

**TWO DAYS TRAINING FOR POPULARISING CONVERSION OF PINE NEEDLES BIOMASS INTO BRIQUETTES ORGANISED BY THE APPROPRIATE TECHNOLOGY CENTRE, SUNDERNAGAR ON 19-20,FEBRUARY 2015 AT SUNDERNAGAR.**

Two days training programme for popularizing conversion of Pine needles Biomass into Briquettes was organized by Appropriate Technology Centre, State Council for Science, Technology & Environment, H.P at Govt. Polytechnic, Sundernagar to the villagers from Panchayats namely Sakori Distt. Solan, Kapahi Distt. Mandi. The programme was organized on 19-20 February, 2015.

The participants were registered by Mrs. Neena Sharma, Data Entry Operator, Appropriate Technology Centre, Sundernagar. The two days training was organised as per the Technical schedule prepared for organization of the training by the Appropriate Technology Centre, Sundernagar.

Literature about the conversion of pine needles biomass into briquettes was distributed to the participants. An introductory session was conducted for the participants at the start of the two days training on 19.02.2015 at 10.30 am. Er. Kalit Bhardwaj, Sr. Technical Assistant, Appropriate Technology Centre welcomed the participants. He briefed the participants about the purpose of two days workshop. He thereafter, explained about the Briquetting Equipment to participants and the basics involved in conversion of the pine needles biomass into briquettes.



The detail of the Briquetting Equipment along with the accessories was elaborated to the participants. Also the design, quality and cost etc., how the Briquetting equipment is fabricated by the welders was explained in detail for their understanding by Sh. Kalit Bhardwaj.

The Technical session-I was conducted for the participants under the supervision of Sh Kalit Bhardwaj, STA, for demonstrating the technology for conversion of pine biomass into briquettes and he was assisted by Sh. Tajender Kumar, Master Trainer Appropriate Technology Centre, State Council for Science Technology and Environment, H.P. Thereafter, the demonstration about conversion of pine needles biomass into carbonized biomass was given to the participants by Sh. Tajender Kumar, Master Trainer, Appropriate Technology Centre, Sundernagar at the venue. He prepared briquettes by mixing charred bio mass and clay at a ratio of 7:3.

The process of carbonisation was demonstrated to the participants by Sh. Tajender Kumar and steps to be followed for conversion into carbonized biomass were explained to the participants by Sh. Kalit Bhardwaj, STA along with the precautions to be taken by the participants during the course of carbonization in the Briquetting Equipment. Approximate 25 kg of pine biomass was used for conversion into carbonized biomass during the process at the venue. Thereafter, the Equipment was kept for cooling by covering it through the covering lid. The smoke pipe was removed before covering the lid. Water was filled in the periphery of the lid. The mid pore was covered by the paste of clay soil after the smoke emergence from the mid pore discontinued for better carbonization of the biomass.



Thereafter, the participants were asked to follow the burning process to convert the pine needle biomass into carbonized biomass in the second Briquetting Equipment at the venue. The participants were guided by Sh. Tajender Kumar, Master trainer, ATC, Sundernagar for following and repeating the process for practical learning the conversion process of the pine biomass. The participants did follow the process one by one and were able to follow the procedure explained to them in the previous demonstration given to them by Sh. Tajender Kumar, Master trainer and Sh. Kalit Bhardwaj, STA, Appropriate Technology Centre, Sundernagar. The Briquetting equipment was left for cooling naturally for further processing of the biomass by the participants.



During the Technical Session–II the carbonized biomass was taken out of the Briquetting Equipment after the temperature of the equipment came to lower level and was cool for proper handling and further conversion of the carbonized biomass into briquettes. The briquettes of the carbonized biomass were prepared by mixing it with clay soil by maintaining a ratio of 70:30%.The briquettes were kept for drying naturally at the venue. The briquette earlier prepared was burnt in the special designed and framed stove for demonstrating the burning. Thereafter, the biomass carbonized in the second Briquetting Equipment was evacuated and mixed with clay soil by

adding water in the mixture for finally converting them into briquettes in the mould (Sancha) framed for the purpose one by one by the participants at the venue.

On 20.02.2015 the Technical Session-III was conducted in which all the participants were grouped in two wings. The two groups were given two equipments for converting the biomass of pine needles into briquettes independently. They repeated the whole process learnt during the previous day that is 19.02.2015 at ATC for conversion of the biomass into briquettes. Briquettes were prepared out of the biomass converted into carbonized biomass during the previous day in the technical session-II.



In the Technical Session-IV after the removal of carbonized biomass from the Briquetting Equipments briquettes were prepared by mixing with the clay soil by maintaining proper ratio for better result. Again the pine needles were converted into carbonized biomass in all the Equipments by the participants and kept for cooling at the venue.





The two days training came to close at 5:00 PM. The Chief Guest at the closing session was Sh. Kalit Bhardwaj STA, State Council for Science Technology & Environment at Govt. Polytechnic, Sundernagar. Er. Kalit Bhardwaj while addressing the participants emphasized the need for large scale use of the technology of conversion of biomass of pine needles into briquettes and popularizing the use of briquettes prepared in the households for preparation of food round the year and for room heating purpose. During the winter season in the state not only in rural areas but in towns as well this venture can fetch income of the downtrodden and can be a source of income of entrepreneurs who wish to opt this technology for income generation in future. He gave the details of all technologies that are promoted and disseminated by Govt. Polytechnic, Sundernagar. He distributed Certificates to the participants for participation in the two days training and thanked them on behalf of the Appropriate Technology Centre, State Council for Science Technology and Environment, H.P, Govt. Polytechnic, Sundernagar.



**LIST OF PARTICIPANTS OF TWO DAYS TRAINING PROGRAMME ON  
“CONVERSION OF PINE NEEDLE INTO BRIQUETTES” AT ATC,  
SUNDERNAGAR ON 19-20 FEBRUARY,2015.**

<b>S. No.</b>	<b>Name of the Participant</b>	<b>Father Name</b>	<b>Address</b>
1.	Sh. Pushendar Sharma	Sh. Shiv Dyal Sharma	Vill. Pujarli P.O. SaduPul Panchayat Sakori Tehsil Kandaghat Distt. Solan
2.	Sh. Mahander Singh	Sh. Banarsi Dass	VPO & Panchayat Kapahi Tehsil Sunderngar Distt. Mandi
3.	Sh. Tara Singh	Sh. Jasvant Singh	VPO & Panchayat Kapahi Tehsil Sunderngar Distt. Mandi
4.	Sh. Bhupendar Kumar	Sh.Prem Singh	Vill. Dodwan P.O. & Panchayat Kapahi Tehsil Sunderngar Distt. Mandi
5.	Sh. Khem Singh	Sh. Chet Ram	Vill.Patrah P.O. & Panchayat Kapahi Tehsil Sunderngar Distt. Manid
6.	Sh. Mugla Ram	Sh. Hari Singh	Vill. Jerdu P.O. Kapahi Panchayat Kapahi Tehsil Sunderngar Distt. Mandi.