

Business Incubation Facility for Agropreneurs:

A Pilot Plant for Manufacturing Particle Board from Cotton stalks



Value Addition to
Agro-Residues/Biomass



ZTM-BPD
CIRCOT
INNOVATE INCUBATE





From Director's Desk

Indian Council of Agricultural Research (ICAR) under the National Agricultural Innovation Project (NAIP) scheme has set up a Zonal Technology Management and Business Planning & Development (ZTM & BPD) unit at Central Institute for Research on Cotton Technology (CIRCOT), Mumbai. The ZTM & BPD

unit works for fostering the growth of sustainable business endeavour and provides a gamut of services ranging from incubation facilities such as office space, access to information and communication technologies to advice on management, marketing, technical, legal, IPR and financial issues.

I have great pleasure in introducing our newly created Business Incubation Centre (BIC) for Particle Board manufacturing technology from cotton stalk at our Ginning Training Centre (GTC), Nagpur. The BIC at GTC, Nagpur has the complete technology expertise; a one-tonne per day (TPD) capacity particle board pilot plant, well furnished office space and need based business support that will firmly support an entrepreneur to test it as a start-up venture before setting up of his own enterprise.

This brochure elaborates the particle board technology, business incubation and pilot plant, and describes the terms and conditions for using the BIC by the prospective entrepreneurs.

CIRCOT wishes you the best and look forward to effectively incubate, nurture, support and grow your entrepreneurial ambitions by working with you.

Best luck!

Dr. S.K. Chattopadhyay

Introduction

Would you like to be the owner of a 'Start up' company before you actually set-up your own venture? You are invited to avail a world-class business incubation pilot plant facility to test/incubate composite board manufacturing technology without building your own. A latest pilot plant for making composite boards from cotton stalk with available scientific and technical expertise is at your disposal.

The Indian Council of Agricultural Research (ICAR) has created such a business incubation facility at Ginning Training Centre (GTC) of Central Institute for Research on Cotton Technology (CIRCOT) in Nagpur to develop and nurture budding entrepreneurs in technology for value addition to crop residues and eventually guide them to start their own ventures.

With funding from the Common Funds for Commodities (CFC), Netherlands and the International Cotton Advisory Committee (ICAC), CIRCOT, Mumbai has established a particle board pilot plant facility of one-tonne per day (TPD) capacity at Nagpur to engage in extensive R & D activities to manufacture industry acceptable particle board and hard board and design a supply chain model for making cotton stalks available for the industry.

What is a Business incubator ?

A multi-tenant facility which provides entrepreneurs with

- Flexible space and leases, below market rates
- Fee-based business support services, such as telephone answering, book-keeping, secretarial, fax and copy machine access, libraries and meeting rooms
- A pool of shared support services to reduce overhead costs
- Business and technical assistance either on site or through a community referral system
- Assistance in getting fund to set up own venture
- Networking with other entrepreneurs.

Importance

Business Incubators provide support to enterprises in their start-up or prestart-up phases. Successful completion of a business incubation programme increases the likelihood that a start-up company will stay in business for a long term. Historically, 87% of incubator graduates stay in business.

Applications of particle board

- Door panel inserts
- Partitions
- Wall panels
- Pelmet
- Furniture items
- Floor and ceiling tiles for residential houses, commercial buildings, schools, hotels, theatres and similar commercial establishments.



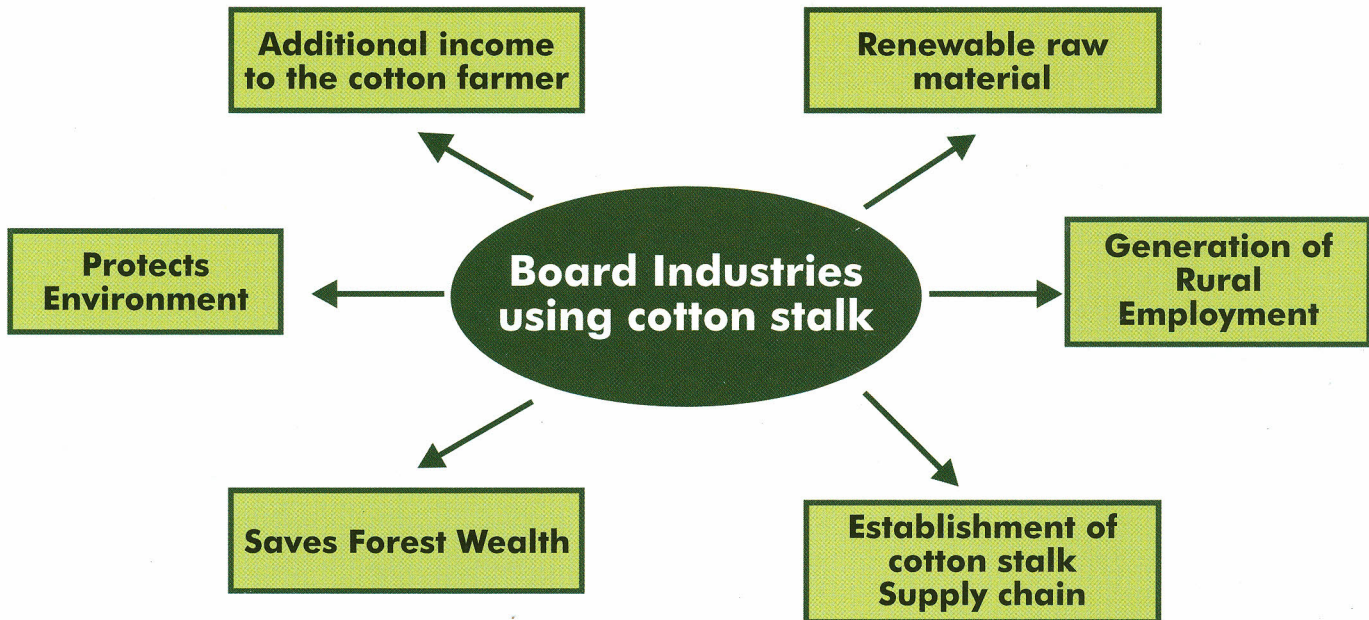
Business opportunity for entrepreneurs and industry

At present, boards are mainly made from wood particles. The increase in demand for saw-wood and panel materials in the country cannot be met from the existing forest resources. The forest regeneration takes considerable time and therefore, it is unlikely that forests alone would provide the raw materials required by the board industries. Environmental implications also restrict the use of forest resources. Such multiple issues fuel the need for alternate methods. In such a scenario, the cotton stalk which is a viable alternative, is not put to proper industrial use even today, except as domestic fuel.

Research at CIRCOT have shown that, in comparison to other agricultural crop residues, the cotton stalk can be equated to the most common species of hardwood in respect of fibrous structure and chemical composition or is an ideal raw material for preparing particle boards, binder-less boards, pulp and paper for use as kraft paper and preparation of CFB boxes, and for raising edible mushroom crop on stalks.

Absence of a systematic cotton stalk supply chain establishment in India and elsewhere has been the root cause for its lack of popularity as an industrial raw material among the board manufacturers. A detailed analysis of the logistic supply chain and pre-processing of cotton stalk to guarantee the end users a supply of quality raw material throughout the year at economically attractive cost is the focus area. Best practices for pre-processing of raw material have also been found out. A one-tonne per day capacity pilot cum demonstration plant for particle board manufacture has been installed at Ginning Training Centre of CIRCOT at Nagpur. Scale-up trials have been undertaken on the pilot plant for refinement of the technology developed. This plant can also serve as a demonstration unit for prospective small and medium enterprises. Detailed techno-economic data evaluation has been carried out in the pilot plant as well as in commercial production plants. The process and technology is technically feasible and economically viable when used with other raw materials.

Benefits of using Cotton stalk as Raw Material by Board Industries



Process of making Particle Boards

Involves chipping of stalks, grinding of particles to suitable mesh size in a pulveriser, mixing with suitable binder and catalyst, adjusting the moisture content, mat formation and pressing between the heated platens of a hydraulic press to form the board



By using different chemicals and additives, along with binder these boards can be made water proof, fire proof, termite resistant



The hot pressed boards are subsequently cooled and kept overnight to attain equilibrium moisture content



The boards are then trimmed and sanded on both sides to attain uniform thickness and finally cut to required size



The boards, thus prepared are of good quality and meet all the specifications set by Bureau of Indian Standards (BIS)

Pilot-Plant infrastructure facility at GTC of CIRCOT, Nagpur

CIRCOT has created a modern facility for manufacturing particle boards from cotton stalks at its Ginning Training Centre (GTC), Nagpur. It is equipped with all the components such as sanding machine, cut to size saw, chipper, hammer, dryer, belt conveyer, rotary screen, resin tank, face and core silo, cold and hot hydraulic press.

Other facilities provided are:

- Architecturally well designed 4000 sq ft pilot plant with high tech machinery
- Strong R&D team and technical staff working on particle board technology and converting the agro waste to usable products
- Demonstrations will be given at the CIRCOT particle board pilot plant at Nagpur for production of laminated particle boards
- Initial start up trials can be taken at this pilot plant, employing various other ligno cellulosic agro-residues
- ZTM-BPD-CIRCOT will provide market support for the promotion of particle boards
- Utilising the pilot plant facilities at Nagpur by entrepreneurs/private parties at actual costs on case to case basis
- Office space and logistic support
- A hall that can accommodate about 60 trainees and can be used for business presentations
- Facility is connected by all modes of transport



Chipper



Sanding Machine



Cut to Size Saw



Particle Boards from Cotton Stalks

ZTM-BPD Services to Industry/Entrepreneurs

- Technology and Consultancy for 10 TPD to 20 TPD capacity particle board plant with detail project report document
- Provides valuable information on supply chain management of cotton stalks
- Market information on particle board
- Provides concrete project proposal for obtaining finance to set up particle board manufacturing plant

CIRCOT's particle Board Pilot Plant has been explicitly designed to assist entrepreneurs, industry and researchers to develop products and for hands on training, operation of pilot plant and test marketing.

About CIRCOT

The Central Institute for Research on Cotton Technology (CIRCOT) formerly known as Cotton Technological Research Laboratory (CTRL) was established in 1924 with the twin objective of assisting cotton breeders in the development of new strains by evaluating various fibre quality parameters. In 1966, the laboratory was taken over by Indian Council of Agricultural Research (ICAR) with a widened mandate of



research and development on all aspects of post-harvest technology of cotton, and to act as nodal centre for value addition to cotton by-products and processing wastes and other crop residues. CIRCOT has been continually evolving and redefining its commitment and participation as a major research centre in the agriculture sector, specifically in cotton/textile technology. The major contribution of CIRCOT has been by way of engineering interventions and development of process and testing methodologies for the textile sector in general and post-harvest processing of cotton in particular, and catering the needs of the different stake-holders ranging from individual farmers to the textile industry. The new processes and testing methodologies developed have also aided in ease of operation and effective utilization of available resources. The institute also provides training, education and consultancy to industry, govt. & private agencies and functions as referral laboratory for textile testing.

Over almost nine decades of its existence, CIRCOT has been developing new technologies and machinery for better utilization of cotton and other textile fibres. The

institute has carried out pioneering work on mechanical processing of cotton including ginning, cotton crop residue, value addition to cotton process waste, development of industrial yarn and fabric by using natural and synthetic fibre blends and environment friendly chemical finishes for cotton, such as nano-finishing of textiles, application of plasma coating and supercritical carbon dioxide in textile processing.

The research activities at CIRCOT is encompassed in five areas which are, Improvement in Ginning of Cotton, Improvement & Quality Evaluation of fibre, yarn and fabric, Finishing and dyeing of cotton with natural and environmental friendly agents, Utilisation of cotton plant residues for production of value added products and Development of entrepreneurship for utilization of CIRCOT technologies. CIRCOT aims to evolve newer technologies by carrying out path breaking innovative research and aims to continue its legacy as a premier R & D institute.

Tenant Hand Book

Available resources

- Office space of about 120 square feet (2)
- Particle board pilot plant (Capacity 1 TPD)
- Essential set of furniture
- Internet and telephone connections
- Common facilities like Fax, printer, news paper etc.



Support



- Referral to funding agencies/Venture Capital
- Promotion through various available platforms (Website, exhibitions etc.).
- Business plan preparation
- Guidance in conducting market surveys and feasibility analysis
- Interaction with successful entrepreneurs
- Scientific mentoring
 - ✓ Sharing domain expertise and advice on particle board from experts
 - ✓ Training and skill development
 - ✓ Guidance for establishment of independent production unit.



Policies and Procedures for Incubator Programme Tenants

Prerequisites

- Nationality - Indian /Persons of Indian Origin
- Member of ZTM&BPD unit at CIRCOT, Mumbai
- Particle Board technology based idea/concept/service
- Enterprise/industry association/ R & D organization who desire to take up Particle Board technology for business and/or utilize Particle Board pilot plant for testing/prototyping
- Commercially feasible Business proposal
- Innovative models/concept
- Relevant qualification and experience.

Kindly fill application in prescribed format. Application for the membership of ZTM-BPD unit will be evaluated by the Advisory Committee of the Unit and the most eligible applicant will be recommended for final approval.

Admission Criteria

- Relevant experience, qualifications and background
- Potential, feasible and sustainable business model
- Interview with the panel

After successful selection the concerned party will have to sign a Memorandum of Agreement (MoA).

Terms and conditions

- It is the intention of ZTM-BPD, CIRCOT unit is to help businesses succeed. Considering this, the standard lease agreement is for one year, renewable up to six months, thereafter if milestones and evaluation standards are met. Overall, the tenant will have a total of one year six months to graduate from the incubator programme beginning with initial lease signing.
- The list of team members and employees of the project shall be submitted to the ZTM-BPD unit.
- Incubatee shall not sub-let the premises to any other individual or legal person. Non compliance of this rule will result in immediate termination of the agreement and vacation of the premises by the resident member. The party, to which the premises are sub let, shall not have any rights on the premises and shall have to vacate with the incubated member.
- The ZTM-BPD – CIRCOT address in CIRCOT Campus can't be used as the Registered Office of the incubatee company.
- The panel members of the Business Incubation unit shall be allowed to inspect the office space,

any other facilities rented out to incubatee as and when required.

- All the equipment and machineries of incubatee shall have to be insured by incubatee himself through a reputed company and the details thereof shall have to be provided to Business Incubator administration.
- Health and safety standards are to be observed and maintained within the premises of the Business Incubator.
- No hazardous material can be brought inside the premises without prior approval of the authorities
- Liabilities: No legal, financial or criminal liability shall arise for commission of any act or omission thereof in respect of any accident or injury to any workman or any other person employed or invited by the tenant companies and BI stands indemnified against any claims, damages or proceedings of any manner.
- The incubatee shall have to submit a copy of the agreements, deeds, undertaking or reports etc. entered into with regard to the project of incubation.
- The incubatee shall not be granted the office space only to carry out its commercial activities and it shall be liable to take up the Particle Board pilot plant for research and development.
- The mentorship/guidance of scientific, technical or commercial nature shall be chargeable if availed without laboratory or research facilities. No services shall be rendered without the applicable fees either pre-assigned or fixed on case to case basis. The Management Board has the final authority to fix or re-assign the fee for various services available.
- Incubatee shall be required to inform and take permission from the BI about any 'foreign visitors' from abroad, foreign collaboration and/ or foreign partner/director and shall abide by the rules/procedures of CIRCOT.
- Change of information: The incubatee is required to keep the Business Incubator informed in advance and obtain the concurrence in writing for the following:
 - a) Change in name of the incubatee company
 - b) Change in the business/incubation plans
 - c) Change in ownership
 - d) Change in Board of Directors
 - e) Any other change in legal status
- Any further addition, modification in the infrastructure, whether permanent or temporary shall have to be informed to the management of the BUSINESS INCUBATOR and permission thereof

in writing shall have to be obtained prior to it. After completion of the resident ship, the premises shall have to be returned in the original conditions including the repair and maintenance of it, unless agreed upon by the Business Incubator.

- No material shall be allowed to be taken out of the premises of the ZTM BPD Unit without prior and written permission of the authorities.
- Incubatee shall have to sign the Material Transfer Agreement (MTA) and Confidentiality Agreement wherever applicable.
- In case of any disagreement on rules and guidelines, the matter may be referred to the panel of Business Incubator. Decision of the panel shall be the final and abiding.

Tenant Evaluation

- Tenants must meet at least four times a year with an assigned group of mentors. Progress of the project would be monitored and evaluated on the basis of the time line based milestones to be achieved by the incubatee. The review of progress would be done by the mentors every three (3) months.
- This evaluation will determine whether a tenant is ready for graduation, programme continuation or programme removal.

Tenant Removal

The tenant may be removed from the incubator programme if any of the following occur:

- The ownership of the company has changed without prior notice
- The tenant is unable to maintain capital to support operations and leasing agreement
- The tenant has been in the incubator for three years.
- The tenant fails to meet the requirements set for in the Graduation Criteria and/or Continued Use of the Incubator.
- The tenant fails to meet the obligations outlined in the lease agreement.
- In case of the non compliance of the terms and conditions and activities non-conforming or in contravention to the submitted Business /Work plan or failure to collaborate with the institute or for resorting to the activities other than the ones agreed upon, the incubatee shall have to vacate the premises at the service of a prior notice by the Management Board.
- Breach of any of the contractual obligations, terms and conditions of the service agreement by incubatee shall disqualify him and he shall cease to exist as an incubated member, and would vacate the premises within 30 days of the notice.

Contact us

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हर कदम, हर डगर

किसानों का हमसफर

भारतीय कृषि अनुसंधान परिषद

AgriSearch with a human touch

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