POSITION PAPER

BUSINESSEUROPE

15 May 2015

CIRCULAR ECONOMY: A KEY PILLAR OF A STRATEGIC EUROPEAN RESOURCE POLICY

KEY MESSAGES

1 Acceleration of the circular economy entails stronger commitment and a collaborative approach involving governments, businesses and the science community, as well as consumers and increased value chain cooperation. Industry has an important role to play in both identifying and delivering solutions.

2 Complexity and different interests throughout the circle needs to be properly addressed, avoiding one-size-fits-all approaches and quick fix solutions. A long-term strategy and enabling framework, balancing the costs and benefits to different parties, incentivizing economies of scale and taking into account the global dimension are needed.

3 Making best use of existing legislations, through proper evaluation of their impact on the circular model, full implementation and enforcement and mapping of material flows are the primary objectives for increasing resource efficiency and pursuing circularity.

4 To unlock the potential of new projects, infrastructures and business opportunities, investment certainty beyond 2020 needs to be guaranteed. Removing obstacles, funding opportunities, demand-side push and incentives to research and innovation are key steps to accompany further the engagement of industry and the business community.

KEY FACTS AND FIGURES

Commodity prices have fluctuated more than twice as much in the last 10 years compared to the period 1992 to 2005.	Different material and energy streams are interlinked, implying different energy intensity for primary or secondary raw materials.	In 214, 334 infringements cases against Member States in the field of environmental policy were still open.	According to 2014 Eurobarometer, 80% of people perceive resource efficiency as highly important for economic growth.

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POSITION PAPER

Circular economy: a key pillar of a strategic european resource policy

Circular economy, as a means to make Europe more resource efficient, offers significant opportunities for growth. To enable a successful implementation of these opportunities, a holistic approach and understanding of the circularity is required. Policy makers and all relevant stakeholders need to work together in order to identify truly sustainable solutions. Industry has an important role to play in both identifying and delivering solutions.

This is the reason why BUSINESSEUROPE has called on the European Commission to re-consider its initial proposal on circular economy. Rather than focusing on one particular stage, inter-alia waste management, an overarching policy approach needs to be set-up. This should bring into coherence the different interlinked stages and stakeholders along the circle and strike the right balance between different environmental and economic impacts. Only then it can become a real game-changer and offer enormous opportunities for all businesses along the entire industrial value chain.

The present position paper puts forward policy recommendations on what should be promoted at EU level with a view to advancing a more resource efficient and circular EU economy and stimulating development of circular business models. It also provides for cross-industries perspective on what circular economy means, how it works and industry contributes to it. By engaging more thoroughly into this important debate, BUSINESSEUROPE hopes that within a reasonable timeframe, the european institutions can agree on a common approach that is economically, environmentally and socially sustainable.

1. What lies behind circularity?

A wheel as a circular component was one of the major invention milestones contributing to societal development so far. In the last years the history repeats itself when the ‘circularity’ brings about a key emerging economic model, affecting all sorts of human activities.

The economic definition of circular economy refers to an industrial economy that is, by design or intention, restorative and in which resources are managed in a circular way. The notion of the circular economy enables society to extract maximum value from resources and adapt resource consumption to actual and future needs. Waste prevention, remanufacturing or reuse, recycling or recovery (material and energy) enable society to extract maximum value from resources and adapt consumption to actual needs. In doing so, it optimises the demand for primary resources and mitigates related energy use as well as environmental impacts.

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A complex matter

In circular economy, various material and energy streams are interrelated (e.g. for some materials, as in the plastics sector, the energy intensity differs from primary to secondary processing), hence requiring a holistic approach. That is the reason why setting contradicting and counterproductive goals has to be avoided.

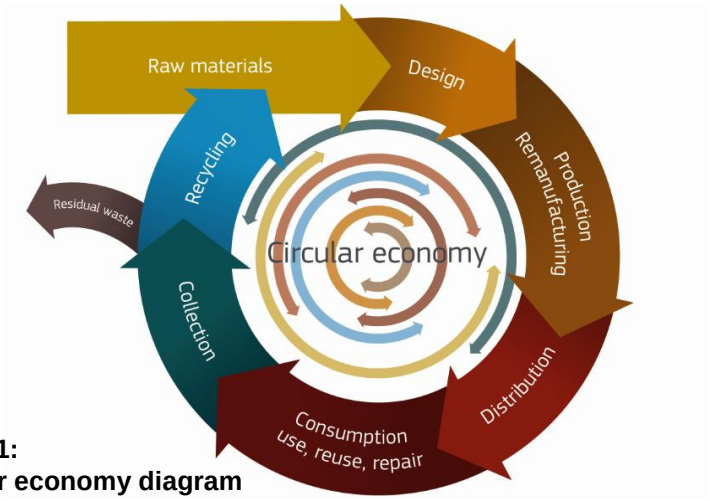


Figure 1:
Circular economy diagram

A question of definitions

Beyond the notion of circular economy, the on-going debate is mixing-up a number of concepts. For instance, the current mention of remanufacturing only in the context of product design and next to other options (e.g. cleaning, repairing, refurbishing or recycling) does not adequately capture its potential. It is a circular process in itself and not limited to the design step in the overall circular economy.

A remanufactured component fulfils a function, which is at least equivalent compared to the original component. It is restored from an existing component, using standardized industrial processes in line with initial technical specifications and getting the same warranty as a new product. A remanufactured component is different from a reused, repaired, rebuilt, refurbished, reworked or reconditioned component. It is also different from recycling.

A collaborative approach

Moving towards a more circular system requires commitment but also a collaborative approach involving governments, business and science, as well as consumers and increased value chain cooperation. The conditionality of the circularity is the acknowledgement of sectorial differences, including their interests and involvement across the value chain due to technical and physical limits as well as different impacts in terms of costs and benefits.

Companies, consumers and public sector are all actors in a circular economy with interactions both within as well as between these actors. Because of the large variety of different sectors and types of activity, there is no panacea to solve all issues related to circular economy at once. There is also a wide range of opportunities and challenges among industrial actors depending on where they operates along the circle and its interactions with other economic actors. For example, industrial symbiosis practices should be encouraged from innovation and policy perspectives.

Going beyond national borders

Furthermore, the interactions between actors can happen locally or nationally, but there are also many international activities accross borders. Because raw material and product flows are global. To make best use of circular economy it should also be viewed from a global perspective instead of limiting it to single countries or regions.

2. Reasons for a circular approach

Present trends are forcing today's societies to reconsider the way they produce and consume. Meeting demand for natural resources in a sustainable way is one of the big global challenges of our time. Three billion more middle-class consumers in the world by 2030 will impact the consumption and production patterns and further accelerate demand and race for global resources. Increasing constraints on supply chains, natural or political, as well as fluctuating prices of commodities[1] and negative environmental effects are among main factors driving economies to actively look for new, durable and economically viable models. Within this global context, european companies and consumers are already re-shaping their production and consumption patterns.

Industry perspective

As figure 2 shows, there is a whole set of reasons and motivations driving EU companies towards more circularity, amongst which are the following:

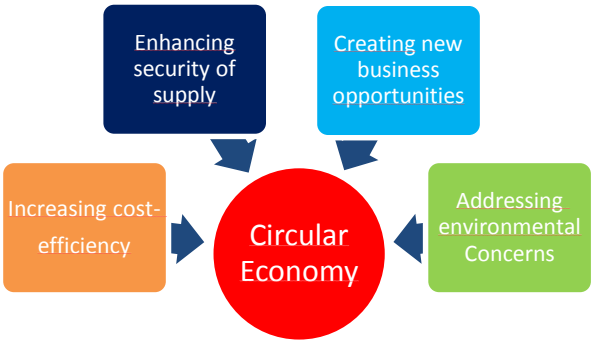
- **Cost-efficiency**: Entrepreneurs have continuously been increasing the cost-efficiency of their activities, further intensified due to fluctuating and increasing prices of different commodities in the last decades. The efficient use of resources, as an integral part of circular economy, is already a prerequisite for many business decisions and activities. Maintaining cost-efficiency at the level of the product inevitably means choices and accepting possible trade-offs between different product parameters, including environment (avoiding burden shifting in the life cycle), safety, functionality and affordability.

- **Security of supply**: European industry strongly depends on the import of raw materials. The circular concept should primarily aim at securing more access to and quality of secondary raw materials. It should be acknowledged that for the foreseeable future, recycling alone cannot provide all the resources that EU society needs. A significant part of EU supply will continue to come from the primary production, which therefore requires an enabling framework as well.

- **New business opportunities**: In many cases, best practices (see examples in annex) show that going from linear to circular model provides numerous opportunities for new business models, benefiting consumers as well as industry. In certain sectors, remanufacturing or shifting the model of product-selling to services are some of the examples with tangible benefits.

- **Environmental impacts**: The motto 'living well within the limits of the planet' clearly shows that circularity has a strong economic and environmental rationale. However this does not automatically translate into "using less", but rather "using better" resources whilst ensuring Europe's competitiveness and not compromising on other important factors such as cost-efficiency, safety, functionality or affordability.

[1] IMF data on monthly commodity price developments shows that on average commodity prices have fluctuated more than twice as much in the last 10 years compared to the period 1992 to 2005 (i.e. the standard deviation increased by about 132%).



The diagram shows some motivations for strong commitment to circular economy.

Figure 2: Examples of business drivers to circularity

Consumers' behaviour

Consumption is also a crucial element of circular economy and its deployment. The commitment of consumers and their active demand-side push will help drive innovation, research and development. The development of markets for circular economy can be facilitated by promoting demand, which can be created by educating consumers to make new choices.

But figures show that there is still a gap between intentions and actions. For instance, according to the June 2014 Eurobarometer survey, EU citizens appear to back the rationale behind the resource efficiency. A substantial majority of people think that more efficient resource use would have a positive effect on the quality of life in their country (86%), on economic growth (80%), as well as on employment opportunities (78%). However, as figure 3 shows - only a smaller proportion have tried alternatives to buying new products: buying a remanufactured product (35%), using sharing schemes (27%) or leasing/renting a product instead of buying it (21%).

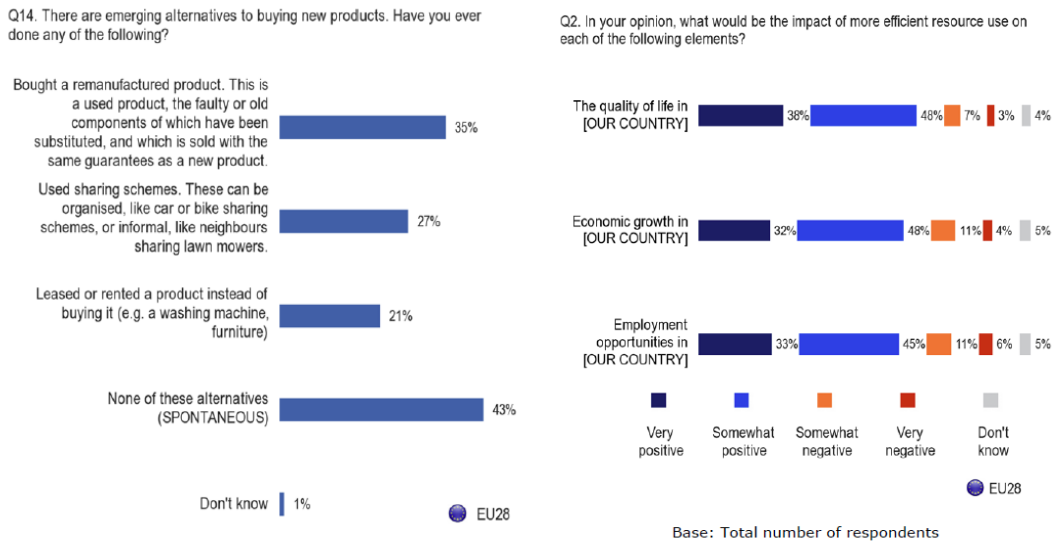


Figure 3: Flash Eurobarometer 388, 2014

3. How to make circular economy fit for success – policy recommendations

The circular economy is a complex matter, involving a wide range of materials, actors and levels of actions, with most of them, if not all, having specific technical and economical interlinking challenges. This makes it imperative that all stakeholders take further actions. But it calls for a well-thought and balanced policy approach, which addresses the whole spectrum of barriers and obstacles to opportunities. It should take into account the interactions among the use of resources, the economic benefits deriving from it, as well as environmental and social aspects.

The right distribution of economic rewards, costs and benefits, has to be well spread along the value chain and across different actors. Policy-makers also need to accept that there will be no one-size-fits-all solution, which means that innovative approaches specific to the various value-chains will have to be developed, and already existing successful cases should be promoted.

The transition to a circular economy can be accelerated by the following:

3.1. Opening the mindset and enhancing cooperation

A key prerequisite to effectively drive circular economy in a large scale is to accelerate the change of mindset of all stakeholders, be it consumers, business community, public authorities, academia or scientific community. In this sense, the role of EU-wide consumer campaigns and advertising (e.g. voluntary product information schemes) should be further explored. This includes extending the best practices in Europe to encourage consumers to take actions and to drive the change from linear to circular economy. In order to increase awareness and build relevant competences, the concept of circular economy should also be included at all levels of education, from primary schools to universities.

EU-wide platforms for different value chains should be enhanced and developed to facilitate creation of new business models and new interactions between different actors e.g. between companies, between companies and consumers, companies and public sector, consumers and public sectors, and between consumers.

Digital services are one way of sharing information and bringing different actors together to create new business models. These should be supported by appropriate incentives and an implementation should be promoted in Member States.

3.2. Making the best out of existing legislation

A wide range of EU initiatives and legislations promoting or affecting the objective of circular economy is already in place. In particular, the EU waste policy *acquis*, but also green public procurement, the industrial emissions directive, the eco-design directive, ecolabelling or the end-of-life vehicles directive.

- Mapping existing legislations and looking closely at its impact on circular economy models as well as on how it interacts with each other is a necessary starting point to avoid inconsistencies or overlaps. Definitions should also be precise and coherent.

- The lack of proper implementation and enforcement of the environmental *acquis* also needs to be addressed. In 2014, 334 infringements cases in the field of environmental policy were still open. In the waste sector alone, full implementation would generate an additional 400,000 jobs with net costs that are €72 billion lower than non-implementation (2012, European Commission). For instance, efforts should be made to achieve waste separate collection in a timely manner, by end 2015.

- Beyond the waste legislation, other existing EU policy instruments can contribute to resource efficiency provided that proper implementation and enforcement is guaranteed, for example under the industrial emissions directive. For the eco-design directive, as long as the necessary data, underlying methodologies and standards to ensure measurable and enforceable requirements are lacking, resource efficiency requirements in EU product policy cannot be widely addressed. This will have to be reflected in the next work programme.

It is therefore essential to ensure an effective implementation and enforcement of the existing EU regulatory framework across all Member States before considering new legislative initiatives. European institutions should not shy away from looking at the reasons behind the failure of implementation and enforcement. Adding new layers of legislation without solving some of the root causes would bring very little benefits to the circular economy challenges.

3.3. Increasing the investment certainty

In addition to the necessary implementation of the existing *acquis*, the EU needs to agree on realistic targets beyond 2020 in the waste sector to enhance the investment security. This is necessary to facilitate investment decisions in waste management infrastructure. EU structural funding plans are being set up and the European Fund for Strategy Investments (EFSI) should offer financial help as well. A proper implementation of a landfill ban for reusable or combustible waste and of the waste shipment regulations, however, represents a prerequisite to the success of these processes.

3.4. Making sure costs are fairly distributed

Policy-makers should thoroughly look into all costs throughout the whole circular system, so that they are fairly coupled with the benefits, balancing incentives and constraints accordingly. The aim should be to avoid that some stakeholders create profitable businesses at the expense of others bearing the costs. Without reopening recently agreed legislations, the diversity of financial schemes in Europe should be well

analysed to see how it fits the circle and if the systems and different elements could be shared as best practices. The impact on global competitiveness of EU economy should be assessed.

To secure an efficient allocation of resources, the EU guidance framework of how Extended Producer Responsibility (EPR) schemes operate should be based on the transparency and polluter-pays principles and evolve according to new market realities. Minimum performance requirements for EPR schemes, along clear definitions as well as roles and responsibilities, should be ensured.

3.5. Monitoring circular economy

More accurate data and statistics that monitor the development of circular patterns, both in quantitative and qualitative terms, are needed. Because there are many different levels and actors within a circular economy framework, data are essential for many different aspects, including measuring consumer behaviour. In order to improve the reliability of monitoring, the different methods for collecting statistics and making assessments should be harmonized, also aiming at international harmonization. This is relevant for compiling statistics, for example, for flows of primary and secondary materials and waste streams.

Statistics would be especially useful if they demonstrate a correlation between circularity and economic impact, while analytical work on material flows across regions would help identifying major leaks and gaps in collection and re-circulation. On the other hand, it would be contrary to the holistic approach and understanding of the circular economy, if the EU set a resource productivity target, using the lead indicator material input/GDP as a parameter for the resource efficiency.

3.6. Making best use of R&D&I and funding tools

Research, development and innovation framework programmes should direct the available budget on key research priorities and use the possibilities of the Horizon 2020 to support close-to-market industrial innovation. To support the ongoing process of modernising european industry and make it fit for tomorrow's challenges, long-term investments should be facilitated by accelerating the start of projects and speed up Europe’s progress in innovation. The European Fund for Strategic Investments (EFSI) can potentially play a role for financing circular economy projects. The European Structural and Investment Funds should also be mobilized in a coherent and targeted way. Fiscal incentives such as tax credits or VAT reductions could also be explored.

More support to innovation is specifically required to address the technological hurdles related to recycling of increasingly complex products with increased yield. Ideally, this should include multi-disciplinary research and cooperation across the value chains.

3.7. Leveraging public procurement

Demand-side measures offer interesting perspectives to support the scale-up of circular business models. For instance, public procurement could encourage development of circular practices (e.g. including the proper treatment of end-of-life products to ensure that they are recycled against quality standards). Improving the knowledge and understanding of contracting authorities to use "life-cycle costing" will ensure relevant use without hampering the competition. This requires a strong evidence base to support the use of alternative procurement approaches. Additionally, standardised methodology that is transparent, objective and measurable would allow industry to optimize to a target and compete on a level playing field.

3.8. Removing obstacles to circular economy

Beyond the completion of the single market as a key tool for growth, the following barriers need to be addressed to accelerate the transition to a circular economy. Many of these barriers are specific to particular materials, products and sectors; requiring different types of action at the EU, national, regional and local level:

- To ensure an acceleration of circular economy, hindrances stemming from EU legislation should be removed. E.g. according to the REACH regulation, recycling operations and the use of secondary raw materials containing certain substances above a threshold in the subsequent value chain activities cannot be carried out without prior authorisation. This conflict between EU waste and chemicals policy impacts the smooth operation of circularity.

- For some materials, the use of secondary raw materials shall be facilitated and encouraged. For instance reviewing current fiscal incentives for each waste stream management would be an important first step. While for other materials for which the secondary markets exist, efforts should focus on ensuring that they are recycled properly at the end of life;

- Current end-of-use regulations run the risk of promoting low value recycling rather than the adoption of more valuable approaches such as minimum quality criteria for secondary raw materials;

- Specific product requirements should not limit and slow down product renewal or bringing new innovations to market;

- Lack of public investments in waste collection, recycling and recovery infrastructures. For instance, public collection infrastructure is especially relevant for lower value products for which company-specific collection is not always economically viable but high volumes are available if collective efforts are in place. In some cases, more focus on critical raw materials is also desirable.

- Limited consumer acceptance of potentially more efficient service-oriented business models.

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ANNEX TO POSITION PAPER ON CIRCULAR ECONOMY

15 May 2015

How companies in Europe approach circular economy – selection of examples from different sectors

This section showcases a number of concrete examples on how EU industry is already engaging into more circular business models. The diversity of examples is important to illustrate the wide scope of activities, but also the challenge of developing the adequate policy approaches.

Remanufacturing mechanical components

A car manufacturer redesigns components (such as gearboxes) to increase the reuse ratio and make sorting easier by standardizing components. While more labour is required for remanufacturing than making new parts, there is still a net profit because no capital expenses are required for machinery, and no cutting and machining of the products, resulting in significantly less waste and better materials yields. Remanufactured parts use up to 80% less energy, 88% less water, 92% fewer chemical products and generate 70% less waste during production compared to a new part.

In 2013, 28,200 engines, 20,100 gearboxes and 16,840 injection pumps were remanufactured and given a second life by this car manufacturer. To an automotive supplier the remanufacturing is an important strategic approach to secure a long-term after market supply. Where economic viable an automotive supplier also has introduced reverse logistic systems. An automotive supplier annually takes back 2.7mio used parts, equivalent to 11,000t, worldwide as secondary raw materials for remanufactured products.

For more information please click on the link here

Cement – waste as a fuel

When manufacturing clinker, the cement industry is able to use waste as a fuel instead of coal and petcoke. At the same time, the mineral content of waste is recycled as a raw material. We, in the cement industry, refer to this combination of energy recovery and material recycling as ‘co-processing’. In addition the main end-product of cement manufacturing, concrete a durable construction material, it is also 100% recyclable. At the end of its life, concrete can be recycled either back into concrete as a recycled aggregate or into other applications (as a road base, for example).

For more information please click on the link here

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"Pay per lux" – a new way of delivering light

Philips has developed a new concept to deliver lighting as a service. 'Pay per lux' is a business model where its business customers pay only for the light they use, not for lighting equipment. They pay a service fee for the light provided, while Philips retains ownership of the fixtures and fittings. For the duration of the contract, provider installs, maintains and upgrades the lighting system as needed. At its end of life, Philips recycles the equipment and closes the materials loop. This proposition gives customers an access to the most energy efficient lighting solutions while recycling and reusing the materials reduces the environmental footprint.

For more information please click on the link here

Regional waste management practice

The Cuneo province in the North of Italy (500.000 inhabitants) has followed the most advanced European regions and countries in order to recover a significant amount of municipal solid waste, leaving for landfill only the residual waste which is not further recoverable. They incorporated an existing cement fabric in their waste management plan. Only in 2010 around 50.000 tons of waste-derived fuels have been used, which allowed for a saving of about 34.000 tons in non-renewable fossil fuel and avoided 55.000 tons of CO2 emissions.

Waste as an important resource in chemical industry

Waste is an important resource in chemical industry. The chemical industry has been successfully putting the "waste-as-a-resource" approach into practice for many years. Here, wastes undergo optimal material recovery (recycling) or energy recovery, substituting important raw materials. This reduces the input of primary raw materials and preserves resources. Waste streams of a nature which is found best suitable for energy recovery process serve as fuel substitutes. This fuel substitution very often takes place directly on site, i.e. without long transportation processes (neither of energy nor of fuels). Wastes substitute the resources gas and oil as energy sources. As the chemical industry uses also large volumes of gas and oil directly as materials, the above-described energy recovery reduces the input of primary raw materials too. For the waste streams in the chemical industry this energy recovery is, in consequence, quasi equal to material recovery.

Collecting waste without wasting money

Enevo provides smart sensors and logistics optimization solutions for the waste management and recycling industry. Enevo helps both commercial waste management companies and public organizations to operate more resource efficiently. Enevo ONe is an innovative Smart City solution that optimizes waste collection by using its network of small wireless sensors to measure the fill-level and forecast the fill-up date of individual bins and containers. Based on these forecasts the service will calculate millions of

different collection plan alternatives and select the plan that is most cost efficient. With smarter collection plans, Enevo's customers have saved up to 50% in total operations costs.

Bio-based products – solutions for the circular economy

The forest industry often replaces products based on fossil material with products mainly based on renewable raw material, products which are recyclable and bio degradable. Energy for the processes is to a high degree based on residues from the trees used for production. Other by-products are delivered to other sectors like the chemical industry. Textile fibers are also produced and replace fossil alternatives. Modern building technique makes it possible for high rise buildings in wood. There are significant CO2 savings to be made by using timber in the construction of housing and other buildings, both in terms of GHG emissions and in the terms of embodied energy and in energy efficiency.

Products based on wood have an eco-efficient life cycle. At the end of their service life, they can in most cases be recycled, thus extending the carbon storage effect, and/or be used as a carbon neutral fuel in cascade use, substituting fossil fuel.

Turning agricultural waste into paper

The paper industry is also working with alternative resources. One of these is waste from the agro-industrial sector, including waste from lemons, oranges, nuts, apples, corn and olives, now being used as a raw material for paper. The principle has been developed at Italian producer Favini who also came up with Alga Carta (a paper which uses algae as raw material). The new paper, CRUSH, makes best use of a food waste which would otherwise be dumped, or perhaps burned for energy. Now that waste can be recycled, adding value and sustaining the circular economy.

Scania and Swedfund investing in Indian biogas

Scania and the development financier of the Swedish state Swedfund has established a partnership to develop the production of biogas as an automotive fuel in the Indian city of Nagpur, with 2.5 million inhabitants. The biogas will be produced from digested sludge from one of the city's wastewater treatment plants in collaboration with local companies. Nagpur is participating in the Indian Government's initiative to improve the environment and transport systems in the country's 100 largest cities.

For more information please click on the link here

Steel production using scrap

Steel production is carried out using large quantities of ferrous scrap coming from products discarded at their end-of-life (post-consumer scrap) and from industrial

production processes (pre-consumer scrap). In 2011, 100 million tons of ferrous scraps have been used, out of which 56% of the EU steel production was made. The sector produces valuable by-products during the steel-making such as process gases – used to produce electricity and slag – largely used in the cement production and in many civil engineering applications, which save the depletion of natural resources as minerals and fuels and contribute to reduce CO_2 emissions. In 2012, around 44 million t of slag have been used corresponding to a mountain higher than three times the Eiffel tower.

For more information please click on the link here

Industrial cooperation and resource use optimization

The unique blend of skills of the partners from aviation and environmental services (AIRBUS Group, SUEZ environment Group, SNECMA/SAFRAN Group and Equip'Aero Industrie) has enabled a joint venture TARMAC AEROSAVE to achieve over 90% recovery rates for the aircrafts it dismantles, whilst guaranteeing aircraft owners that the equipments have been handled according to aeronautical standards, hence fit for reuse once recertified by third parties. In 2013, TARMAC AEROSAVE has developed new skills and infrastructure for the dismantling and recycling of CFM56 family engines. Tailor-made dismantling infrastructure was also implemented in 2013, increasing productivity and recycling rates. End 2014, five years after it was created, the company has handled 200 aircrafts, for recycling or storage and maintenance services.

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