

Your Voice In Europe: ROADMAP feedback for Waste to Energy Communication

User's data:

- Domain: Non governmental organisation
- Name: Meadhbh Bolger
- Email: meadhbh.bolger@foeeurope.org
- Country: Belgium
- Organisation: Friends of the Earth Europe
- Headquarter: select
- Register: 9825553393-31
- Size: select
- Publication: can be published with your personal information

Related document: Waste to Energy Communication

Feedback:

Friends of the Earth Europe would like to lay out our concerns about the dangers of the approach taken by the Roadmap “Exploiting the potential of waste to energy”.

Waste hierarchy and current situation: The idea of “exploiting the potential of W2E” clearly contradicts the principles of a circular economy and is not coherent with the overall objective of transitioning towards this. A circular economy means keeping resources circulating within our economy for as long as possible and minimizing end-of-pipe waste treatment operations, such as landfilling and incineration – with or without energy recovery. We need to be limiting W2E potential, not exploiting, by focusing on measures higher up the waste hierarchy.

“Exploiting the potential” implies that existing capacity should be maximized and that this fits and is in line with EU policy – this is far from reality. Energy recovery is the second least preferred waste treatment operation according with waste hierarchy and according to the objectives set out in the 7th Environmental Action Plan it should be limited to non-recyclable materials.

However despite these EU acknowledgements, situations on the ground are very different. Eurostat figures show that in 2014 27% of EU28 waste went through incineration treatments. This rate has been increasing over the past 10 years and unfortunately the 40% of the waste diverted from landfills between 2005 and 2014 has gone to incineration, not recycling. This isn't only a very poor implementation of waste hierarchy, but a mere substitution of one end-of-pipe waste treatment by another one.

Waste-to-Energy as potential contributor to Energy Union: We are concerned by the European Commission's overemphasis on the role waste can play in increasing EU energy generation. This both neglects the fact that waste is not an efficient source of energy and more importantly, completely neglects the crucial role that waste prevention, reuse and recycling play in preserving energy in the system, which is what the circular economy is about. Waste incineration will not help decarbonise the European energy system – most of the energy currently produced in waste-to-energy plants comes from plastics, 96% of which originate

from fossil fuels.

Furthermore, this emphasis on energy generation is also based on the supposed climate neutrality of incinerating waste of biogenic origin. This neutrality is a legal fiction; waste incineration emits significant amounts of greenhouse gases – be it biogenic or not – and some studies reveal that these emissions are higher than those of coal-fired power plants.

Burning of “non-recyclable waste”: The Roadmap states that there are “important amounts of non-recyclable municipal waste”. However, there is no definition of what non-recyclable waste is in the Waste Framework Directive (either the current one or the new proposal). The Commission mixes up non-recyclable waste with mixed waste.

While mixed waste is a problem of separate collection; non-recyclable waste is mostly a problem of product design. If properly separated, there is no non-recyclable waste, only non-recyclable materials, and the solution to these materials is not burning, but re-designing to make them fit into the circular economy (i.e. make them repairable, reusable, recyclable or compostable).

By talking of “additional non-recyclable feedstock for energy recovery”, the European Commission neglects its role of guardian of the Treaties. Instead of promoting the incineration of waste being landfilled, the Commission should be calling for maximization of separate collection schemes and a strict implementation of waste hierarchy. That the “Communication should clarify the role of W2E under the waste hierarchy as the best option for the management of combustible non-recyclable waste”, it ignores that the most preferred option for this waste would be to prevent it.

The European Commission is also inaccurate when quoting the 7th EAP as calling to phase out landfilling, when in fact the 7th EAP calls to phase out landfilling of recyclable waste. The same applies to incineration that is required to be limited to non-recyclable materials.

Over-capacities: There is no clear roadmap on how to tackle existing incineration over-capacities and in fact the Roadmap actually pushes for more inflexible facilities requiring long-time investment, such as district heating. It ignores that in a circular economy, disposal facilities should instead be flexible, allowing waste managers to adapt progressively to higher recycling rates and lower levels of waste production. Linking houses’ heating system to residual waste generation through very expensive long-term facilities isn’t the best incentive to promote waste reduction, reuse and recycling.

Ignoring role of civil society and local governments: A major concern of Friends of the Earth Europe, as the largest grassroots organisation in Europe, uniting more than 30 national organisations with thousands of local groups, is the fact that the Roadmap ignores the role of civil society and local governments. The Commission aims at consulting only Member States’ regulators, “waste-to-energy” plant operators, RDF producers, the recycling industry and other waste burning industries (chiefly cement kilns). Neither municipalities, nor NGOs are included in the list, despite the fact that waste incineration remains highly contested from NGOs to local neighbourhood associations and resident groups, citing a wide range of concerns from health and environmental issues to financial problems.



Friends of
the Earth
Europe

PREVENTING WASTE

RECYCLING
ISN'T ENOUGH
FOR A CIRCULAR
ECONOMY



**Friends of
the Earth
Europe**

DECEMBER 2014

By: Rachel Tansey

Initial research and drafting: Joseph Zacune

With thanks for comments and input to:
Ariadna Rodrigo, Julian Kirby, John Hyland,
Keith James and Lasse Brand

**With grateful acknowledgement to the work
done in this area and referenced in this report by:**
Zero Waste Europe, RREUSE, iFixit, Repair Cafe,
European Environmental Bureau, and many other
organisations, as well as to all the projects and
initiatives showcased or referred to in this report

Design: www.lindsayynobledesign.com



Friends of the Earth Europe gratefully acknowledges financial assistance from the European Commission, Directorate-General for Environment. The contents of this document are the sole responsibility of Friends of the Earth Europe and cannot be regarded as reflecting the position of the funder mentioned above. The funder cannot be held responsible for any use which may be made of the information this document contains.

INTRODUCTION

The many social, environmental and economic benefits that would result from robust resource policies have been recognised by both the European Union (EU) and the governments of its member states. For example, by boosting re-use and repair of products, jobs are created while the impacts from mineral and metal extraction, incineration and landfill are avoided. But ambitions for encouraging re-use and repair, and the broader vision of a more resource-efficient and lower-consuming Europe, appear to be at risk of being abandoned by policy-makers. The European Commission's proposed 2015 work plan, published in December 2014, revealed that the Circular Economy Package¹ – intended to increase recycling levels and tighten rules on incineration and landfill – would be binned. This was despite the Package having support in the European Parliament and European Council. Also, by the Commission's own analysis, the Package is expected to create more than 180,000 direct European jobs by 2030 and avoid 62 million tonnes CO₂ equivalent of greenhouse gases², with the full implementation of existing EU waste legislation expected to save €72 billion a year³. Moreover, moving towards the objectives of the Resource Efficiency Roadmap (going beyond implementation of existing legislation) could help to create 526,000 jobs compared to 2008 and an additional turnover of €55 billion⁴. The uncertainty and delay created by scrapping the Circular Economy Package is completely at odds with the EU's commitment to creating a sustainable economy.

First Vice-President Frans Timmermans has promised Members of the European Parliament (MEPs) that the Commission will make a new, more ambitious proposal in 2015⁵. It is absolutely vital that the Juncker Commission be held to account on this, and that the scrapping and re-tabling of the Circular Economy Package is not used to weaken and remove important aspects at the bidding of backward-looking business lobby groups – but contrary to the needs of progressive businesses, people and planet.

In Europe, we do not accord sufficient value to the resources we consume. Over 50% of municipal waste continues to be landfilled and incinerated⁶, calculated as equivalent to throwing away over €5 billion per year⁷. The objective of European waste legislation, legally established in the 2008 Waste Framework Directive, is to drive countries towards waste prevention, re-use and recycling – the top of the waste hierarchy⁸ – but the evidence shows incineration and landfill remain the norm across Europe.

We can change this situation, but scrapping waste and resource policy is not the way to do so. Not only should the Circular Economy Package not have been binned, it should have been strengthened and made central to other areas of policy-making, particularly economic policies. To scrap it moves us backwards, panders to narrow and regressive business interests and severely damages Europe's prospects for truly sustainable economic recovery. Furthermore, it is vital that the EU does not focus solely on waste, but on resource consumption as a whole, as Europe is still one of the highest consuming continents on the globe, with a material footprint of 21 tonnes per capita per year¹⁰. Reducing waste,





Without adequate political and financial support however, these activities will remain a scattered minority, and often risk fizzling out due to a lack of resources or infrastructure. The EU and its member states have strong policy options at their disposal to encourage such projects, boosting economies in a way that has clear social and environmental co-benefits. The policy recommendations in this briefing are designed to bridge the gap between Europe's unfulfilled policy goals and the lower-consuming and resource-efficient Europe that the EU can – and must – become. The need for, or effectiveness of, many of the recommendations are illustrated and inspired by the accompanying case studies. By doing more to facilitate these kinds of sustainable and local initiatives, member states will see financial savings, job creation, less costly waste, and greater environmental protection.



POLICY RECOMMENDATIONS

A resource-efficient, circular economy is urgently needed in the EU but, at the moment, the EU institutions are not promoting the right behaviour. Resource efficiency policy has consistently suffered from a non-binding character, leaving member states to decide whether or not to introduce the measures. Different interpretations and levels of ambition in member states has led to a two-speed Europe, with countries like Germany and Austria developing their own resource use agendas, while others fail to address the issue¹⁵. Worse, the Circular Economy Package has now been scrapped, so the fate of waste legislation is now uncertain and resting on the Junker Commission's promises for a more ambitious 2015 proposal.

When it comes to waste, the poor implementation of existing EU waste legislation is only part of the problem. Current policies do not sufficiently focus efforts towards the top of the waste hierarchy (prevention, re-use and preparation for re-use), thereby failing to appreciate the environmental, social and economic costs of the waste produced in Europe. EU waste and resources policy needs to create legal and economic conditions conducive to resources and products being properly valued, so that keeping them in the economy is the best option. Policy has a strong role to play in this transformation.

RECOMMENDATION 1.

MAKE RESOURCE EFFICIENCY CENTRAL TO POLICY-MAKING

1.1 ENSURE THE MONITORING AND MEASURING OF RESOURCES CONSUMED IN EUROPE, INCLUDING MEASURING LAND, WATER, CARBON AND MATERIAL FOOTPRINTS.

Natural resources are the basis of our societies, without which we could not live nor our economies function. Yet the EU does not measure the quantity of resources it uses, nor assess whether its policies improve resource efficiency. The price of materials increased by 135% in the first decade of the 21st century, energy by 190% and food by 135%, combined with rising price volatility¹⁶. The EU's consumption of raw materials continues to increase, with 20-30% of resources used in Europe imported in 2010¹⁷. Inefficient EU consumption and production is damaging ecosystems and human health far beyond Europe's borders, as the negative environmental and social impacts of resource extraction are displaced to other parts of the world: water depletion and contamination, biodiversity loss, community displacement, injuries and disease. Rising consumption means ever-higher demands on the planet, and greater competition for resources between countries, and between uses, for example, whether land is used for food, fuels or biodiversity.

The high environmental, social and economic costs of resource consumption mean that Europe must lead with an ambitious and equitable EU-wide strategy on resource use, starting by measuring the four footprints:

- **Land use**, in hectares, including land outside the EU used to produce imported products;
- **Materials**, in tonnes, including those used to make products that are imported into Europe;
- **Water use**, in litres, including water consumed outside the EU to produce imported products;
- **Greenhouse gas emissions**, in CO2 equivalent, including those emitted outside the EU to make products consumed in Europe¹⁸.

See Recommendations 1.2, 1.3 and 3.2 for ways the four footprints should be incorporated into other policy-making tools and areas. The case study boxes throughout illustrate the kinds of activities that would be encouraged by policies that account for, and seek to reduce, Europe's land, material, water and greenhouse gas footprints, such as borrowing shops and leasing models (see Boxes 1 and 3), re-use networks (see Box 6) and repair cafes (see Box 8).



BOX 1.

BORROWING SHOPS AND THE POWER OF SHARING

Sharing, leasing and borrowing models are the kinds of community-led, socio-economic activities that are not only more resource-efficient, but actively reduce resource consumption (see Box 3 on leasing models). Measuring resource use is the first step towards appreciating the value of natural resources, and to enabling models that more accurately reflect this to flourish more widely. The introduction of the four footprints, and particularly their use in legislative impact assessments and economic policy making, would set the foundation for creating policies that encourage projects like borrowing shops, re-use centres (see Box 6) and repair cafes (see Box 8). See Recommendations 1.1 and 1.2. Borrowing platforms help people to save money and connect with one another, avoid waste and save on resources, and change mind-sets by instilling the benefits of sharing within an economy, based on principles of mutual trust.

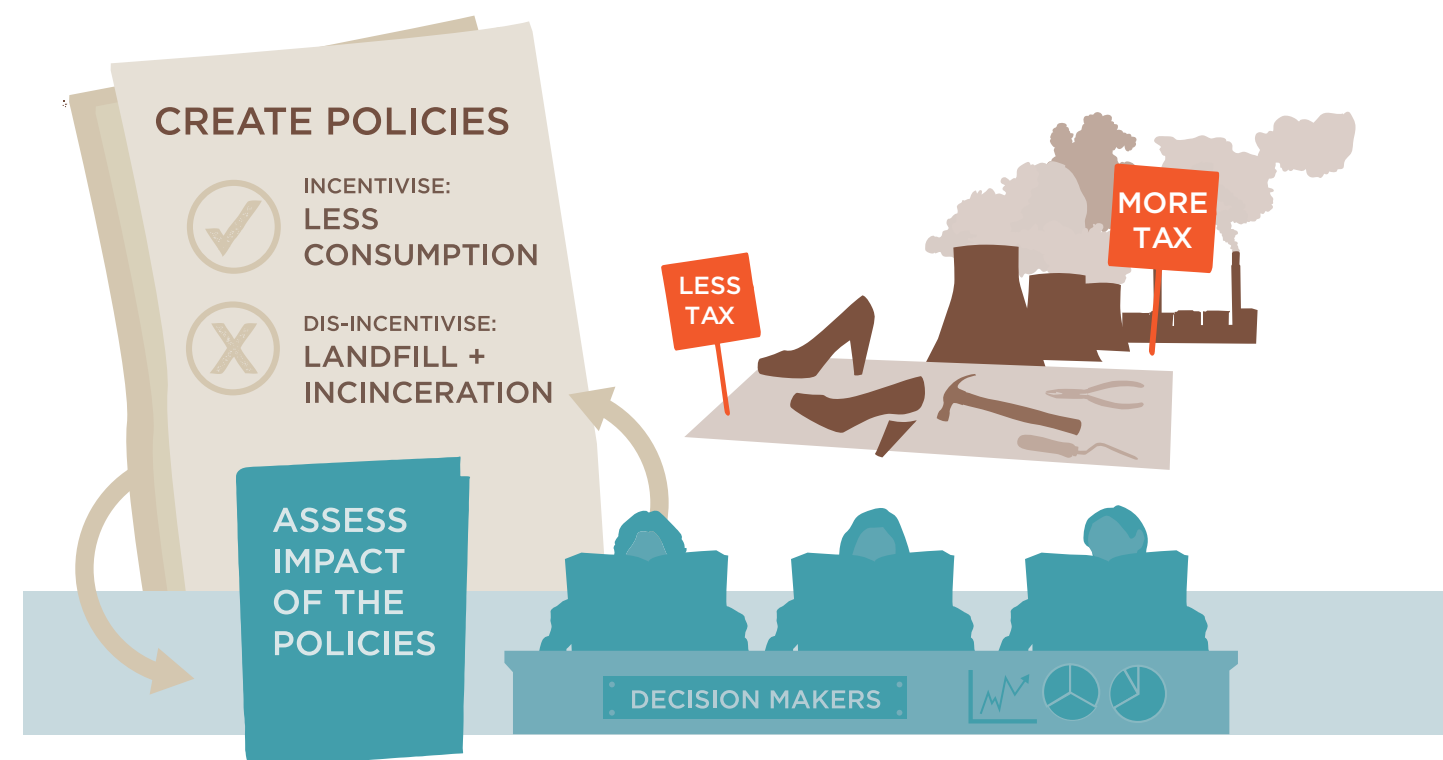
The Leila project is a community-run Berlin borrowing shop with around 750 members, set up in 2010. To become a member you simply donate an item, which can then be borrowed by other members – no contracts or money exchanged¹⁹. The most borrowed item is an electric drill, a product which over its lifetime is typically used for 13 minutes, when owned by one person²⁰ – clearly, borrowing rather than buying tools like this saves both money and resources. The range of around 800 items includes plates, cutlery, toys, removal boxes and household electrical appliances. In the first half of 2014, items were borrowed 2,300 times, and activities are increasing steadily²¹. Voluntarily run, the Leila project relies on small donations, which just cover the costs of renting the shop space. Attempts to secure money from local government have failed, showing a lack of public support for this kind of project – despite the EU commitment to prioritising the top of the waste hierarchy, prevention. Support across Europe is urgently needed for such initiatives, which have sprung up, but struggle to survive, elsewhere in Berlin, Kiel and Vienna.

Ecomodo is a web-based sharing project in London, a peer-to-peer lending network that seeks to satisfy “our occasional needs and desires through rental rather than ownership”, while benefiting the environment, citizens’ pockets and communities. Items being lent range from lawnmowers, tents and golf clubs to inflatable mattresses, digital projectors and tools. They can be lent for free or lenders can charge for an item, and choose whether to keep the fee or donate it to charity²². Ecomodo is a social enterprise, meeting social and environmental needs, but it, and projects like it, remain relatively small in scale and limited in reach. Projects encouraging sharing and common ownership need public support to scale up and reach out. The EU has a clearly needed role to ensure a level playing field of financial and policy support across EU member states²³.

1.2 ASSESS WHETHER POLICIES IMPROVE EUROPE’S RESOURCE EFFICIENCY

Despite the objectives of the Resource Efficiency Roadmap, policies contradicting the goal of a resource efficient economy continue to be introduced and implemented. To counteract this, land, carbon, water and material footprints should be a central part of impact assessments. Currently, impact assessments, which are carried out by the European Commission on legislative proposals, often allow short-term economic considerations to trump longer-term environmental and social issues. There is a worrying trend, being pushed for by big business lobbies, towards entrenching this bias further²⁴.

Friends of the Earth Europe has expressed concern about the Junker Commission’s announced changes to their Impact Assessment Board, transitioning it into a Regulatory Scrutiny Board with external members. This concern is due to the risk of it becoming a “kill mechanism” for new environmental, health and safety legislation, and a body prone to industry lobbying²⁵. Rather than allowing impact assessments to become a tool for narrow, short-termist economic considerations, they should inform decision-makers about Europe’s resource consumption, how this is likely to be affected in future, and consequently, how dependent the EU is becoming on the availability and affordability of resources. Incorporating the four footprints into impact assessments will help to do this, and ensure that unintended negative consequences with regards to other resources are avoided. For example, setting biofuel targets solely on a carbon basis meant that associated increasing land use was not considered, creating unintended impacts that undermined the targets’ efficacy²⁶. To avoid similar pitfalls, waste policies must include an assessment of the impacts on Europe’s material, land, water and carbon footprints.





1.3 MONITOR MEMBER STATES' PERFORMANCE ON RESOURCE EFFICIENCY VIA THE EUROPEAN SEMESTER.

Member states need to measure their resource efficiency and levels of resource consumption, including through the four footprints, in order to be able to introduce policies that improve the current situation. Monitoring progress via the European Semester – which is currently overwhelmingly oriented on classic macro-economic considerations – would begin to provide a better overview of Europe's progress on resource use. The European Semester is the yearly cycle of coordination of economic and budgetary policies at EU level, and tool to implement the broader Europe2020 Strategy for “smart, sustainable and inclusive growth”. It begins with the Commission's Annual Growth Survey, which together with the Commission's country-specific recommendations, generally incorporates environmental goals in a very limited way, and mainly where they are seen to facilitate growth, economic or labour market recovery, rather than wider goals set out by Europe 2020, such as resource efficiency²⁷. The environmental issues covered mainly relate to climate and energy²⁸, while issues like biodiversity, resource efficiency, water and waste management are side-lined or absent.

The narrow focus of the European Semester to date must be broadened and “greened”, to better support resource efficiency objectives. A more holistic interpretation of the priority areas set out in the Annual Growth Survey is needed, with actions promoting the transition to a resource efficient, circular economy. The European Parliament's role in ensuring policy coherence between the European Semester and other EU strategic documents, like the Resource Efficiency Roadmap, must also be strengthened.

1.4 CREATE AN ECONOMIC FRAMEWORK THAT ENSURES RESOURCE EFFICIENCY PRACTICES MAKE ECONOMIC SENSE.

At the moment, our governments are subsidising activities that do not contribute to sustainability. For example, the fossil fuel sector receives up to \$2bn a year in exploration subsidies from Germany, Italy, France and the UK²⁹. The ten richest EU member states have subsidised fossil fuel production by at least €78 billion, 1999-2013³⁰. Urgent EU action is needed to reverse this kind of environmentally harmful subsidy, in order to create a framework that incentivises conservation of resources, prevention of waste, and re-use. Environmentally harmful subsidies drive inefficient use of natural resources: reform will facilitate resource efficiency gains and cost savings, help address negative environmental impacts, free up public money, and create incentives for eco-innovation³¹. Taxing environmental harms, like waste and pollution, instead of subsidising them, as is currently the case with waste incineration (see Recommendation 2.5), is another vital component of a resource efficient economy. In addition, Europe needs environmental tax reform which shifts the tax burden from labour to resource use, helping to promote labour intensive re-use and repair activities, and making consumption of new products less attractive.

The EU has a commitment both to phasing out environmentally harmful subsidies and to environmental tax reform, reconfirmed in the ‘Roadmap to a Resource Efficient Europe’. This roadmap is intended to deliver the resource efficiency flagship initiative of the Europe2020 strategy. It calls for all environmentally harmful subsidies to be phased out by 2020, plus a major shift from taxation of labour towards environmental taxation³². The roadmap's non-binding nature however, and the prioritisation of short-term economic recovery, means progress has been dismally slow. Nonetheless, the EU already has the commitment and the tools – including the European Semester – to make good on its intentions. It's time to turn them into a reality.

BOX 2.

THE ZERO WASTE MOVEMENT: CAPANNORI, ITALIAN PIONEER

“Zero waste” means designing and managing products and processes to reduce the volume and toxicity of waste and materials, and conserving and recovering all resources rather than burning or burying them. Implementing zero waste thus requires eliminating all discharges to land, water, or air that may be a threat to planetary, human, animal or plant health³³. The zero waste movement seeks to change public infrastructure and create green jobs so that waste prevention and sustainable resource use is embedded in policy and practice. Zero waste is also about cultural change, by engaging, educating and involving the community, so that they can learn by doing. The town of Capannori, Italy, illustrates how effective zero waste municipalities can be in practice.

Capannori's story began with a community-led struggle in 1997 against a waste incinerator proposal, seen as quick-fix solution to the country's growing waste problem³⁴. A handful of concerned locals, fearing the detrimental impacts to local people's health and the landscape, sought to raise local awareness and mobilise opposition. Following success in blocking the plans, they were tasked with finding an alternative. They chose to engage local citizens in waste reduction. In the following years, Capannori introduced door-to-door separated waste collection – together with early consultation and active public participation – and a “pay-as-you-throw” waste tariff (see Box 5). By 2010, 82% of waste was being separated at source, leaving just 18% residual waste for landfill. In the same year, a Zero Waste Research Centre was set up to look at how to this reduce further. Having identified coffee capsules and disposable nappies as common items in residual waste, Capannori encouraged coffee manufacturers to work on biodegradable or recyclable packaging, and introduced a subsidised washable nappy scheme for local parents.

In 2010, public canteens were supplied with composting facilities, and residents offered free home composters and training, together with a 10% reduction on their waste collection tariff as an incentive. A biogas plant is also planned. 2011 saw the creation of a re-use centre which collects clothes, furniture, electrical appliances, toys and other items for repair or re-use, which are then provided to those in need. The centre also offers training in upcycling skills like sewing, upholstery and wood work, helping to spread the values and practices of re-use further. The proactive, holistic approach of Capannori has changed the entire culture of waste and re-use in the town, reflected in the fact that between 2004 and 2012, the overall volume of waste generated per person fell by 39%. There continues to be a steady decline. Furthermore, the savings from no longer sending waste to expensive landfill sites, plus income from the sale of recyclable materials, amounted to over €2 million in 2009, which was reinvested into waste reduction infrastructure and 50 new local jobs.

The success of Capannori illustrates what can be done to reduce waste, increase re-use and recycling, and reduce reliance on harmful practices like landfill and incineration. But without legally binding policies and targets, across Europe, it will only ever be isolated examples – often depending on a few tireless and motivated leaders – that show us the Europe we could have become if the EU and national governments had done more to facilitate this transition. High levels of consumption and waste remain the norm across Europe, whilst costs of disposal do not reflect the priorities of the waste hierarchy. To create a more widespread cultural shift on waste, new policies and legal frameworks, particularly at European level, are required, including disincentives for incineration and landfill (see Recommendations 1.5, 2.2 and 2.5).

1.5 REMOVE SUBSIDIES FOR LANDFILL AND INCINERATION.

To create a truly circular economy, both landfill and incineration must be dis-incentivised, with the ultimate aim of phasing them out completely. At the moment, however, the EU continues to finance new incinerators through the structural and cohesion funds. Spending plans for EU funds in central and eastern European countries reveal that the waste hierarchy has been turned upside-down. For example, the Czech Republic's draft plans show an intention to allocate just 27% of funding for waste management to prevention, re-use and recycling together are, with the rest going to mechanical-biological treatment, biogas generation or incineration³⁵. Not only would this be contrary to EU commitments, it is cost ineffective – for the quantity of waste treated, incineration et al will cost the Czech Republic five times more than prevention, re-use and recycling activities³⁶.

There are several policy options that could help Europe move away from its landfill and incineration habit, the first being to increase taxes for their use, such as the UK's landfill tax³⁷. Unlike this example however, which, while effective at discouraging landfill, has also had the negative side-effect of boosting spending on new incinerators, effective taxation should cover both landfill and incineration, and actively promote activities further up the waste hierarchy. The Resource Efficiency Roadmap sets out the goal of zero waste incineration of recyclable products by 2020, but much more action is needed to achieve this. Creating waste management systems that avoid the use of incineration, as in the cases of zero waste municipalities like Capannori (see Boxes 2 and 5), is another viable way of doing so. With consistent and strong governmental support, well planned zero waste policies can make incineration and landfill obsolete. See also Recommendation 2.5.

1.6 PROMOTE LEASING AND OTHER ALTERNATIVE BUSINESS MODELS

These put the responsibility on the designer to create products that are durable, reusable, easily repairable and upgradable during their use phase, and which are recyclable or naturally decomposable at the end of their lifespan. Leasing models transform consumers into users. Manufacturers retain ownership and responsibility for a product during its life, and at the end of it they regain access to components that can be re-used, or recyclable materials that can substitute for virgin materials. Under this model, companies will need to consider not only the sale of a product, but also its return; they will have an economic interest in making their products more durable, easily repairable and upgradable, because their costs will be less when a product lasts for its entire leasing period. This means companies benefit from investing in ways to extend their products' lifespans, while the launch and marketing of new, ever-so slightly “better” products every year would be dis-incentivised. Providing economic incentives for leasing or other similar business models can prompt manufacturers to design sustainable products. See Box 3.

BOX 3.

THE LEASING MODEL: FROM JEANS TO DRILLS

Mud Jeans, a Dutch fair-trade and organic fashion label, has received considerable attention for its Lease a Jeans concept, initiated in 2013. Instead of customers purchasing a pair of jeans, they sign a 12 month lease and pay a refundable €20 deposit, followed by a €5 monthly lease payment. After 12 months, customers can either return the jeans (the fabric of which will be re-used), change them for a newer model, or keep them longer (and get a discount on the next pair, when they are returned). A free repair service is also included³⁸. Currently with over 1,500 leasers, Mud Jeans aims for one million users. Despite this apparent success, and the fulfillment of circular economy principles, the business has struggled to cover costs or make money, in its early years³⁹. Initiatives like this, and the leasing business model more generally, should be eligible for funding and other support from the EU, to enable them to flourish and become more widespread.

Clothing libraries are also emerging in Europe, with Sweden pioneering the idea. For example, Klädoteket in Malmö is a student-created association offering an “economical, luxurious and climate-smart way to use our collective resources”. It is free to borrow items of clothing for three weeks, with fees for late or damaged items⁴⁰. Clothes that are only required for short periods of time, such as maternity clothes, have also inspired clothing libraries. Various Maternity Clothes Libraries have been set up in the UK, mostly based on a small membership fee and low charges for hiring items, and set-up as part of non-profits or by and for communities⁴¹.

Tool libraries have also started to spring up around Europe – most DIY and power tools are used for a tiny amount of time, usually just minutes, per year – so leasing rather than owning them makes a lot of sense. R-Urban Wick Tool Library in East London is one of the first being set up in the UK, a not-for-profit, semi-mobile project that will use temporarily vacant urban sites, with a planned monthly donation of £7 for members. It will stock, lend and maintain tools, as well enable makers to exchange tools and expertise between themselves, recirculate used tools surplus from the construction industry, and provide a venue for workshops and skill-shares. Instrumentheek vzw is a tool-lending library in Kortrijk, Flanders; it has an annual registration fee of €20, for which members get access to around 100 tools. Volunteers get free access to its lending services⁴². Instrumentheek is flourishing partly thanks to local municipality grants, a situation that unfortunately remains the exception rather than the rule across Europe⁴³. EU action to facilitate and fund this kind of community-led project would help level the playing field for leasing and sharing projects across Europe.

However, as long as companies have a vested interest in selling more, and faster, as in the case of the global \$23.4 billion power-tool industry, manufacturers are unlikely to roll-out tool leasing schemes⁴⁴. Tool libraries are a way that communities are seeking to redress this, and should be supported, but there is also a need to create an economic framework that gives manufacturers an incentive to lease rather than sell products, and so to produce more durable goods.



RECOMMENDATION 2.

PRIORITISE THE TOP OF THE WASTE HIERARCHY

2.1 PROMOTE THE TOP OF THE WASTE HIERARCHY (SEE FIGURE 1).

At the moment, European legislation rewards member states and policies that concentrate on recycling, rather than prevention and re-use, which are the top of the waste hierarchy, and use less energy and materials than recycling. For example, while member states are required by the Waste Framework Directive, since the end of 2013, to have a waste prevention plan in place, the activities included in these do not have to be mandatory. Indeed, by the end of 2013, only 18 countries had adopted the legally required waste prevention programme. Many of these lacked quantitative targets and corresponding monitoring schemes, with the majority (60%) of policy instruments concerned with information and awareness-raising, with regulatory or economic policy instruments far less frequent (17% and 16% respectively)⁴⁵.

Much more needs to be done to bridge the gap between goals and results, including mandatory and monitored policy instruments that actively promote the top of the waste hierarchy. For example, economic or policy incentives for repair cafes (see Box 9), borrowing shops and leasing models (see Boxes 1 and 3), re-use initiatives (see Boxes 1 and 6), packaging reduction (see Box 4) community composting (see Box 7), zero waste municipalities and “pay-as-you-throw” schemes (see Boxes 2 and 5).

2.2 WASTE PREVENTION POLICIES SUCH AS PAY AS YOU THROW (PAYT) SCHEMES SHOULD BE PROMOTED THROUGH EU WASTE POLICY.

Pay-as-you-throw schemes require citizens that generate more residual waste to pay more than those who generate less. In order to incentivise the separation of waste for collection, different charges apply to different types of waste. Pay-as-you-throw systems are incentive driven, rewarding those who generate less, and have been shown to be successful at reducing waste in regions and localities dotted across Europe (see Box 5). To enable them to become the norm, however, EU waste policy must promote the introduction of pay-as-you-throw schemes more widely.



BOX 4.

WASTE PREVENTION THROUGH PACKAGING REDUCTION

EcoScience is a programme in Provence, France, which works with retailers to reduce waste by reusing packaging and avoiding plastic bags. Started in 2006, there are now 80 shops participating, in which around 50,000 people living in the area shop. 260,000 bags have been made obsolete every year since 2012, and the programme has now been extended to other municipalities. The project included a re-use system of glass bottles with four wine makers – reusing a wine bottle costs €0.16 (for logistics and washing) compared to €0.30 for a new bottle. In 2013, Ecoscience began working with a food market to avoid sending cardboard and wood to landfill, successful sorting all wood and card waste (40% of total waste from the market) and resulting in 500kg being recycled every week⁴⁶.

BOX 5:

PAY AS YOU THROW (PAYT) SCHEMES

The Belgian region of Flanders is a thriving example of how pay-as-you-throw schemes reduce waste. In Flanders, the collection of general residual waste is the most expensive, followed by biodegradable household waste (to stimulate home composting), whilst the lowest charges apply to plastic bottles, cartons and metal packaging. The collection of separated paper and cardboard, container glass and textiles is free. Flanders’ pay-as-you-throw scheme has had an enormous impact on residual waste generation, helping the region surpass a target for 2015 of 150kg of residual waste generation per person per year, six years early, in 2009. Today, 42 Flemish municipalities generate less than 100kg residual waste per person per year, with six generating less than 80kg⁴⁷. Benefits have included significantly increasing available recyclable materials (and revenue from their sale), reducing imports of primary resources, cutting costs for municipalities, and reducing greenhouse gas emissions, air pollution (nitrogen oxides and sulphur oxides) and soil pollution (heavy metals) in Flanders⁴⁸.

Argentona, Catalonia, a municipality that had pursued zero waste policies (see Box 2) for a number of years (e.g. door-to-door separated collection, including of food waste; composting incentives; textile collection and re-use, etc), successfully doubling its recycling rates, introduced a pay-as-you-throw scheme in 2009. By rewarding or penalising households according to their waste levels, and therefore creating a fairer and more incentive-driven approach, this helped to further reduce Argentona’s residual waste by at least 15%. Income from the pay-as-you-throw system also helps to fund Argentona’s other zero waste policies. (See Recommendation 2.2)



2.3 SUPPORT AND PRIORITISE RE-USE AND REPAIR.

National re-use and repair activities need recognition and support from within member states; without European legislation, this relies on the varying – and often limited – willingness of national governments. Yet re-use has broad social value: it is labour intensive as it involves collection, sorting, testing, refurbishment and reselling, and therefore creates jobs. For example, in a conservative estimate, it has been projected that a combination of intense re-use and 70% recycling would create enough employment to put 1 in 6 of Europe's currently unemployed youth back into work – the equivalent of creating nearly 900,000 jobs⁴⁹. Furthermore, social enterprises, which often work in re-use, also provide opportunities for retraining or new skill acquisition for those marginalised in the labour market, such as the long-term unemployed or workers with disabilities. In addition, goods and services are provided at affordable prices to low income groups, as, for example, demonstrated by the UK's Furniture Reuse Network and London Reuse Network (see Box 6). Re-use activities also help to conserve resources, protect the environment and meet emission reduction goals. For example, achieving 35% re-use/preparation for re-use of textiles in Europe by 2030 has been estimated as equivalent to saving at least 16 million tonnes of carbon dioxide equivalent, and avoiding at least 14 million litres of water usage, equivalent to a week's worth of daily water usage by almost 30,000 people⁵⁰.

One obstacle to re-use activities is that despite the significant amounts of reusable products and materials entering the waste stream – for example, in Ireland, at least one third of the waste stream has re-use potential – there is a lack of legislative support for the establishment and development of re-use centres active in preparation for re-use⁵¹. Those that do exist often struggle to gain access to the waste stream, in order to sort out potentially re-usable goods and materials. A stronger policy framework for the re-use sector should include:

- **setting re-use targets, particularly sector specific preparation for re-use targets (e.g. for furniture, textiles).** Where appropriate, these could use a percentage-based approach to reflect the different baseline scenarios in different member states;
- **improved access for approved re-use centres and networks to the waste handled by operators of waste collection schemes, centres and facilities;**
- **improved waste collection infrastructure, so that potentially re-usable products avoid premature recycling or disposal.** End-users of products must be given the option of placing their re-usable goods in specially designated areas at collection points, which are available exclusively to personnel from approved re-use centres and networks. This allows citizens to actively and consciously contribute to the re-use sector, helping to change mindsets;
- **organisations from the social economy sector exclusively managing, or be given priority to manage, approved re-use centres, thereby helping to meet the inclusive as well as sustainable economy goals in the EU2020 strategy;**
- **the promotion of broad social value of re-use activities carried out by social enterprises through social clauses in public tendering, such as in the new Public Procurement Directive⁵²;**
- **other policy levers, such as lower VAT for re-use activities.** The European VAT Directive (2006/112/EC) allows labour intensive services to be subject to lower VAT, which should be applicable to re-use and repair services⁵³.

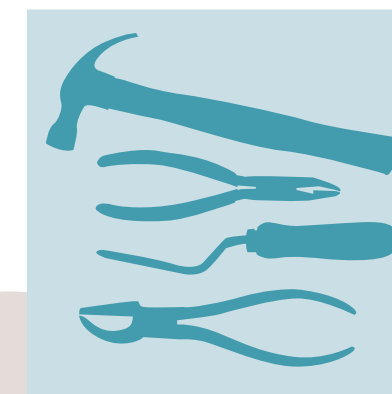
BOX 6.

RE-USE AROUND EUROPE: SPOTLIGHT ON BRITAIN

Social enterprises are active in re-use, repair and recycling initiatives across the EU, with many also participating in EU-wide networks like the RREUSE platform, based in Belgium. RREUSE's members represent 77,000 workers and 60,000 volunteers/trainees in 15 member states⁵⁴. The social, economic and environmental benefits they create are illustrated by the following UK examples.

The Furniture Re-use Network (FRN) was established in the UK in the 1980s by voluntary and charitable organisations to help people living in low-income households gain access to donated furniture and household appliances. It now supports over 300 re-use charities across the UK, to help relieve poverty and reduce waste. According to FRN, the re-use sector in the UK employs around 4,000 staff, supports 20,000 volunteers, saves over 380,000 tonnes of CO₂, diverts 110,000 tonnes of waste from landfill, re-uses 2.7 million items of furniture and electrical equipment and saves low-income households around £340 million on essential goods every year⁵⁵. At the moment, however, only 17% of furniture in the UK is re-used. If the rest was also re-used, 130,000 tonnes of CO₂ would be saved annually – equivalent to taking 40,000 cars off the roads⁵⁶.

The London Re-use Network, comprised of charities, social enterprises and non-profits, is the UK's first city-wide re-use and repair service⁵⁷. Every year Londoners discard 65,000 tonnes of waste, with high costs for the environment, through incineration and landfill, and to citizens through council bills – it costs around £120 per tonne to send waste to landfill⁵⁸. In order to help deal with this waste problem, in 2010 the London Re-use Network was created following allocation of £8 million in funding from the London Waste and Recycling Board⁵⁹. It provides an integrated network of re-use and repair facilities, with a single telephone hotline and web portal, which collects unwanted furniture, appliances and household items, checks them for quality and safety, before refurbishing them and passing them on to new homes. In its first two years, the network collected 8,148 tonnes of unwanted items, 41% more than its target, and supported the re-use and recycling of 6,706 tonnes, almost double its target⁶⁰. 60 local jobs were created along with over 450 work placements, and many lower income families were able to save money when furnishing their homes. This success shows what can be done with a little public support, but to be replicated and built upon across Europe, greater and systematic government support from member states, with the EU in a coordinating role, is needed.



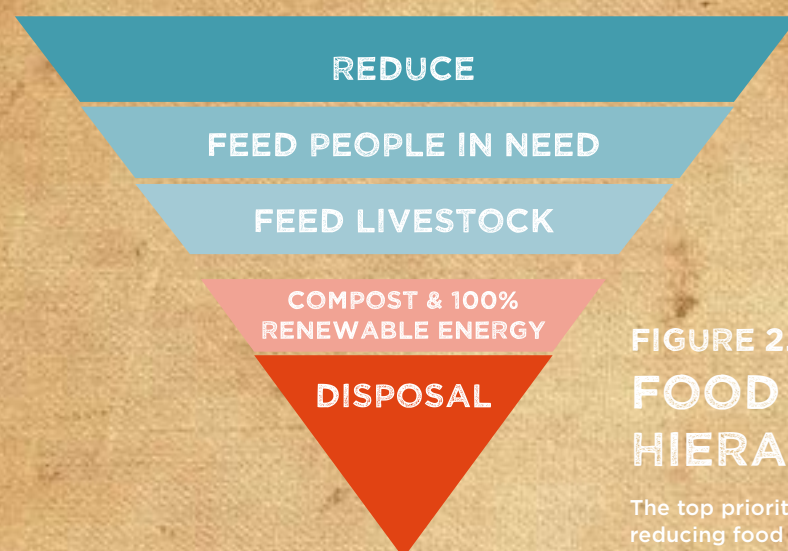


FIGURE 2.
FOOD WASTE
HIERARCHY

The top priority in the food waste hierarchy is reducing food waste, followed by redistributing edible food to people in need and vulnerable groups. Food not fit for human consumption should be used as animal feed (taking into account appropriate health and safety measures), after which come uses such as composting and energy generation, specifically anaerobic digestion, followed finally, and as a last resort, by disposal.

2.4 CREATE A FRAMEWORK FOR FOOD-WASTE.

Food waste is a big problem in Europe, with an estimated 100 million tonnes of food wasted annually⁶¹, while a growing number of Europeans find themselves unable to afford sufficient food. According to the Red Cross, the number of people depending on food distributions such as food banks rose by 75% between 2009 and 2012, to 3.6 million citizens across 22 European countries⁶². Despite the high land, water and carbon footprint of agricultural production, the issue of food waste is not tackled by European waste legislation. A framework on food-waste should be established, following the food waste hierarchy, prioritising first the reduction of waste and second the redistribution to those in need (see Figure 2). The framework should include minimum targets for the separate collection of organic waste, organic waste prevention and recycling⁶³.

With large numbers of people going hungry in Europe at the same time as vast quantities of food fit for consumption is wasted, destroyed and sent to landfill, both reduction in food waste and a more equitable distribution of surplus food are needed. EU-level policy tools are required to reduce food waste throughout the supply chains of large food retailers and manufacturers, such as:

- **binding targets to redistribute an increasing proportion of surplus food, for example to food assistance providers and voluntary organisations such as food banks;**
- **phasing out “best-before” dates (which create confusion and encourage waste of food that is safe to consume and legal to distribute) on food packaging, replacing with “use-by” dates⁶⁴;**
- **stricter rules on marketing schemes that encourage food waste, such as “buy one get one free”, “three for two”, etc on perishable food items;**
- **providing incentives for the harvesting of farm crops that are rejected by retailers because of their aesthetic appearance, and donation to vulnerable groups and charitable organisations⁶⁵.**

Other areas, such as the agricultural and hospitality sectors, as well as households, also require attention, and there are numerous policy options to be considered. The benefits of an ambitious framework on food waste are enormous – a 60% reduction in food waste by 2030 could reduce Europe’s land-use burden by an area bigger than Croatia, generate financial savings to European householders of over €73 billion, and avoid greenhouse gas emissions equivalent to over 80 million tonnes of carbon dioxide⁶⁶.

BOX 7.

COMMUNITY-LEVEL COMPOSTING

The non-profit Food for the Earth, based in Sofia, Bulgaria, is a community association that supports neighbourhood composting. It aims to give everyone access to a composting service, taking food waste and using natural composting techniques to create nutritious soil for local gardens⁶⁷. Raising citizens’ environmental awareness is a central goal for Food for the Earth⁶⁸. Community composting initiatives such as this are growing in popularity around Europe. For example, in the Basque Country, 2014 saw 700 new families introduced to a scheme to do composting at home or collectively⁶⁹. Spain also has a network of municipalities, ‘Composta en Red’, committed to promoting and implementing composting practices, exchanging resources and providing training to interested municipalities⁷⁰. In the UK, the Community Composting Network (CCN) supports and promotes community groups, social enterprises and individuals that produce compost from green/food waste and use it in their local communities⁷¹. These vary from small-scale neighbourhood composting and community supported agriculture projects to examples like the social enterprise Fairfield, which operates onsite composting at a wholesale food market in Manchester⁷².

There are, however, still major challenges and disincentives to the spread of community composting. Bad infrastructure planning and perverse incentives in public funds, grants and disposal taxes mean that composting is often not cost-competitive with other disposal options, despite it being higher up the waste hierarchy than incineration or landfill, and its positive effects on depleted soils and storing carbon. There is a clear role for the EU to ensure such barriers are removed, including minimum separate collection targets for organic waste (see Recommendation 2.4).

2.5 REWARD ENERGY SAVINGS FROM WASTE REDUCTION, RE-USE AND RECYCLING, NOT POLLUTING ENERGY GENERATION FROM WASTE INCINERATION

Currently, EU legislation offers premiums for renewable energy from burning paper but no premium for recycling it. The EU in turn has included burning biogenic waste (i.e. paper, cardboard, food waste, textiles, etc) as a form of renewable energy in the Renewable Energy Directive (2009/28/EC). This has resulted in perverse subsidies for harmful incineration, which conflict with the Waste Framework Directive's commitment to the waste hierarchy, and therefore the preference for prevention, re-use and recycling over incineration. As a result, incineration receives tens of millions of annual subsidies under the guise of "renewable energy", from Flanders and France to Spain and Italy, creating higher greenhouse gas emissions than alternatives higher up the waste hierarchy⁷³.

Using waste as an alternative to fossil fuels has high environmental, social and economic costs: burning waste emits more greenhouse gas than coal per unit of electricity produced, and generates hazardous waste and highly toxic emissions. Local communities suffer from crop loss, respiratory and skin diseases, fertility and mental health issues. It also requires vast sums of money for large infrastructure, whilst creating relatively few jobs⁷⁴. The benefits of waste avoidance, re-use and recycling on the other hand are manifold: additional energy (and associated emissions) is saved in the manufacturing process itself, because recycled materials generally require less energy to be turned back into products⁷⁵. Recycling can save three to five times as much energy as incineration produces by burning⁷⁶. Studies show that for 24 out of 25 solid waste materials, recycling saves more energy than is generated by incinerating mixed solid waste in a combustion facility⁷⁷. For example:

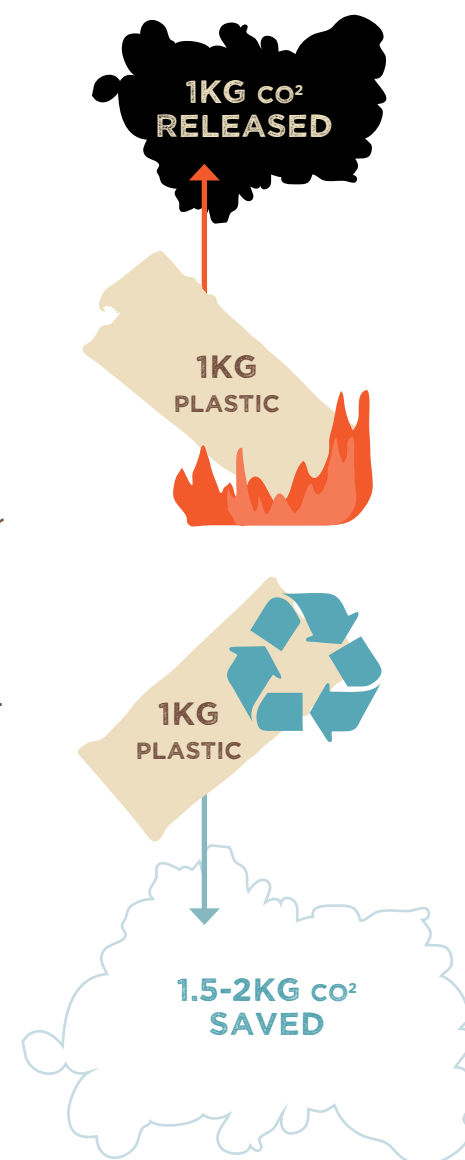
- for every 1kg of plastic recycled, 1.5kg to 2kg CO₂ equivalent is saved – if it is burned, around 1kg CO₂ equivalent is released into the atmosphere⁷⁸;
- for every 1kg of plastic recycled, 5kWh of delivered energy could be saved, compared to only 2kWh generated through combustion⁷⁹.

All premiums and incentives for waste incineration, which create a serious market distortion that damages the environment, climate and people's health, should be removed. The energy savings from prevention, preparation for re-use and recycling should instead be eligible for premiums – this also ties in with EU energy savings goals. The only kind of renewable energy from waste that should receive support is the treatment of organic waste in anaerobic digestion technology or composting plants, and this should only be the case after all higher levels of the waste hierarchy have been prioritised.

Another logical consequence of the EU's commitment to the waste hierarchy is that it should not allow the purchasing of carbon credits, known as Certified Emission Reductions, which have been generated by projects such as landfill gas systems and waste incinerators, under Clean Development Mechanism (CDM) Municipal Solid Waste projects⁸⁰. Such projects are at the bottom of the Waste Hierarchy, and increase greenhouse gas emissions vis-a-vis the energy savings from reduction, re-use and recycling.

REWARD ENERGY SAVINGS

- ★ WASTE PREVENTION
- ★ RE-USE
- ★ RECYCLING
- X INCINERATION



RECOMMENDATION 3.

PROMOTE PREPARATION FOR RE-USE AND DURABLE, REPAIRABLE PRODUCTS

Preparation for re-use refers to checking, cleaning or repairing products or components of products so that they will be used again⁸¹. For example industrial machinery, clothes, electronic and electrical equipment and furniture can be repaired or refurbished and then sold on. Preparation for re-use comes above recycling in the waste hierarchy, and should be an essential part of our economy: it creates jobs in repairing and refurbishing waste, reduces resource use and carbon emissions, with the potential to generate billions of euro in sustainable economic opportunities and saved revenue⁸².

BOX 8.

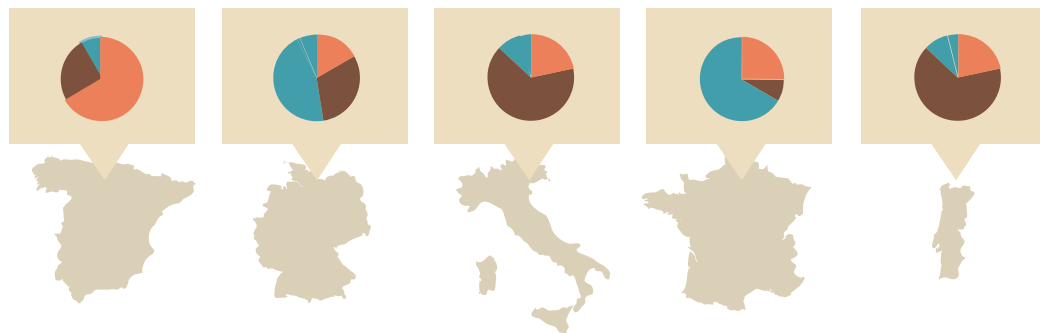
REPAIR CAFE

All too often in Europe, people throw away broken items without even trying to repair them; it is often easier and cheaper to do so. This is one of the rationales behind 'Repair Cafe' – to make repairing more accessible, easy and fun. Repair Cafes combine community-led repair with a cafe setting, rather than a workshop. They bring together people – especially those at the margins of society, the elderly, unemployed, retired and those with disabilities – who have tools, skills and time that they wish to put to good use within their community. Repair Cafes thus meet both environmental and social needs.

First pioneered in Amsterdam in 2009, the popularity of Repair Cafe meant it soon became a weekly or monthly event, before growing into a countrywide network, with a common name and logo. Eventually securing funding, including a 3-year grant from the Dutch Ministry of Infrastructure, a Repair Cafe manual and starter-kit was created. By 2011, there were 23 Repair Cafes in the Netherlands, 50 by 2012, and by June 2014, 230. The tangible environmental and social benefits of Repair Cafes has led to their spread, with now more than 500 across the globe, including 130 in Belgium, 100 in Germany and others in the UK, France, Canada, the US, Brazil and Australia.

Most items repaired at Repair Cafes are relatively new household electrical items (i.e. one or two years old). On the one hand, this results from the cheap mass production of poor quality goods, and on the other, is a response to professional repair costs that exceed the cost of the original products. Repair Cafes provide a free service, which for many people is the only way that these items could continue to be used. While there is no data on the total environmental benefits from the mending of goods that would otherwise have become waste, it is estimated that 70% of items brought to Repair Cafes are fixed, while the events themselves boost community cohesion.

Despite their wide appeal and many benefits, the success of Repair Cafes is at a crossroads: the weight of the network infrastructure rests heavily on the few part-time staff seeking to maintain their momentum. This highlights the problem that national and EU policies and funding are not providing enough support for these community-led initiatives. European legislation and funding should facilitate the creation and spread of Repair Cafes and similar initiatives, supporting communities to provide sustainable solutions in our wasteful consumer societies⁸³. See Recommendations 2.1, 2.3, 3.3 and 3.4.



3.1 IMPROVE WASTE REPORTING, PARTICULARLY REPORTING OF PREPARATION FOR RE-USE, AND RE-USE

The framework for member states' waste and recycling reporting is problematic in numerous ways, including ambiguous definitions and four different possible calculation methods for reporting recycling levels. This leads to the submission of data that vary in quality and are incomparable⁸⁴. EU waste reporting, as well as monitoring and valuation of reports, needs, in general, to be improved and strengthened⁸⁵. One particular issue we wish to highlight is the reporting of preparation for re-use. Despite its commitment to the waste hierarchy, EU waste legislation favours recycling over prevention and preparation for re-use. By combining 'preparation for re-use' and recycling targets, there is no incentive to improve preparation for re-use rates. Although Eurostat does allow member states to separately report recycling and preparation for re-use, very few countries do so, due to this lack of incentive. This is a flaw that needs to be rectified through clear and separate targets for re-use, preparation for re-use and recycling. This would furthermore help to guarantee re-use centers access to the waste stream, as well incentivise improved separated waste collection and logistics so as to ensure that re-use potential is preserved.

It should also be noted that insufficiently refined recycling targets may inadvertently crowd out prevention and re-use, as material is directed away from re-use and into recycling in order to deliver weight based targets⁸⁶. This is another area that requires attention and reform.

3.2 ECO-DESIGN CRITERIA AND IMPLEMENTING MEASURES SHOULD GO BEYOND THE ENERGY EFFICIENCY OF PRODUCTS TO INCLUDE RESOURCE EFFICIENCY

Revision of the Ecodesign Directive⁸⁷ is an important way to strengthen the links between energy and resource efficiency. Ecodesign requirements should not only address energy savings, but meet consumer expectations about the durability (see Recommendation 3.5) and repairability of products, for example by setting mandatory minimum requirements on product groups. This would have clear benefits for consumers and the environment, through greater product durability and prevention of waste. The rationale for this already exists in the directive and its annexes, which establish that the overall improvement of environmental performance of a product, from a lifecycle perspective, should be addressed – i.e. it is not exclusively focused on energy efficiency.

The information requirements in the Ecodesign regulations should furthermore be built upon to enable downstream users and recyclers to maximise maintenance, repair and re-use, re-manufacturing or recycling of key components or materials embedded in products. Fully incorporating resource efficiency into the Ecodesign Directive would be facilitated by integrating the four footprints (see Recommendation 1.1) into Ecodesign requirements. A product's material, water, land and carbon footprint could then be conveyed to consumers via a revised energy label, through appropriate revision to the Energy Labelling Directive⁸⁸.

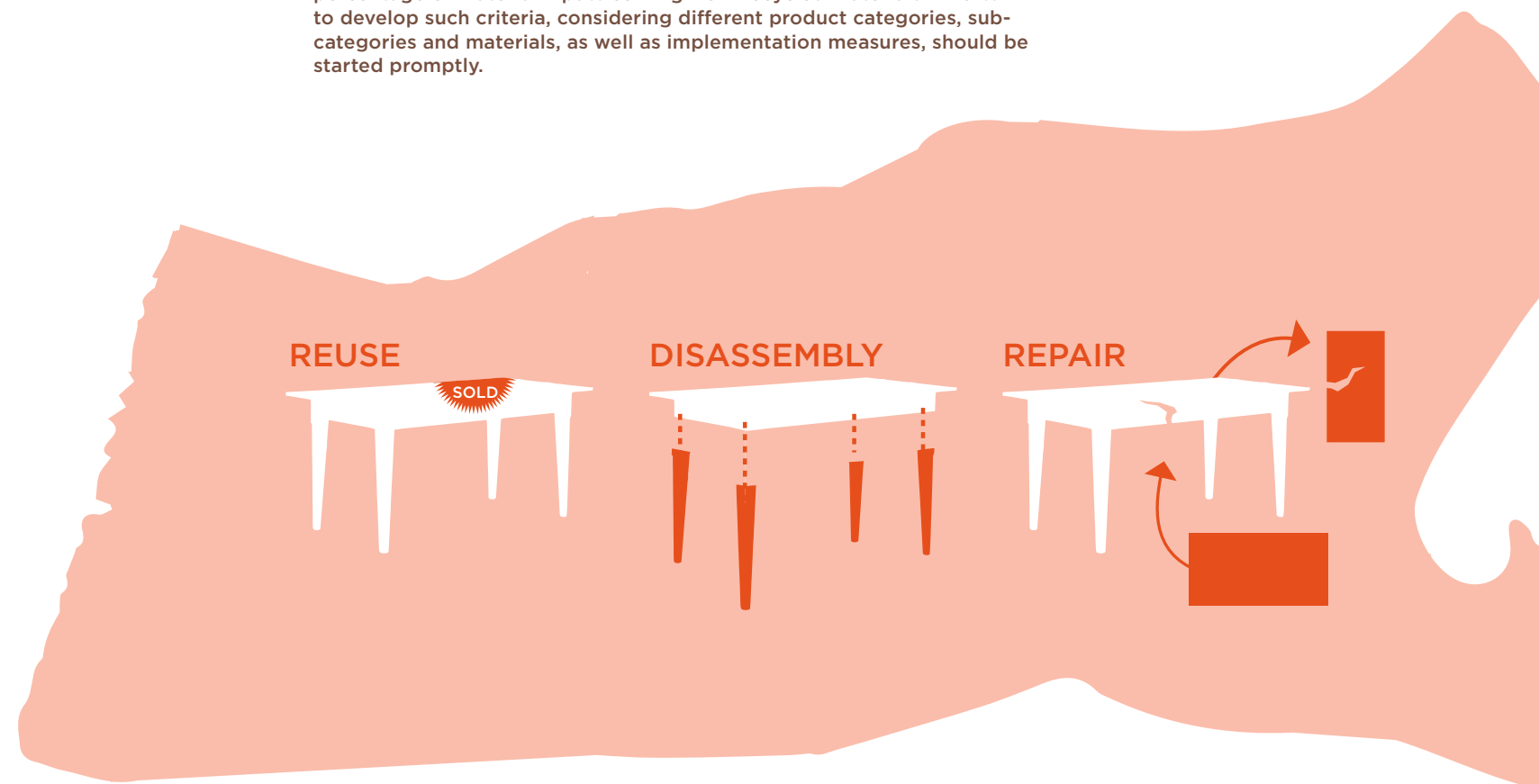


It should also be noted, with respect to incorporating resource efficiency into electrical and electronic products, that significant revisions to, followed by much better implementation of, the Waste Electrical and Electronic Equipment Directive (WEEE Directive) are needed. The value of WEEE should not be underestimated: it has been calculated that around one quarter of WEEE brought to collection centers in the UK has a reuse value, which together could be worth over £200 million in gross revenue each year⁸⁹. But in order to achieve this kind of WEEE reuse, the perverse incentives in the current Directive must be removed⁹⁰. This must be combined with efforts to increase the collection and repair of short-lived electronic products, to guarantee that products are made to last longer (see Recommendation 3.5), and to ensure greater consistency with the Ecodesign Directive⁹¹.

3.3 ESTABLISH CRITERIA FOR PRODUCTS SO THAT THEY ARE CAN BE SAFELY DISASSEMBLED, REPAIRED, RE-USED OR RECYCLED AND ARE BUILT WITH INPUTS THAT DO NOT COME FROM RAW MATERIALS BUT FROM AN INCREASING PERCENTAGE OF RECYCLED MATERIALS

Regulations or incentives to reduce waste of manufactured products – often due to obsolescence being built into their design – should be introduced at EU level, which require product design to encourage lifetime extension (including product re-use and repair), refurbishment, recovery of components for re-use, recovery of materials for recycling, and the reduction of power consumption throughout the whole product life cycle⁹².

This could in part be achieved through an ambitious recast of the Ecodesign Directive and the WEEE Directive (see Recommendation 3.2), as well as the Directive on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS Directive). The restriction on the use of hazardous substances is an avenue through which limits on a wider range of rare or toxic materials used in devices could be implemented, as well as the introduction of targets for a percentage of material inputs coming from recycled materials. Efforts to develop such criteria, considering different product categories, sub-categories and materials, as well as implementation measures, should be started promptly.



BOX 9.

IFIXIT: EXERCISING THE RIGHT TO REPAIR

iFixit is the primary source of technical information to support the repair of electronic devices and consumer gadgets around the world. Run from California and Stuttgart, iFixit sees prevention, re-use and repair as preferable to recycling, and produces free online repair guides, encourages a collaborative community to contribute to gadget repair manuals, and sells spare parts. 3.5 million people visit iFixit's website monthly – in 2013, over 5 million visits came from the UK and 2.5 million from Germany. European web traffic amounts to about 30% of all visits globally⁹³. Because we use far too many finite resources to make short-lived electronic products, repairing these products saves people money and helps protect the environment by reducing e-waste⁹⁴. Repair initiatives, like Repair Cafes (see Box 8), which often use iFixit manuals, also create local jobs and economic activity. More fundamentally, they question the premise on which our throwaway economies are built.

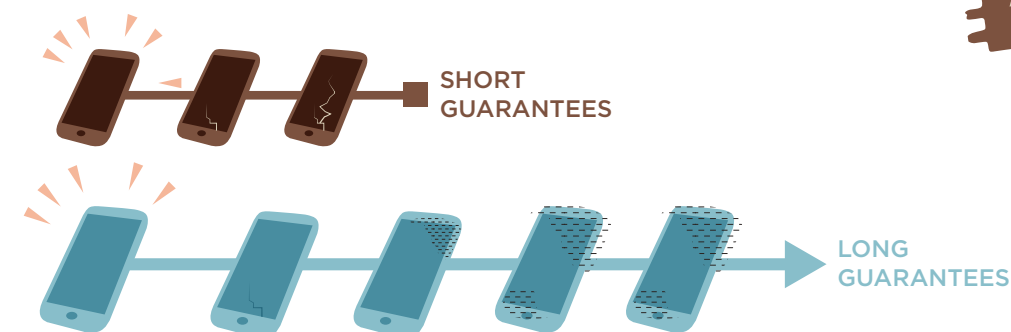
Nonetheless, even as iFixit and other organisations make translated repair guides available online, ever more electronic goods flood onto the market, aided by advertising appealing to consumption-based values. Almost all mobile phones require destructive mining for components, are designed with planned obsolescence in mind (e.g. non-removable batteries), rely on cheap labour for their manufacturing, and end up in landfill or incinerators. iFixit is collaborating with Dutch manufacturer Fairphone in an attempt to redress this, including repair manuals with every Fairphone and facilitating a network of independent repair centres⁹⁵. But the general trend remains overwhelmingly negative.

Europe's over-consumption is exhausting raw materials, but movements to maintain and repair products, including electronic goods, are facing increasing difficulties. Wasting resources, materials and energy harms our economy, society and environment⁹⁶. The EU needs to do much more to remove the barriers to creating a circular economy, one which ensures durable products are produced and can be salvaged, fixed and re-used. This requires economic incentives for extending the lifespan of manufactured goods. This could be requiring product designers to provide access to service manuals and troubleshooting information as well as ensuring that parts and tools to repair and refurbish products are as freely and widely available as the products themselves. See Recommendations 1.1, 1.6 and 3.2 to 3.4.

3.4 REQUIRE MANUFACTURERS TO PROVIDE FULL AND DETAILED REPAIR MANUALS

The inclusion of repair manuals with products would enable consumers to either repair them or take them to repair shops. Despite token requirements in the WEEE directive for the sharing of information, these regulations have been ineffective and are not ensuring that manufacturers and distributors are obliged to publish repair manuals⁹⁷. In addition, access to products' spare parts is needed, so that the products can be repaired even if the product is no longer manufactured. Europe needs to move towards giving recyclers and repairers access to the same service manual that manufacturers use. Open source service manuals create product transparency and allow designers to incorporate dis-assembly⁹⁸, repairability, upgradability and longevity into their designs⁹⁹. Making better use of, and expanding, the information requirements in the Ecodesign Directive is another avenue to be explored (see Recommendation 3.2).

Both the growing Repair Cafe (see Box 9) and iFixit (see Box 10) movements encourage decision-makers to recognise the need for repairable products. Ultimately, however, these movements do not wish remain at the end of the production chain repairing waste that should not have been produced in the first place. Policy-makers should create conditions conducive to the manufacturing of durable, high-quality products that are not designed to quickly become obsolete (see e.g. Recommendations 1.6, 3.2, 3.3 and 3.5).



3.5 INCREASE THE MINIMUM PERIOD OF PRODUCT GUARANTEES

Currently, EU law requires consumer products to have a two year legal guarantee, within which the trader is liable to remedy any defect. The product must be repaired or replaced free of charge, or a refund or reduction in price given. After only six months of this two-year period however, the burden shifts to the consumer to prove that the product is faulty or not as advertised, and that the defect existed at the time of purchase¹⁰⁰. The result of such a short minimum guarantee, and the shift in burden of proof, is that many manufacturers design and make products with the intention that after two years (or even six months) they will break, or cease to function properly. This is known as planned obsolescence.

Requiring manufacturers to provide significantly longer guarantees would ensure that they produce much more durable goods, as well as being an achievable and low cost policy intervention. For example, the legal period of guarantee for consumer electronic products, should be extended from two years to ten¹⁰¹. This would ensure that their manufacturers design longer-lasting, repairable products, as well as encouraging designs that can be easily maintained or modular-based, where components can be replaced or upgraded, rather than the entire device being replaced (see Box 9). This simple regulatory change would also help change mindsets and encourage innovation that promotes sustainability.

As well as increasing the minimum guarantee period under EU law, complementary measures such as restricting the marketing of irreparable products and requiring manufacturers to make replacement parts available at reasonable cost throughout a product's lifetime (see Recommendation 3.4) should be pursued¹⁰².



CONCLUSION

When it comes to creating a resource-efficient economy, the EU must do much more to bridge the gap between words and actions. Scrapping the Circular Economy Package is a dangerous step in the wrong direction for Europe, threatening the commitment, and indeed imperative, to create a low-carbon, circular and resource-efficient economy. When tackling resource and waste policy, Europe needs to move beyond a narrow conception of waste management, to understanding the value of resources in a resource-constrained world. This means recognising that we consume too much, and are pushing our planet beyond the boundaries within which it can support us.

In light of this, the case studies in this briefing show how communities across Europe are starting to lead the transformation to a Europe that consumes less, and consumes better. Without changes to EU legislation however, these best-practices can only remain marginal and localised. The EU must use the economic and policy tools at its disposal to facilitate these kinds of local, sustainable initiatives, boosting economies in a way that has clear social and environmental co-benefits.

FOOTNOTES

1. The Circular Economy Package consists of the revision of six Directives on waste, packaging, landfill, end of life vehicles, batteries and accumulators, and waste electronic equipment. European Commission, Circular Economy Package, <http://ec.europa.eu/environment/circular-economy/>

2. European Commission, Impact Assessment of the Proposal for reviewing the European waste management targets, ec.europa.eu/environment/waste/pdf/target_review/ImpactAssessment.zip and Executive Summary <http://eur-lex.europa.eu/legal-content/EN/TXT/PDF/?uri=CELEX:52014SC0208&from=EN>

3. European Commission, Implementing EU Waste Legislation for Green Growth Final Report, DG ENV, 29 November 2011, <http://ec.europa.eu/environment/waste/studies/pdf/study%2012%20FINAL%20REPORT.pdf>

4. European Commission, Implementing EU Waste Legislation for Green Growth Final Report, DG ENV, 29 November 2011, <http://ec.europa.eu/environment/waste/studies/pdf/study%2012%20FINAL%20REPORT.pdf>

5. Euractiv, Circular Economy package to be ditched and re-tabled, <http://www.euractiv.com/sections/sustainable-dev/circular-economy-package-be-ditched-and-re-tabled-310866> and Council of Ministers signals support for threatened Circular Economy package, <http://www.euractiv.com/sections/sustainable-dev/council-ministers-signals-support-threatened-circular-economy-package>, 16 December 2014

Edie Newsroom, European Commission scraps Circular Economy Package, 'more ambitious' proposal awaits,16 December 2014, <http://www.edie.net/news/5/Circular-Economy-Package-European-Commission-2015-proposals/>

6. Eurostat, http://epp.eurostat.ec.europa.eu/cache/ITY_PUBLIC/8-25032014-AP/EN/8-25032014-AP-EN.PDF

7. FoEE, Gone to Waste: The valuable resources that European countries bury and burn, October 2009, http://www.foe.co.uk/sites/default/files/downloads/gone_to_waste.pdf

8. Directive 2008/98/EC on waste (Waste Framework Directive), <http://ec.europa.eu/environment/waste/framework/>

9. Definition in the Waste Framework Directive:“‘preparing for re-use’ means checking, cleaning or repairing recovery operations, by which products or components of products that have become waste are prepared so that they can be re-used without any other pre-processing;”. Article 3, Directive 2008/98/EC on waste, <http://eur-lex.europa.eu/legal-content/EN/TXT/HTML/?uri=CELEX:32008L0098&from=EN>

10. In 2007, Europe's material footprint per capita was 21 tonnes, 8 tonnes per capita more than was extracted within Europe. As well as Europe, Australia and North America are the three high consuming areas in the world, with material footprints in 2007 of 48 tonnes per capita and 29 tonnes per capita, respectively. Tukker, A; Bulavskaya, T; Giljum, S, et al, The Global Resource Footprint of Nations: carbon, water, land and materials embodied in trade and final consumption. http://creea.eu/index.php/documents2/cat_view/16-creea-booklet

11. The recycling rate of aluminium in Europe is high, ranging from 62% in beverage cans to 95% in building and transportation. The 2008 EU27 aluminium recycling from old scrap amounted to about 35 % of the apparent consumption. Data from the European Aluminium Association, 2010, in European Commission, DG ENTR, Annex V to the Report of the Ad-hoc Working Group on defining critical raw materials, 2010, http://ec.europa.eu/enterprise/policies/raw-materials/files/docs/annex-v_en.pdf

12. Energy prices increased by 190%, food by 135% and materials by 135%. McKinsey Global Institute, Resource Revolution: Meeting the world's energy, materials, food, and water needs, November 2011, p.30, http://www.mckinsey.com/insights/energy_resources_materials/resource_revolution

13. Global footprint network, Earth Overshoot Day, http://www.footprintnetwork.org/en/index.php/GFN/page/earth_overshoot_day/

14. WWF, Living Planet Report 2014, http://www.wwf.eu/media_centre/publications/living_planet_report/

15. European Environment Agency, Resource Efficiency in Europe — Policies and approaches in 31 EEA member and cooperating countries, EEA Report No 5/2011, <http://www.eea.europa.eu/publications/resource-efficiency-in-europe>

16. McKinsey Global Institute, Resource Revolution: Meeting the world's energy, materials, food, and water needs, November 2011, p.30, http://www.mckinsey.com/insights/energy_resources_materials/resource_revolution

17. European Environment Agency, Europe's demand for resources reaching far beyond its borders, 2011, <http://www.eea.europa.eu/highlights/europe2019s-demand-for-resources-reaching>

18. FoEE, The Four Footprints: Increasing our resource efficiency, reducing our social & environmental impacts, March 2014, <http://www.foeeurope.org/sites/default/files/foee-briefing-four-footprints.pdf>

19. Phillip Oltermann, Berlin 'borrowing shop' promotes the benefits of sharing, The Guardian, 17 March 2014, <http://www.theguardian.com/world/2014/mar/17/berlin-borrowing-shop-benefits-share-leila>

20. Fortune, Meet the “collaborative” consumer, May 2012, <http://fortune.com/2012/05/16/meet-the-collaborative-consumer/>

21. Leila project, <http://www.leila-berlin.de/index.php?id=17>

22. Ecomodo, http://ecomodo.com/pages/info_about.aspx

23. Red Pepper, Both a borrower and a lender be, January 2011, <http://www.redpepper.org.uk/both-a-borrower-and-a-lender-be/>

24. FoEE and CEO, The crusade against 'red tape': How the European Commission and big business push for deregulation, October 2014 http://www.foeeurope.org/sites/default/files/news/crusade_against_red_tape_oct2014.pdf

25. FoEE, Press Release: European Commission appoints pro-industry Stoiber to oversee cutting of EU laws, December 18, 2014, <http://www.foeeurope.org/European-Commission-appoints-pro-industry-Stoiber-oversee-cutting-EU-laws-181214>

26. FoEE, Briefing: Understanding the biofuel trade-offs between indirect land use change (ILUC), hunger and poverty, 2 July 2013, <http://www.foeeurope.org/biofuel-trade-offs-iluc-hunger-poverty-020713>

27. Institute for European Environmental Policy (IEEP), 'The European Semester: Assessing Progress To Date: A report for the Greens/EFA Group in the European Parliament', December 2013, http://www.greens-efa.eu/fileadmin/dam/Documents/Publications/GND/ENVIR_POLICY_web.pdf, and IEEP, 'How green is the European Semester process?' presentation, 29 January 2014, European Parliament, http://www.ieep.eu/assets/1328/IEEP_Environment_in_the_European_Semester_EP_29_Jan_2014.pdf

28. For example, environmental tax reform, energy, electricity and transport infrastructure, renewable energy and energy efficiency, energy market design, and progress towards GHG emission reduction targets. IEEP *ibid*.

29. Oil Change International, Subsidizing Unburnable Carbon: Taxpayer support for fossil fuel exploration in G7 nations. http://priceofoil.org/content/uploads/2014/08/G7_exploration_subsidies.pdf This is based on Table 1, page 15 - the range is US\$1.43bn – 1.99bn

30. Adding the many kinds of tax exemptions and externalities from production and consumption, plus accounting for missing and patchy data, makes this figure much higher. CAN Europe and CIDSE, Missing Pieces: Steps to phasing out dirty fossil fuel subsidies in the EU, December 2014, http://caneurope.org/resources/doc_view/2493-missing-pieces-steps-to-phasing-out-dirty-fossil-fuel-subsidies-in-europe

31. Withana, S., ten Brink, P., Franckx, L., Hirschnitz-Garbers, M., Mayeres, I., Oosterhuis, F., and Porsch, L. (2012). Study supporting the phasing out of environmentally harmful subsidies. A report by the Institute for European Environmental Policy (IEEP), Institute for Environmental Studies – Vrije Universiteit (IVM), Ecologic Institute and VITO for the European Commission – DG Environment. Final Report. Brussels. 2012. http://ec.europa.eu/environment/enveco/taxation/pdf/report_phasing_out_env_harmful_subsidies.pdf

32. Withana et al, *ibid*.

33. Zero Waste Europe, Principles, <http://www.zerowasteurope.eu/about/principles-zw-europe/>

34. This case study is based on Zero Waste Europe, The Story of Capannori—A Zero Waste champion, September, 2013, <http://www.zerowasteurope.eu/wp-content/uploads/2013/09/ZWE-Best-practice-Capannori.pdf>

35. CEE Bankwatch, FoEE, New Money, Old Ideas: How EU spending plans for central and eastern Europe are selling short a greener future, December 2014, <http://bankwatch.org/sites/default/files/newmoney-oldideas.pdf>

36. The EUR 66 million spent allocated by the Czech Republic to prevent, separate, recycle or materially re-use waste will treat over 3 million tonnes of primarily municipal waste each year, whilst the EUR 175 million for material-biological treatment and incineration will treat just EUR 1.4 million tonnes of waste. *ibid*.

37. HMRC, Landfill Tax Briefing, March 2014, http://www.entrust.org.uk/assets/uploads/documents/Budget_2014_Landfill_Tax_Briefing.pdf

38. Green Entrepreneurship, Leasing clothes from sustainable origin, November 2013, <http://www.greenentrepreneurship.com/leasing-clothes-sustainable-origin/>

39. Zero Hedge, A Cash-Strapped Europe's Latest Craze: Rented Clothes, March 2013, <http://www.zerohedge.com/news/2013-12-03/cash-strapped-europes-latest-craze-rented-clothes>

40. Kladoteket, <http://kladoteket.se/>

41. For example, North East Maternity & Nursing Clothes Library, <http://www.netmums.com/durham/local/view/pregnancy/pregnancy-birth-services/north-east-maternity-nursing-clothes-library-open-day>, NCT Malvern Maternity Clothes Library www.nct.org.uk/branches/malvern-hills/services-support/maternity-clothes-library and La Leche League Maternity Clothes Library Oxford, <http://www.lloxford.org.uk/index.php/maternity-clothes>

42. Instrumentheek, <http://www.instrumentheek.be/> and <https://www.facebook.com/instrumentheek/timeline>

43. Wick Curiosity Show, Tool Lending Library, <http://www.wickcuriosityshop.net/collection/tool-library>

44. The Guardian, Is it better to lease, hire or borrow than to buy?, September 2008, <http://www.theguardian.com/lifeandstyle/2008/sep/07/ethicaliving>

45. European Environment Agency, Waste prevention in Europe - the status in 2013, EEA Report No 9/2014, <http://www.eea.europa.eu/highlights/waste-prevention-decoupling-waste-generation>

46. Ecoscience Provence, <http://www.ecoscienceprovence.com/>

47. Ovam, Inventarisatie huishoudelijke afvalstoffen, <http://www.ovam.be/inventarisatie-huishoudelijke-afvalstoffen>

48. Regions4recycling EU, Good Practice, Flanders: PAYT, September 2014, http://www.regions4recycling.eu/upload/public/Good-Practices/GP_OVAM_PAYT.pdf

49. Based on youth unemployment levels of around 5.7 million, and additional jobs by 2030 of 867,003. European Environment Bureau, Advancing Resource Efficiency In Europe: Indicators and waste policy scenarios to deliver a resource efficient and sustainable Europe, March 2014, <http://www.eeb.org/EEB/?LinkServID=4E9BB68D-5056-B741-DBCCE36ABD15F02F>

50. This is based solely on the cotton and wool elements representing 50% of the re-use material stream - these figures would be much higher if including the impact of synthetic fibres present in the textile waste being re-used. European Environment Bureau, *ibid*.
51. Article 11 and Annex IV(12) of EU Waste Framework Directive calls for the support and establishment of (accredited) re-use centres in order to increase re-use of products and preparing for re-use activities. This is having far too little impact, in practice. Source: Rre-use, Approved Re-use Centres and Networks–Principles, May 2014, http://www.rreuse.org/t3/fileadmin/editor-mount/documents/300/RREUSE_approved_re-use_centre_principles_Final_3.pdf
52. RREUSE *ibid*.
53. European Environment Bureau, Advancing Resource Efficiency In Europe, *ibid*.
54. RREUSE, Our Network, <http://www.rreuse.org/t3/public-area/about-rreuse/our-network/>
55. Furniture Re-use Network, <http://www.frn.org.uk/>
56. London Re-use Network, Benefits of re-use, <http://www.londonre-use.org/why-re-use/benefits/>
57. London Re-use Network, <http://www.londonre-use.org/>
58. London Re-use Network, Benefits of re-use, *ibid*.
59. Greater London Authority, £8m to create UK's first city-wide re-use and repair service, July 2010, <https://www.london.gov.uk/media/mayor-press-releases/2010/07/8m-to-create-uk-s-first-city-wide-re-use-and-repair-service>
60. London Waste and Recycling Board, London re-use Network Update, September 2013, <http://www.lwarb.gov.uk/UserFiles/File/Board%20Papers/12%2009%202013%20-%2005%20%20%20LRN%20Update.pdf>
61. European Commission, Food Waste, http://ec.europa.eu/food/food/sustainability/index_en.htm
62. Red Cross, Think differently: Humanitarian impacts of the economic crisis in Europe, page 25, http://www.ifrc.org/PageFiles/134339/1260300-Economic%20crisis%20Report_EN_LR.pdf
63. See for example, Zero Waste Europe, Europe and organic waste – EU biowaste law needed!, September 2010, <http://www.zerowasteurope.eu/2010/09/europe-and-organic-waste-eu-biowaste-law-needed/>
64. See for example, Best Before Project, <http://bestbefore.org.uk/portal/?q=node/10>
65. All-Party Parliamentary Inquiry into Hunger in the United Kingdom, Feeding Britain: A strategy for zero hunger in England, Wales, Scotland and Northern Ireland, December 2014, <https://foodpovertyinquiry.files.wordpress.com/2014/12/food-poverty-feeding-britain-final.pdf>
66. European Environment Bureau, Advancing Resource Efficiency In Europe: Indicators and waste policy scenarios to deliver a resource efficient and sustainable Europe, March 2014, <http://www.eeb.org/EEB/?LinkServID=4E9BB68D-5056-B741-DBCCE36ABD15F02F>
67. Food for the Earth website, <http://ourneighborhoodasp.blogspot.se/p/our-projects.html>
68. European Commission, Best climate solutions in five countries honoured in World You Like Challenge, October 2013, http://ec.europa.eu/commission_2010-2014/hedegaard/headlines/news/2013-10-01_01_en.htm
69. Diaro Vasco, Más de 700 familias realizarán compost doméstico o comunitario, March 2014, <http://www.diariovasco.com/v/20140330/bidasoa/familias-realizaran-compost-domestico-20140330.html>
70. Zero Waste Europe, We love compost! International compost awareness week, May 2014, <http://www.zerowasteurope.eu/2014/05/we-love-compost-international-compost-awareness-week/> and <http://www.compostaenred.org/>
71. Community Composting Network, <http://www.communitycompost.org/index.php/about-us>
72. Fairfield, <http://www.fairfieldcompost.co.uk/about/history.html> and Community Composting Network, <http://www.communitycompost.org/index.php/casestudies/68-fairfield-materials-managment>
73. Global Alliance for Incineration Alternatives, When The EU Wastes The Climate: The EU Policy of Subsidising Energy from Burning Waste is Worsening the Climate, June 2010, http://www.no-burn.org/downloads/GAIA_When_EU_Waste_the_Climate.pdf
74. Global Alliance for Incineration Alternatives, IPCC misguiding the waste sector, GAIA warns, 13 April 2014, <http://www.no-burn.org/ipcc-misguiding-the-waste-sector-gaia-warns> and http://www.no-burn.org/downloads/GAIA%20Letter%20to%20IPCC%20WGIII%20on%20Mitigation_final.pdf
75. WRAP, Environmental Benefits of Recycling, March 2010, http://www.wrap.org.uk/sites/files/wrap/Environmental_benefits_of_recycling_2010_update.3b174d59.8816.pdf
76. Morris, J., 1996. Recycling versus incineration: an energy conservation analysis. Waste Management, 3894(95). Source: *ibid*.
77. Global Alliance for Incineration Alternatives, IPCC misguiding the waste sector, GAIA warns, *ibid*.
78. UNEP, 2010. Waste and climate change. Global trends and strategy framework. Source *ibid*.
79. Estimate based on WRAP 2008 LCA of Mixed Waste Plastic Recovery Options, http://www.wrap.org.uk/downloads/LCA_of_Management_Options_for_Mixed_Waste_Plastics.983a975a.5497.pdf
WRAP 2010 Life cycle assessment of example packaging systems for milk, <http://www.wrap.org.uk/sites/files/wrap/Final%20Report%20Retail%202010.pdf>
80. Global Alliance for Incineration Alternatives, The European Union's Double Standards on Waste and Climate Policy, April 2012, http://www.no-burn.org/downloads/EU_s%20Double%20Standards%20Briefing%20April%202012_1.pdf
81. "Preparing for re-use" means checking, cleaning or repairing recovery operations, by which

- products or components of products that have become waste are prepared so that they will be re-used without any other pre-processing. Source: re-use, Approved Re-use Centres and Networks–Principles, *ibid*.
82. A joint report by McKinsey & Company and the Ellen MacArthur Foundation found that increasing re-use and refurbishment of mobile phones could reduce production emissions by 3 million tons of CO2 and generate US\$9.4 billion USD in sustainable economic opportunities. The Ellen MacArthur Foundation, McKinsey & Company, Towards the Circular Economy: Economic and business rationale for an accelerated transition Vol. 1. February 2012. <http://www.ellenmacarthurfoundation.org/business/reports/ce2012>
 83. This section is based on an interview between Joseph Zacune and Martine Postma on 26 July 2014
 84. For more details see: Eunomia et al., "Impact Assessment on Options Reviewing Targets in the Waste Framework Directive, Landfill Directive and Packaging and Packaging Waste Directive" Final Report, Report for the European Commission DG Environment, February 2014, p.vi and http://ec.europa.eu/environment/waste/pdf/target_review/Targets%20Review%20final%20report.pdf
 85. See, for example, the recommendations of the Eunomia report, *ibid*. p.xiv, recommendations 5-8.
 86. European Environment Bureau, Advancing Resource Efficiency In Europe, *ibid*.
 87. The Ecodesign Directive (2009/125/EC), through specific regulations on individual product groups (implementing measures), sets staged minimum performance standards and deadlines (tiers) to push wasteful products off the market. Source: Cool Products, Key recommendations for more effective Ecodesign and energy labelling policies in the EU, Briefing Paper, October 2014, <http://www.coolproducts.eu/resources/documents/2014-ALL/Revision-Briefing-web-lr.pdf>
 88. The Energy Labelling Directive (2010/30/EU, through delegated acts, provides succinct information to consumers on the energy efficiency of a product, and so facilitates investments in efficient product design and development. Source: Cool Products, *ibid*.
 89. WRAP (Waste & Resources Action Programme), M-E-L Research. "Realising the Reuse Value of Household WEEE" October, 2011. <http://www.wrap.org.uk/sites/files/wrap/WRAP%20WEEE%20HWRC%20summary%20report.pdf>
 90. Perverse incentives in the WEEE Directive include: 1) volume targets which gear compliance towards collecting the maximum amount of WEEE rather than deriving the maximum value from the resources contained within it; 2) not measuring whole device or parts re-use, which is preferable to recycling according to the waste hierarchy. As a result, it makes most sense for recyclers to shred WEEE in bulk, creating low-grade recyclate with little value as a manufacturing resource; even if a device is working or repairable, this collection process damages it beyond repair. There is furthermore no incentive on WEEE producers to improve product design to facilitate repairability or materials recovery at end of first use. See, for example, Materials Recycling World, Our WEEE legislation serves nobody, 15 September 2014 <http://www.mrw.co.uk/our-weee-legislation-serves-nobody/8668629.article>
 91. For more detailed information on this area, see, for example European Environment Bureau, The WEEE forward, September 2014, <http://www.eera-recyclers.com/sites/default/files/SA-EEB-TheWEEEFoward-18092014.pdf>
 92. This is in part based on StEP, ReDesign, <http://www.step-initiative.org/index.php/Redesign.html>
 93. Data based on email correspondence with Matthias Huisken of iFixit Germany, 6 August 2014
 94. See iFixit website, <http://ifixit.org/> and <https://www.ifixit.com/Info/background>
 95. Fairphone website, <https://www.fairphone.com/>
 96. Rre-use, Investigation into the repairability of Domestic Washing Machines, Dishwashers and Fridges, http://www.rre-use.org/t3/fileadmin/editor-mount/documents/200/Rre-use_Case_Studies_on_reparability_-_Final.pdf
 97. Bund, eferentenentwurf des Bundesumweltministeriums, March 2013, http://www.bund.net/fileadmin/bundnet/pdfs/technischer_umweltschutz/140425_bund_technischer_umweltschutz_elektrogesetz_stellungnahme.pdf
 98. An August 2013 investigation into current electronic tablet designs by the Fraunhofer Society concluded that "'knowledge of the disassembly procedure in advance [of a repair] would probably support a faster and more damage-less disassembly." Fraunhofer IZM, Disassembly analysis of slates: Design for repair and recycling evaluation, August 2013, <http://publica.fraunhofer.de/starweb/servlet.starweb?path=epub0.web&search=N-255111>
 99. Royal Society for the Arts. The Great Recovery: Investigating the Role of Design in the Circular Economy, June 2013 <http://www.greatrecovery.org.uk/downloadreport/>
 100. Europa, Guarantees: repairs, replacements, refunds, http://europa.eu/youreurope/citizens/shopping/shopping-abroad/guarantees/index_en.htm
 101. Amis de la Terre (FoE France), L'obsolescence programmée, symbole de la société du gaspillage: Le cas des produits électriques et électroniques, Septembre 2010, http://www.amisdelaterre.org/IMG/pdf/rapport_op_bdef_2_.pdf
 102. Amis de la Terre, *ibid*.



Friends of the Earth Europe, founded in 1990, is the largest grassroots environmental network in Europe, uniting more 30 national organisations with thousands of local groups. We are the European arm of Friends of the Earth International which unites 74 national member organisations, some 5,000 local activist groups, and over two million supporters around the world. We campaign on today's most urgent environmental and social issues. We challenge the current model of economic and corporate globalisation, and promote solutions that will help to create environmentally sustainable and socially just societies.