



INCENTIVIZING CLEAN TECHNOLOGY TRANSFER AND DIFFUSION IN INDIAN LEATHER SECTOR

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TYPICAL CLEAN TECHNOLOGIES FOR INDIAN LEATHER INDUSTRY

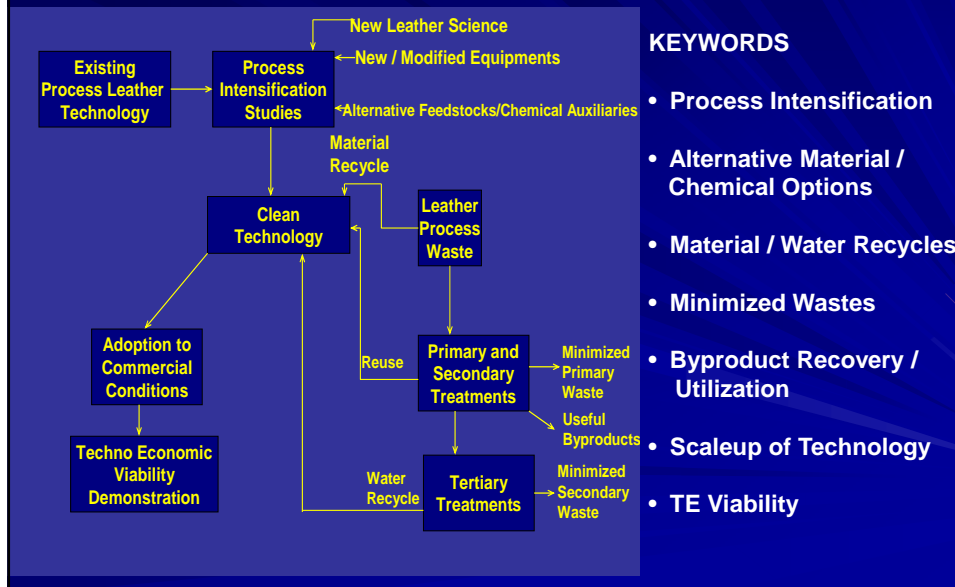
□ HIGH PRIORITY AREAS

- Less Water Processing
- Saltless / Less Salt Curing of hides / skins
- Less Salt / Chromium Processing
- High Exhaustion Tanning
- Aqueous Leather Finishing
- Enzymatic Processing

□ MEDIUM PRIORITY AREAS

- Odour / Noise Control
- Dust Control
- Chemical Auxiliary Minimization

MAJOR COMPONENTS OF CT DEVELOPMENT PROGRAMMES



KEYWORDS

- Process Intensification
- Alternative Material / Chemical Options
- Material / Water Recycles
- Minimized Wastes
- Byproduct Recovery / Utilization
- Scaleup of Technology
- TE Viability

INCENTIVIZING CT PROGRAMMES THROUGH R&D – GOVERNMENT – INDUSTRY SYNERGY

□ ESTABLISHMENT OF CT IMPLEMENTATION FUND

- ❖ State and Central Government Levels
- ❖ Partial grants and soft loans for Process Intensification efforts
- ❖ Expanding Scope of Current GOI Modernization Programme for CT Coverage
 - *New Equipments*
 - *Process Control Instrumentation*
 - *Establishing Byproduct Recovery and Tertiary Waste Treatment Facilities*
 - *VOC, Odour and Noise Control Facilities*
- ❖ Providing Early Equity for Start up Companies Deploying modern CT programmes

□ SOFT LOAN SCHEMES

- **Soft Loans from Financial Institutions and Commercial Banks**
 - *Scaleup and Tech. Demo*
 - *PPP driven Initiatives for new technology proving*

- **Capital Subsidies and Tax holidays**
 - *Zero liquid and Solid Waste concept implementation*
 - *Byproduct utilization plants*

- **Special DST, DSIR and DBT Programmes for first time technology development, scaleup and demonstration**

CETP AS A DYNAMIC TOOL FOR CT PROMOTION

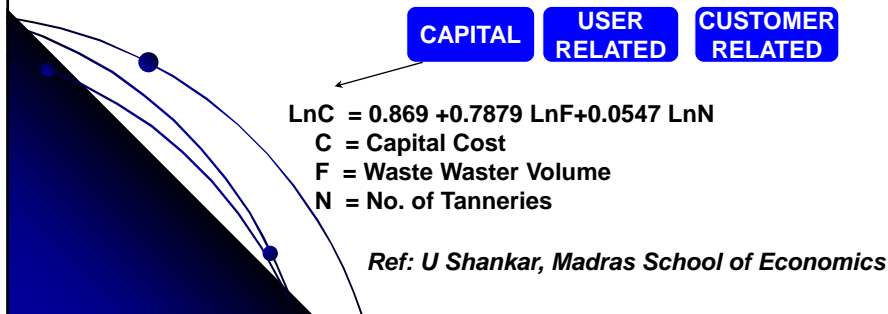
- **CETP AS A SOCIAL ORGANISATION CAN CREATE INCENTIVES TO ADOPT CTs THROUGH IPLANT CONTROL MEASURES**
- **WASTE WASTER QUANTITY AND ITS POLLUTION LEVEL TO BE BASIS FOR TREATMENT COST**
- **INTRODUCTION OF THREE PART TARIFF ON TREATED WATER**
 - * *CAPITAL RELATED COST*
 - * *USER CHARGE BASED ON VOLUME AND POLLUTION LOAD*
 - * *CUSTOMER RELATED COST*

Shifting Environment Risks from Tanneries to CETP and CT implementation from CETPs to tanneries

COST STRUCTURE OF CETP WASTE TREATMENT

CETP CAPACITY, MLD	CAPACITY UTILIZATION, %	FIXED AND VARIABLE COSTS, Rs/KLD				
		PRIMARY /SECONDARY		TERTIARY		TOTAL
		FIXED	O&M	RO	Sludge	
2.5 – 3.0*	60-80	9-15	7-8	4-8	0.15-0.19	20-32

* Installation Cost : Rs 6 to 7.5 Crores



CETP LEVEL ACTIONS FOR PROMOTING CT INITIATIVES

✓ ESTABLISHING Environment Information Management System (EIMS) at CETP

❖ INSTALLING Metering Systems at member tannery outlets

EFFLUENT VOLUME (KLD)	MAJOR POLLUTANT CONCENTRATION				
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✓ CONNECTING (online) the Metering Systems to CETP

✓ INTRODUCING Economic Instruments for CT implementation at tanneries

REBATE FOR POLLUTION REDUCTION

Full Charges for Polluters

PENALTIES FOR EXCESSIVE POLLUTION

INTRODUCTION OF TRADABLE PERMIT SYSTEM (TPS) IN CETPs

- IT IS COST EFFECTIVE
- ACCOMMODATES VARYING POLLUTION MITIGATION CAPABILITIES OF MEMBER UNITS
- TPS VALUE DEPENDS ON VOLUME OF EFFLUENTS AND POLLUTANT CONCENTRATION
- WHEN A MEMBER ACHIEVES CERTAIN LEVEL OF POLLUTION REDUCTION, IT CAN USE SURPLUS PERMIT FOR CAPACITY EXPANSION OR SELL IT TO ANOTHER MEMBER
- WITHIN THE SAME CETP, TANNERY PRODUCTION CAN BE INCREASED

CLEAN TECHNOLOGY MISSIONS FOR TRANSFORMING LABORATORY INNOVATIONS INTO COMMERCIAL TECHNOLOGIES

➤ Technology Development and Proving in Various Regions with GOI - Industry Funding

- *Largescale Technology Diffusion*
- *Public – Private Funding*
- *Timebound and Target Specific*
- *Special Focus on SME Clusters*
- *UNIDO / UNDP Support for Sophisticated
Byproduct utilization technologies*

Major Stakeholders

R&D INSTITUTES

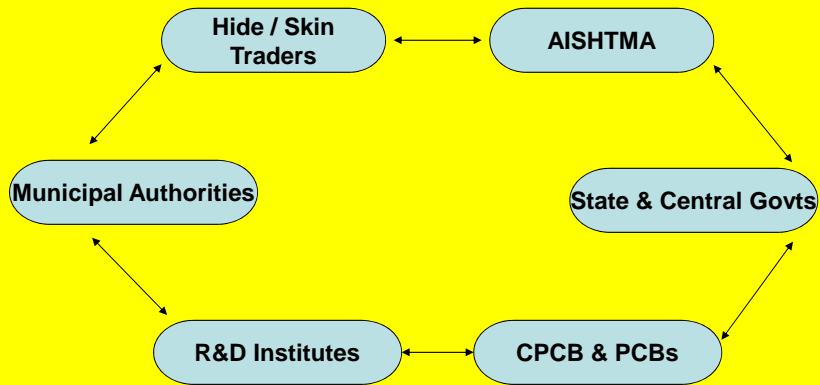
INDUSTRY ASSOCIATIONS

GOVERNMENT

FINANCIAL INSTITUTIONS

TYPICAL TECHNOLOGY MISSIONS SUGGESTED

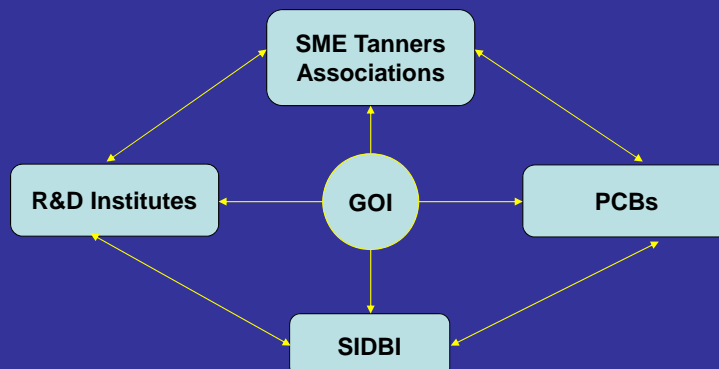
□ SALTLESS OR LESS SALT HIDE / SKIN PRESERVATION



- National Level Initiatives to develop and Test Various Implementation Models
- Technoeconomic Viability Assessment
- Largescale Propagation

LESS SALT PICKLING AND OTHER LEATHER PROCESS OPTIONS

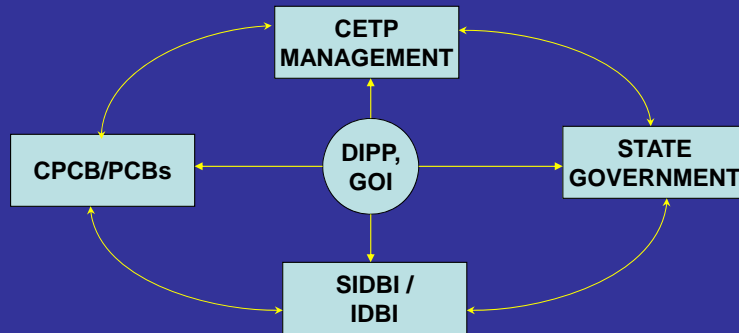
- Focus on Inprocess Technology Initiatives; Internal Water Recycles
- Stakeholders



- Incentive Driven Implementation

WASTE WATER RECYCLE MISSION FOR SME UNITS

- ◇ Zero Liquid Discharge Concept
- ◇ Focus on Centralized Tertiary Treatment of Process Waste Water in Northern & Eastern India
- ◇ Stakeholders

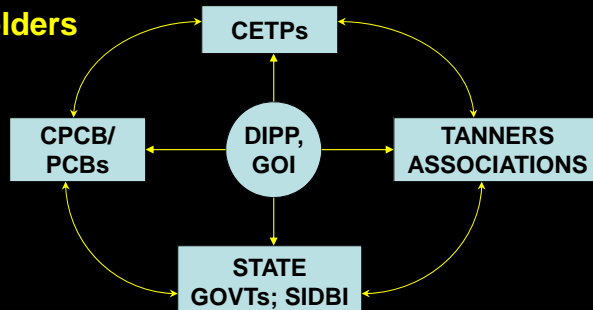


- ◇ Water Pricing Policy with built-in Incentives
- ◇ RO/UF/ME Evaporation / Solar Energy

TECHNOLOGY MISSION ON SOLID WASTE MINIMIZATION / UTILIZATION

- FOCUS ON ZERO SOLID WASTE CONCEPT
- Fully Exploring Solid Waste Application Potential
- Minimizing Land disposal and Incineration
- Pilot Projects for Technology Proving

Stakeholders



- Setting up Byproduct Utilization Units

NEED FOR FORMULATION OF CLEAN TECHNOLOGY INITIATIVES FOR LEATHER PRODUCT SECTOR

❖ FOCUS AREAS

- Optimum Leather Utilization
- Leather Waste Recycle / Utilization
- Non Solvent Finishing Systems

❖ CLRI TO FORMULATE R&D PROGRAMMES FOR 12TH FIVE YEAR PLAN

❖ BRAINSTORMING WITH INDUSTRY ON PRIORITY AREAS

Thank You