Industrial Ecology - focused on INDIA

Pavel Cech, August 2013
Brief Introduction of Lafarge
Profile 2012

- **World leader** in building materials
- Major player in the cement, aggregates and concrete industries
- We contribute to the construction of cities throughout the world with innovative solutions, providing cities with more housing, and make them more compact, more durable, more beautiful and better connected
- Operating in **64 countries**
- **65,000** employees
- **€15.8 billion** of annual sales
- **1,570** production sites
- Listed on the Paris Stock Exchange
A well-balanced geographical portfolio

- **North America**
  - Annual sales: €3,375m
  - Employees: 8,821

- **Western Europe**
  - Annual sales: €3,181m
  - Employees: 11,448

- **Central and Eastern Europe**
  - Annual sales: €1,270m
  - Employees: 7,041

- **Asia**
  - Annual sales: €2,746m
  - Employees: 14,774

- **Latin America**
  - Annual sales: €961m
  - Employees: 2,609

- **Middle East and Africa**
  - Annual sales: €4,283m
  - Employees: 19,644
Sustainable development is rooted in Lafarge’s history and values

- More than 170 years of history and experience to build on
- Principles of Action since 1977, updated in 2003
- Participation in the Rio Earth Summits in 1992 and 2012
- Founding member of the World Business Council for Sustainable Development (WBCSD) in 1992
- First industrial partner of WWF in 2000
- CO₂ emissions reduction commitments since 2001
- Business Code of Conduct since 2004

We have been a pioneer and intend to remain so
Our Approach to AFR
Inspired by the efficiency of natural ecosystems

Industrial Ecology is a scientific approach which consists of mimicking the low consumption equilibrium of ecosystems.

- Lower consumption of natural resources
- Minimization of waste disposal capacities
- Someone’s waste becomes resources for others
- Energetic Surplus = Energy sources
- Logistic improvement (supply + collection)...
- Minimization of waste disposal capacities
Bending the line...

In the traditional manufacturing concept the life of material is a line which by applying Industrial Ecology we can turn into a cycle.

Industrial Ecology

- Material Extraction
- Logistics
- Manufacturing
- Distribution
- Usage
- Disposal

Innovative

Know-How

Process & Technology
16% substitution of fossil fuels in 2012
Target for 2015: 30%, for 2020: 50%
Our Key Guiding Principles

- Do it in a **safe** fashion
- Strict adherence to respective **Group policy**
- **Legal compliance** in all geographies
- Each waste market is specific, different solutions do apply to different locations – **tailor made solutions**
- **Local partnerships** with local waste management specialists
- **Transparency** with environmental authorities
- Proper solutions do cost money - **polluter pay’s** for disposal of his waste
- **Fair and professional** dealing with waste generators
- **Pioneering spirit**
- 31 companies of which 12 are 100% controlled
- In permanent progress: +15% per year in the last 3 years
- Another 5 companies in the process of incorporation
Lafarge India
Our local AFR story

- Lafarge India has been promoting AFR for more than 10 years
- Lean versatile and agile team from diverse backgrounds
- In relative terms such as quantum of waste vs clinker produced, we are proud to be a leading player in AFR
- Our approach is very local and involves partnerships with local waste management professionals to foster a symbiotic relationship between co-processing and traditional waste management methods which do complement one another.
- No customer is a small customer but a responsibility – moral and financial, for waste generation is strictly with latter party.
Actual AFR Situation in India

- The bulk of the cement industry has embarked on AFR programs
- Co-processing has been recognized and supported by the regulatory framework
- Respective government bodies have been extending support to co-processing
- Technologies are available
- Waste market progressively becoming more organized and structured
- Yet, substitution rate of <1% puts India on the very tail of the global AFR race (way behind Pakistan, Philippines, Benin, Uganda…)
Sisyphus Analogy
Sisyphus Analogy

But, where is the eagle coming from?!
Main Hindering Factors 1/2

Complexity of the permitting process
- The “roundtrip” between SPCB-CPCB-SPCB (with possible inclusion of multiple SPCBs in case of interstate movements) where a solution could come from either prescribed schedule of permitted materials (and facilities) allowing a fast track confirmation at SPCB level only.

Efficiency of the permitting system
- Slow pace of action at various government levels.
- Red Tape winning over the common environmental sense or science.
- Streamlining of the process and advanced tools could enhance speed of action, accountability of individuals as well as progress/performance tracking.

Misalignment among individual States
- The same waste is classified hazardous in one state while it remains non-hazardous in another.
- In one country (meaning India), two states can have 180 degree different approach to co-processing. Where is the environmental objective then?
Main Hindering Factors 2/2

Lack of policy enforcement

- There are plenty of examples of individual or corporate failure to comply with basic environmental regulations.
- SPL is a classic example where the material has been processed into aggregate and sold to public while authorities kept convincing cement plants to use it but the generator was not ready to pay for disposal.

Polluters expect revenues from their waste

- One obvious cause is not a lack of funds but an availability of another option (back door discharge, accumulation, misdeclaration etc.). Hence back to “enforcement”.
- Another cause dwells in an irresponsible hunt for waste by cement players who miscalculate the cost of co-processing and inflate market expectation leading towards unreasonable demands and a blockage of co-processing activities. Responsible co-processing requires know-how and investments which comes at a cost.

“Bona fide” interferences by authorities

- SPCB banning use of a given biomass stream by cement industry in favor of power sector without any supportive regulation.
Scheme of Causes

Inefficiency

Complexity

Misalignment

Weak Enforcement

Availability & Cost of AFR

Unintelligent Hunt for AFR

Polluters' $ Expectations

Back Door Disposal

Conventional Waste Disposal
Closing Remark

Both, the cement industry and the government have put a tremendous effort into introduction of AFR in India. However, it is still at its infancy and without nurturing co-processing will not prosper here. There is still a long way to go to catch up with the world around.
Thank YOU!