

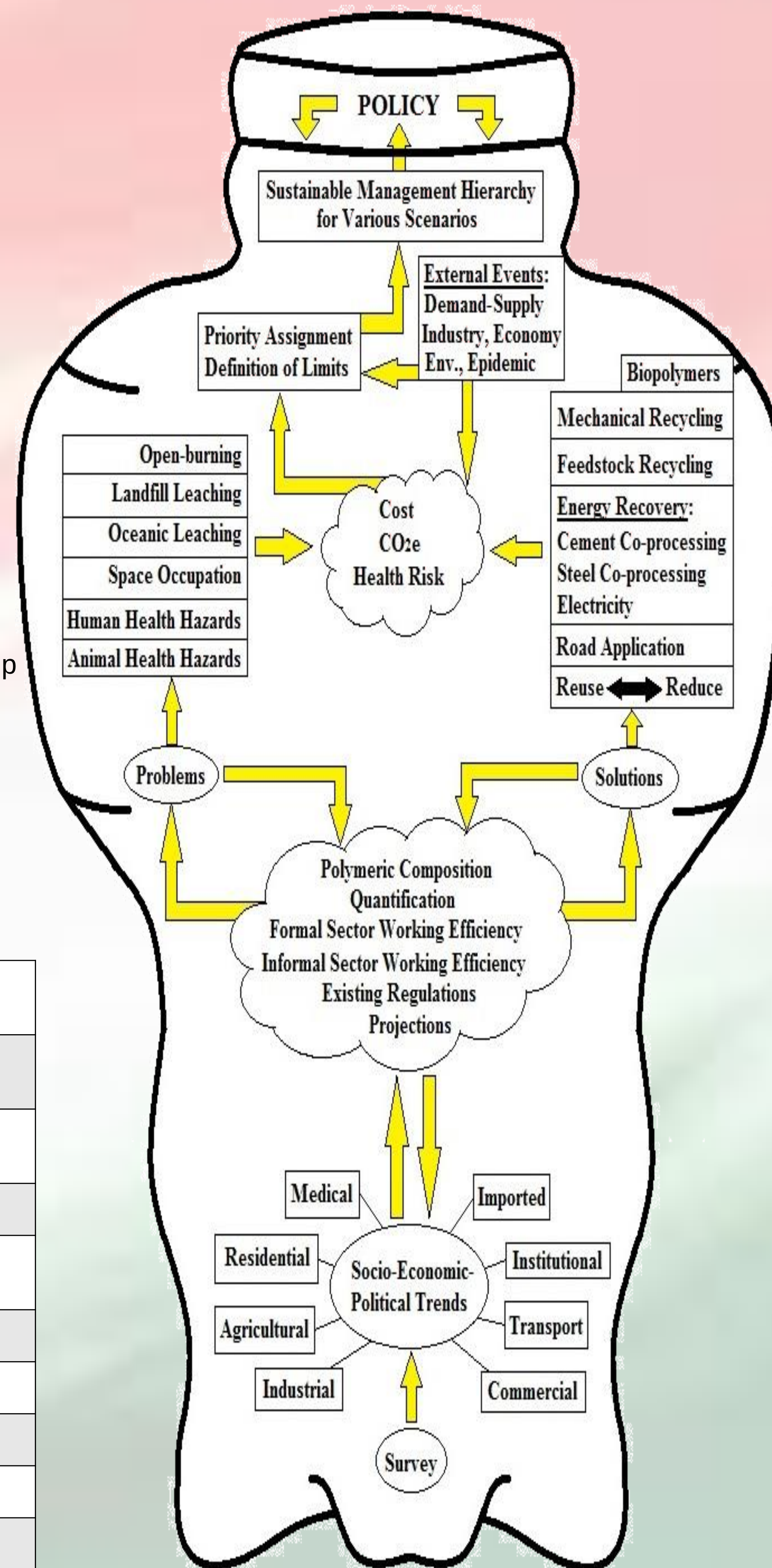
Introduction

- Plastic Waste represents increasingly modern fraction of Solid Waste
- India- growing economy, 2nd largest population
- Lightweight nature (low bulk density) boon for application, bane for waste storage, transport
- Voids exist regarding problems caused, sustainable solutions due to complex composition
- General public perception of plastic as a harmful material, ignorant of its life cycle CO₂e and of its proposed alternatives
- Project need justified based on above
- Aim: Develop Sustainable Waste Management Hierarchy for Various Scenarios
- Philosophy:
 - Accurate Understanding of Waste Situation (Top) requires Accurate Understanding of Source (Bottom), and Nature of Relationship between Source and External Forces (Socio-Economic, Political, Legal, etc.)
 - Bottom-Up approach taken, revised considering Top-Bottom influence

Statistics

Annual Plastic Consumption	8.5 million tons
Annual Plastic Waste Generation	6.8 million tons
Contribution of Plastic Waste in MSW	4%
Thermoplastics (PE,PET,PP,PS,PVC)	80%
Thermosets (ABS, PC, Melamine, etc.)	20%
Packaging Waste Contribution	40%
Uncollected Fraction	40%
Non-Recyclable Fraction	10%
Recycling rate/efficiency	60%
(rest landfilled, negligible WtE)	

Research Framework



Methods Initially Adopted

- Spot Surveys and Questionnaires to study trends of the generating source
- Primary data obtained through:
 - Manual Preliminary Segregation, weight, volume measurement using ISO certified electronic weighing scale
 - Manual Plastic Waste Segregation: Inventory of Waste Products
- Location-specific survey for greater statistical reliability
- Interviews with Stakeholders
- Secondary Data obtained from Experts

Challenges faced

- Mixed Wet and Dry Waste, Fouling, Worms
- Diversity in Waste Products- Type, Size, Amount
- Polymeric Identification tests not conclusive
- Molded and Composite Products
- Non-disclosure of Economic Category
- Unaccounted Waste to Informal Sector
- Adequate Mixing and obtaining Representative sample from Bulk waste generating sources
- Daily survey of same waste generating sources for reliable data => Time constraint
- Daily survey along process chain, investigation of scavenging by informal sector => Time constraint

Methods Rejected/Proposed

- No Spot Surveys, only location-specific surveys for greater statistical reliability
- Extrapolations to national figures and Accuracy range based on expert's opinion
- No Preliminary Segregation
- No Volumetric/ Size range measurements
- Market survey of FMCGs for every source category to aid in Survey, reduce time constraint
- Need to determine distribution patterns of FMCGs for various source categories across Rural and Urban Areas

Discussion

- More data to be obtained in order to be reliable/consistent
- Technicalities of the problems, solutions were studied, further analyses to be done on LCA parameters and feasibility study
- Establishing clear research framework for the future, that would uphold principle of comprehensiveness, based on theory, and practical experimentation, was the most important aspect to be highlighted
- Pending goals will now be completed in timely fashion

Acknowledgements

- Prof. Nickolas John Themelis, Director, Earth Engineering Center, Columbia University
- Prof. Shyam R. Asolekar, Professor, Center for Environmental Science and Engineering, Indian Institute of Technology, Bombay, Mumbai
- Mr. T.K. Bandopadhyay, Environmental Information Systems (ENVIS) Coordinator, Indian Centre for Plastics in the Environment +(ICPE), Mumbai

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