



Confederation of Indian Industry



APTDC & TNTDPC

## Initiatives on

# Technology for Societal Benefits

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**The initiatives on Technology for Societal Benefits are driven by:**

Confederation of Indian Industry (CII) National Committee on Technology, Chaired by Mr. Malvinder Mohan Singh, Managing Director & CEO, Ranbaxy Laboratories Ltd and with members represented by R&D/Technology driven Industries operating in India, and CII Technology Development & promotion Centres



**Mr. Malvinder M Singh**  
Managing Director & CEO,  
Ranbaxy Laboratories Ltd.  
and Chairman – CII  
National Committee on  
Technology (2007-08)

(in Andhra Pradesh-APTDC and Tamil Nadu-TNTDPC) Governing body, Chaired by Dr. T Ramasami, Secretary, Department of Science & Technology, Govt. of India and having members from industry, Government of India, Andhra Pradesh & Tamil Nadu.



**Dr. T Ramasami**  
Secretary, Department of  
Science & Technology  
Government of India and  
Chairman, APTDC &  
TNTDPC Governing Body

manned by domain experts & professionals more than a decade back. CII's Technology & IPR division informs analyses, match makes, facilitates and implements technology initiatives in partnership with industry, Government, Institutions and Society.

CII in partnership with Technology Information and Assessment Council (TIFAC, under the aegis of the Department of Science & Technology, Govt. India) and Govt. of Andhra Pradesh had established in the year 2000 an autonomous organization named Andhra Pradesh Technology Development & Promotion Centre (APTDC) in Hyderabad to help SMEs and Government in technology and IPR areas.

After successfully proving the state level model of APTDC, CII in partnership with Govt. of Tamil Nadu established in 2005 an autonomous organization named Tamil Nadu Technology Development & Promotion Centre (TNTDPC) in Chennai for facilitating technology interventions in emerging technologies and technologies especially in agro & food processing sectors.

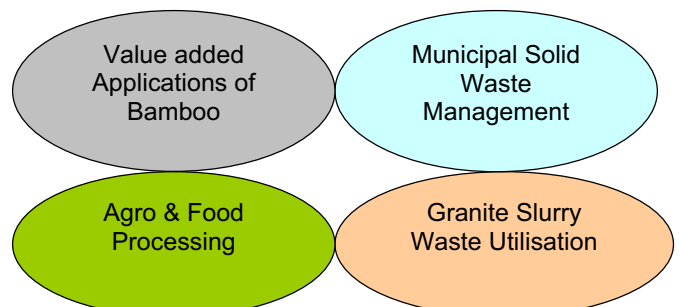
## Introduction

While India is surging ahead in securing enviable position in the world economy by ensuring growth in all the sectors of industry, technology is becoming more increasingly the prime mover of this phenomenal growth. However, the questions we often face are : "Is the growth touching the common man?" "Is the technology that has been playing crucial role in Industrial growth, also being leveraged towards societal benefits?" CII being the important facilitator of national growth and its sustenance has been focusing on certain areas where technology intervention on a public-private-partnership mode, can benefit the society.

CII, realizing the importance of Technology as the key differentiator for industrial competitiveness and also for societal benefits, institutionalized a dedicated department

## Technology for Societal Benefits

### Focus Areas





Confederation of Indian Industry



APTDC

# Initiatives on Municipal Solid Waste Management

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## Introduction

Urban India with growing population, migration of people from rural areas to cities and rapid industrialization produce an enormous quantity of about 1.2 lakh MT of Municipal Solid Waste (MSW) and industrial waste every day and it requires about 1500 acres of land per year for its current ways of open disposal.



The leftover garbage in the public places gives rise to morbidity especially due to microbial and parasitic infections and infestations in all segments of populations, with the urban slum dwellers and the waste handlers being the worst affected. In addition, the non-sanitary land filling practice currently followed has been causing uncontrolled methane evolution in the dump yards. A host of other hazardous gases like CO, CO<sub>2</sub>, SO<sub>x</sub>, NO<sub>x</sub> etc. are also generated from the dump yards due to uncontrolled and incomplete combustion of garbage as well as due to decomposition (by auto-ignition) causing atmospheric pollution. Since MSW is dumped on the open ground, it also gives rise to ground water contamination by Leachate that is produced out of garbage and contains a number of dissolved and suspended materials.

It is reported that the bigger urban local bodies spend around Rs. 1000 to Rs. 1500 per tonne on garbage for its collection, transportation and disposal. About 65% of the above amount is spent on collection, 30% on transportation and mere 5% on disposal. With overloading of the existing landfill sites in cities, garbage may have to be transported nearly twice the current distance for land filling, escalating the cost of transportation. Once the existing landfill site is exhausted, identification of new landfill sites has also become a very difficult task.

Most of the developed countries have been successful in addressing this problem by evolving efficient MSW management system and also by providing technological solutions to garbage

disposal/treatment. With the ever-increasing generation of garbage, it is time for immediate and concerted action. The proper disposal of urban waste is not only absolutely necessary for the preservation and improvement of public health but it has an immense potential for resource recovery.

Realizing the importance of creating sustainable technology solutions on public private partnership model, CII APTDC initiated its MSW technology promotion cum project facilitation activities since APTDC's inception. CII-APTDC provides services to investors and urban local bodies in establishing MSW projects from concept-to-commissioning stage for effectively processing MSW into useful products such as Organic Manure, Fuel Pellets and Electricity in the country.

CII-APTDC has the exclusive right to promote, transfer and implement MSW to Refuse Derived Fuel (RDF) technology projects on behalf of TIFAC/DST.

## Major Projects Undertaken and in Progress

**Country's first successful MSW to Power Plant at Hyderabad:** APTDC provided technology and engineering services to M/S SELCO International Limited, Hyderabad in setting up a 700 TPD MSW processing Plant to produce Refuse Derived Fuel (RDF) in 2000 in Hyderabad. The second phase – a 6.6 MW Power Plant based on combustion of RDF is commissioned in November 2003 and is consistently operational since then. This is the first successful project in India. However, being the first plant it has its limitations those are being taken care of in future projects.



MSW to RDF Plant



Power Plant in Hyderabad

**2x500 TPD MSW processing plant in Guntur & Vijayawada and 6 MW Power Plant in Vijayawada:** APTDC has provided concept-to-commissioning support to M/s Shriram Energy Systems Limited, in setting up of an integrated Waste-to-Power Plant at Vijayawada and a MSW processing plant at Guntur in the year 2003.



#### Other Projects Implemented:

- 300 TPD Compost + RDF Plant at Rajkot, Gujarat – commissioned in 2005
- 300 TPD Compost & Plastic Recycling Plant in Jeddah - commissioned in 2004

#### Projects under Implementation:

- 1200 TPD MSW to RDF & 11 MW Power Plant at Hyderabad
- 1000 TPD MSW to RDF & 8 MW Power Plant at Bangalore
- 755 TPD MSW to RDF & 7.6 MW Power Plant in Karimnagar Dt., A.P
- 500 TPD MSW to RDF Plant at Chandigarh
- 250 TPD Compost Plant & Sanitary Landfill at Kochi, Kerala
- 50 TPD Compost Plant & Sanitary Landfill at Alappuzha, Kerala
- Project development and competitive bidding (with IL&FS) Kanpur, Agra, Pune, Ghaziabad, Udaipur, Ajmer, Bikaner, Kota
- 15 MW Power Plant in Delhi

### Services offered

CII - APTDC Provides following services:

1. Due diligence and Project Development
2. Competitive bidding on behalf of Municipal Corporations
3. Transfer of DST/TIFAC technology and sourcing other suitable technologies

4. Basic & Detailed engineering
5. Project execution / operations support

### Stakeholders

#### Beneficiaries

- Urban Local Bodies
- Industries such as:
  - Thermal Power Plants (IPP or Captive)
  - Cement Manufacturers
  - Infrastructure companies and other industries

#### To name a few ...

- Jai Prakash Group of Industries
- Corporation of Cochin
- Alappzha Municipality
- Municipal Corporation of Delhi
- New Delhi Municipal Corporation
- Pune Municipal Corporation

#### Partners

- Technology Information, Forecasting & Assessment Council (TIFAC)
- Technology Development Board
- Ministry of New & Renewable Energy
- Ministry of Urban Development
- Infrastructure Leasing & Financial Services Ltd. (IL&FS)
- ECO Save Systems (P) Ltd.
- ECO Designs India Ltd
- Avant-Garde Engineers & Consultants Pvt. Ltd.
- Hyquip Technologies Ltd.
- Hydroair Techtonics (PCD) Pvt. Ltd
- Amrit Non conventional Energy Systems

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# Initiatives on

# Value Added Applications of Bamboo

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## Introduction

Bamboo was probably one of the most important raw materials used by early Asian people. Even today, the use of bamboo has more significance to Asian cultures than any other. Though the widely known application of Bamboo has been paper & pulp, bamboo has been re-engineered & transformed into various products - having applications across various areas.

Bamboo being the fast renewable grass & having every potential to act as a substitute to regular woods being used for wood based products and should be exploited to the maximum. In India, the current need is to work on bringing a positive framework covering national / states policies related to bamboo and a business model for promoting bamboo oriented industry enterprises.

**While the technological aspects covering- manufacturing processes, machinery etc., is being attended by many agencies, it is far more important to work towards establishing sustainable supply chains for bringing bamboos from forest to processing centers to end users. Also, creating rural livelihoods & rural enterprises is critical in achieving a national success in bamboo sector.**

**Bamboo – for green enterprises & sustainable livelihoods, one of the unique initiatives of CII-APTDC was started in year 2002**, ahead of many of the current bamboo initiatives in India. CII-APTDC could foresee the potential of Bamboo and started working towards - proper utilization of the resource, promoting & linking of village level pre-processing units/centres to larger units and advise clientele for sustainability of various operations.

## Major Activities Undertaken and in progress

- Due Diligence Study / Survey on availability & utilization of Bamboo, Possible Products & Markets.
- Evaluation & Fine tuning of Technology / livelihood opportunities.
- Networking with various Experts & Agencies for commercialization of Technologies and developing Market linkages.
- Through AP Forest Department (under its World Bank project), APTDC has undertaken setting up of community run Micro enterprises (2000 livelihoods in Incense sticks manufacturing), evaluation / demonstration of various

processes using bamboos of AP & empowering the APFD officers with required knowledge & expert network.

- Supporting Society of Elimination of Rural poverty (SERP)/ITDA for creating sustainable livelihoods through production of incense sticks in Adilabad District.
- Executing an integrated project for MoRD, in association with CDRT of IIT D & Institute for Societal Awareness, Kerala.
- Assisting Green Earth Associates, Singapore (Indian entrepreneurs) in setting up bamboo laminate furniture manufacturing unit in India.
- Assisting NMBA in triggering incense sticks making activity (the maximum sustainable livelihoods providing activity) across Orissa/Chathisgarh/Haryana/Rajasthan states.
- Preparing a national report on industrialization of bamboo, covering policy issues & business model.
- Working on creating a TDC in North East, focusing on bamboo.



## Services offered

CII-APTDC in partnership with Govt and technology providers, provides techno-managerial consultancy services to Industry, Entrepreneur, Grass root innovators, Academia, R&D Institutions, Govt., Students, Forest Departments, Industry & Commerce Departments, NGOs, people living in the forest fringes for making use of locally available bamboo to create sustainable livelihoods and industrialisation through

- Due diligence to quantify the needs of the potential buyers of processed bamboo
- Promotion of common Facility Centres for processing & supply of bamboo to suit needs of the buyers
- Handhold industry and entrepreneurs with overall information & a holistic approach for appropriate utilization of the resource for achieving self sustainability.

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# Initiatives on Utilisation of Granite Slurry Waste

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## Introduction

India, blessed with enormous quantity of natural stones, and the same having gained reputation in international markets, has a presence of many industries across the country, covering quarrying, cutting and polishing and value addition.

But in the process of transforming the raw material into finished product, it faces lots of difficulty to handle waste – primarily slurry that comes out during cutting & polishing. Granite & Marble slurry are the wastes, which are branded & harming the environment and society. A Scientific and Systematic disposal of Granite & Marble slurry is not in place. In fact, Industries & clusters, across the world are facing problems in safe disposal of slurry of Granite & Marble.

On the other hand, excessive mining of sand is other problem.

### a) Impact of Slurry disposal on open lands, often on good & cultivable soils

- forms a thin layer on the top soil, preventing seepage of rain water, thus even grass doesn't grow, leading to dry – barren lands
- very fine dried slurry, flies in air, causing severe air pollution & health problems
- Not recovering water from slurry, leads to depletion of water table etc., etc.,

### b) Impact of Illegal / Excessive Quarrying of Sand, from river beds

- Depletion of water table around water banks, effecting the farmers
- Contamination of fresh water sources with saline waters – reverse influx
- Weakening of bridges / transmission structures in rivers etc.

CII APTDC has been working on for Developing & Demonstrating technology solutions for Gainful Utilisation of Granite Slurry, as part substitute to sand thereby benefiting the industry, environment & society.

## Major Activities Undertaken and in progress

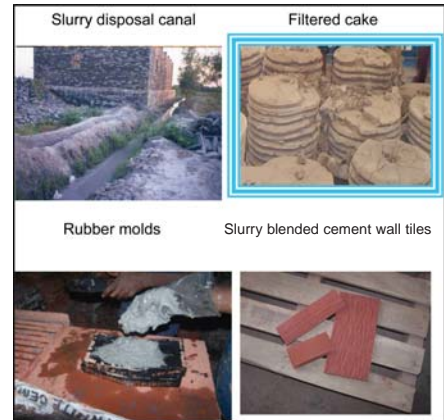
CII APTDC developed granite slurry blended cement based floor tiles / wall tiles / paver blocks, where in around 60% of the sand is replaced with granite slurry.

Samples have met the requirements of BIS standards and relevant industries in Bangalore & Hyderabad started consuming granite slurry.

Now efforts are going on for outsourcing the technology / developing the technology, for making cement mortar pre-mix for brick work & plastering.

This initiative has attracted the interests of companies, who are using certain other abrasive materials to explore using granite slurry as a abrasive media.

This exercise is expected to lead to setting up of Common Facilities in granite processing industry clusters for recovery of water & producing slurry cake which will result in preventing illegal mining of sand while promoting gainful utilization of granite slurry.



## Services offered

Advisory, Networking and technological services towards:

- Enhanced recovery thru scientific quarrying
- Utilization of waste boulders & stones
- Gainful utilization of slurry
- Setting up of common facilities for recovery of water & slurry as a building material

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# Initiatives on Agro & Food Processing Technology

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[www.tntdpc.com](http://www.tntdpc.com)

## Introduction

CII-TNTDPC has been actively involved in the agro/food sector at the state level in Tamil Nadu. A very active Task Force on food processing has been instrumental in synergizing the focus of the government to develop the capacity of this industry. CII and its members are promoting the concept of Public Private Partnership (PPP) model to ensure sustained growth in Agriculture and its allied activities. The objective is to foster and encourage the growth of all agriculture related businesses.



**Mr. Gopal Srinivasan**  
Director, TVS Electronics and Chairman, TNTDPC Executive Committee

An apex Governing Council, chaired by Dr. T Ramasami, the Secretary of the Department of Science & Technology, Govt. of India and an executive committee chaired by Mr. Gopal Srinivasan, Chairman, CII Tamil Nadu State



**Dr. T Ramasami**  
Secretary, Department of Science & Technology Government of India and Chairman, APTDC Governing Body

Council & Director, TVS Electronics Ltd guide and mentor the agro food processing activities of TNTDPC.

## Major Activities Undertaken and in progress

- Cluster Programme for Sectors of Bakery and Cashew
- Techno Economic Feasibility Study and Business Plan for Cold Storage Infrastructure
- Special projects in Cold Chain Management
- Research Studies and Market & Resource Survey



- Research Promotion for New Product Introduction
- Training programme for Food Safety – HACCP
- Precision Agriculture: The Future of India
- Opportunities for Indian SME's to access EU market
- ISO 22000: A State-of-the-Art approach to Food Safety
- Agricultural Business Facility
- Market Potentials of Crop Diversification & Market Linkages with Industries



## Services offered

- Strategy Consulting for Technology Acquisition
- Assistance in Testing and Certification Programme
- Management Consulting, Research and Education
- Business Plans for Technology Commercialization
- Identification of Emerging Agricultural Technologies

## Stakeholders

### Beneficiaries

- Industry Players
- Tamil Nadu State Agriculture Marketing Board
- Department of Agriculture
- Department of Horticulture
- Department of Industry

### Partners

- Tamilnadu Agricultural University (TNAU)
- Multi Disciplinary Purposive Unit – IAMWARM
- TUV-Nord India Ltd
- State Government

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