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Is Ireland ready to step up to the next level in sustainable waste & material management?

- Speaker: Dr. Ruth Appelbe
- Date: February 26th, 2014
- Location: Dublin, Aviva Stadium

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Agenda

- **Irish waste policy**
- Trends & challenges for the pharma industry
- The response from the waste management to pharma challenges

Global sustainability is necessary

How many planets does our thirst for consumption need?

Source: WWF, Der Living Planet Report, 2012

We must live in a sustainable way…

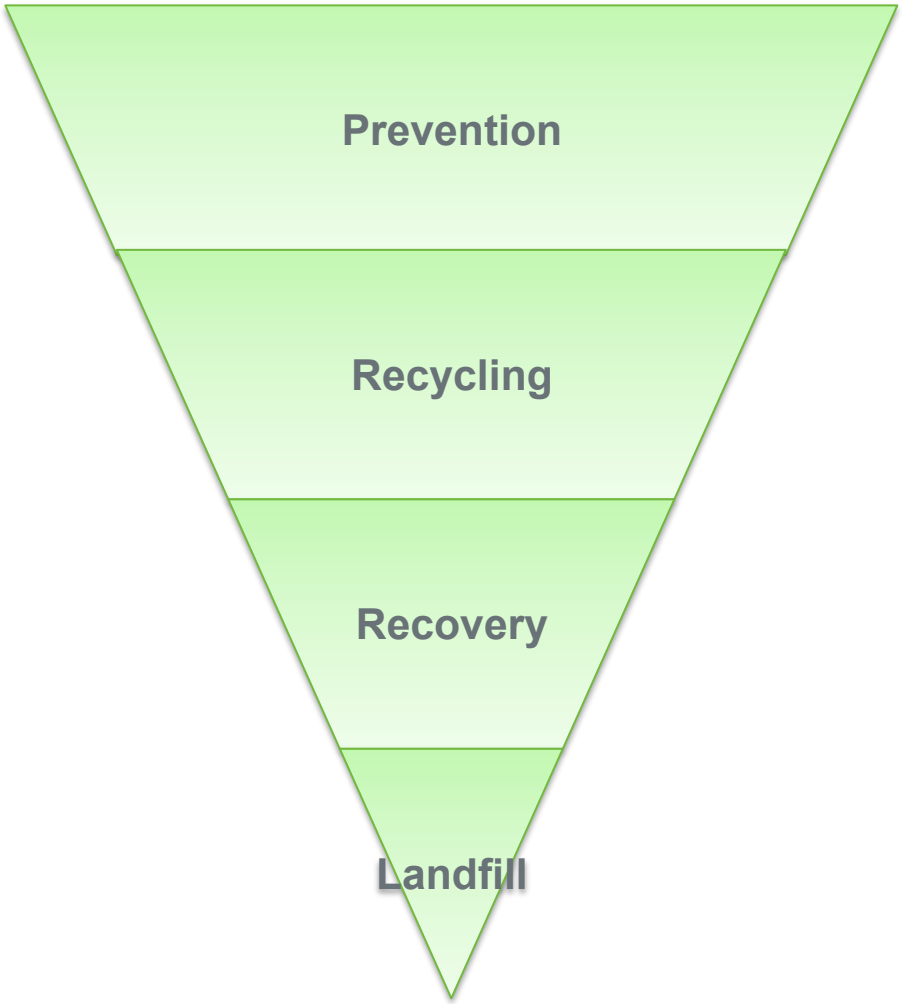
„Our planet‘s natural resources are limited“

We must produce our products in a better way:

» increase energy, water and material efficiency
» increase recycling & recovery
» minimise emissions and greenhouse gases[1]

Quelle: WWF, Der Living Planet Report, 2012

Sustainability in practice: how the Irish Waste Policy tunes in with European directives



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Irish Waste Policy – Sustainability in Practice

- Progress towards EU waste recycling, recovery and diversion targets

Directive	Status
Packaging	Achieved
WEEE	Achieved
End of Life Vehicles	On way
Batteries	On way
Landfill Directive*	Mostly achieved
Waste Framework Directive	Mostly achieved

*The 2010, 2013 targets achieved, on trend to reach 2016 target.

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Agenda

- Irish Waste policy
- **Trends & challenges for the pharma industry**
- The response from the waste management to those challenges

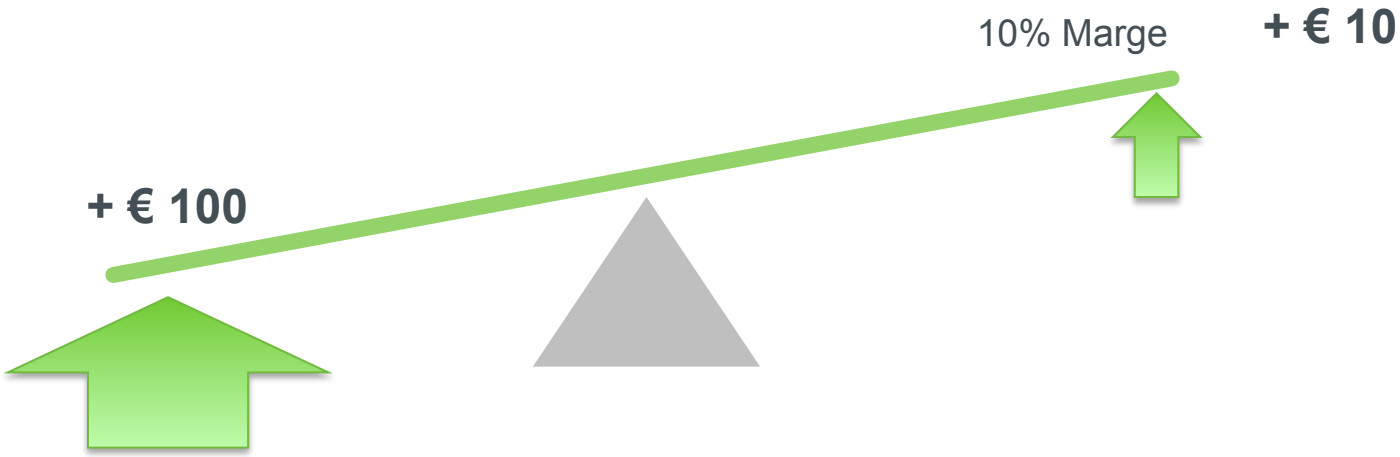
European & Irish pharma are critical exporters…

… but nevertheless under heavy pressure

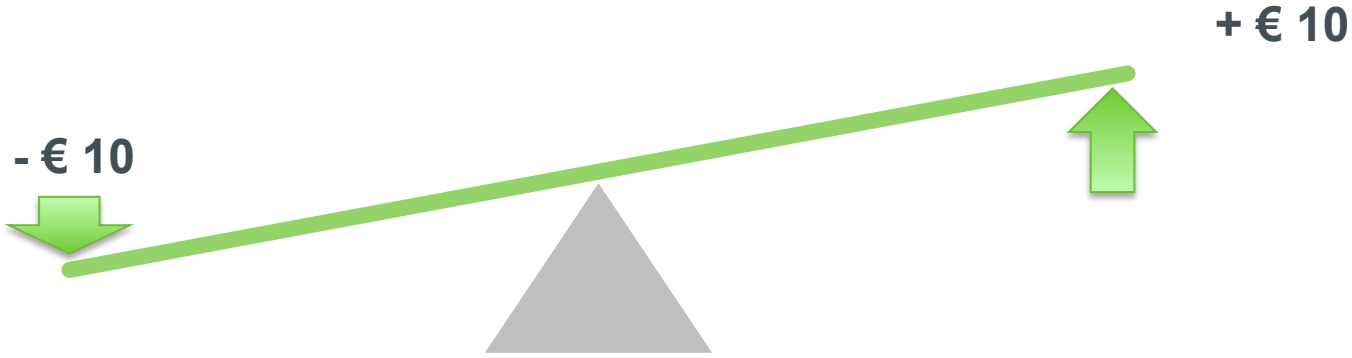
Source[1]:
EFPIA, European federation of Pharmaceutica Industries and Associations, The pharmaceutical industry in Figures, Key data 2013, http://www.efpia.eu/uploads/Figures_Key_Data_2013.pdf

Therefore asking for Cost Reductions whilst maintaining Sustainability performance

Increase turnover



Reduce costs



Source: Deloitte consulting, 2011, Strategic Procurement management in the Pharma industry

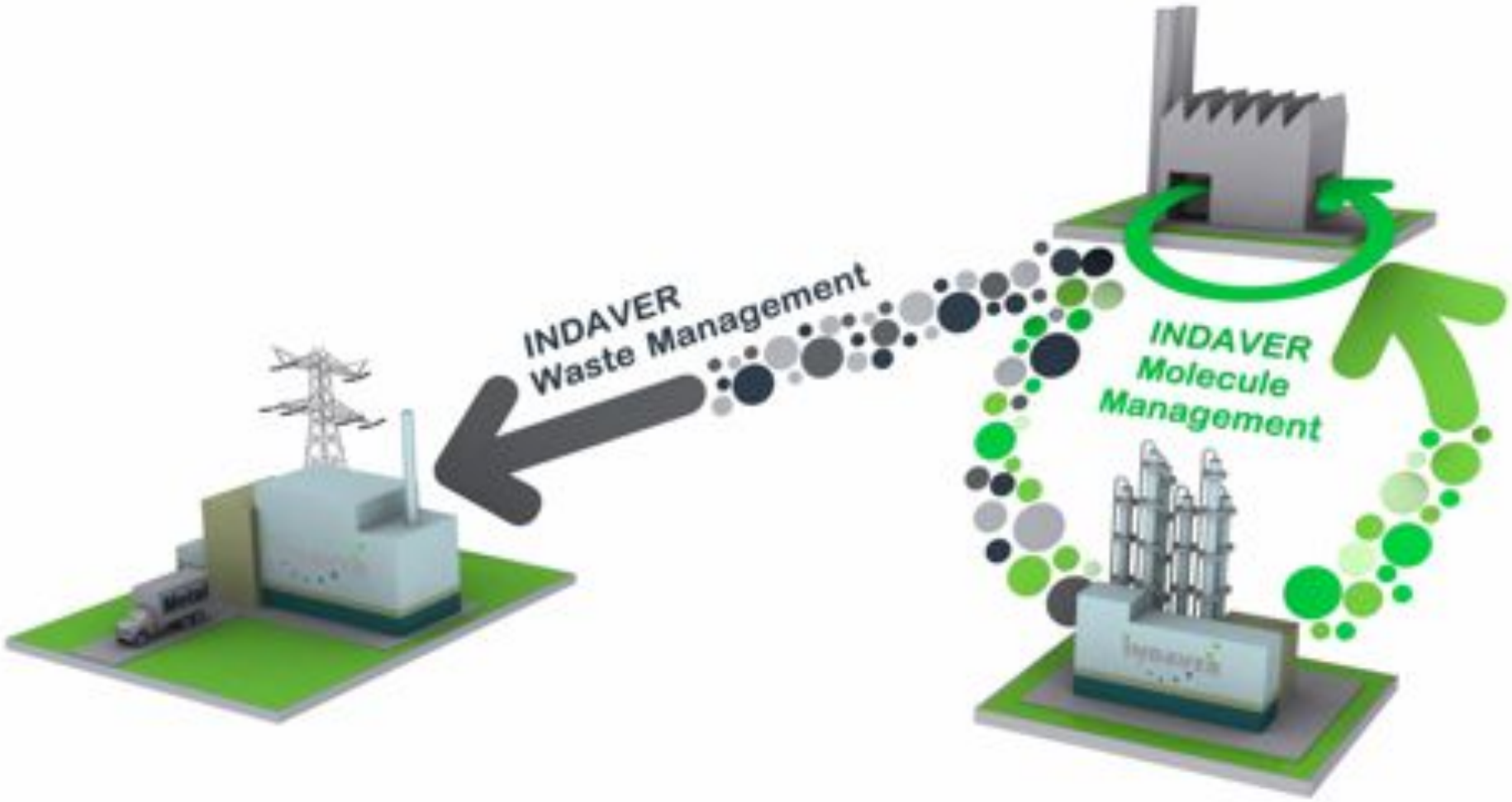
Agenda

- Irish Waste policy
- Trends & challenges for the pharma industry
- **The response from the waste management to pharma challenges**

Sustainable answer to the needs of the society & industry

Leading the field
in sustainable waste management

Intelligent Waste Management

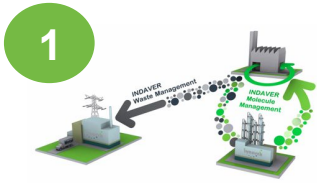


1 Infrastructure

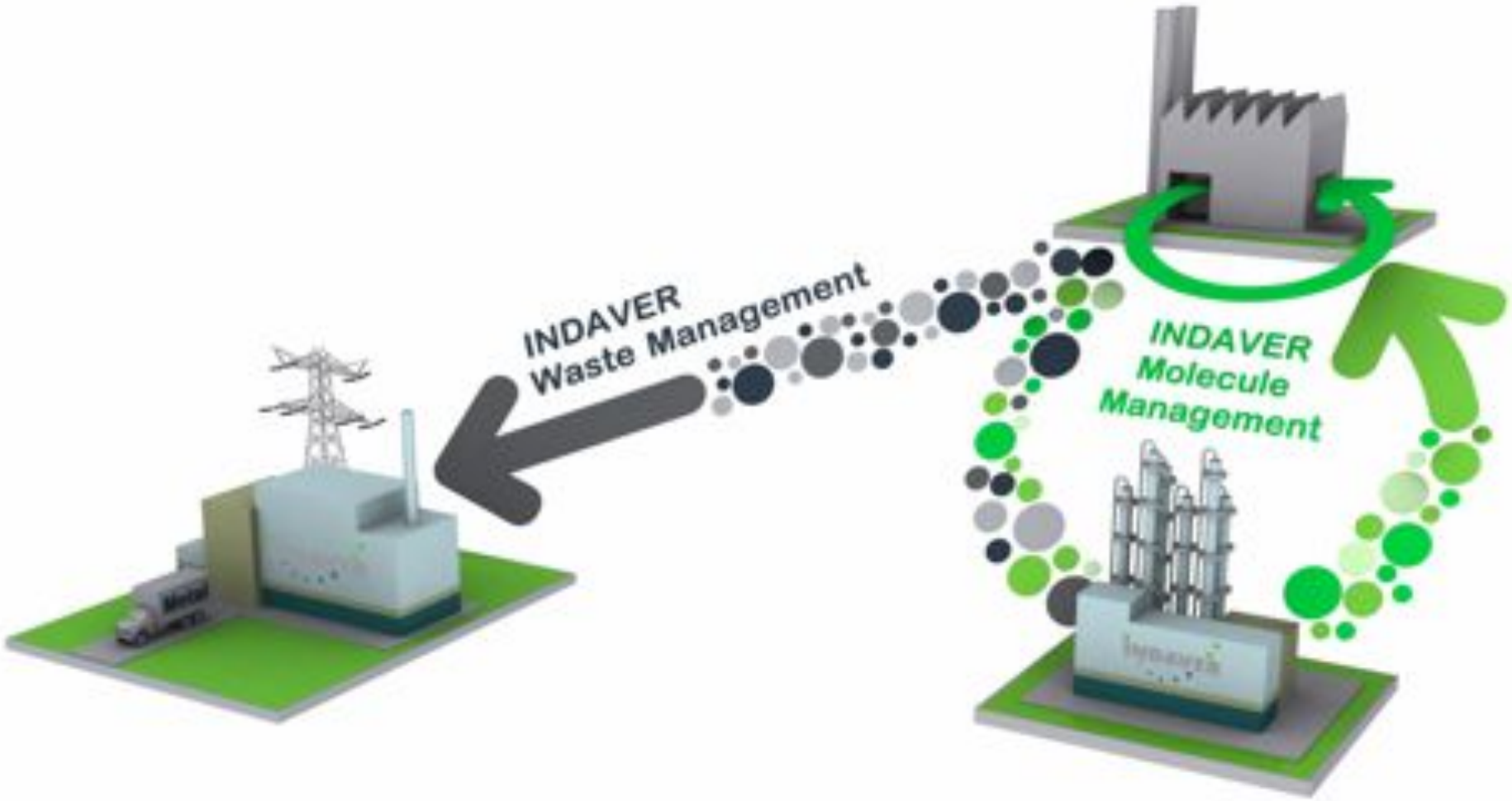
2 Molecule Management

€320 million investment in Infrastructure

- Waste to Energy
- Solvent Blending Plant
- Transfer Station



Intelligent Waste Management



1 Infrastructure

2 Molecule Management

Making material recovery economically viable!

NOW

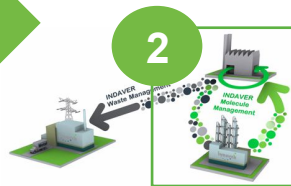
2015

2020

Operational projects

commercial projects
(technically feasible)

research projects
(experimental)



Operational (2014): Energy & material recovery from solvents

ENERGY recovery:
Secondary fuel

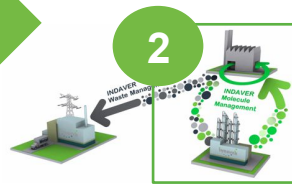
MATERIAL recycling:
distillation

NOW — 2015 — 2020

Operational projects

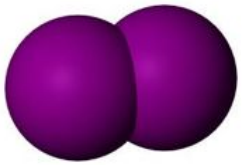
commercial projects (technically feasible)

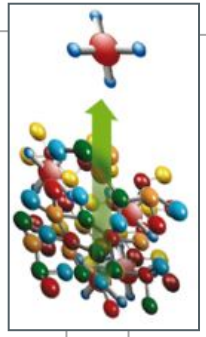
research projects (experimental)



Commercial (2015): economically viable options for material recovery!

Iodine recovery





- from solvents/ Aqueous streams
- Pre treatment by distillation
- residues with Iodine further physical chemical PC treatment
- Indaver facilities (add on)
- value increased 5-fold in 10 yrs

Pd / precious metal recovery

1

- from rinse waters & Mother liquors
- residues with dissolved catalysts
- 'Plant on a truck': mobile skid for recovery
- Diverse technologies: scavenging, batch thermal pre-treatment

1

NOW

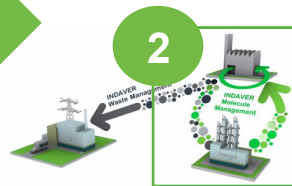
2015

2020

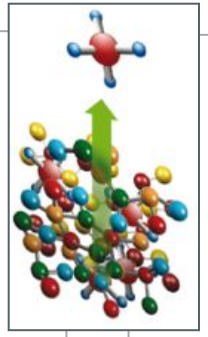
Operational projects

commercial projects (technically feasible, economically viable)

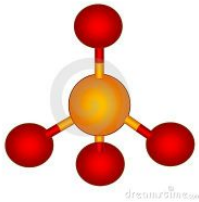
research projects (experimental)



Research (2020): Phosphorous & algae Recovery



phosphorous recovery



- P ore limited , 2035: shortage
- leading role in breakthrough project
- Fine tuning MAP from digestion plant
- recovery P:
  - from MBM
  - from incineration residues

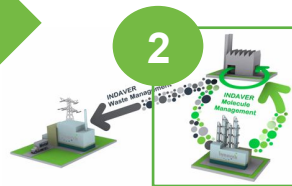
algae recovery

- algae cultivation as renewable source for energy and materials
- produced based on flue gases & waste water
- large scale turned into high-value raw materials for the chemical industry

NOW — Operational projects

2015 — commercial projects (technically feasible)

2020 — research projects (experimental)



We must live in a sustainable way…

„Our planet‘s

natural resources

are limited“

Closing material loops… as it's the only way.