

INTEGRATED WASTE MANAGEMENT FOR CHEMICAL INDUSTRIES

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CHEMICAL INDUSTRIES WASTE : RESOURCE IN WRONG PLACE AND TIME

- SIGNIFIES LOSS IN PRODUCTION
- ENVIRONMENTAL DEGRADATION

1. MOSTLY REACTIVE WITH ATMOSPHERIC COMPONENTS-WITH HIGH POTENTIAL FOR DEGRADATION OF ECO SYSTEM DUE TO TOXICITY OF SPECIFIC CHEMICALS

2. IN MOST CASES HIGHLY EXPENSIVE

- RELATED TO SAFETY OF OPERATION
- STABLE COMPOUNDS ARE HARD TO DETOXYFY

BENEFIT OF RECOVERY SYSTEM IN INDUSTRIES

Industry	Total Waste-Water Flow (m ³ /d)	Total cost of Plant (Rs. in Thousand)	Net annual recovery (Rs. in Thousand)	Investment payback period (Years)	Remarks
Textile Industry	6450	4625	4375	1.05	Recycle in process house
Alcohol Industry	1725	2250	975	2.30	Reuse of energy in process
Food Processing	1460	10500	4250	2.47	Recycling for irrigation/process and reuse of energy
Viscose Rayon	4500	200	36	5.50	Recovery and reuse of Zinc. Foreign exchange saving

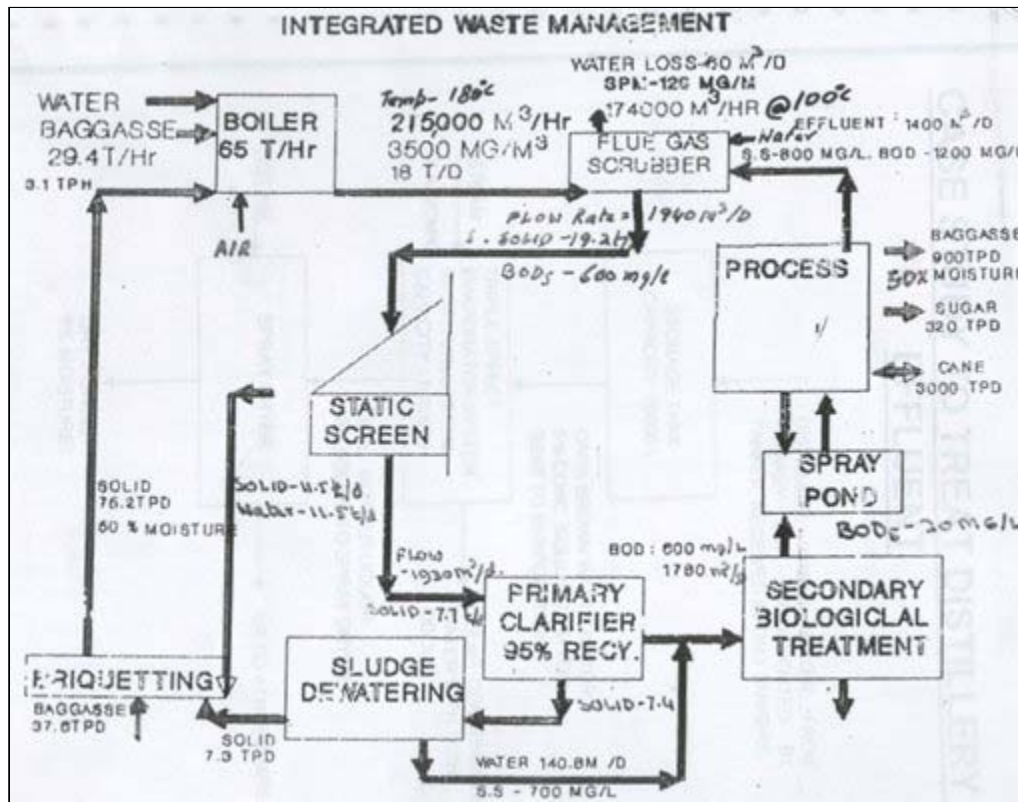
INTEGRATED WATER MANAGEMENT

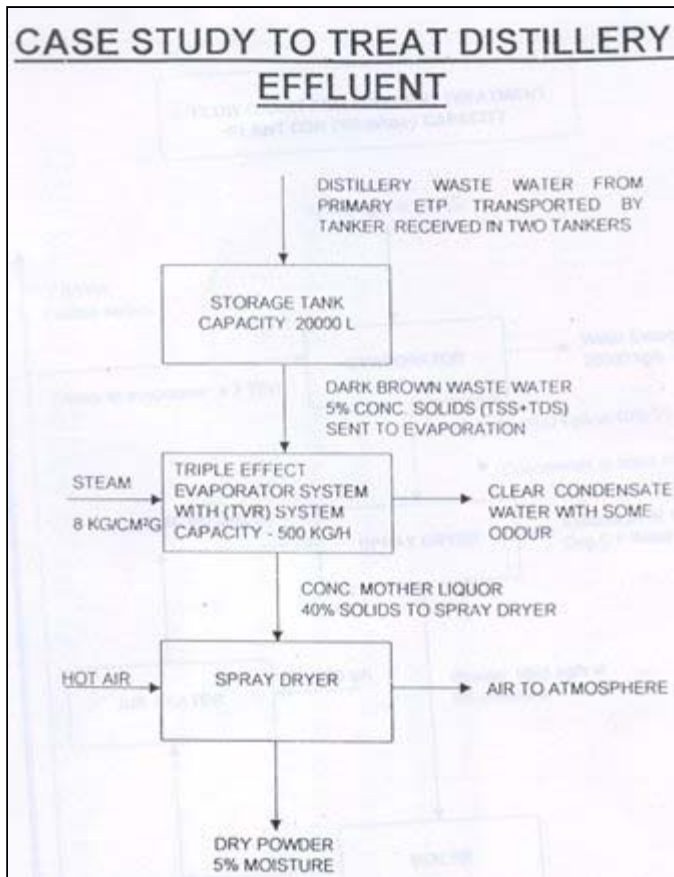
1. PROCESS MODIFICATION FOR WATER REUSE - APPLICATION OF POLYELECTROLYTES

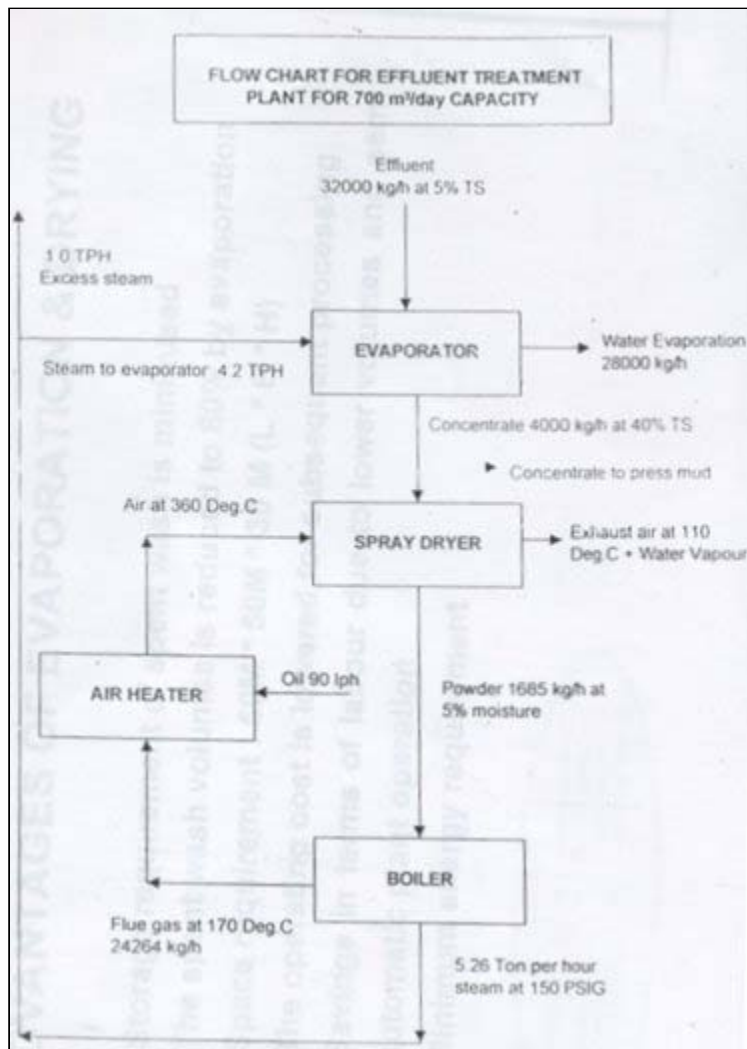
2. ENERGY OPTIMIZATION OF EFFLUENT TREATMENT PROCESS WITH DISSOLVED OXYGEN CONTROL

3. NITRIFICATION-DEMTRIFICATION OF MIROGENOUS EFFLUENT BY CONTROL OF DO. IN A REACTOR MODULE.

4. USE OF UNCONVENTIONAL TREATMENT TECHNIQUE FOR HIGHER DEGREE OF POLLUTANT REMOVAL AND RECYCLE OF WATER

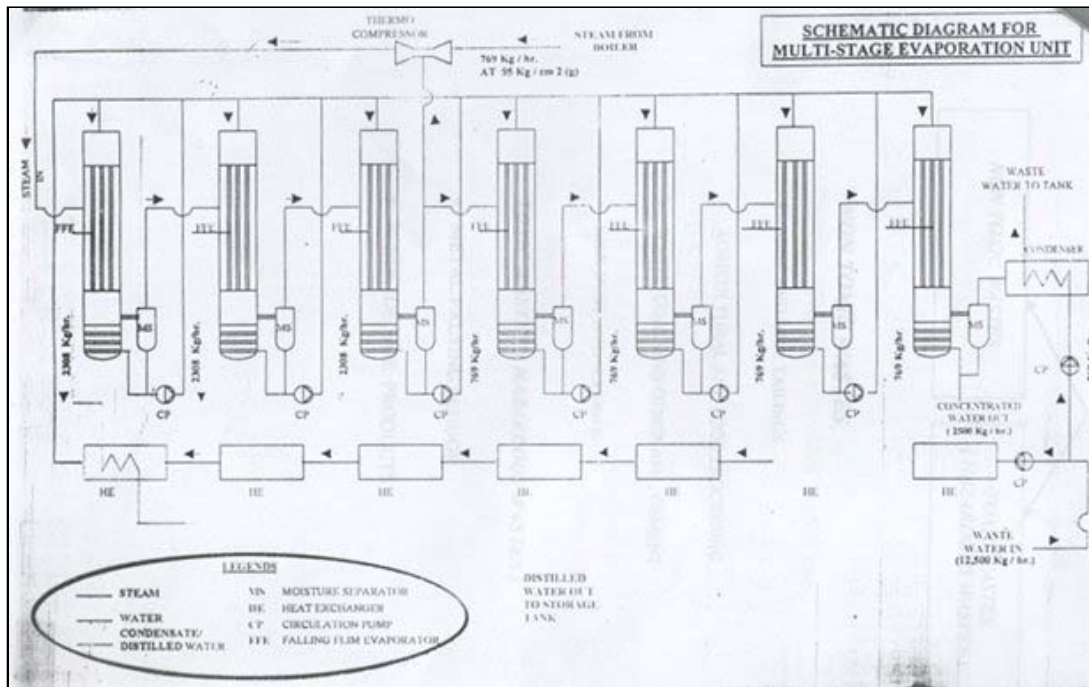






ADVANTAGES OF EVAPORATION & DRYING

- Storage requirement of spent wash is minimised
- The spent wash volumes is reduced to 80% by evaporation
- Space requirement : $50M * 50M * 30M$ (L * B * H)
- The operating cost is lowered for subsequent processing
- Saving in terms of labour due to lower volumes and semi automatic plant operation
- Minimum energy requirement



INDUSTRIAL SOLID WASTES

NON TOXIC WASTES

TOXIC WASTES
(HAZARDOUS WASTES)

NON TOXIC WASTES

- MINE AND MILL TAILINGS
- AGRICULTURAL AND FOOD PROCESSING
- WASTE, COAL AND OTHER ASH, CEMENT
- KILN DUST AND SLUDGES

TOXIC WASTES (HAZARDOUS WASTES)

- METAL PALTING SLUDGE
- PESTICIDE SIDE PRODUCTS

GENERAL METHODS OF DISPOSAL

- SANITARY LANDFILL
- COMPOSTING FOR ORGANIC SOLIDS

- REFUSE DERIVED FUELS : DRYING BRIQUETTING
- USE AS RAW MATERIAL FOR OTHER PRODUCTS SLUDGE FROM PAPER MILL - USED FOR PAPER BOARDS

FACTORS FOR THE SELECTION OF S/S

1. WASTE CHARACTERISTICS -

CONTAMINANTS AFFECT STRENGTH, DURABILITY, PERMEABILITY OF SOLIDIFIED WASTE

2. PROCESS -

COMPATIBILITY WITH INFRASTRUCTURE

3. PRODUCT MANAGEMENT -

REGULATIONS ARE DIFFERENT FOR DISPOSAL AT A LANDFILL, STORAGE, TRANSPORTATION ETC.

4. ECONOMIC CONSIDERATIONS

