared in the past 1 year, averaging out to 5 – 6 reports per month.

The reports encompass 3 distinct areas ...

Electrical Energy Conservation:

These schemes comprise of energy efficient motors, flat belt drives, motor downsizing and changing from delta mode connection to star mode connection in lowly loaded Hp motors.

Thermal Energy Conservation:

These studies relate mainly to two areas, firstly the usage of VFD based flue gas fan speed controller in relation to the combustion of fuel inside the furnace and secondly the techno viability of using hot water generators in place of hot air generators in drying operations.

Housekeeping:

This study informs factory personnel (from managers to electricians) about the shortcomings not attended to on the basic electricity connection circuit, ultimately resulting not only in energy wastage but many times proving to be a safety hazard as well. Since housekeeping is the 1st step in energy conservation, we insisted on doing this study in tea factories and all of them readily obliged.

The TIDE Technical Team comprises 6 members of mechanical and electrical engineering disciplines.

In addition, B&C certificate holders are also part of the team.

In about 4 to 6 months' time, the performance and preparation of these studies and reports is likely to be discontinued, as the project will enter a winding down mode.

THE WAY AHEAD FOR ENERGY USE REFORM

The Executive Director of the Tea Board Coonoor visited Delhi on the 24th February 2011, to hold discussions with the United Nations Development Programme (UNDP) on the way ahead for energy use reform in the tea sector of south India. He was joined by Prof. Sethumadhavan, Director, Monitoring and Implementation and Ms. Svati Bhogle, Project Manager. Mr. Anil Arora and Mr. S. N. Srinivas represented UNDP in this meeting.

The objective of this meeting was to enable a better understanding of ongoing and future projects of the UNDP in India and to explore possibilities of linkages with other UNDP projects. Mr. Anil Arora offered an overview of the renewable energy projects. He explained the ongoing global solar water heating project and how the market transformation and strengthening initiative of the MNRE aims to install 2 million sq. kms of collector area. He suggested that the Tea Board consider promoting solar water heaters among its stakeholders. Mr. Ambalavanan stated that the tea project had previously assessed that there was very limited scope for the use of solar water heaters in tea factories. However, if the scope of application is extended to promotion of solar water heaters among the tea stakeholders, there would be a much higher scope for promotion. Nonetheless, a market survey would be required to assess the extent of probable penetration among all stakeholders.

Mr. S. N. Srinivas gave details of the UNDP supported project on the removal of barriers to biomass power generation in India, implemented at the MNRE. He said that under this project partial support for biomass

power projects with power generation capacity of 1-2 MW could be considered. Tea estates could invest in such a power generation facility either as a joint venture with the biomass plantation sector or by association with an energy service provider. Another project being conceived by the UNDP was in support of market development and the promotion of solar concentrators based process heat applications, an emerging technology in India, executed by the solar energy centre, MNRE. Process heat of upto 80 C° could be obtained through this application.

A project on the conservation of mountain biodiversity is also being conceived at the UNDP. Mr. Ambalavanan suggested that all issues of man animal conflict that plague the tea sector and possibly even the promotion of organic tea could be addressed through this. The tea project would try and evolve partnerships with the project partner of this project to find areas of convergence.

The issue of standardization and labelling of energy efficient equipment used in tea factories could also be evolved through intervention and support of the Bureau of Energy Efficiency. It was discussed that several opportunities exist, but as they are in the area of very pioneering work and emerging markets, the tea industry would understandably adopt a very cautious approach to the same. The project would try and understand the issues relating to this and assess the scope and techno-economic aspects.

AWARENESS MEETING ON RENEWABLE ENERGY, VANDIPERIYAR

A one day awareness meeting on renewable energy interventions in the tea sector was organized on Saturday, 19th March 2011, at the CTPA Club in Vandiperiyar.

The program began with a welcome address by Mr. Sunil Sivaraman, Group Manager, AVT Vandiperiyar and President of the CTPA. He mentioned that other than labour, energy was the most pressing need of the sector and therefore he and other planters welcomed the attention being paid to energy conservation by the Tea Board and the project. Ms. Svati Bhogle offered a brief background about the origin of the project and its activities to date. In his inaugural speech, Mr. Ambalavanan, Executive Director, Tea Board reaffirmed his commitment to initiate environment friendly practices in the tea sector. He said that while energy conservation has been well received and the project is doing good work, he looks forward to initiating other environment friendly practices, for example, reducing man - animal conflict and the use of pesticides in tea estates. He informed that the Tea Board has made some headway in becoming the nodal agency for MNRE subsidy and this would render subsidy for renewable energy easy for the tea sector. He invited participants to have a good deliberation and said that he looked forward to receiving constructive feedback from this awareness program. Mr. Sibi

Mathew, Sr. Advisory Officer UPASI, Vandiperiyar proposed a vote of thanks in the inaugural session.

Three presentations were held as part of the technical session. Dr. N. Barathi, Director, Growmore Biotech, spoke about the usage of Beema bamboo as a sustainable energy source for tea industries. He informed that Beema bamboo was a tissue cultured clone and under intensive farming techniques, it could yield in very high quantities. He also said that under the National Bamboo Mission, bamboo was a horticulture



Inaugural session of the awareness meeting in Vandiperiyar

crop and therefore there was no legal hurdle for its cultivation. Mr. Ramaswamy, Executive Director, Vinci Aqua Systems, explained how energy from flowing water could be captured and converted into electricity. He said that the scope for exploitation of pico / small hydro power was very high in the Vandiperiyar region. He also mentioned that if the Tea Board becomes the nodal agency, tea estates in Kerala would benefit to a large extent. He said he is looking forward to install many pico hydro projects in tea estates of Kerala.

Mr. Muralikrishnan, CMO Concept4E, unveiled the entire range of LED lighting options for the tea industry, including specially designed lights for different applications like factory exterior lighting, lighting of withering troughs, etc.

The presentations were followed by a very lively discussion. Mr. Muralikrishnan emphasized that CFLs were not a viable option for tea factories, because of the hazards associated with mercury present in CFLs and contamination of tea by mercury. Dr. Barathi answered several questions on bamboo cultivation with regard to water requirements, the rate of growth, the impact on soil, etc. Mr. Ramaswamy clarified issues concerning the techno-economics of small hydro at different capacities and the subsidy scheme of the MNRE.

As the symposium came to an end, Prof. Madhavan thanked all tea estates for participating in the awareness meeting and making the deliberations very informative.

DISCUSSING ISSUES OF COLLABORATION IN RENEWABLE ENERGY FOR THE TEA SECTOR

A meeting was held between the Secretary, Ministry of New and Renewable Energy, Mr. Deepak Gupta IAS, and Mr. Dinesh Sharma IAS, in-charge Chairman Tea Board, to discuss renewable energy interventions in tea factories and estates. Senior officials of the MNRE, the Executive Director, Tea Board Coonoor, representatives of the UNDP and the project on "Energy Conservation in Tea Processing Units in South India" also participated in the discussions.

Mr. Ambalavanan, Executive Director, explained the high energy consumption patterns in tea making, the energy stress associated with tea drying, the need and acceptance of renewable energy interventions and some limitations coming in the way of adoption of renewable energy by the sector.

He said that as tea was grown in three states of south India besides Darjeeling and the north east, there was need for a single organization to act as the nodal agency for implementation of MNRE schemes. Mr. Dinesh Sharma, Chairman, Tea Board requested that Tea Board of India be approved as the nodal agency for release of MNRE subsidy to tea stakeholders in tea growing parts of the country. He said that this move would stimulate adoption of renewable energy by the sector in greater numbers. The Secretary, MNRE accepted the request and action would be initiated for the same in the very near future. After this

recommendation is implemented, MNRE subsidy for small hydro power projects in all tea sites would be released through to the Tea Board.

Discussions were also held on the way ahead for carbon neutral tea making. It was agreed that the way forward would be through sustainable energy plantations, biomass briquettes and the use of gasifiers in the combined heat and power mode. As tea estates would have access to land, setting aside around 5 - 8 % of their private lands for use as energy plantations, was welcomed by all concerned as the way to energy security. The use of biomass gasifiers in the combined heat and power mode, where electrical and thermal energy needs could be met by the gasifier, was also widely believed to be the way ahead. The need for research into combined heat and power application specific to the tea industry was felt. The Chairman, Tea Board, emphasized that tea is a high value crop and it would be difficult for the sector to offer their factories as live laboratories and to also bear the cost of R&D. Assistance from the MNRE, for research and demonstration of gasifiers in tea factories, has been requested by the Tea Board.

It is expected that in future the two organizations would work in close collaboration for more renewable energy interventions.

INTERNATIONAL RENEWABLE ENERGY EXPO & CONFERENCE 2011

Chennai Trade Center, 14 - 16 January 2011

South India's largest International Renewable Energy Expo and Conference - "VaVoVa 2011", was hosted between the 14th and 16th January 2011, at the Chennai Trade Center, Nandambakkam, Tamilnadu. The first international exhibition cum conference was supported by the Tamilnadu Energy Development Agency (TEDA), the Ministry of New and Renewable Energy (MNRE) and Techno Spaces.

24 sessions were held for the three days and main topics that were covered included wind and solar energy and related technological developments, cases on solar PV and detailed sessions on low and



The EnConTea project stall at VaVoVa 2011

South India's largest International Renewable Energy Expo and Conference - "VaVoVa 2011", was hosted between the 14th and 16th January 2011, at the Chennai Trade Center, Nandambakkam, Tamilnadu. The first international exhibition cum conference was supported by the Tamilnadu Energy Development Agency (TEDA), the Ministry of New and Renewable Energy (MNRE) and Techno Spaces.

24 sessions were held for the three days and main topics that were covered included wind and solar energy and related technological developments, cases on solar PV and detailed sessions on low and medium

temperature solar collectors, renewable energy certificates (REC), REC trading and renewable energy regulatory framework and policies.

The conference was aimed at bringing together on a single platform, various consultants, industry experts, policy makers, national and multinational companies along with project developers, to discuss a way forward on ambitious renewable energy programs.

TIDE took part at this eminent event and showcased best practices and success stories in the area of energy conservation. Banners put on display covered various renewable energy interventions installed and

UNDP CAPTURES PROJECT ACTIVITIES AS A SUCCESS STORY

The UNDP holds periodic reviews of the projects that it supports to evolve learning and best practices adopted. This year, their office selected the project on "Energy Conservation in Small Sector Tea Processing Units in South India" as one of their most important ones, wherein significant impacts have been achieved.

The success story of the project will be documented and showcased, highlighting the learning and spirited dedication to the work, for wider communication purposes and dissemination to other sectors in general and the tea sector in particular.

A documentation team headed by Ms. Nandita Surendran, UNDP New Delhi, and accompanied by professional photographer Mr. Shashank Jayaprasad, visited the project area in Coonoor for detailed and informative interactions with various tea estate owners and managers and individual project staff. To completely capture the success story of the tea project, visits were arranged to several tea factories including Kaikatty Indcoserve, BBTC (Dunsandle), Glenmorgan, AVT, Highfield, Akshaya and Havukkai.

The team also held elaborate discussions with Mr. R

Ambalavanan, Executive Director Tea Board, Mr. Ullas Menon, Secretary General, UPASI, and with other scientists of UPASI.



Mr. Ullas Menon, Secretary General, UPASI, talking to the documentation team

All the required information was received by the UNDP team and their story is expected to be widely disseminated.

Due credit goes to the TIDE Technical Team in the field and the office, for the tireless efforts invested day and night, to make this project a success story.

COMMUNICATING ENERGY CONSERVATION THROUGH VIDEO FILMS

The project has achieved a tremendous response to implementation of energy conservation interventions. At present, the situation is that tea factories are rapidly adopting energy efficient equipment. Currently the project staff is making visits to tea factories to help the managers and operators work with energy efficient equipment. However, this is a high cost intervention and the service cannot be offered beyond the project period. Tea factories are situated in remote locations and considering the nature of the industry, they cannot afford a break down in manufacturing. In order to help the tea factories to understand the energy conservation interventions, video films on each energy efficient intervention will be made, which will be self explanatory. The video films would also help in replicating the project learnings to other tea processing

regions. Video films will be made on following interventions in the coming months

- ID controller
- Wood shed / Wood splitter
- Flat belts over V belts
- Section-wise energy meters
- LED
- Maximum demand controller
- Hot water generator
- Energy efficient motors
- Star connection for lowly loaded motors
- Housekeeping

The project has already shot the first 2 films and they will be ready for screening in April 2011.

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