

THE CIRCULAR ECONOMY PACKAGE

EU Action Plan for the Circular Economy



- Revised EU regulation fertilizers
- Minimum requirement re-used water
- Interface chemicals, products, waste
- Electronic Info system on cross-border waste transfers
- Quality standards for secondary raw material



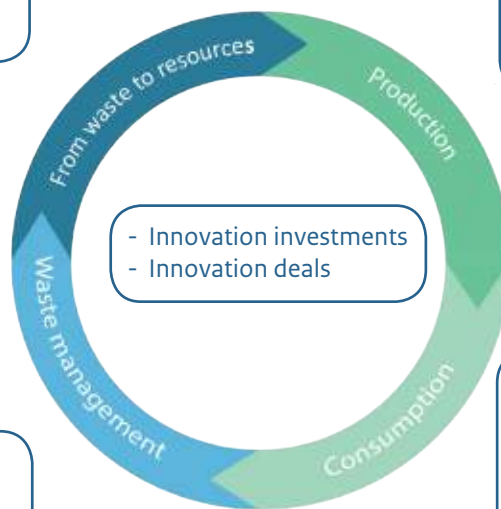
- MS to promote sustainable sourcing



- Requirement for product repairability
- Coherent product policy framework
- BREFs for CE in industrial sectors
- Facilitate industrial symbiosis
- SME support to substitute hazardous substances and for advanced manufacturing technologies
- EMAS and ETV



- Legislative package on waste
- MS and COM to avoid overcapacities in waste treatment and improve waste management plans
- Cohesion policy aligned to waste hierarchy



- Encourage reuse activities
- Enforcement of 2-year guarantees
- Action on false green claims
- Eco-design for repair and spare parts
- Repair info requirements
- Better EU Eco-labelling
- Testing for planned obsolescence
- Product Environmental Footprint
- CE in Green Public Procurement

Variety of policy measures

- Legislation
- Implementation support
- Voluntary approaches
- Better information
- European funding

Best practices

- MS to introduce economic instruments aligned to waste hierarchy

Waste legislation amendments

- Definitions of municipal waste
- Definition of food waste
- Simplification of reporting
- Exemptions from SMEs
- Preparation for reuse
- New calculations rules for recognised re-use centres and products, and metal recycling from energy recovery
- Better data by quality check and national electronic registers
- New targets for municipal waste recycling
- New targets for municipal waste landfilling
- New targets for packaging waste recycling
- Prevention of food waste, textile, WEEE, furniture
- Prevention of incineration (by target)
- Prevention by Extended Producer Responsibility

How to measure progress

- Resource Eff. Scoreboard
- Raw Materials Scoreboard
- New monitoring framework

Priority sectors

- Plastics
- Food waste
- Critical raw materials
- Construction & demolition
- Biomass & bio-based products

Disclaimer

- For quick reference only at the CE stakeholders meeting 25-01-2016
- For exact formulation of actions, see the Circular Economy Action Plan





THEME A

Production and products for circularity (including eco-design and waste prevention, reuse, repair, refurbishment and recycling)

STORIES



1

REUSE, RECYCLING OF ASPHALT

STORY

When looking for a way to make asphalt more sustainable we first looked at the LCA data. As the impact of the amount of recycled material has the biggest impact we made this leading in our development. We found a way to solve the problem with the use of reclaimed asphalt and were able to use an existing method for producing asphalt at low temperatures. A homogeneous mixture produced at a low temperature and a high amount of reclaimed asphalt offers a product that is durable and sustainable.

KEY MESSAGES

- Improving sustainability is a balancing act: keep the other important factors (costs, durability, technical performance) in mind
- If the aim is a maximal positive environmental impact: follow the market volume and try to make improvements scalable
- Every sustainable products needs a sustainable customer demand



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2

OBSOLESCENCE AND REPAIR OF ELECTRONICS

STORY

Frustrated by the poor performance of a service technician ordered to repair my dishwasher but acting as a sales agent I became an accidental entrepreneur 20 years ago. Being a serial (social) entrepreneur ever since I run the biggest independent repair centre in Austria today. Already at the beginning we had to cope with an overwhelming demand, which pointed at an existing market failure concerning serious repair services. I simply had to put up the RepairNetWork Vienna, which is another success story. Meanwhile we have initiated an official Austrian standard for durable and easy to repair electrical and electronic equipment and test EEE against the ONR 192102

KEY MESSAGES

- Design products durable and repairable: communicate the avg. life span and reparability on the energy efficiency label
- Independent repair service providers have to get access to sufficient service documentation and electronic diagnosis tools incl. the respective soft ware to prevent repair monopolies in the field of EEE
- Until the products costs the true price: No VAT for labour intensive repair services



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3

CLOSED LOOP INK CARTRIDGE RECYCLING

STORY

- Closed loop process: extending reverse cycles: rPET – rPP – rHI PP
- Challenges: impurities, molding, dimensional tolerances
- 276.000 t HP cartridges recycled ww since 1991

-> More than 75% of HP inkjet cartridges contain closed loop plastic

KEY MESSAGES

- Challenges:
- Innovative approaches to reverse cycles, sorting and separation needed to close material loops
 - Challenge: Lack of high grade plastics as output from many processes: consistency – quantity – quality
 - Challenge: Find innovative suppliers / key customers
 - Leakage – problem to get materials back at affordable cost



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4

EXTENDING LIFETIME OF PRODUCTS

STORY

We believe that old furniture has the right to a second life. That's why IKEA Belgium introduced "Save the furniture!", a pioneering program that offers five solutions for customers' old furniture.

- give it back
- fix it
- renovate it
- sell it
- donate it

KEY MESSAGES

- The circle is only complete if all actors are involved, from producers, customers, NGOs etc.
- Clear legal frameworks are needed and definitions of waste, so that material can be put back in the circle
- It is a transformational change, changing behavior and minds requires time.



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THEME A

Production and products for circularity (including eco-design and waste prevention, reuse, repair, refurbishment and recycling)

STORIES



5

RECYCLING OF CONSTRUCTION AND DEMOLITION WASTE

STORY

- 40% of the C&D are managed and deposited in illegal landscape
- In many examples referred to as “backfilling” to illegal practices of management of C&D that can never qualify as valorisation
- Much of this waste is still landfilled
- The price of C&D management is so low there is a very cheap illegal market. The majority of Councils in Spain, do not meet the basic legislation of the State in terms of C&D.

KEY MESSAGES

- Legislative compliance, ends the illegal practices and increases the price of the dumping
- Encourage the use of recycled aggregates
- You can only fill with recycled materials for such use from authorized managers



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STORY

High quantities of C&D wastes (31Mt), high rate of recycling (75%), good quality of recycled materials, but no market.

Many barriers to the development of a Circular Economy are still existing and they do not allow the take-off of the recycling sector:

- 1) distrust to the use of waste derived materials;
- 2) lack of updated technical specifications;
- 3) rare source separation of wastes at demolition yards;
- 4) lack of landfill ban for inert wastes.

Legislative barriers to the development of the market are:

- 1) too stringent leaching test limits mandatory characterization of little quantities of waste to recycle
- 2) missing of End of Waste criteria
- 3) CE marking of recycled aggregates not applied
- 4) Green Public Procurement not developed

KEY MESSAGES

- No quality – no market
- EoW criteria is a must
- Legislation is useless without enforcement

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SIEMENS

6

REFURBISHMENT OF MEDICAL EQUIPMENT

STORY

At Siemens Healthcare Refurbished Systems we breathe a second life into pre-owned medical devices and thus create a benefit for the environment, economy and society.

Nowadays we cannot serve the demand of the European Market with refurbished eco-line systems, because there are different market prerequisites for identical refurbished medical devices depending on whether they are placed on the market for the first time and inside or outside the EU before July 2014: some EU legislation such as RoHS and the CE-mark. This means, that although the systems have a CE-mark they cannot be globally marketed and our business cannot follow a circular approach on a global base. We need this approach to be supported and promoted by the EU in general to follow a sustainable path.

We need circular legislative solutions to keep the second life of medical devices a reality.

KEY MESSAGES

- Used medical devices for refurbishment & refurbished devices are not waste and should not be treated as such
- EU legislation (e.g. RoHS & CE-mark) needs to be adapted to the circular approach and take into account that medical devices have a global market
- The CE-mark- verified in the refurbishment process - is the “passport” of our medical devices and their proof of high quality



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Kingfisher

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CIRCULAR PRODUCT DESIGN

STORY



This kitchen worktop is made from 100% recycled, post-consumer materials and has been available in Castorama stores in France since summer 2014. Kingfisher was looking for ways to give waste a second life, especially waste generated by its own activities. Through research, Kingfisher identified wood (in the shape of waste wood pallets) and plastic (from discarded window frames) as suitable materials to develop a wood composite that can be used in a large range of products, including worktops. The new worktop has several improved product features including increased water resistance thanks to its composite structure as well as being 40 per cent lighter than similar worktops. The worktop is also a good illustration of the circular economy as it is itself recyclable.

KEY MESSAGES

- Make use of all your expertise in-house and get on board external partners to foster creative thinking.
- Take a commercial, rather than a technical, view for your projects: customers will buy a certain product because they need it, not only because it is made from recycled materials.
- Learn from mistakes and establish an environment of continuous improvement.

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THEME B

New markets and business models
(including product-to-service, lease,
pay-per-use, production-on-demand,

STORIES



UNITED NATIONS
INDUSTRIAL DEVELOPMENT ORGANIZATION

8

CHEMICAL LEASING

STORY

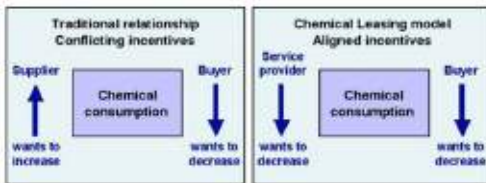


Chemical Leasing is a business model for fostering inclusive and sustainable industrial development and the circular economy.

The challenge: Traditional business models (“the more you sell the more you earn”) are fuelling the unnecessary consumption of chemicals and the generation of hazardous waste.

The response: Shifting the focus from increasing the sales volume of chemicals to a value-added approach.

Chemical Leasing is centred around a unit of payment; the payment is no longer related to the chemical itself, but to the function of the chemical.



KEY MESSAGES

- Circular economy concept needs close linkage to real-world problems of industries -> Chemical Leasing is a performance-based innovative business model applied across sectors that is in line with the circular economy concept

- Circular economy needs to be promoted at the global level -> Chemical Leasing is an enabler for this, as a globally applied business model (since 2004 under the umbrella of UNIDOS Global Chemical Leasing Programme)

- Sustainable industrialization can only be achieved by enhanced cooperation of stakeholders -> Chemical Leasing aligns incentives of chemical users and suppliers and brings win-win-win situations for economy, environment and communities

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TURN FOOD AND ORGANIC RESIDUES INTO FERTILIZERS

STORY

Tyre is the only product in the world that incorporates reuse by design through tread and patterns. For over 140 years, Michelin has been a world leader in manufacturing products used by customers in their everyday life. To adapt to new demands, Michelin has initiated innovative business models, shifting from product selling to performance and usage contracts, such as selling landings to airline companies. A subsidiary called “Michelin Solutions” has been recently

KEY MESSAGES

Consumers are key in shifting to a circular economy

Encourage circular models and products by Public Green Procurement

Technologies and business models still need time to mature. It would make more sense to frame ambitions and have a sectorial perspective rather than a “one size fits all” approach.

launched to develop those kind of contracts for B2B customers.



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PHILIPS

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LIGHTNING: SERVICE PAID PER LUX

STORY

- For us circular economy starts with our vision, which is to make the world healthier and more sustainable through innovation.
- Circular economy is a driver for innovation in the areas of material, component and product reuse, as well as new business models such as solutions and services.

- Instead of selling products, we aim to retain ownership, selling use as a

KEY MESSAGES

Product as service models allow for lower cost and improved quality of service while using fewer resources.

The model requires long-term partnerships between stakeholders, built on performance, trust and predictability

The biggest barrier for change is the culturally defined mindset, in the market and within companies

service so we can optimize the use of resources and the performance.

- Example Circular Lighting: a product as service model to remove the need for capital investment, benefit from energy savings and lower operational costs, hassle-free operation and efficient

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THEME C

Biobased economy for circularity

STORIES



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BIO-BASED PACKAGING

STORY



Mars Inc does not believe in 1st gen bio-based materials. Together with Rodenburg Biopolymers and Taghleef, we developed a 2nd gen. flexible packaging material.

Pilot has been done in three EU countries in H2 of 2015 including a quant consumer research. Currently we are evaluating a results in order to define the next steps.

KEY MESSAGES

Sustainable packaging is a system innovation requiring:

- Scale
- Active involvement from policy-makers/legislators and industry alike
- Initial (financial) stimulation in order to put fly-wheel in motion.

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USAGE OF ORGANIC RESTS AS FUEL

STORY

Grandfather Klimis surrounded by a landscape abundant in olive groves at Kalamata city in Greece, he was inspired to use a waste, olive pips, as a fuel to produce lime products and the new waste of that fuel is used for creating barbecue briquettes.



KEY MESSAGES

- Doing more with less while striving for environmental excellence.
- Never give up your efforts as every obstacle is an opportunity for improvement and for manage to achieve the objective
- Eco-Management and Audit Scheme (EMAS) enhanced our competitiveness and boost our image and reputation.

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THEME D

Promising change in consumer behavior and life-style for circularity

STORIES



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EFFECTIVE STRATEGIES FOR DRIVING BEHAVIOR CHANGE

STORY

WRAP's mission is to accelerate the move to a sustainable, resource-efficient economy by re-inventing how we design, produce and sell products, re-thinking how we use and consume products and redefining what is possible through re-use and recycling. One way is by inspiring the general public and their lifestyles.



Love Food Hate Waste works directly with consumers to give advice on how to eat well and waste less. This has helped people in the UK reduce avoidable food waste by 21% over 5 years. For example, single mother Megan, after attending a course run by Love Food Hate Waste, reduced her family's weekly food budget by a staggering 80%.



Recycle Now helps people to recycle more to improve UK recycling rates. WRAP and the British Retail Consortium developed an On Pack Recycling Label for groceries, now adopted by almost 500 brands, to help consumers understand what can and cannot be recycled.



Love Your Clothes raises awareness among UK consumers of the value of clothes and the environmental benefits of re-using and recycling them. For example, we organised workshops at Brighton Fashion Week around upcycling and second hand clothes. We are now working to roll this work out across Europe by working with leading retailers and brands as part of the LIFE-funded European Sustainable Clothing Action Plan.



KEY MESSAGES

Helping people change their behaviour and lifestyles is just as important as working with businesses and policy makers in the move towards a truly more sustainable circular economy.

Small changes made by individuals can have a massive impact collectively.

It is not enough to give people the evidence of why they need to change their behaviour, you have to find a key driver for that change, and provide simple tools to help them change.

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THEME E

Operating in the secondary resources market

STORIES

B/S/H/

15

REVERSED LOGISTICS AND REPAIR

STORY

BSH supply logistics of new appliances is combined with the pickup of waste appliances (WEEE), optimizing truck use.

Collected WEEE is sorted in categories and send for recycling. Parts of that WEEE and transport damage appliances are send free of charge for preparation of re-use. BSH collaborates with the re-use sector



KEY MESSAGES

- Save CO₂ and increase collection with smart logistics
- Use your expertise to provide the re-use sector with easy to refurbish (W)EEE and appropriate information
- Convince your management!

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RECYCLING FOR WASTE PICKERS IN DEVELOPING COUNTRIES

STORY

Waste-pickers organized in cooperatives or independents work in a sorting center supplied by a local waste managing company and co-started with Danone and local partners.

In this sorting center waste-pickers have better working and social conditions than those they used to have in the open landfills.

The waste collected and segregated by the waste-pickers is directly bought by a specialized recycling company at a fair price



KEY MESSAGES

- The frontiers of the company do not stop at the factory gates...
- How can a company expect to thrive in an economic and social desert ?
- It is in a company's best interests to take good care of its economic and social environment, in one word, its ecosystem.

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THEME F

High value recycling

(incl. take-back schemes, cascading & upcycling)

STORIES



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CIRCULAR WORKING CLOTHING

STORY

DutchSpirit developed Inspire, circular fabric for workwear. Inspire consists of 100 % polyester, but has the look and feel of cotton. At the moment, most workwear consists of polyester-cotton which cannot be separated and thus turns to waste after using it only once. Inspire can be recycled again and again.

KEY MESSAGES

Make circular fabric more attractive by strongly discouraging the mixing of materials that cannot be separated anymore. (Like polyester and cotton)

In using tenders to spur circular innovations, focus on the goal instead of defining the means.

Reward application of far-reaching innovations instead of incremental small steps.



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HIGH QUALITY POLYMER RECYCLING FROM HOUSEHOLD

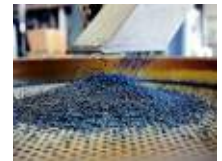
STORY

The mission of Veolia is to "resource the world". This calls for a shift from the linear consumption of resources to a more circular, Waste2resource approach. The Netherlands is a centre for excellence for Veolia in the field of plastic recycling.

1. Through Veolia Polymers, Veolia recovers municipal post consumer waste and generate compounds of the highest homogenous quality, which are then used in the production of electronic and consumer goods.
2. Veolia has developed a technology that enables the production and recovery of biopolymers from municipal and industrial waste and waste water.

KEY MESSAGES

- The continued development of a circular economy approach needs to be supported through government policies and funds.
- Image & branding. For the markets we supply the quality of recycled plastics is equal to virgin.
- The development of a secondary resource market can only be achieved in collaboration with industrial companies that then use these products.



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RECYCLING OF METALS&PLASTICS AT HIGH QUALITY

STORY

Recycables is a SUEZ - Nexans JV and the n°1 French cable recycling company. The objective is to recycle cables to reintroduce copper in Nexans ovens, closing the loop to reproduce products from recycled material. Recycables offers control over supplies, 99,9% pure copper powder, and a collection & recycling solution for Nexans' clients.

KEY MESSAGES

SUEZ welcomes the Circular Economy Package, a good starting point.

Urgent, immediate actions are needed to address the increasing mismatch between the dynamics of supply and demand of Secondary Raw Materials

The Commission should focus on 10 priorities for a more effective transition.



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CLOSED LOOP FEEDSTOCK RECYCLING OF EPS

STORY

CreaSolv® is an innovative approach to establish a new recycling process for the PS foam industry. This joint industry approach reaches out to test and to implement a technically and economically feasible process to re-convert processed PS foams into raw material. The biggest challenge was the development of a process to clean the products from dirt and possible additives

KEY MESSAGES

- Minimising the use of natural resources** CreaSolv® is a material-efficient technology.
- Creating new economic perspectives** - The investment into the new technology creates new economic opportunities and creates jobs.
- Building a new awareness for consumption** The idea of closed loop recycling will encourage the end-user to rethink its consumption pattern and drive the development from consumer to user.

like restricted substances and converting them into new products. We currently work on setting up in 2018 an industrial demonstration plant to prove the economical feasibility of this approach.



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THEME G

On the edge of waste or no-waste

STORIES



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PHOSPHATE RECOVERY FROM SEWAGE AND SLUDGE WASTE WATER, AND LEGAL OBSTACLES

STORY

Phosphorus recovery from wastewater is a new technology and a new business for water authorities.

In the end, the big challenge is not to recover the phosphorus, but to sell it.



KEY MESSAGES

We need a EU 'clearing house' to acknowledge secondary resources and accelerate the circular economy!

The only way is to cooperate, the water sector proves it!

In order to move from push to pull we need to adjust our focus: from technique (product) based to product-market based!

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PEPSICO

22

TURN FOOD AND ORGANIC RESIDUES INTO FERTILIZERS

STORY

Around the world, PepsiCo is looking at ways to reduce the environmental impact of fertilizers.

Transforming organic waste into natural fertilizers helps our farmers reduce emissions and contributes towards a circular economy.



KEY MESSAGES

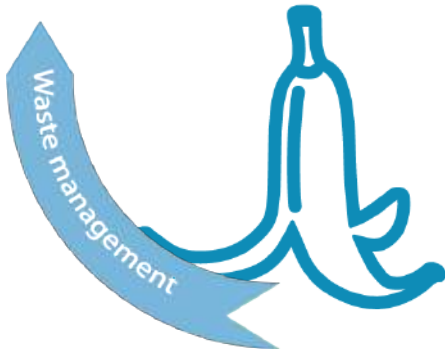
Conventional fertilizers have a significant impact on climate change.

Together with farmers, PepsiCo is testing initiatives to turn organic waste into natural fertilizer to improve our environmental performance.

Harmonised rules for organic waste-based fertilizers will help PepsiCo roll out best-practice among growers.



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THEME H

Food is no waste

STORIES

23

CHEMICAL MARKET TOOL FOR SUPPORTING REUSE OF FOOD SURPLUS LEASING

KO
MO
SIE

STORY

HET PLATFORM VOOR HET BEHEER VAN VOEDSELSCHENKINGEN



The Food Fair is an online surplus food donation platform in Belgium that helps to reduce food waste by allowing all types of actors in the food chain to easily connect in real time with social and food aid organisations interested in donations.

It contains 3 modules which enables a customer friendly tailored solution to the specific needs of donators and receivers. Since the launch in august 2015, already more than 160 social and food aid organisations have registered on the platform. Now the platform is being promoted toward the actors in the food chain in close cooperation with the main food chain federations.

KEY MESSAGES

Need for exchange, alignment and/or collaboration on European level between the existing similar national tools.

All stakeholders should be involved from the beginning and in particular the offer side.

This kind of platform on national level should be seen as an instrument within the national food waste reduction policy and therefore get proper support.



BOURSE AUX DONS
SCHENKINGSBEURS

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24

FOOD REDISTRIBUTION WITHIN EUROPE

STORY

Breakfasts for Better Days™

- Through BfBD we committed to re-distribute as much as we can
- This requires some soul searching; clear internal guidelines and an element of an "open doors" policy
- The culture is established
- Food redistribution can have incremental costs
- However not all edible food can be practically re-distributed



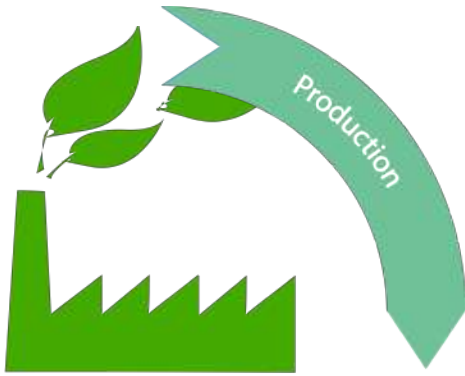
KEY MESSAGES

Companies need to continually work to embed a culture of food redistribution

Food Redistribution needs to be the "best option" for edible non-saleable food

Our biggest barrier to more food redistribution is the issue of "Foreign labelled food"

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THEME I

Sustainable sourcing

STORIES



25

GREEN RESOURCING FOR FRAGRANCES AND CONSUMER BEHAVIOR

STORY

Producers are the key of natural products. Firmenich and Mane's mission was to **improve vanilla farming**, harvesting and curing practices to increase yield and quality by engaging, building capacity and supporting the suppliers of Vanilla in Madagascar.

Trimming the cypresses on the side of the roads creates an opportunity for a circular economy cycle. **Residuals from cypresses** can be toxic if left on the land, so cut-offs are brought to MANE, a flavour and fragrance manufacturer, who transforms it into a sterilized compost or biofuel.

KEY MESSAGES

- Value chain cooperation is essential to grant circularity : FACILITATE IT
- Innovation is needed in technologies and processes: ENCOURAGE IT
- EU regulatory framework needs a more "circular approach" : MAKE IT HAPPEN

"Energy from citrus" is a pilot project created to transform the citrus waste compost into a bio-energy resource by using it in the industry sector and aiming at identifying industrial processes involving the use of such compost as a sub-product

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SUSTAINABLE SOURCING AND USE OF BIOBASED MATERIALS

STORY

Two-thirds of our packaging is made from paperboard – a renewable material. We aim to offer packaging fully made of renewable materials.

In 2015, we launched the world's first fully renewable milk carton, Tetra Rex® Bio-based; a major step in our journey.

This package is made from FSC™-certified paperboard & bio-based plastics derived from sugar cane. It is fully recyclable. Our commitment to renewable materials contributes to a resilient circular economy.

KEY MESSAGES

- To unwrap the CE Package we need:
- Policy measures that require primary materials to come from socially and environmentally acceptable sources,
 - Incentives to increase the use of renewable materials,
 - Legislation that requires recycling of all recyclable packaging and bans packaging from landfills.



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AVOID USE OF HARMFUL SUBSTANCES

STORY

Hazardous chemicals in materials can disrupt recycling. This problem is accentuated by:

- Long delays before chemicals are identified as problematic
- a lack of information on hazardous chemicals in articles
- laws – e.g. on food contact materials – that do not properly control chemical content.

KEY MESSAGES

A sustainable circular economy must be a clean circle, with non-toxic material cycles.

Identification of, and action on, problem chemicals needs to be faster and more precautionary.

Tighter regulation of chemical use in food contact materials is needed, along with improved information flow on hazardous materials in articles



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C2C CERTIFIED CLEANING PRODUCTS

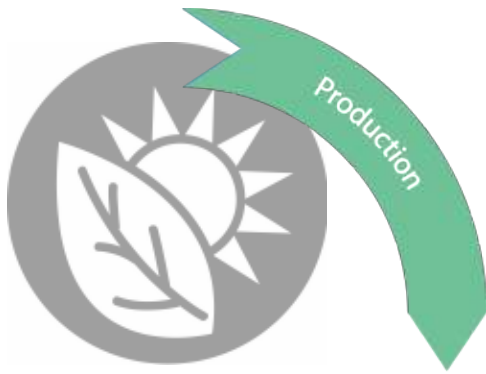
STORY



KEY MESSAGES

- Every product has the potential to make right things right
- The end is just the beginning
- Talk less, Join the Initiative

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THEME J

Natural capital and nature-based solutions

STORIES



29

PRESERVATION OF CORK OAK LANDSCAPES

STORY

Montado is a savannah-like Mediterranean forest landscape shaped for centuries by man building a multifunctional ecosystem.

Direct use values (main economic revenues)

Cork oak montado – cork harvesting, livestock production and wildlife goods (game species, mushrooms and bee-keeping)

Holm oak montado – acorns production, livestock production and wildlife goods.

Indirect use values (main economic revenues)

Cork/ holm oaks montados – high levels of biodiversity, cultural landscape, High Nature Value Farmland (HNVF), Habitat Directive (%%\$%).

OPERA's goals

Help managers to increase revenue from nature based solutions testing innovative instruments.



KEY MESSAGES

- The montado is a sustainable system that combines profitable economic activities with biodiversity conservation.

- This system can be more profitable using nature based solutions, but most landowners are simply unaware of this.

- Quantifying less explored Ecosystem Services delivered by the montado can be a novel way to maintain (or increase) its economic viability and promote its long-term sustainability



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