



सत्यमेव जयते



Government of India
Ministry of Environment, Forest & Climate Change

International Workshop
“Securing Sustainable Resource Utilization and Reuse of
Secondary Raw Materials by Fostering Resource
Efficiency”

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Resource Challenge : India

- Rapid economic growth-significant resources required
- Construction sector poised to become 3rd largest by 2020.
- Construction materials industries are growing with rate of nearly 10 % annually.
- Losing 1.75 lakh sq. km. of fertile topsoil for manufacturing clay bricks every year.
- Stone quarrying/river bed sand mining have other significant environmental impacts



Resource Challenge : India

- ▶ Still have low per capita cement consumption (<200 kg/person) but predicted to increase upto 400-600 kg/person by 2030 which means 600 – 850 million tonnes of total production. (Source: TERI, GIZ, IFEU -2013 report)
- ▶ Limestone being major raw material for cement production India's reserves are immense but huge quantities are available in ecologically and socially sensitive zones. (Source: TERI, GIZ, IFEU -2013 report)
- ▶ Automotive industry - main pillars of economy as it is one of the biggest metal product consumer. Steel, Aluminum, Copper, Magnesium and Zinc are widely used in the automobile industry. The sector consumes about 12% of global steel production and 15% of aluminum production. (Source: TERI, GIZ-2015)
- ▶ Efficient recycling, India can hope to recover by year 2020 over 1.5 million tons of steel scrap, 180,000 tons of Aluminium scrap and 75,000 tons each of recoverable plastic and rubber from scrapped automobiles. (Source: SIAM)



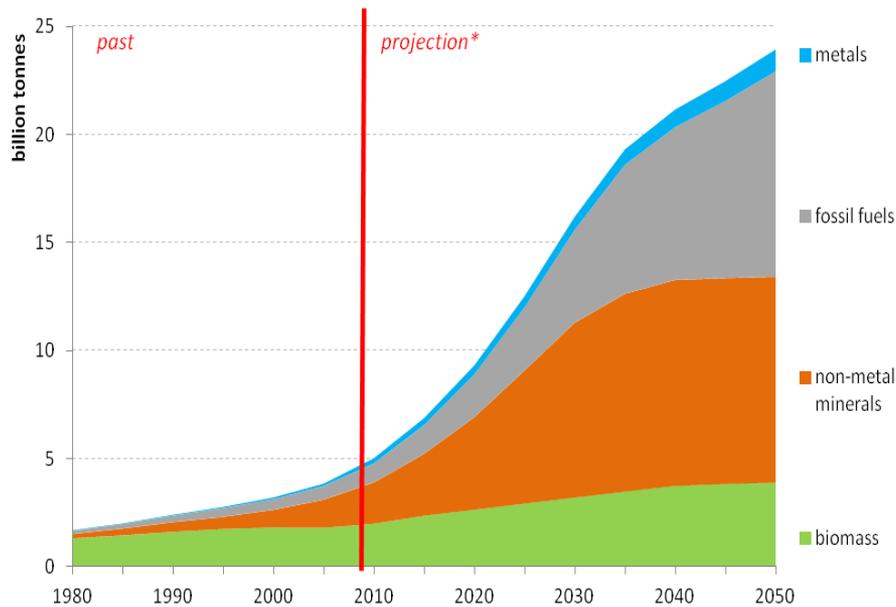
Resource Challenge : India

- Resource Efficiency & Secondary Raw material Utilization is one approach which can help to overcome Indian's Resource Challenge
 - ▶ In its simplest expression: Resource Efficiency can improve
 - Resource availability and access
 - competitiveness in industry
 - Reduce environmental burden & social cohesion

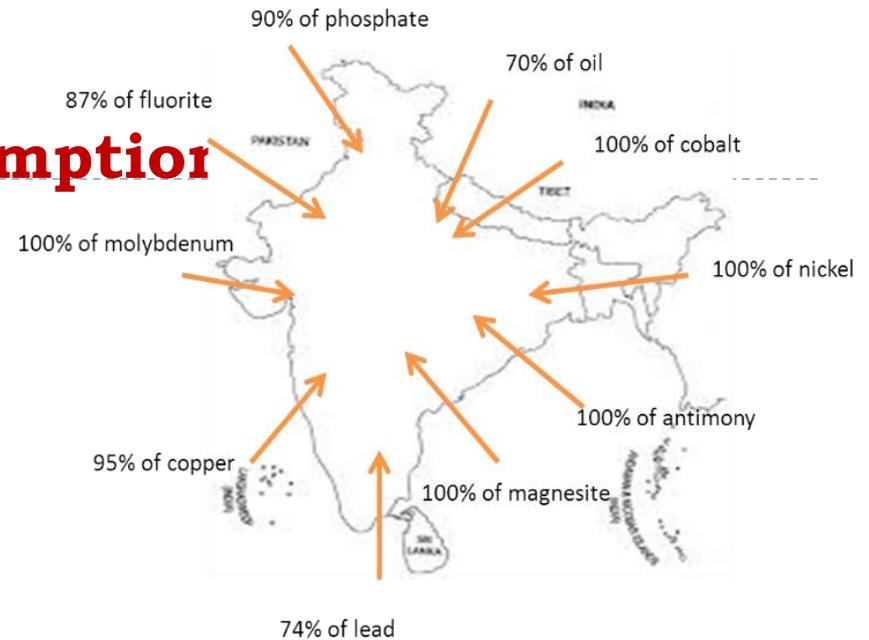


Background

Prospective Material Consumption



*Main assumptions: India follows typical material use pattern during development process; economic growth rates of about 8% p.a. until 2030, thereafter around 7% p.a. until 2035 and 6% p.a. until 2050. Data sources: Dittich, 2012, SERI, 2011, TERI, 2012, UNData, 2012, Worldbank, 2012



Resource Consumption

- 1980-2008: from 2.6 up to 4.5 bn tons
- By 2050: expected to be 4-5 fold

Specific scarce resources

- Import dependency on specific resources

RE Relevance

- Now on G7 Agenda and foreseen for G20

Resource Efficiency - relevance with Indian Policy Landscape



What GoI is already doing.

Pollution

Regulations

1. The Water (Presentation & Control of Pollution) Act, 1974, and its amendments
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 3. The Air (Presentation & Control of Pollution of Pollution) Act, 1981 and its amendments
 4. The Environment (Prevention) Act, 1986 and its amendments
 - a. National Environmental Tribunal Act of 1995 and
 - b. National Environmental Appellate Authority Act of 1997
 5. Hazardous Waste (Management and Handling) Rules, July 1989
 6. The Public Liability Insurance Act, 1991
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What GoI is already doing.

- **Energy Efficiency:** Policy innovations to promote efficient use of energy through measures such as Perform, Achieve and Trade (PAT) mechanism. (cover facilities that account for more than 50% of fossil fuel use in India - BEE)
- **Green Rating for Integrated Habitat Assessment (GRIHA):** Five star rating system introduced by MNRE and TERI which rates a building on set criteria its environment performance over the entire life cycle
- India is promoting '**blending of cement**' which replaces limestone requirements and alternative binders and composite materials such as **fly ash, slag, red mud** have resource efficiency potentials to reduce input of
▶ limestone.

What GoI is already doing.

- ▶ **Fly Ash Utilization:** The Ministry has published notification No. S. O. 763 (E) dated 14th September, 1999 on utilization of fly ash under Environment (Protection) Act, 1986 (with further amendments)
- ▶ The objective is to conserve soil/prevent dumping/disposal of fly ash from coal/lignite based thermal power plants.
- ▶ Mandates use of Fly Ash/ Fly Ash based products within 100 kilometres from a coal or lignite based thermal power plant:
 - ▶ In construction of buildings by construction agencies.
 - ▶ In embankment for roads and flyovers by contractors.
 - ▶ In backfilling/stowing of mine voids by concerned agencies
 - ▶ In reclamation of low-lying areas



What GoI is already doing

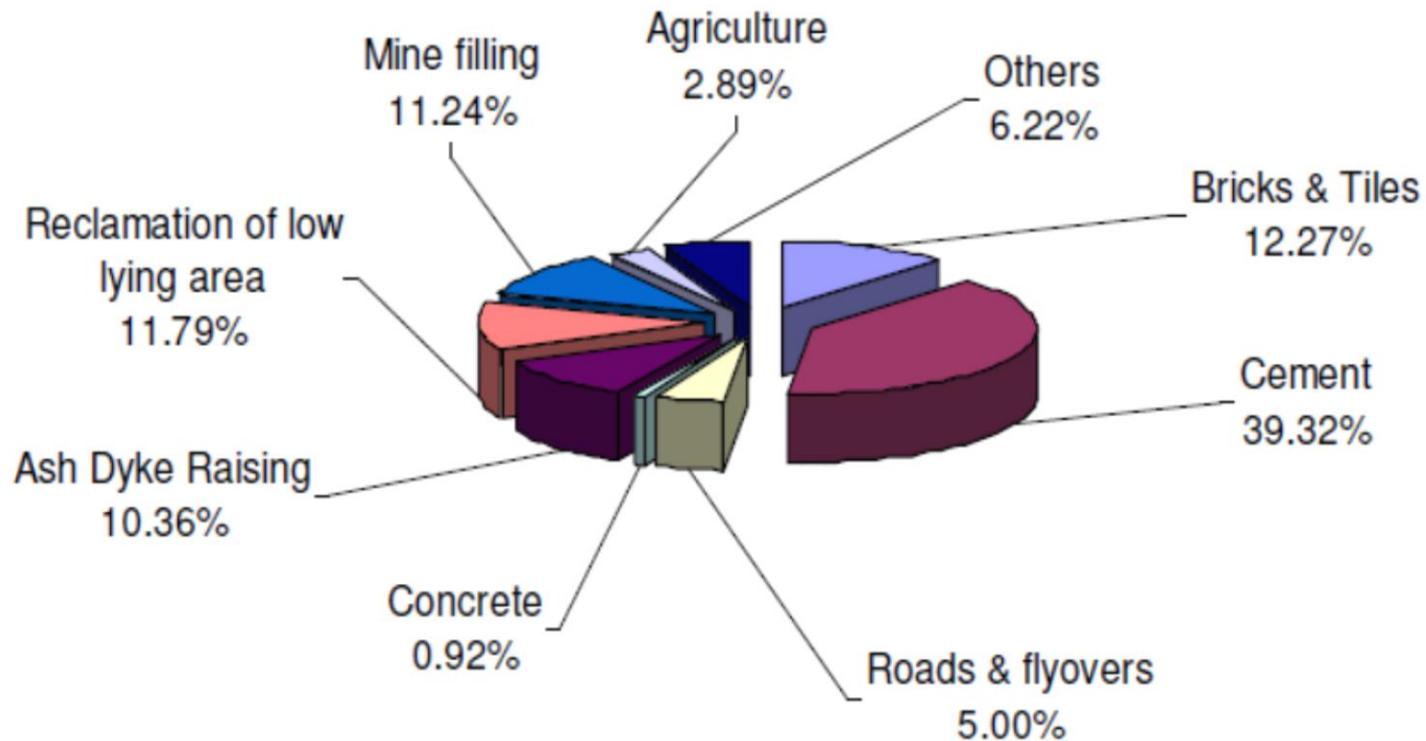
(Fly Ash Utilisation Starts)

Sl. No.	Year	Generation (Million Tons)	Utilization (Million Tonns)	Percentage Utilization
(1)	(2)	(3)	(4)	(5)
1.	1996-97	68.88	6.64	9.63
2.	1997-98	78.05	8.43	10.80
3.	1998-99	78.98	9.60	12.16
4.	1999-2000*	74.03	10.88	13.51
5.	2000-01	86.29	13.51	15.61
6.	2001-02	82.81	15.61	18.85
7.	2002-03	91.65	20.79	22.68
8.	2003-04	96.28	28.17	29.26
9.	2004-05	98.57	37.51	38.06
10.	2005-06	98.97	45.32	45.79
11.	2006-07	108.15	55.07	50.92
12.	2007-08	116.94	61.98	53.00
13.	2008-09	116.69	66.64	57.11
14.	2009-10	123.54	77.34	62.60
15.	2010-11	130.77	72.87	55.73
16.	2011-12	145.42	85.05	58.48
17.	2012-13	163.56	100.37	61.37
18.	2013-14	172.87	99.62	57.63

What GoI is already doing

(Modes of Utilization: Fly Ash)

Mode of Fly Ash utilization during the year 2013-14



SDGs

Goal 8. Promote sustained, inclusive and sustainable economic growth, full and productive employment and decent work for all

8.4 Improve progressively, through 2030, global resource efficiency in consumption and production and endeavour to decouple economic growth from environmental degradation

Goal 9. Build resilient infrastructure, promote inclusive and sustainable industrialization and foster innovation

9.4 By 2030, upgrade infrastructure and retrofit industries to make them sustainable, with increased resource-use efficiency and greater adoption of clean and environmentally sound technologies and industrial processes

Goal 11. Make cities and human settlements inclusive, safe, resilient and sustainable

11.b By 2020, substantially increase number of cities/human settlements adopting and implementing integrated policies towards inclusion, resource efficiency, mitigation and adaptation to climate

Goal 12. Ensure sustainable consumption and production patterns

12.1 Implement the 10-Year Framework of Programmes on Sustainable Consumption and Production Patterns,

12.2 By 2030, achieve sustainable management/ efficient use of natural resources

12.5 By 2030, substantially reduce waste generation through prevention, reduction, recycling and reuse

12.c Rationalize inefficient fossil-fuel subsidies that encourage wasteful consumption by removing market distortions, in accordance with national circumstances



Launch of Indian Resource Panel (InRP)

Agenda Setting for overall legislative framework for secondary resource utilization

Provide recommendations to the GoI towards a legislative framework on RE

Charter/ Action Plan towards secondary resource utilization is adopted by the GoI and integrated into political decision making



Expected Outcome

- To obtain key data to design an enabling framework of policies, strategies and implementation pilots in specified sectors (Auto/C&D)
- Transitioning to a new sustainable industrial system.
- Convergence: resource policy across different development schemes (Make In India, Clean India, Climate Change...)
- Dematerialization, reduction in primary material usage and secondary material use.
- Innovation in policies and industrial R&D support that create an enabling framework towards resource efficiency and systems innovation.
- Ecological reform with sustainable public procurement policies and ecological taxes and other reform practices (if possible) etc.
- Policy Advice (Contribution to official statements based on policy briefs above)

THANK YOU

