

the
bioplastics
value chain: a
case study of
bioeconomy in
italy

Stefano facco
York, uk
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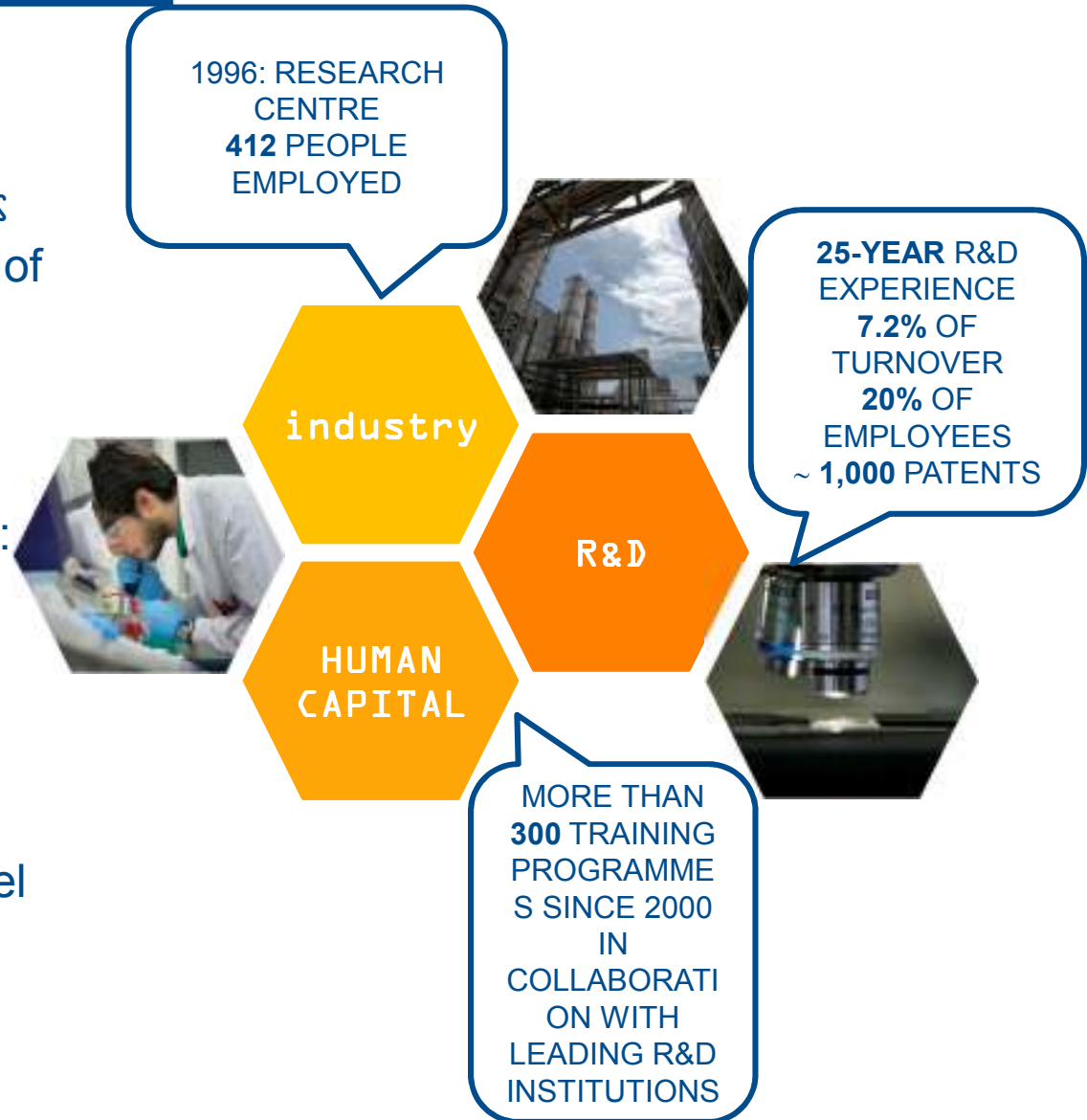


Novamont: WHO WE ARE

A world leader in the sector of **BIOPLASTICS** and **BIOCHEMICALS** obtained through the integration of chemistry, environment and agriculture.

A company with a triple vocation:
Industrial reality
R&D CENTRE
Training CENTRE

We promote a **BIOECONOMY** model as a driving force for enhanced territorial regeneration.



From Novamont research

It becomes



Innovative family of bioplastics based on vegetable resources and polymers which are biodegradable and compostable



Created to find **solutions** for specific environmental problems and applications

Use of **renewable raw materials** (low-input crops, scraps)

Biodegradable with the possibility of organic recovery, through **composting**

BIODEGRADABILITY OF BIOPLASTICS

When is it important?

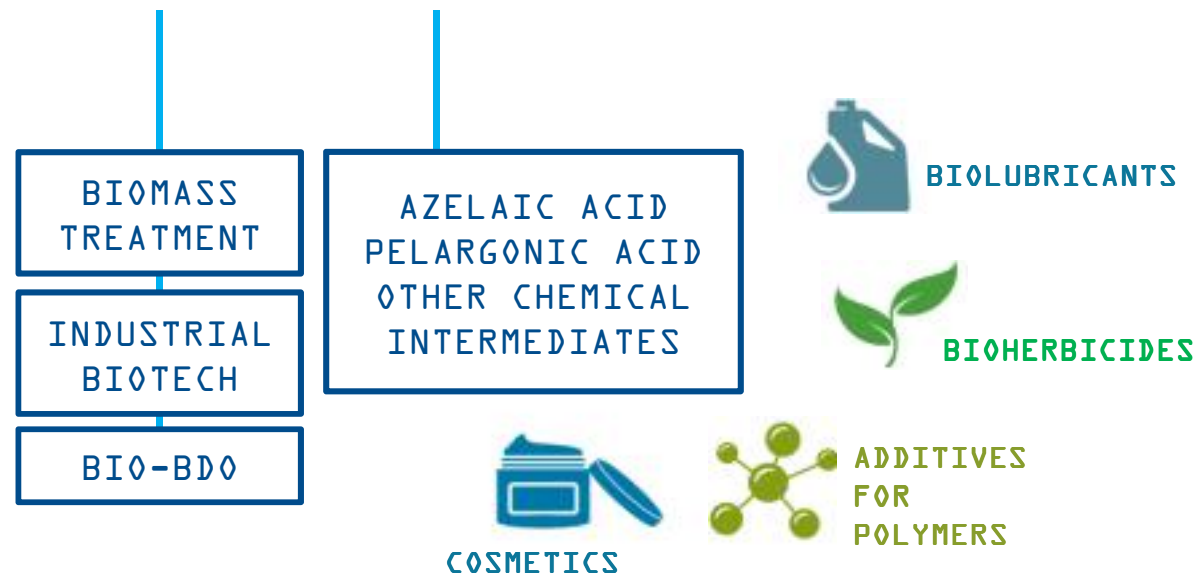
- 🌀 recycling is unpractical or not economical (i.e. mulch film, coffee capsules)
- 🌀 biodegradability as functional property (i.e waste bags)
- 🌀 real risk of dispersion in the environment (i.e. shopping bags)
- 🌀 as a pollutant of food and yard waste (i.e. foodservice ware, fruit labels, capsules)

Upstream integration of novamont's technologies

UPSTREAM INTEGRATION OF THE BIOPLASTICS VALUE CHAIN



CREATION OF BIOECONOMY INFRASTRUCTURES IN THE LOCAL AREAS



THE CASE STUDY OF NOVAMONT'S BIODEGRADABLE BIOPLASTICS

THE PIONEERING LEGISLATION ON BIODEGRADABLE SHOPPING AND WASTE BAGS AND THE VALUE CHAIN OF BIOPLASTICS AND BIOCHEMICALS IN ITALY ARE BECOMING A POWERFUL DEMONSTRATIVE CASE OF RELEVANT DIMENSIONS FOR SUSTAINABLE DEVELOPMENT AND CULTURAL GROWTH



- 🌀 redesign entire application sectors
- 🌀 affect the way raw materials are produced through the integration of entire agro-industrial chains
- 🌀 modify use and disposal of products
- 🌀 extend the experimental activity of research labs to local areas
- 🌀 define reliable standards



A CASE STUDY OF BIOECONOMY IN ITALY
WHICH ALSO POSITELY AFFECTED EU LEGISLATION

BIOWASTE: TURNING A PROBLEM INTO AN OPPORTUNITY



ORGANIC WASTE IN LANDFILL



DEVELOPMENT OF ORGANIC WASTE SEPARATE COLLECTION SYSTEMS THROUGH BIOPLASTICS



TOPSOIL ORGANIC CARBON CONTENT
SOURCE: JRC)



COMPOST AS DRIVER FOR SOILS FERTILITY

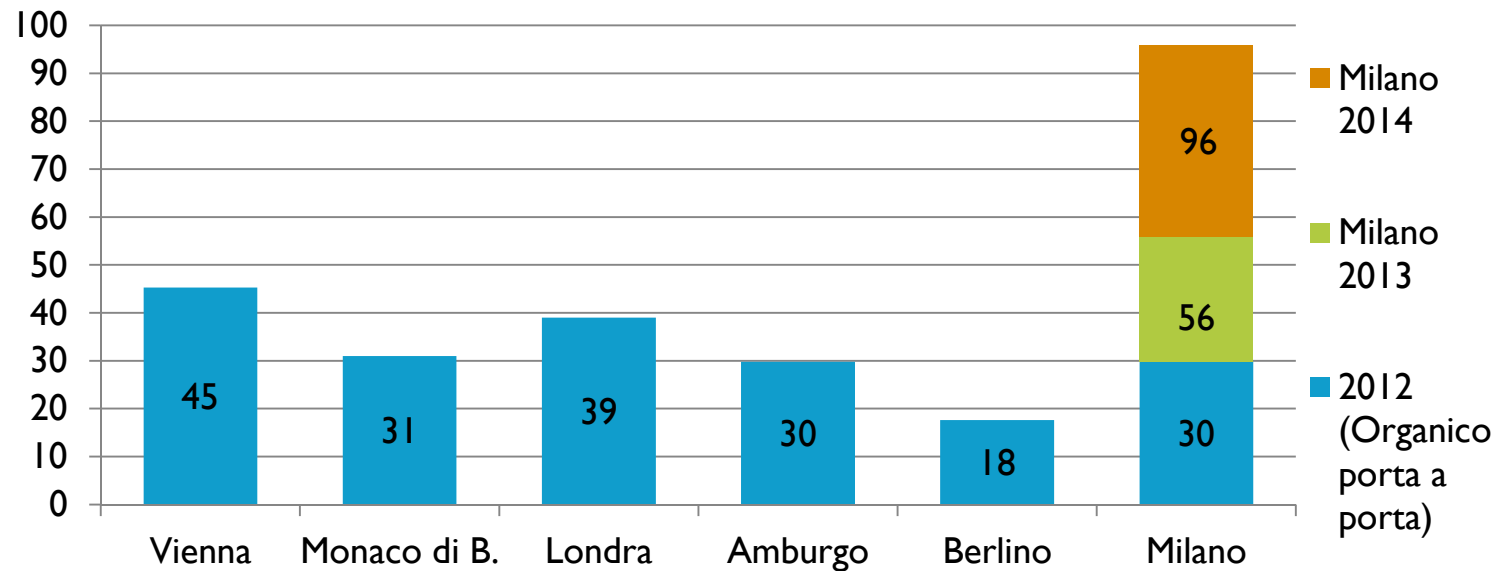
- ☞ The landfill gas produced by biowaste consists mainly of methane, which is 23 times more powerful than carbon dioxide in terms of climate change effects in the 100-years time horizon (source: IPCC)
- ☞ If not collected properly, leachate can contaminate groundwater and soil
- ☞ Landfilling means irrecoverable loss of resources and land

- ☞ Quality soil conditioner to be used in agriculture to combat desertification and soil erosion
- ☞ Carbon sink effect
- ☞ In Italy compostable bioplastics have become an integrating element in the biowaste management thanks to an overall agreement with the composting network



cases of excellence where composting and AD transform biowaste into new resources, such as biogas and high quality compost, thereby closing the organic carbon cycle of the bioeconomy

The milan case



ORGANIC WASTE SEPARATELY COLLECTED IN ITALY - CIC data:

🌀 2006: 2.6 MIO TONS organic and green waste)

🌀 2013: 5.2 MIO TONS organic and green waste)

🌀 <4.8% IMPURITIES

🌀 240 COMPOSTING PLANTS

🌀 43 ANAEROBIC DIGESTION PLANTS

Positive impacts along the whole value chain

- ☞ PRIVATE INDUSTRIAL INVESTMENTS IN WORLD PREMIER PLANTS (3 FLAGSHIPS) (MORE THAN 500 MIO ALREADY INVESTED). NEW PLANTS TO BE STARTED BETWEEN 2015 AND 2016;
- ☞ PRIVATE INVESTMENTS IN R&D (AROUND 200 MIO EURO) TRIGGERING MULTIDISCIPLINARY PROJECTS WITH UNIVERSITIES AND PRIMARY RESEARCH CENTRES;
- ☞ START-UP OF SPECIFIC AND LOW IMPACT AGRICULTURAL VALUE CHAINS, NOT COMPETING WITH FOOD PRODUCTION;
- ☞ REVITALIZATION OF DOWNSTREAM VALUE CHAINS;
- ☞ REINDUSTRIALIZATION OF 6 DEINDUSTRIALIZES SITES: TERNI, PIANA DI MONTE VERNA (CE), PATRICA (FR), PORTO TORRES (SS), NOVARA, ADRIA (RO);
- ☞ NEW PROCESSES AND BIOPRODUCTS AT EU LEVEL: AZELAIC ACID, PELARGONIC ACID , THEIR DERIVATIVES, NEW OIL EXTENDERS FOR RUBBER AND PLASTICIZERS, BIOBUTANEDIOL, STARCH-BASED AND VEGETABLE OIL BASED BIOPLASTICS
- ☞ A VIRTUOUS CHAIN OF HIGH QUALITY COMPOST WITH EXTRAORDINARY CASES OF EXCELLENCE (MILAN CHAMPION IN QUANTITY AND QUALITY OF ORGANIC WASTE)

Thank you!

«The challenge of our millennium is in the balance between the technical means that humanity possesses and the wisdom in how we will make use of them »

Umberto Colombo