Veolia: a pioneer in the transition to a Circular Economy

ISWA Annual Congress 2014,
Sao Paulo, Brazil
Veolia, the global leader in optimized resource management

- Over 200,000 professionals dedicated to designing and implementing the best possible solutions for local management of essential resources: water, energy and raw materials.

- Veolia partners with manufacturers, cities and local residents to make optimal resource management the foundation for a new approach to human progress, regional appeal and sustainable growth.

Water, waste and energy: a unique combination of expertise

- **€22.3 billion** in revenue
- **202,800** employees on 5 continents
- **94 million** people supplied with drinking water
- **62 million** people connected to wastewater systems
- **86 million** MWh generated
- **38 million** metric tons of waste recovered

(2013 global data)
The challenge: Rapid increases in population and urbanisation

Today, half of the world’s population lives in cities.

Each month, cities in developing countries absorb a supplemental population equivalent to the population of Singapore.

+ Roadmap to a Resource Efficient Europe
+ Circular Economy Package
(proposals to European Parliament and Council for adoption)
In 2012, 41% of treated municipal waste was recycled or composted, up from 27% in 2001.
What is the Circular Economy (CE)?

- Move away from a linear to a circular approach in order to decouple economic growth from resource use and its environmental impacts.
What are the drivers?

- Scarcity and increasing difficulty to extract natural resources
- Sharp increase in raw material price and volatility

Graph: Global extraction of materials

**FIGURE 4**

Sharp price increases in commodities since 2000 have erased all the real price declines of the 20th century

McKinsey Commodity Price Index (years 1999-2001 = 100)

1 Based on arithmetic average of 4 commodity sub-indices: food, non-food agricultural items, metals, and energy. 2011 prices based on average of first eight months of 2011.

Source: Grilli and Yang; Pfaffenzeller; World Bank; International Monetary Fund; Organisation for Economic Co-operation and Development statistics; UN Food and Agriculture Organization; UN Comtrade; Ellen MacArthur Foundation circular economy team
We have some estimates of the potential global cost savings if circular economy principles are implemented. According to McKinsey reports:

- 50% of the input costs for cellphones could be saved by manufacturing devices from recovered parts.
- The United Kingdom could save up to $1.5 billion per year by eliminating food waste. (reduce greenhouse gas emissions by 7.4 million tonnes of CO2eq.)
- For fast moving consumer goods: full value of circular opportunities, globally, could be as much as $700 bill. /year
Circular Economy: an industrial system that is restorative by design

Source: Ellen MacArthur Foundation Towards the Circular Economy vol.1.pdf
Our mission: Resourcing the world

The world is still developing and needs new resources: natural resources, economic resources and human resources. We play our part by designing and deploying solutions for Resourcing the world:

Developing access to resources:
Veolia offers operational solutions that consume fewer environmental resources and are more economically efficient, so as to expand both the potential and the accessibility of the resources available.

Preserving resources:
Veolia develops solutions to conserve resources and optimize their use, while protecting their quality and efficiency throughout the use cycle.

Replenishing resources:
Veolia provides solutions for creating new “secondary” resources that will gradually offset the increasing scarcity of natural “primary” resources, generating new opportunities for social and economic development that protects the environment.
Veolia examples in practice: «closing the loop »

- Integrated waste management contracts based on material and energy recovery
- State of the Art Sorting Centers
- Dismantling and recycling of all variants of WEEE
- Regenerate used oil into high-grade lubricants
- Bottle-to Bottle Recycling
- Metals recycling and recovery
« Bottle to Bottle » recycling process

Rostock, Germany
Second generation biodiesel from used cooking oil

Limay, France
Veolia examples in practice: «closing the loop»

- Recovery of Bio-plastics from wastewater
- Anaerobic digestion for generating biogas
- Sludge recovery of wastewater for energy generation
- Compost production as a soil amendment
- Phosphorus recovery from wastewater
- Energy generation from biomass

Biological Materials
A city goes 100% Biomass

Pécs, Hungary

Biological Materials
Wastewater treatment + Organic Waste = Energy Factory

Billund Biorefinery, Denmark

"Waste and wastewater are not problems - they are resources that offer immense potential for the environment"
Market drivers

Why are Industries interested in the CE?

- Efficiency in their global supply chain, produce quality, quantity and consistency of a secondary raw material
- Be in a win-win situation, create value
- Brand image
- Risk management (raw material shortage, disruption in the supply chain...)
- Environmental efficiency (elimination of toxic material, avoid accumulation of toxicity, CO2 footprint, energy efficiency, water re-use...)
- Innovation
What are the challenges to accelerate the transition towards the circular economy across global supply chains?

**Linear lock-ins**
- Misalignment of incentives
- Lack of markets at scale
- Lack of reverse capabilities and infrastructure
- Missing enablers in the transition

**Geographical dispersion**
- Today’s products have global footprints
- Most of the time, materials don’t find their way back to the value chains

**Material complexity**
- Increase in material complexity due to:
  - built-in functionality and
  - material-based differentiation
- Increasing difficulty to identify and separate materials

SOURCE: World Economic Forum and Ellen MacArthur Foundation circular economy team
Veolia joined the Ellen MacArthur Foundation (EMF) CE100…

- … because it takes a concerted effort to transition to a Circular Economy (CE).
- Veolia plays an active role in **Project MainStream**
  - Launched by the EMF, World Economic Forum & McKinsey at Davos
  - A. Frérot, Veolia’s Chairman and CEO, as a member of the Steering Board.
- **Project MainStream**: Programme of large-scale cross-sector, pre-competitive collaboration
  - To achieve what companies / industries cannot do themselves
  - Builds closely on CE100 and WEF networks
- Focus on the key enablers to accelerate the circular economy and achieve scale; initial programmes consist of:
  - **Materials - Closing the Outer Loops (Synthetic Polymers, Paper/Board)**
  - **Products and Components – Moving towards The Inner Loops: Asset Tracking**
  - **Policy Enablers**
Thank you for your attention!