Session – V

Environmental Management, Infrastructure Development and Financing

Session - V

Environmental Management Issues in Chennai Metropolitan Area (CMA)

Dr.K.Thanasekaran
Director, CES, Anna University, Chennai

- will be in two parts
    1. Environmental Issues
    2. Environmental Management Issues
- And will Address key and emerging issues

PART I
Environmental Issues
The CMA environment has two components :

1. Environment per se
2. The habitat

The environment per se :	Natural features, resources including air, water and land
The habitat:	Built environment and infrastructure such as water Supply, sewerage and solid waste disposal

The habitat Environment per se

- The habitat and the environment are interrelated, one affecting the other. They are inseparable.

Green Cover

- Green Cover affects environmental performance in term of air quality, hydrological process and micro climate. A study by MIT, Manipal shows that

  1. Air pollution removal capacity by natural means has gone down considerably across the city.
  2. Due to non-vegetative land cover increase, the local temperature has increased considerably across the city
  3. Insufficient green cover is reducing water holding capacity of the city's surface, increased surface runoff and reduced retention capacity of the land have affected the recharging process.

II Infrastructure Development

The CMA has been witnessing a boom in infrastructure development in housing and IT sectors.

1. Adverse effect on ground water recharge potential and storm water drainage.
2. Leading to waste management issues

III Municipal Solid Waste

- An old issue. But becoming more and more complex.

  1. Per capita waste generation constantly increases; means more and more waste to be managed.
  2. Waste is becoming toxic; means Processing becomes difficult.
  3. Magnitude:

     MSW : City 3,400 tonnes daily
     CMA 6,590 tonnes daily

IV Household Hazardous Wastes

1. Emerging issue in Solid Waste Management
2. 150 – 345 g / week / household (mean 250g) (Anna University study)
3. For 8 lakhs households - 200 tonnes / week
4. High Income group – major generators

V Other Solid Wastes

Biomedical Waste	- 12,000 kgs daily
E-waste	- 6 tonnes/year
Construction debris	- 500 tonnes daily

VI Modes of Transport

- In Western-European cities, non-motorized modes of transport account for 50% of all urban trips [The Hindu Dated 8.10.2008]. In Chennai the non-motorized transport (cycles) is only 6% in number and 13% in trips.
- This phenomenon has serious implications on air quality and traffic.
- Under utilization of MRTS

VII Protected Water Supply

- Supply in city is comfortable in term of coverage and quantum and quality
- Rest of CMA: It is an issue in areas where the supply is from ground water sources.
- Issue related to sources: Threat to the catchments extent, quality of water in reservoirs; threat to ground water quality due to pollution and salt water intrusion.

VIII Sewerage System

- City : 99% of the area covered
- Rest of CMA : Alandur, Valasaravakkam have Sewerage system . For the rest, action being taken
- Issue : Unsewered areas contribute to pollution of waterways and ground water

IX Environmental Issues related to Natural Resources
(a) Air Pollution

- Major source of air pollution is vehicles 71%, followed by Industries, 20%
- Impact Areas have been identified
- Suspended Particulate Matter (SPM) is the pollutant of concern. Other pollutant levels within norms.

(b) Water Pollution - Water ways Status on waterways in Chennai City

- Water quality in River Adyar falls under Class E if followed the Best-Designated use criteria key promoted by CPCB.
- Water quality in River Cooum also falls under Class below E.
- The water quality of various other water ways such as Buckinham Canal, Otteri Nullah, Captain Cotton Canal and Mambalam Drain are in similar state

(C) Coastal Pollution

Chennai waterways are threat to the coastal environment

(d) Noise Pollution in CMA

An IIT study has shown that

- Leq noise levels are around 86 dB (A) along the busy roads
- There is an increase of 6 dB (A) when compared to 1993 data

X Demography

World Bio-capacity = 1.8 ha/person

[A person requires 1.8 ha of earth space to produce what is consumed by him in a year]

Chennai city population density = 247 persons/ha

Ecological foot print = 0.004 ha/person

For CMA, the

Ecological foot print = 0.016 ha/person

XI Slums

- Slum population

  In 2001 : 8,20,000 / 43,00,000

  : 20%

- Mostly located on banks of waterways raising issues of waste management, river pollution, sanitation and health.

XII Ecologically stressed Areas

1. Pallikarani Marsh
2. Water ways
3. Peripheral industrial corridors

PART II
Environmental Management Issues

Environmental Management

An attempt to control human impacts on and interaction with the environment in order to preserve natural resources

Policy Issues

- Strong policies exist – Examples
  - State Policy to make a “Singara Chennai”
  - CMDA Policy – to make Chennai a prime metropolis which will become more livable, economically vibrant, environmentally sustainable and with better assets for future generation

Issues related to Regulatory Mechanisms
Strong Mechanism exists. Example for Construction Projects

Sl. No.	Title of the regulations
A	**National legislations**
1	Environmental Protection Act, 1986
2	Water Act, 1974
3	Water Cess Act, 1977
4	Air Act, 1981
5	Environment Impact Assessment Notification, 2006
6	The Wild Life Act, 1972
7	Noise Pollution (Regulation and Conduct) Rules, 2000
8	Coastal Regulation Zone (CRZ) Regulations, 1991
9	Municipal Solid Waste (Handling & Management) Rules, 2000
10	Forest (Conservation) Act, 1980
11	Batteries (Management and Handling) Rules, 2000
B	**State-level legislations (Tamil Nadu)**
1	Tamil Nadu Groundwater (Development and Management) Bill, 2000
2	Tamil Nadu Town and Country Planning Act, 1971
3	Tamil Nadu Panchayats Act, 1994
4	Tamil Nadu Land Acquisition Act, 1894

Possible Implementation and Monitoring Issues

- Inadequate manpower
- Inadequate trained staff
- Limited budgetary support
- Inadequate of public and other stakeholders support

In the case of CMA, a study is needed to find the gaps

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Session - V

E-Waste Management

S.Balaji,
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Presentation Structure
E-Waste : Definition

E-Waste : Generation and Recycling in TN

E-Waste : MoEF Guidelines 2008

E-Waste : Action taken by TNPCB

What is e-waste?

- Electronic waste, "e-waste" or "Waste Electrical and Electronic Equipment" ("WEEE") is waste material consisting of any broken or unwanted electrical or electronic appliances
- Sources of e-waste:

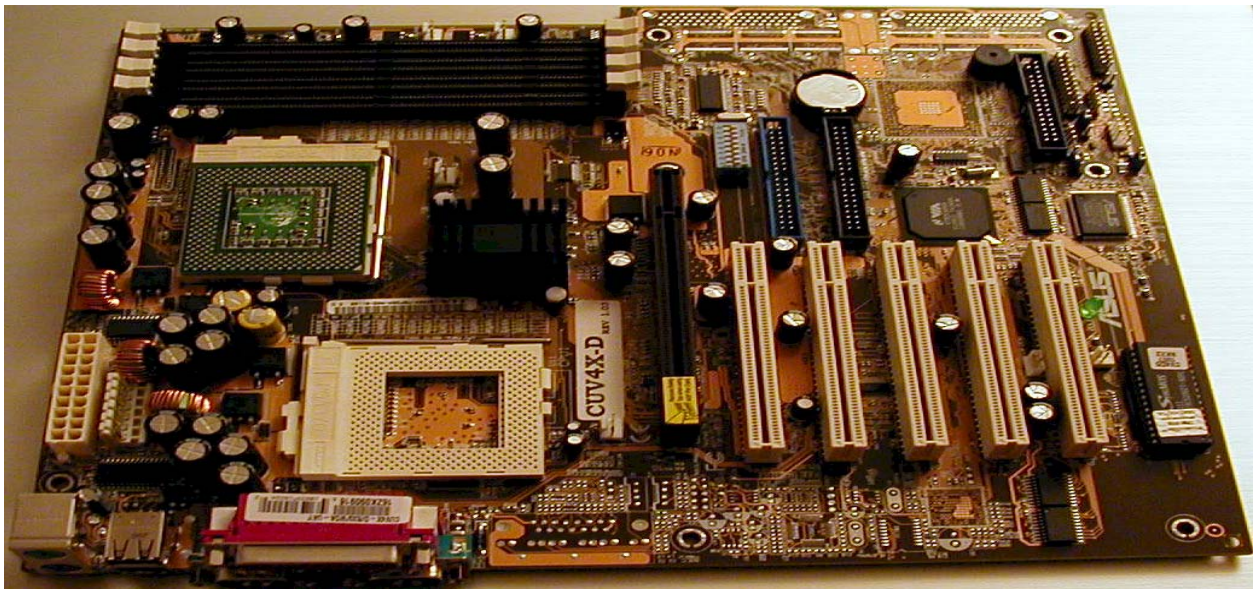
WEEE Directive

- IT & Telecom Equipments (35%)
- Large Household Appliances (40%)
- Small Household Appliances
- Consumer & Lighting Equipments
- Electrical & Electronic Tools
- Toys, Leisure & Sports Equipment
- Medical Devices
- Monitoring & Control Instruments

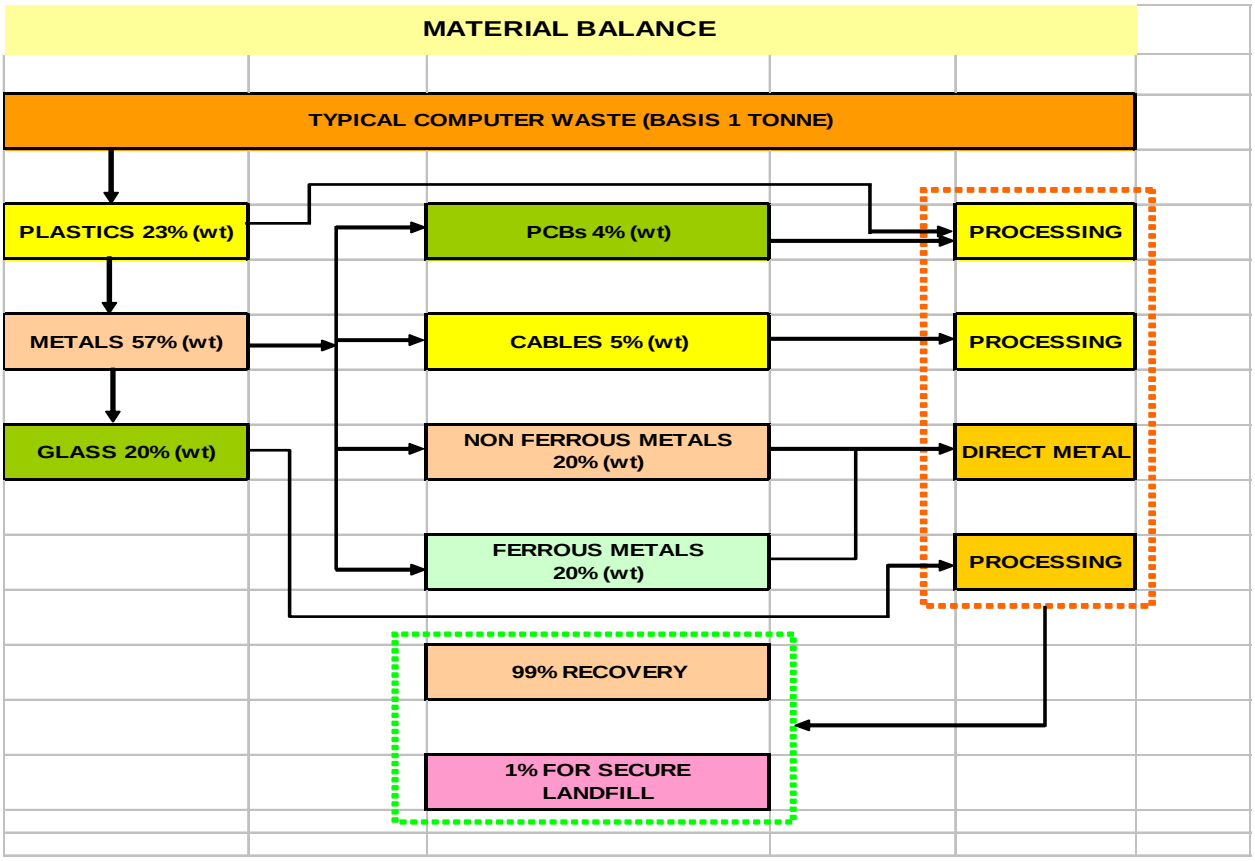
- e-waste has become a global concern because many components of it are Toxic and Non-renewable resources

E-waste consists of

- Different grades of PCB classified according to the metal ratio
- IC waste
- Copper
- Aluminium
- Wire
- Connectors and Sockets
- Batteries
- Plastic waste



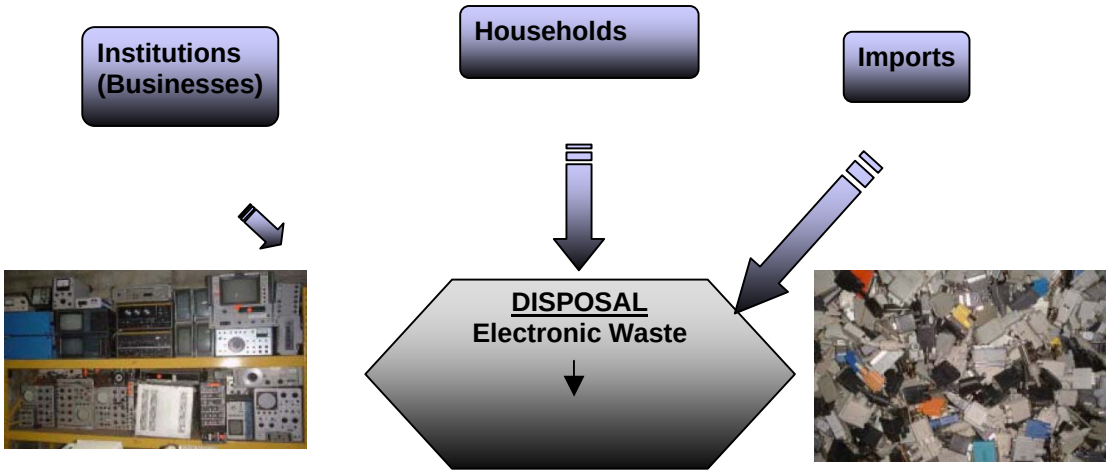
Toxic constituents	
Constituents	Components
Lead and Cadmium	Printed Circuit Board
Lead Oxide	Cathode Ray tubes
Mercury	Switches,Flat screen monitors
Cadmium	Computer batteries
Poly Chlorinated Biphenyls	Capacitors and transformers
Brominated flame retardant	Printed circuit Board, plastic casings cable
PVC	Cable Insulation/coating



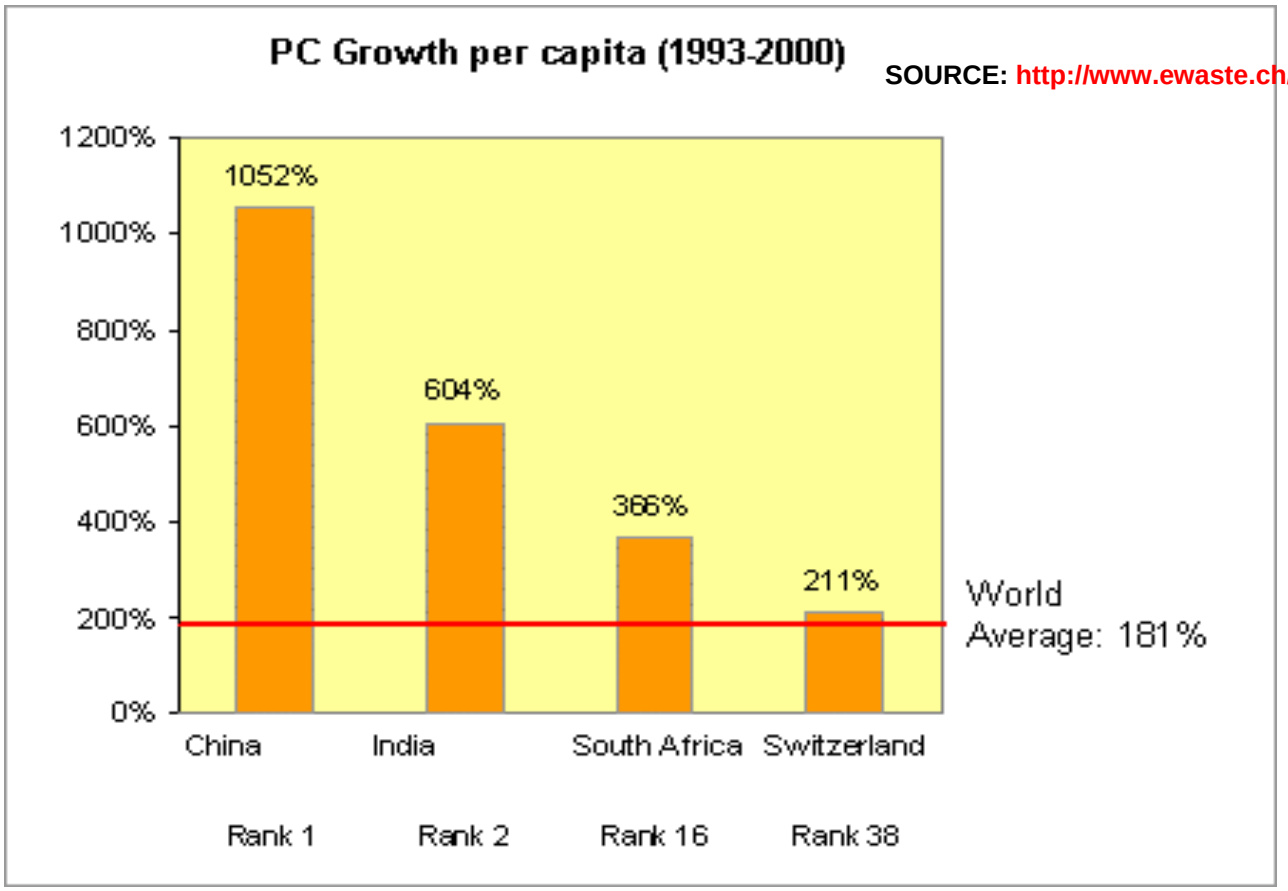
E-Wate – Several Stakeholders

- Manufacturers of Products in several industry segments-IT, Telecom, consumer electronics and appliances, Medical Electronics, Instrumentation etc.
- Product distribution Supply Chain
- Corporate/Business Users
- Disposal agencies-Organized and unorganized
- Government and regulatory authorities
- General public/consumers
- Municipalities
- NGO's
- Illegal importers

Sources of e-Waste in India



- Other than the two end user segments (Households and Institutions), Imports of e-Waste from other countries are also adding to the e-Waste of India



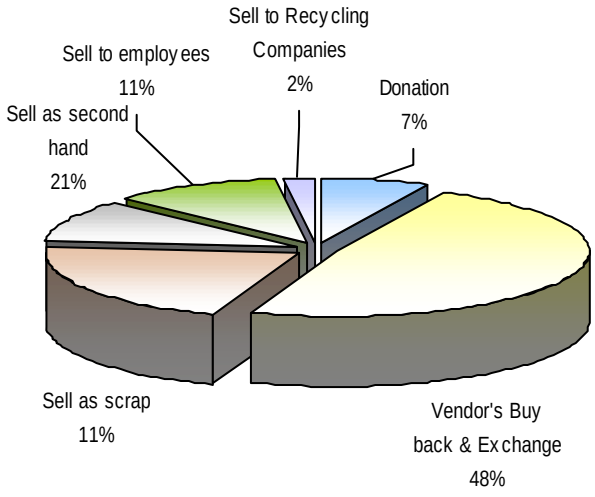
E-Waste Generation top ten States in India

S1.No.	States	WEEE (Tonnes)
1	MAHARASHTRA	20270
2	TAMIL NADU	13486
3	ANDHRA PRADESH	12780
4	UTTAR PRADESH	10381
5	WEST Bengal	10059
6	DELHI	9729
7	KARNATAKA	9118
8	GUJARAT	8994
9	MADHYA PRADESH	7800
10	PUNJAB	6958

E-waste status in Chennai			
Latest assessment done in Chennai city			
PER HOUSEHOLD USAGE	YEARS OF USAGE	USAGE BY LOW INCOME GROUP	USAGE BY HIGH INCOME GROUP
PC	0.39-1.7	5.94 years	3.21 years
TV	1.07-1.78	8.16 years	5.13 years
MOBILE PHONE	0.88-1.7	2.34 years	1.63 years
The total E-waste generation is estimated to be 26,183 Tonnes for the year 2004-05 and the same increases to 1,32,778 tonnes in the year 2013-2014.			

Methods Adopted to dispose off Computers & other IT Products

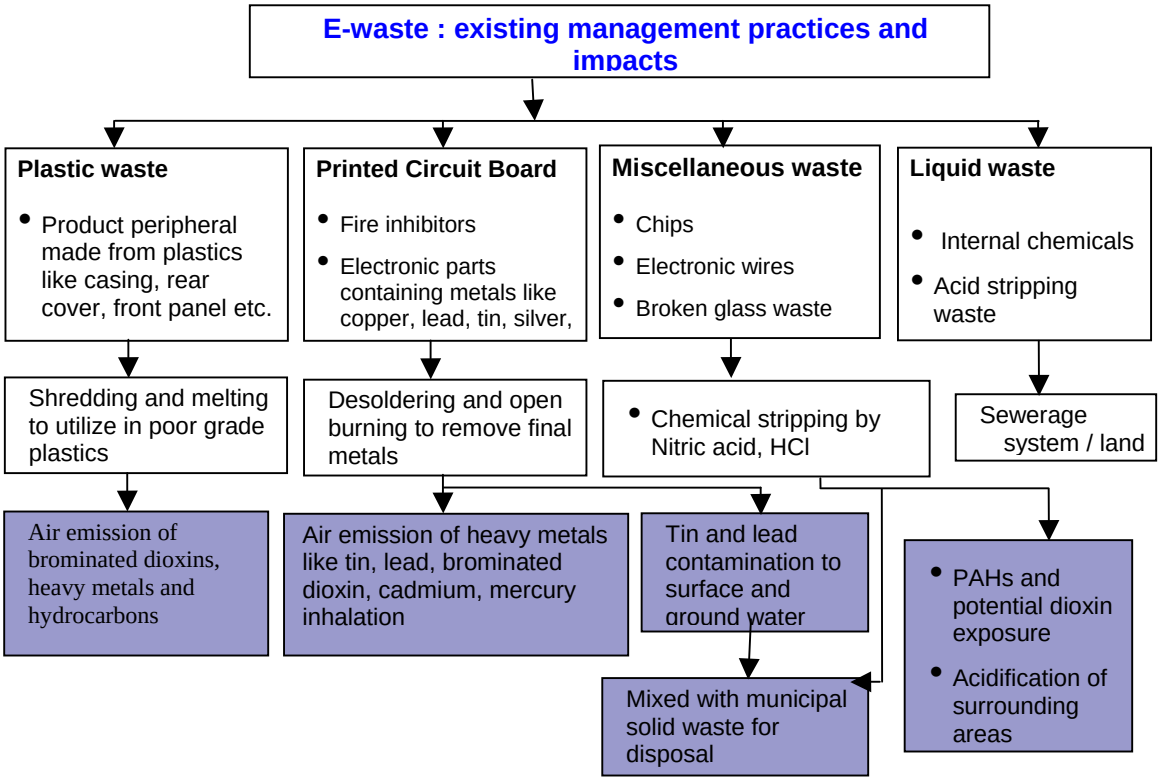
Source: e-Waste Assessment in India"
December 2007
Conducted By: eTechnology Group@IMRB



80% of the replaced computers enter the e-Waste stream, either directly through scrap or via Second hand markets, exchange or buy back schemes

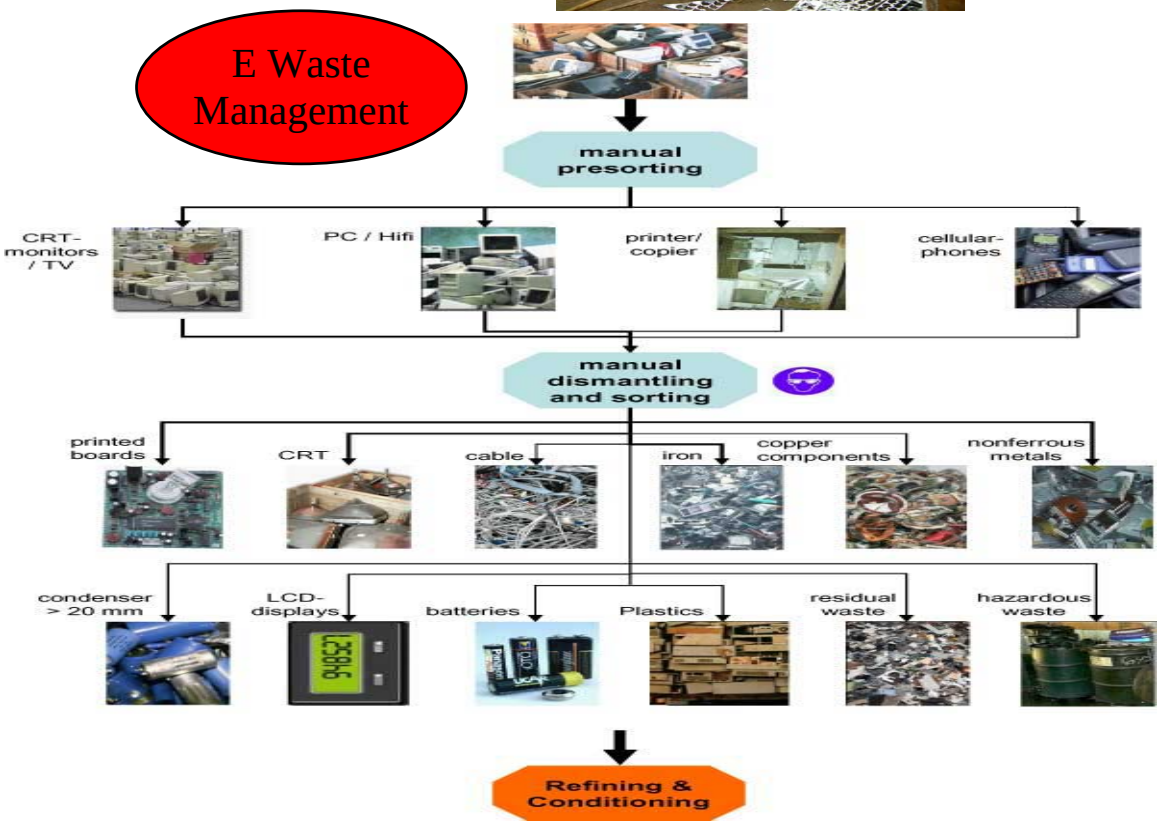
E-Waste to be managed-Why

- E-waste does not look like hazardous waste but it contains lead, mercury, arsenic, cadmium, PVC, BFRS and dozens of other toxic and hazardous compounds.
- Toxic materials enter the waste stream cause adverse effect on the environment and human health.
- Resources are wasted, when economically valuable materials are dumped, instead of recycled and additional new resources are required to continue the manufacturing process.



Refining and Conditioning

Manual Dismantling



E-Waste Recycling in India

- Formal Sector
  - ✓ Very few authorised recycling components
  - ✓ Dismantling/crushing procedures
  - ✓ No component recovery
  - ✓ Mainly exported for precious recovery resulting in loss of resources
  - ✓ Not able to source enough material

E-Waste Recycling in Chennai

- The prime areas that handle computer waste in and around Chennai:
    - New Moore Market
    - Madhavaram
    - Purasawakkam
    - Perimedu

E-waste recyclers in TN

- M/s Trishyiraya Recycling India Private Limited, A-7, MEPZ, Tambaram
- M/s AER world wide (India) Pvt Limited ,1321/2, Madhavaram village, Ambattur Talulk , Thiruvallur District
- M/s INAA Enter Prises, Plot No. AC-31/24, SIDCO Industrial Estate, Thirumudivakkam village, Sriperumpudur Taluk, Kancheepuram District
- M/s TES-AMM recyclers (India) Pvt Ltd, SF.No 3894/19,Tondiarpet village, Fort-Tondiyarpet Taluk, Chennai District (Proposed to provide full fledged E-waste recycling facility in SIPCOT Oragadam)
- M/s Trancitytech Electro Pvt Ltd, Plot No 101, SIDCO Industrial Estate, Ambattur, Chennai-98
- M/s Automac India Ltd, Errahalli village, Krishnagri Dist
- M/s SVP Recycling Inida Limited, Vyasarpadi Industrial Estate, Chennai

LEGISLATIONS

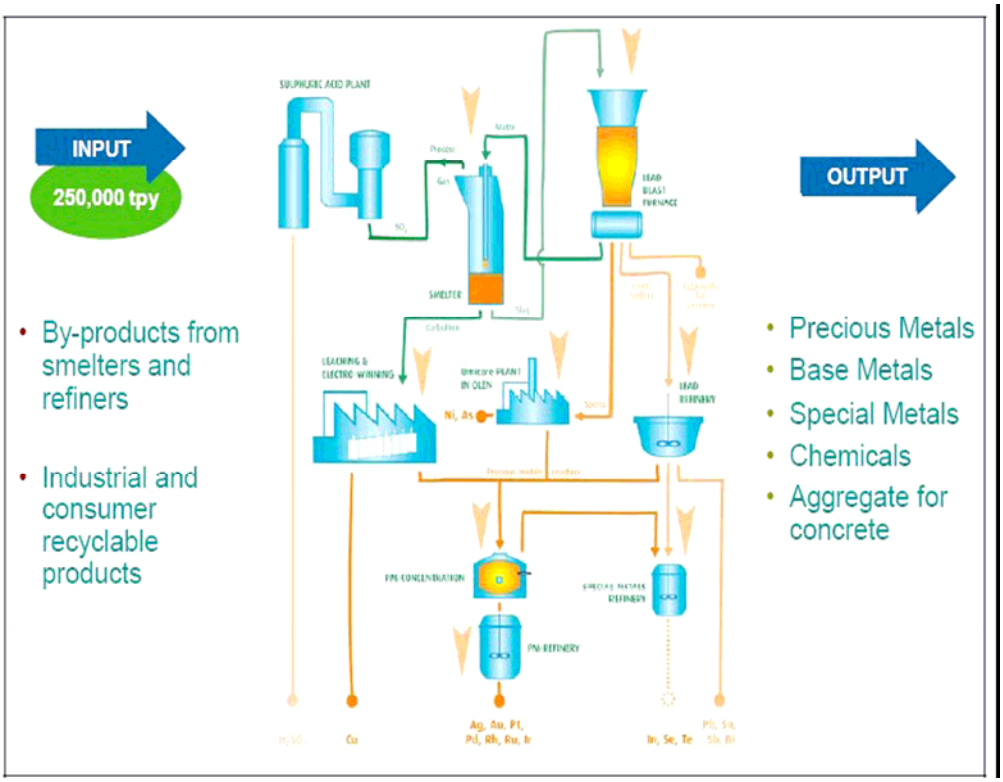
- MOEF approved the Guidelines for electronic waste in India during March 2008.
- A1180-Waste listed in Part-A of Schedule-3 included as Hazardous waste as per Hazardous waste (Management, Handling and Transboundary Movement) Rules 2008.
- B1110-Electrical and Electronic Assemblies Listed in Schedule 3 of Hazardous waste (Management, Handling and Transboundary Movement) Rules 2008

Guidelines for establishment of integrated e-waste recycling and treatment facility

Facility Operation Requirements

- Collection
- Storage
- Dismantling and segregation
- Treatment and disposal

PROCESS FLOW DIAGRAM OF AN INTEGRATED FACILITY



Source: Recycling of electronic scrap at Umicore's integrated metals smelter and refinery, Proceedings of EMC 2005

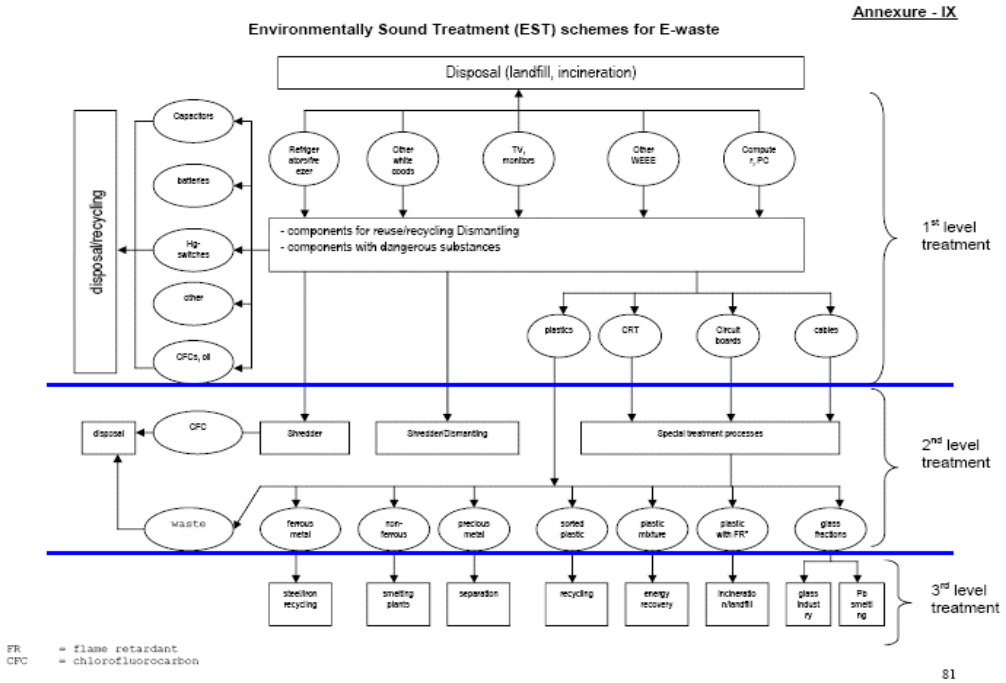
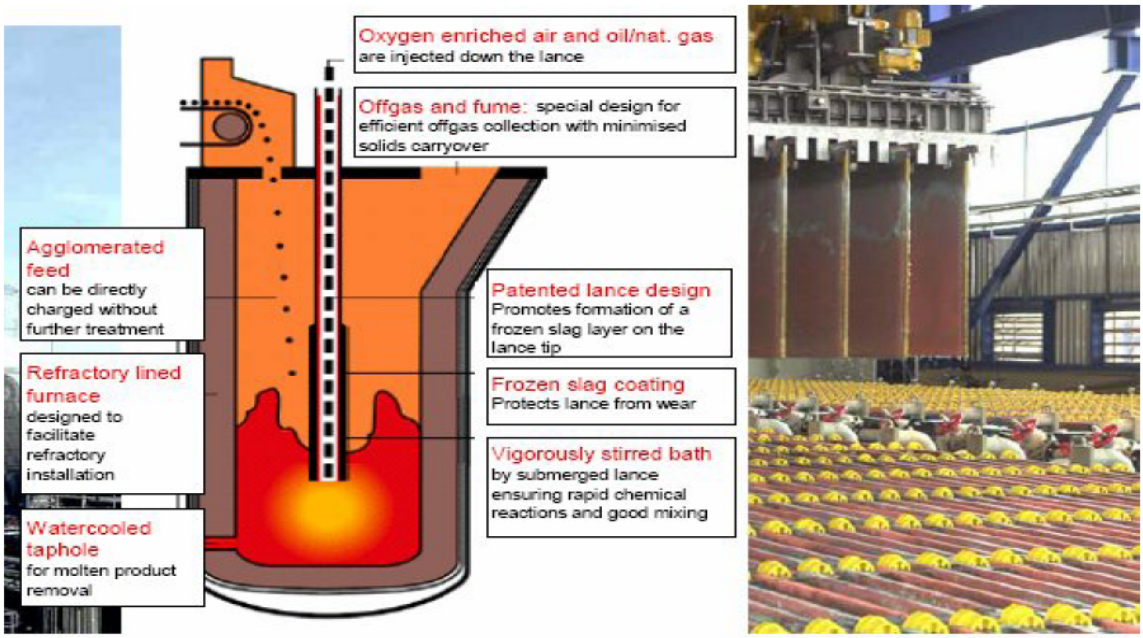


Figure : Smelting and Electro winning during PMO in an integrated plant



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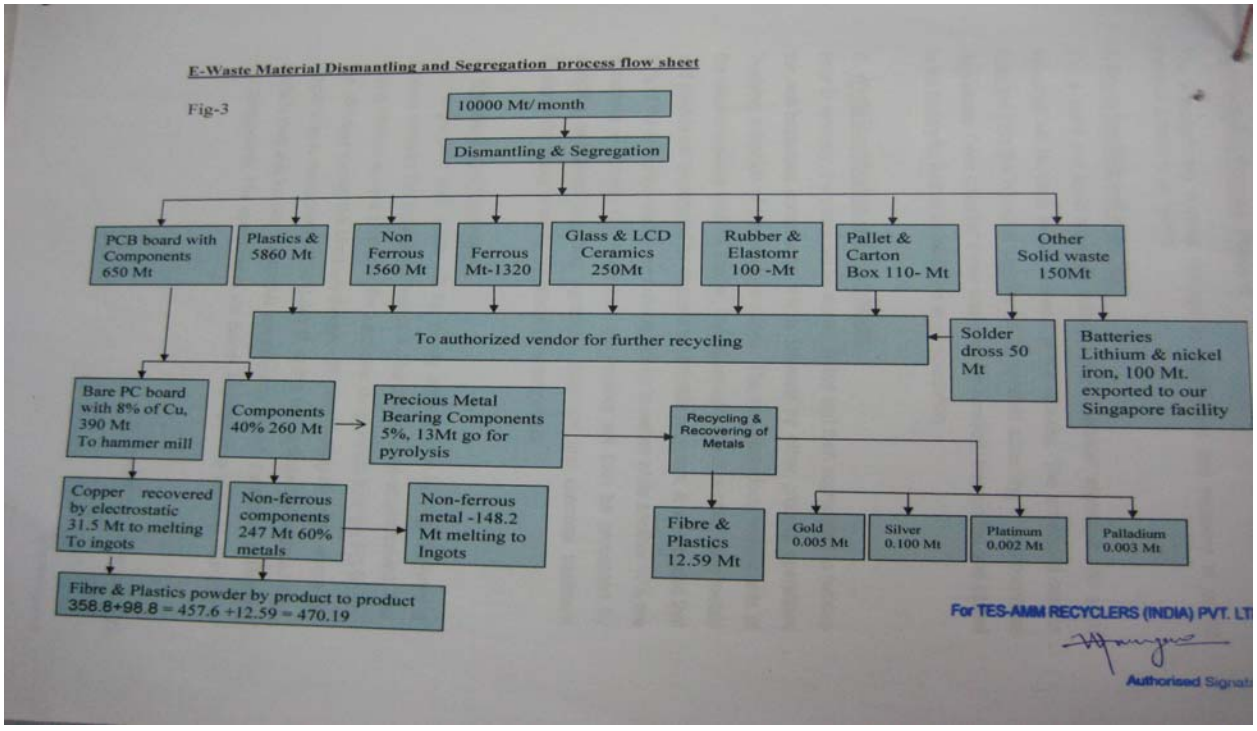
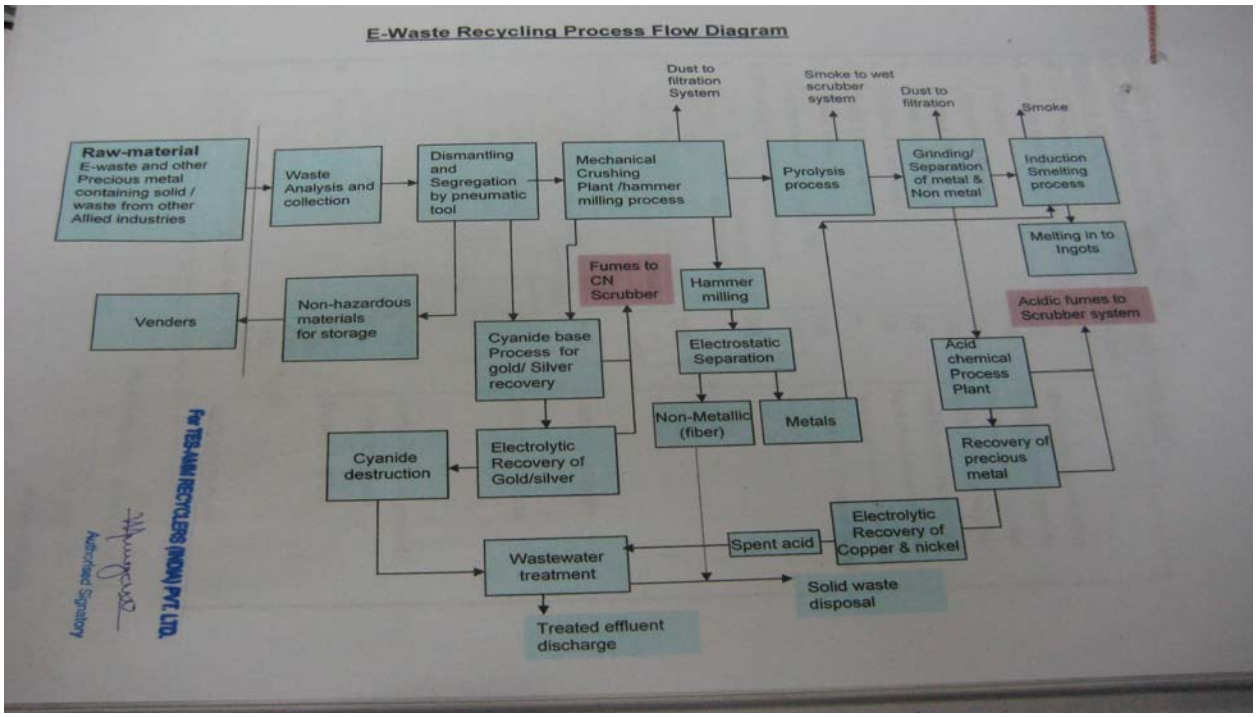


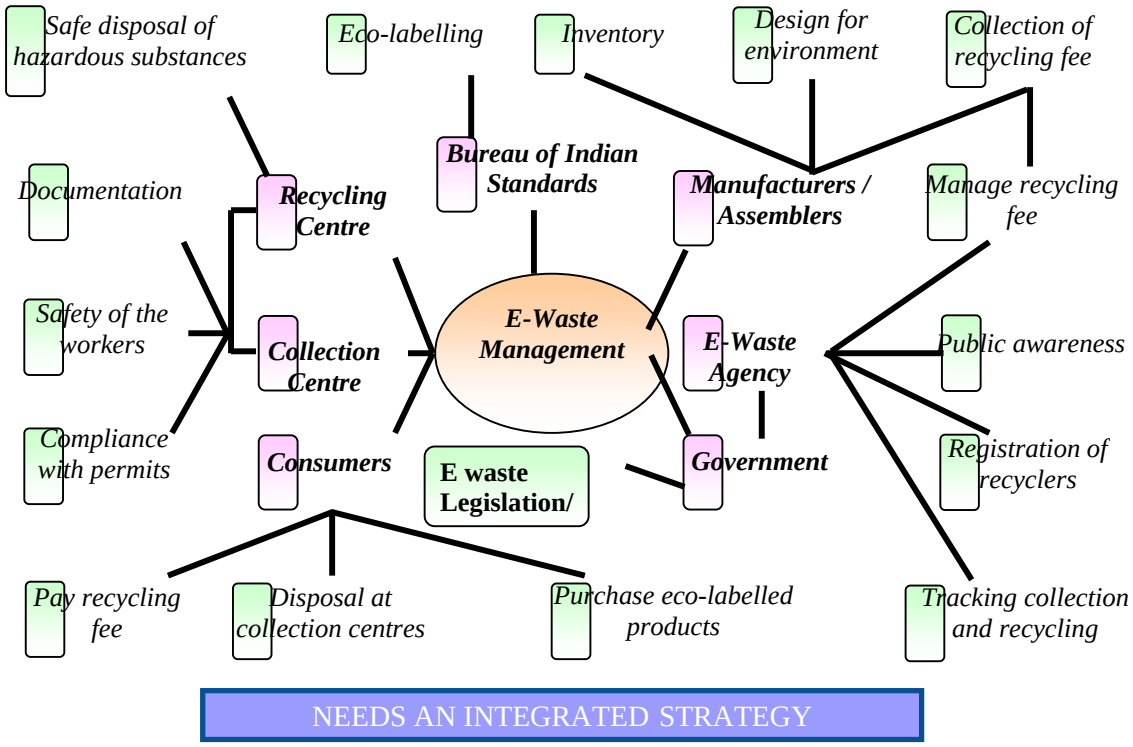


Initiatives taken by TNPCB for E-waste Management

- Five member committee has been formed during 2005
- Periodical Stakeholder meeting conducted
- One day workshop was conducted during july 2006
- CTE/ CTO issued for nine E-waste recycling facilities in Tiruvallur, Kancheepuram Chennai and Krishnagiri Districts.
- Board stressed the proposed I.T Park promoters to have their own common or individual disposal facility for E-Waste.

Initiatives taken by TNPCB for E-waste Management

- Board insisted Customs to install Scanning facility at the port to scan the materials present in the consignment
- TNPCB is imposing conditions for all the industries for the scientific disposal of E-Waste through Authorised E-waste recyclers
- Authorised E-waste recyclers has been notified in TNPCB Web site.
- Inventory of E-waste is being carried out through Toxic Link as per CPCB



Need of the Hour

- Creating awareness among the public regarding the hazards of E-Waste through Mass communication.
- Informal e-waste recyclers to be identified and steps to be taken to improve as formal .
- To promote E waste recyclers including metal recovery plant
- To introduce proper collection system at Town/City level

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Session – V

Initiatives for Energy Development and supply in Chennai Metropolitan Area

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Superindenting Engineer, Tamil Nadu Electricity Board, Chennai.

Power – Basic Infrastructure

- Power is a basic infrastructure influencing the growth of industrial, agricultural and service sectors and ultimately the economic development.
- One of the determinants for quality of life is the level of availability and acceptability of affordable and quality power.
- It is one of the sectors, to which Government is giving priority in fixing the plan outlays at National as well as State levels.

Profile of CMA

- HT Consumers

Industrial	Commercial
864 Nos. - 868 MW	563 Nos. - 344 MW

- LT Consumers

Industrial	Commercial	Others
61543 Nos. - 800 MW	401231 Nos. - 1127 MW	1791286 Nos. - 3729 MW

- No of EHT/HT Sub-Stations - 147
- Maximum peak reached in 2007-08 - 1886 MW (04.06.2008)
- Average daily consumption - 30 to 35 MU.

* figures as on 30.6.2008

Present Generation scenario

ETPS - 450 MW (Coal based thermal station - TNEB) (1970)

NCTPS - 630 MW (Coal based thermal station - TNEB) (1994)

BBGTS - 120 MW (Gas / Naptha based station - TNEB) (1996)

GMR VASAVI - 196 MW (Diesel based station - IPP) (1998)

Total - 1396 MW

Future requirement

Plan period	Requirement
2006 - 11	1100 MVA (990 MW)
2011 - 16	1200 MVA (1080 MW)
2016 - 21	1400 MVA (1260 MW)
2021 - 26	1500 MVA (1350 MW

Planned augmentation

1. North Chennai (Phase-II) – 2x600 MW
2. Ennore – 1x600 MW
3. Joint venture with NTPC
   at North Chennai – 3x500MW
   Total **3300** MW

These schemes are expected to be completed during 2011-2012.

T&D Plan

- To meet the load growth due to increased industrial activity and population, TNEB is preparing and implementing a master plan for infrastructure development for every 5 years with a perspective view to supply reliable and quality power to the consumers.

- To cater the additional requirements of power, the details of the new substations proposed by TNEB in the Chennai area upto 2026 are given below.

Substation	**2006-11**		**2011-16**		**2016-21**		**2021-26**	
	No. of SS	Capacity in MVA	No. of SS	Capacity in MVA	No. of SS	Capacity in MVA	No. of SS	Capacity in MVA
765 kV SS	-	-	-	-	1	3000	1	3000
400 kV SS	2	1260	2	1260	3	1890	3	1890
230 kV SS	6	1200	6	1200	9	1800	9	1800
110 kV SS	22	1100	24	1200	36	1800	36	1800
33 kV SS	44	704	48	768	72	1152	72	1152
Total	**74**		**80**		**121**		**121**	

Capacity addition

Year	New SS	Enhancement of Power Transformers in existing SS	New Lines	UG cables
2006-07	9 Nos./ 1044 MVA	503 MVA	27 Kms	Nil
2007-08	9 Nos./ 154 MVA	773 MVA	75 Kms	37 Kms
2008-09 (Plan)	18 Nos/ 3006 MVA	800 MVA	175 Kms	45 Kms.

- Sufficient land to be made available by CMDA for establishment of Substations in respect of group housing, commercial complexes, industrial units depending upon their demand.

- On allotment of required land, necessary arrangements will be made to establish the substations. Unless the land is got allotted for establishment of substations, the work may suffer a backlog.

Restoration of Supply

- Supervisory Control and Data Accquisition System (SCADA)
- To look after and monitor Chennai City Dist. Network comprising 147 SS and 950 11KV feeders.
- The real time parameters of SS and event happening in the Sub-Stations are recorded.
- There are 7 EBS Sub-centre to look after the 11 KV feeder
- There are 57 FOC Centres to look after the LT faults.
- Consumers reddressal mechanism is also done through a Centralized Call Center.

E-Governance LT Billing & Payment System

(Any Where payment within CMA Possible)

- No. of collection Centres : 198 Nos.
- No. of Counters : 468 Nos.
- Payment Through Kiosk : 4 Nos.
  1) TNEB HQ Campus
  2) North Usman Road Collection Centre
  3) Walaja Road Collection Centre
  4) Sowkarpet Collection Centre
- Internet Banking : www.tneb.in
- Facilitator : AXIS Bank (Payment Gateway- Credit/Debit Card)
  Axis Bank (Net Banking)

Alternate to generation augmentation

ENERGY SAVINGS BY DSM

DEMAND SIDE MANAGEMENT

- Process of managing the consumption of energy to optimize available and planned generation resources.

- Achieved through energy efficiency, which is reduction of kilowatt-hours of energy consumption.

DSM MEASURES IN DOMESTIC / COMMERCIAL

- ❖ Improvements to building design (moving towards green building)
- ❖ Compact Flourescent Lamps
- ❖ Lower wattage Flourescent Lamps
- ❖ Electronic ballasts
- ❖ High efficient luminaries
- ❖ High efficiency room AC
- ❖ High efficiency refrigerators
- ❖ More efficient fans
- ❖ Electronic speed regulators
- ❖ Solar water heating
- ❖ House keeping

DSM Measures in Street Lighting & Public works

- ❖ High pressure sodium lamps
- ❖ Timers for street lighting
- ❖ Pumpset sizing
- ❖ Variable speed drives

Small Drops make mighty ocean

- ● Present estimated household demand is 1125 W.
- ● 60W reduction in demand by each household will result in a reduction of 90 MW out of 1800 MW.

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Session – V

MEETING TELECOM NEEDS IN CMA

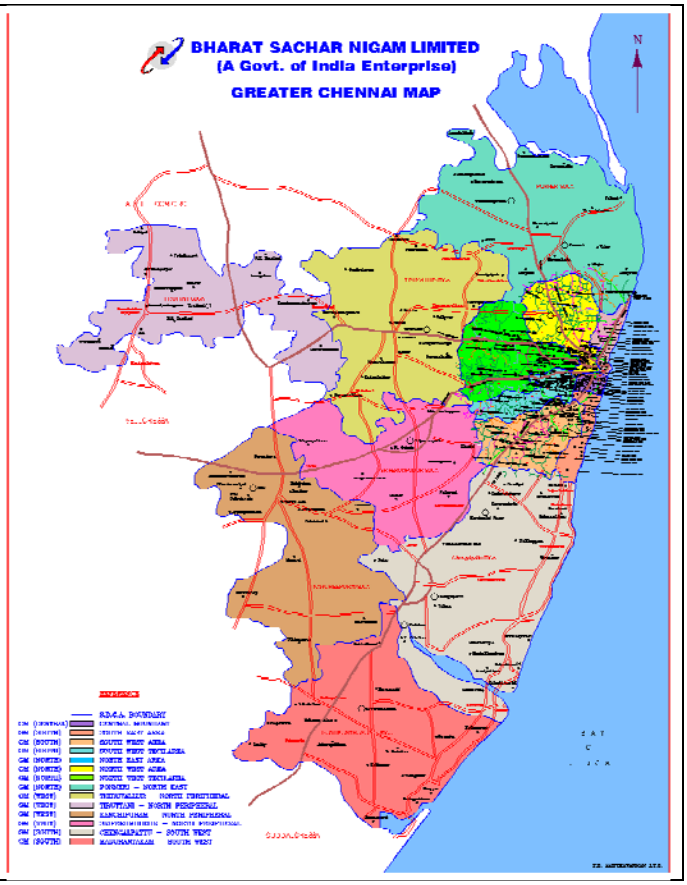
Shri M.P.Velusamy I.T.S
Chief General Manager, Chennai Telephones, BSNL, Chennai.

VISION
To become the largest Telecom Service Provider in Asia

MISSION
I . To provide world class State-of-Art technology Telecom Services on Demand at affordable price
II . To provide world class Telecom infrastructure to develop the country's economy

CHENNAI TELEPHONES

- Serves the telecom needs of more than NINE million population
- Maintains 324 Telephone Exchanges across the city and extended area of Kanchipuram, Thiruvellore, Thiruthani & Chenglepet.
- Maintains Optical Fibre Network of 5590.86 Kms



BSNL SERVICES

BSNL LANDLINE	Basic Telephone Services Working Connections -1000085
BSNL BROADBAND	BROAD BAND Service BROAD BAND connections - 234001
BSNL MOBILE	Cellular Service PREPAID - 815676 POSTPAID -173716 Total Connections - 989392

BSNL WLL	CDMA mobile WLL connections - 46055
BSNL INTERNET	Internet Access Service Internet Connections -205808

PRESENT NETWORK

- Copper cable network 132.7 lakhs CKM covering all major BRR (Bus route roads) 305 Kms, interior roads 2475 Kms and about 1500 villages.
- All our present primary cables connecting exchanges are laid in Ducts for short distances.
- Other cables are predominantly laid using conventional methods ie. direct burying.
- We share the common resource available by the road sides along with other utility services such as Metro Water, Electricity Board, Other Cable networks etc.
- Besides cables we also have distribution pillars around 20,000 and about 2 Lakhs distribution boxes spread across the city mainly installed at curbs, platforms pavement etc.
- **Existing Optical Fibre cable-5590.86 Kms**
- The above Optical fibres are distributed in ring formation in about 425 SDH rings.
- Chennai Cable Consortium has given permission to lay OFC in 42 BRRs (Bus Route Roads) of which 9 routes have been completed.
- We have around 800 GSM towers and about 134 CDMA towers.
- We aim at adding another 1000 GSM towers and 100 CDMA towers within one year.

Development Plan

- About 50 RSUs are planned in next 3 years exclusively to meet the rural demand for Broad Band.
- With population explosion spreading to rural area we expect that an average of 10 RSUs would be added progressively every year.
- The copper cable component could be in addition to the existing network.
- Optical Fibre additions in the next 3 years will be as follows
    - 2008-09 300 KMs
    - 2009-10 300 KMs
    - 2010-11 400 KMs

FUTURE SCENERIO

- About 100-150 exchanges are likely to be commissioned by the end of II Master Plan Year 2026
- More Demand is expected only in Peripheral areas in the coming years. such as ECR - Mahabalipuram, Gummudipoondi – Maraimalai Nagar and Chennai - Sriperumpudur.
- Present Land Line (LL) capacity is 10 lakhs
- Out of which, landline working with Broad Band (BB) connections are 2.5 lakhs
- In 2010 all Land Lines will have
    - Broad Band connection.
- In future LL& BB require OFC in every road & building.

FIBRE TO THE HOME (FTTH)

- BSNL is planning to provide video broadcast & video on demand with best quality picture through optical fibre to all .
- Hence it is necessary to extend OFC to all buildings.
- The future is going to be on wireless utilising technologies such as GSM, WLL, Wi-MAX, wi-fi , MW link for different tastes of customers
- It is envisaged that communication towers would be required at every 200 meters

BSNL TOWERS EXPECTED

S.No	**TECHNOLOGY**	**EXISTING**	BY 2009	BY 2010	BY 2011	BY 2026
1	GSM	749	844	1804	2924	10000
2	WLL	134	163	323	500	8000
3	WI-MAX	1	200	500	800	6000

REQUIREMENT FROM CMDA

CMDA is requested to co-ordinate for the following.

I. To permit to lay OFC under Chennai cable consortium in all BRR (Bus route roads).

II. To make mandatory provision in all buildings for

(a) extending OFC & telephone lines to all the floors in all the buildings.

(b) provision of utility room for housing telecom equipments of multiple operators in all the future buildings

(c) All builders may be ordered to provide necessary structure on the terrace for installing communication tower as mandatory at the time of according approval for the construction.

(d) Details of plan approval for Multi-storied apartments may be given, so as to plan and develop Infra-structure along with the construction of buildings.

(e) Approval of any new Layouts may be communicated so as to plan for extending Telecom Facilities in these areas.

(f) A copy of the Annual Plan of CMDA may be communicated to us, as and when prepared, to take further action.

OTHER ISSUES

- The progressive developmental work taken up by other agencies such as road widening ,laying of storm water drains ,interconnect work of metro works, construction of flyovers etc. have caused extensive damage to our existing telecom networks.
- In future CMDA may provide multi channel dedicated duct exclusively for telecom operators free from EB, Storm water and drainage in all roads as done by TNRDC in OMR.
- Right of Way for Laying Cables may be marked and given in advance for taking appropriate actions, whenever new Roads are formed.
- Any expansion programme by other utility services may be intimated to BSNL for advance appropriate action.
- CDMA may have to direct various land acquiring agencies not to encroach BSNL Telephone exchange buildings.

For example

- NHAI is acquiring about 370 sq.mt., from the existing Ambattur TE Building Complex for Flyover construction.
- Chennai Metro Rail Project has intimated to acquire 559sq.mt., from the existing KK Nagar TE complex.
- State Highways has intimated to acquire 450 sq.mt., from the existing Tiruvanmiyur TE building.

Relaxation needed for Building Constructions

- Many vacant plots have been purchased from TNHB/State Govt.,. It is insisted by CMDA to leave 6 mtrs., in all the 4 sides of the plot which will result in very less area of construction for the Tele. Exchange buildings.

  For example;

- A plot at Maduravoil has a dimension of 31.7 mt. x 12 mt., in which, no construction is possible. Hence CMDA is requested to relax the condition for set back area, since the public utility and the staff working will be very less in such telephone exchanges.
- The site area at Madhavaram is 3000 sq.mt. As mentioned above relaxation is requested from CMDA as the approach road has width less than 10 mt.
- The site area at Dinrose is 7000 sq.mt. It is insisted by CMDA to construct building only with 300 sq.mt., area, as the approach road width is less than 10 mt. CMDA requested to relax this condition and allow Construction of TE building at Dinrose

WEB SITE
OUR INTERNET PORTAL
www.chennai.bsnl.co.in

giving information about Chennai Telephones, including Directory Enquiry

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Session - V

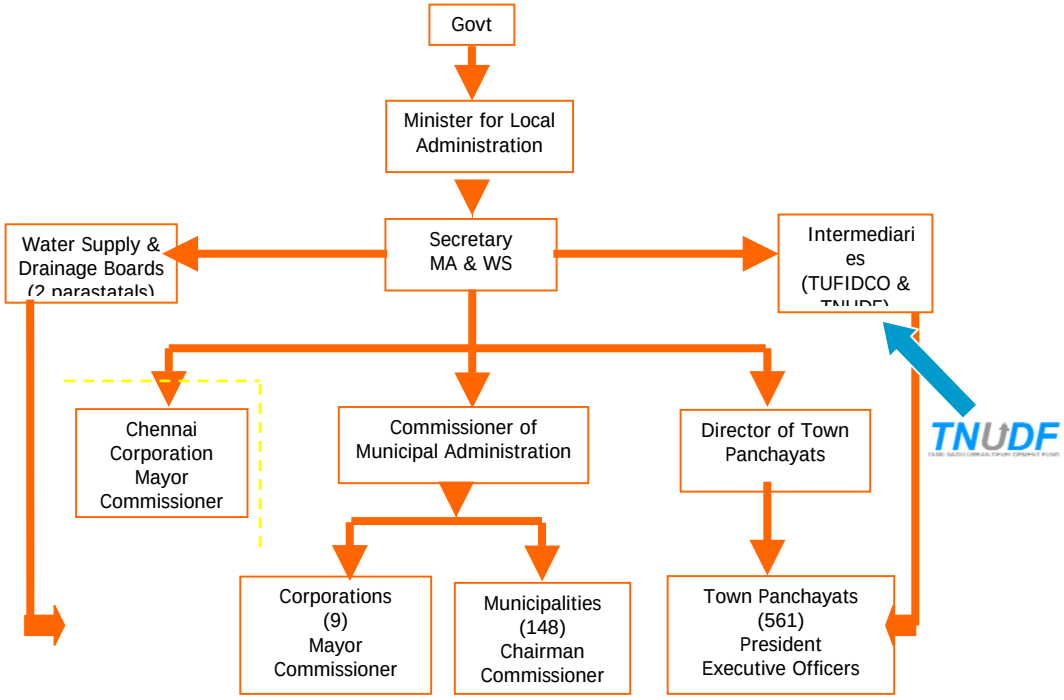
Municipal Infrastructure Financing

K. Phanindra Reddy, IAS
MD & CEO, TNUIFSL, Chennai

Urban Sector Issues

- Infrastructure up-gradation and reforms
- Capacity building at ULB level for efficient and responsive urban service delivery
- Sustainability of urban financing
- Need for accessing long tenor debt and eventually creating a market for municipal debt
- Political consensus and participatory project structuring to facilitate user charges / tariff

Municipal Administration System in Tamil Nadu



Tamil Nadu Urban Infrastructure Financial Services Ltd (TNUIFSL)

- Asset Management Company registered under Indian Companies Act, 1956
- Public Private Partnership (GoTN – 49% & FIs – 51%)
- Manages under Management Contract
    - TNUDF
    - Capital Grant Funds – (WB, JBIC & KfW)
    - Consultancy Grant Funds (WB, JBIC, KfW & PPGF)
    - WSPF
    - Adyar Poonga Trust
- Involved in project development, financial appraisal, structuring, fund sanctions / disbursement, project monitoring and project management

Tamil Nadu Urban Development Fund (TNUDF)

- Established in November 1996 as a Trust
- Public Private Partnership arrangement
    - Govt of TN: Rs 143 cr (71.5%)
    - ICICI Bank, HDFC, IL&FS: Rs 57 cr (28.5%)
- Vision: Develop urban areas on sustainable basis
- Trustee of TNUDF is a company (TNUITCL)
- Policies & procedures are prescribed by TNUITCL
- Successfully managing Lines of Credit
- Consistently profit making with no NPA

Urban Projects

- Water Supply
- Sewerage & Sanitation
- Solid Waste Management
- Roads & Bridges
- Storm Water Drains
- Street lighting & crematoria
- Municipal infrastructure facilities & remunerative projects like bus stand, commercial complex etc.

Sources of Funds to ULBs

- ULB's Own Contribution
- Capital Grants from Government
- Institutional Borrowings through Government
- HUDCO, LIC
- Assistance from multilateral agencies through Government (WB, JBIC, KfW, ADB)
- Term Loan from Development FIs
- Support Based Market Borrowings
- Term Loan from FIs and Banks

Financial Status of ULBs

- Requires strong support from Government
- Poor collection efficiency (Prop. taxes, other revenues)
- Financially weak, few requires up to 100% grant to execute any Capital Projects
- Requires long tenor funds
- Accounts are not up to date, reliable figure are not readily available for financial analysis
- Limited capacity in project conceptualization, formulation, implementation, operation & maintenance
- Cost and time overrun
- No free hand or unwillingness to levy user charges

TNUDF's Resource

- Resources
    - Unit capital (Rs 200 cr)
    - Lines of credit from multilateral agencies
        - US $ 110 .mn. from WB
        - Euro 65 mn. from KfW
        - JPY 5.65 bn. from JBIC
- Additional resource mobilization by issue of Bonds, if required

Terms of TNUDF Loans to ULBs

- Period up to 20 years with a grace period of 5 years.
- Revenue generating project should generate enough cash flow for debt servicing and O & M, backed by Balance Sheet
- Service projects are to be backed by Balance Sheet
- No default in existing loan
- Comply with Environment & Social Framework
- No sovereign guarantee
- Security enhancement mechanism- Escrow and DSRF

Terms of TNUDF Loans to ULBs

- Up to 60% of project cost with grant or up to 90% of the project cost (ex. cost of land and Working Capital)
- Interest less than the market rate
- Total Expenditure / Total Revenue < 1
- Should have adequate debt repaying capacity (Debt Service/Total Revenue < 30%)
- DSCR: 1.25

Criteria for sanction of Grant

- Basic conditions:
    - BPL population minimum 20%
    - No default on existing loans
    - Maximum 30% of Project Cost or Rs 10 cr
    - Adhere to the prescribed procurement guidelines
    - Adhere to the Environment & Social Framework
- Additional condition for remunerative projects
    - Collection efficiency (past 3 years)> 80%
    - Own revenue to the total revenue > 75%

Learnings from TNUDF model

- State level commitment to urban reforms (accrual based accounting, collection efficiency, effective service delivery, tariff rationalization) crucial for enhancing fiscal, technical and management capacities of ULBs
- Handholding support by TNUIFSL / FIs - project development, appraisal, structuring, funding, implementation, operation and maintenance

- FIs should go beyond being a pure lending agency – the tariff setting, collection mechanism etc.

Learnings from TNUDF model

- Emphasis on up to date information on ULBs' financial position, debt repayment capacity & debt monitoring
- Introduce a system of annual credit rating of ULBs
- Has to develop a close relationship with ULBs, State project implementing agencies, funding agencies and administrators entities at concept, design, bidding, implementation stage
- Introduce the system of quality audit during implementation
- Capacity building among ULBs and line agencies
- Project Impact Assessment after completion of every project and at-least two years after implementation

Way Forward

- Clear state level policy of the Government to promote various urban infrastructure projects
- Time-bound reforms and capacity building
- Redesign all grant based schemes based on the financial strength of the ULBs / viability grants only for weaker ULBs or unviable projects
- Prepare DPRs for pipeline of projects
- Execution of all remunerative urban projects on PPP
- Completion of projects on time to avoid cost & time overrun
- Levying of affordable user charges / tariff and revision of the same at frequent intervals
- Promote Municipal Debt Market, Pooled Bonds for smaller ULBs - remove impediments to development of municipal debt market by addressing marketability & other issues

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Session – V

Public Private Partnerships in Urban Development

Thiru L.Krishnan
CEO, IL&FS, Chennai.

Public Private Partnerships

- Public-Private Partnership (PPP) constitutes a sustained collaborative effort
- between the Public sector (government agencies) and
- Private enterprises to achieve a common objective (e.g., the infrastructure facility)
- while they pursue their own individual interests.

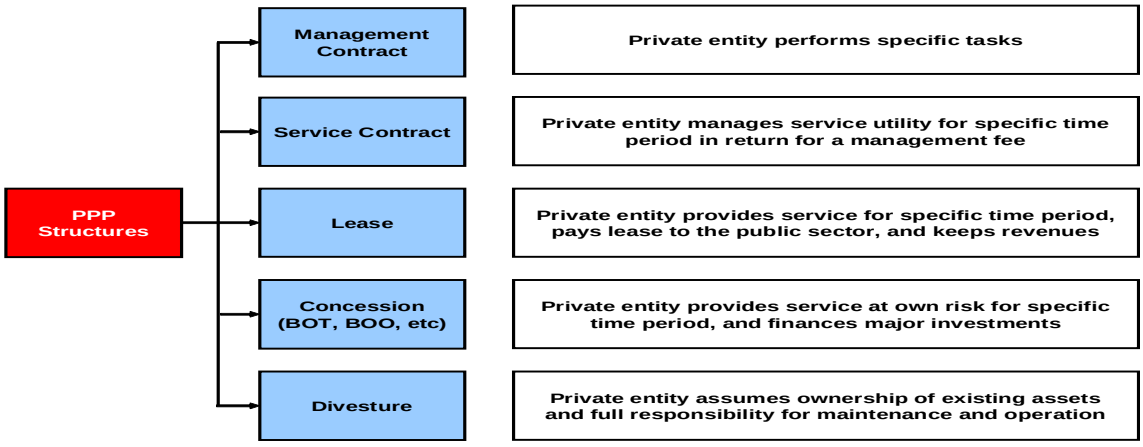
Benefits of Private Sector Participation

- Acceleration of infrastructure provision
    - Allow the public sector to translate capital expenditure into a flow of ongoing service payments
    - Enable augmentation and leveraging of available public capital
- Faster implementation
    - Payments linked to service, provides incentives for the delivery of projects within shorter timeframes
- Reduced life cycle costs
    - O&M service provision provides the private sector with strong incentives to minimise costs over the whole life of a project
- Better risk allocation
    - Optimize risk transfer to ensure that best value is achieved
- Better incentives to perform/maintain standards
    - The allocation of project risk to incentivise the private sector to improve its management and performance
    - Full payment to the private sector contractor will only occur if the required service standards are being met on an ongoing basis

PPP Benefits

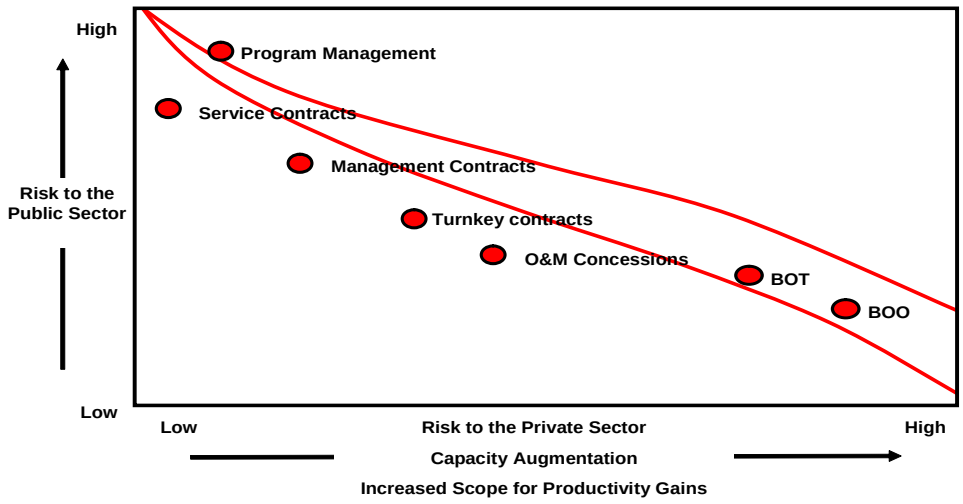
- Improved quality of service
    - quality of service achieved under a PPP is often better than that achieved by traditional procurement due to :
    - Better integration of services with supporting assets
    - Improved economies of scale
    - Innovation in service delivery
    - Performance incentives and Penalties
- Generation of additional revenues from third parties, thereby reducing the requirement of financial support from the public sector:
    - Spare capacity
    - Disposal of surplus assets

Forms of PPP



PPP contd.,

PPP Options



Private sector is a partner

PPP Perception

Perception

- Government is a custodian of Public Interests
- Private Sector undertakes projects only for profit

Fact

- Private Sector has a substantial stake in a BOT Project and is interested in its long term sustainability
- The Private Sector understands that acceptance by the community is essential for a Project to be successful
    - Private Sector Performance is ensured by the Government through:
        - Contractual Frameworks
        - Oversight Mechanism
    - Despite this, the Private Sector is looked upon with suspicion

Stick to Optimal Design

1. Government due to various lobbies has at times been forced to implement Projects with sub-optimal designs
2. Sub-optimal designs may lead to
    1. Inadequate performance
    2. Low acceptability of the Project by the User
    3. Additional repairs / modifications and life time costs leading to loss in revenues
    4. Time and cost overruns

- Adequate Project Development is required for arriving at an Optimal Project Design

Goal Posts should not be Moved

- The private sector raises commercial funding for projects based on identifiable cashflows
- A change in the policy/ project parameters during implementation adversely affects the investment climate due to perceived uncertainties by the private sector
- Change in project parameters, affect the viability of the project and the stakeholders, investors, the banks and the municipality

Summing Up…

- PPPs are Here to Stay
- With the growth of the Economy there is a demand for increasing capacities and enhanced levels of service in the core infrastructure sectors of power, transport, and telecommunications
- Given the fiscal constrains, increasingly more projects will be undertaken using the BOT format
- In order to sustain the growth momentum, active participation will be required from Government and the Private Sector
- The interest of the investment community can only be maintained if there is a perception of long-term value in the Projects
- Therefore, it is critical for the government to effectively engage the private sector by creating and maintaining an enabling environment for the creation of infrastructure

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Session – V

LINKAGE TO CDP AND PROJECTS FUNDED FROM JNNURM BY TUFIDCO

Thiru R. Murugan, Manager,
Tamilnadu Urban Finance and Infrastructure Development Corporation Limited, Chennai.

JNNURM

CITY DEVELOPMENT PLAN MEMO. OF AGREEMENT

DETAILED PROJECT REPORT 23 REFORMS

Focus of JNNURM

- It is a reform linked programme
- Provision of basic amenities to Urban Poor.
- Strengthening Municipal Governments.
- Their Financial Accounting and Budgetary systems and procedure
- Creation of Structures for bringing in accountability and transparency.
- Elimination of legal and other bottlenecks that have stifled the land and housing markets.

OBJECTIVE OF THE CITY DEVELOPMENT PLAN

- To identify the infrastructure need in each sector and work out the projects accordingly. To identify the quantum of finance for execution of these projects;
- To identify the source of finance.
- To prioritise the projects for execution in phased manner

OBJECTIVE OF REFORMS

- CITIZEN CENTRIC
- STRENGTHENING THE FINANCIAL POSITION OF ULBS.
- SUSTAINABILTY OF PROJECTS
- EQUALITY IN SERVICE DELIVERY
- TRANSPERANCY IN URBAN GOVERNANCE

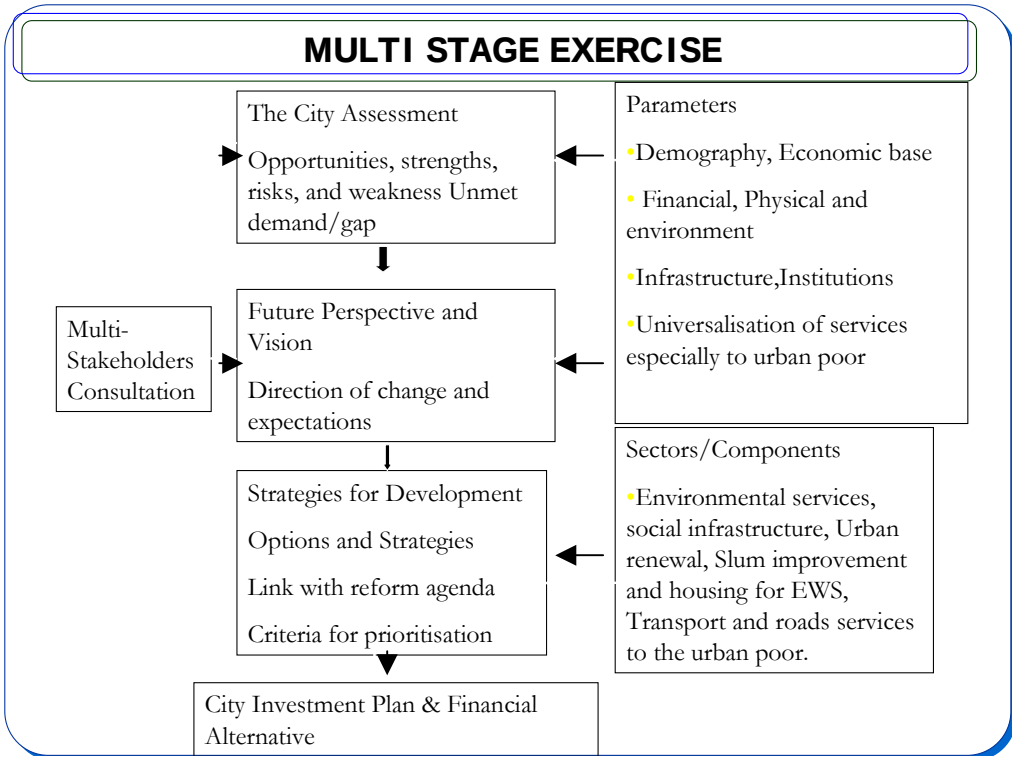
Introduction

- A City development Plan (CDP) is both a perspective and a vision for the future development of the city.
- It presents current stage of city development.
- It sets out the directions of change.
- It identify the trust areas.
- It also suggests alternative routes, strategies, and interventions for bringing about the change.
- It provides a basis for cities to undertake urban sector reforms that help direct investment into city-based infrastructure.

How CDP prepared.

- Multi stage exercise followed by CMDA.

- In-depth analysis of existing situation, covering the demographic, economic, financial, infrastructure, physical, environmental and institutional aspects.
- Development of a perspective and vision of the city.
- Formulating a strategy for bridging the gap between where the city is and where it wishes to go.
- Preparing A City Investment Plan and Financing strategy.



Government of India's Allocation.

- Urban Infrastructure and Governance - Rs.1950.66 crs.
- Basic Service for Urban Poor - Rs.1032.80 crs

Funding Pattern - CHENNAI :

- All the projects – GOI - 35%, GoTN – 15% ,FI/ ULB contribution – 50%
- Desalination – GOI- 80%, GoTN –10%, FI/ ULB contribution – 10%

Chennai Metropolitan Area – JNNURM coverage

- Extends- 1189 sq.kms.
- Chennai Corporation
- Municipalities – 16
- Town Panchayats – 20
- Village Panchayats - 214
- Trust areas :

Water supply, Sewerage, Solid Waste Management, storm water drains, Traffic and Transportation.

PROJECTS SANCTIONED UNDER JNNURM – CHENNAI
The project identified in the CDP can only access the fund under JNNURM

Chennai Corporation Limit	9	830.24
Municipalities	8	545.25
Town Panchayat	1	12.35
Village Panchayat	1	19.17
Total	19	1407.01

CHENNAI CDP DETAILS (Rs. In crores)				
Sl.No	**Component**	**TOTAL**	**PROJECTS SO FAR SANCTIONED**	**TO BE SANCTIONED.**
1	Water supply	6321.00	634.44	5686.56
2	Sewerage	2299.00	390.29	1908.71
3	Solid waste management	847.80	299.53	548.27
4	Storm water drainage	1423.90	0.00	1423.90
5	Transportation	17254.00	82.77	17171.23
6	Mass transporatation system	600.00		600.00
7	Metrorail(45kms)	7000.00		7000.00
8	Parking lots and spaces	43.82		43.82
9	Heritage recreation	103.00		103.00
10	Satellitte town	5000.00		5000.00
11	Urban Basic services for poor	3887.22	1247.25	2639.97
	Total	**44779.74**	**2654.28**	**42125.46**

SECTOR WISE SANCTIONS

Sector	Chennai Corporation	CMWSSB	Municipalities	Town Panchayats	Village Panchayats
Water Supply		4	4	1	1
Sewerage		1	3		
Solid Waste Management	1		1		
Traffic and Transportation	3				
Total	4	5	8	1	1

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