

## Schemes fostering the reuse of products and the preparation for reuse of waste

## In a nutshell

Summary overview							
<p>It is best practice to encourage diversion of reusable products away from waste streams and into reuse streams, through the active establishment or facilitation of second-hand and municipal exchange markets (via repair workshops where necessary) or charity collections. Additionally, waste management organisations can send certain waste streams to preparation for reuse by establishing or facilitating the creation of reuse/repair centres.</p> <p>The best practice covers four key measures:</p> <ul style="list-style-type: none"> <li>• collect products suitable for reuse before these are considered waste, repair them if needed, and distribute or sell them to residents and organisations, including charities;</li> <li>• collect waste items suitable for reuse, have them prepared for reuse, and distribute or sell them to residents and organisations, including charities;</li> <li>• establish effective information exchanges to advertise the demand for, and market the availability of, reusable used products;</li> <li>• monitor the output (regardless of whether their input is classified as waste or product) of repair and reuse centres which have been accredited based on Annex IV to the Waste Framework Directive.</li> </ul>							
Waste management area							
Cross-cutting	MSW - strategy	MSW - prevention	MSW - collection	MSW - EPR	MSW - treatment	CDW	HCW
Applicability							
<p>This best practice applies to all waste management organisations that handle any type of reusable products and waste, in particular garments, furniture and electrical and electronic equipment.</p>							
Specific environmental performance indicators							

In addition to the common environmental performance indicators presented in the best practice Common Environmental performance indicators, the most appropriate indicators to assess the successful implementation of this best practice are:

- Number of reuse centres/community repair points per 100 000 residents;
- Number or quantity (i.e. weight or volume) of end-of-life products collected for reuse and waste items sent for preparation for reuse;
- Annual number of customers of the reuse centres/community repair points;
- Availability of products/materials exchange areas aimed at fostering reuse in civic amenity sites (y/n).

#### **Benchmark of excellence**

In civic amenity sites, product/material exchange areas aimed at fostering reuse are available.

## **Description**

### **Background**

Product reuse comes at the top of the waste hierarchy as a waste prevention measure that avoids the environmental burdens associated with product manufacture and disposal or recycling. This best practice addresses the implementation of preparation for reuse and reuse schemes for end-of-life products, in particular products which tend to be replaced when still fully functioning owing to consumer trends and short innovation cycles, e.g. garments, furniture and electrical appliances. When such products are replaced, it is often convenient for previous owners to dispose of them into waste disposal or recycling streams. Castellani et al. (2015) applied life-cycle assessment to evaluate the environmental benefits of product reuse in second-hand shops, considering the new product replacement factor associated with reuse of different types of product. They found that the greatest environmental savings arise from reuse of apparel products, due to the volume of items sold, followed by reuse of furniture products, owing to the high environmental burdens from production of new items.

### **Best practice measures**

It is best practice to encourage diversion of reusable products away from waste streams and into reuse streams, through the active establishment or facilitation of second-hand and municipal exchange markets (via repair workshops where necessary) or charity collections. Additionally, waste management organisations can send certain waste streams to preparation for reuse by establishing or facilitating the creation of reuse/repair centres.

There are four key measures covered by this best practice:

- collect products suitable for reuse before these are considered waste, repair them if needed, and distribute or sell them to residents and organisations, including charities;
- collect waste items suitable for reuse, have them prepared for reuse, and distribute or sell them to residents and organisations, including charities;
- establish effective information exchanges to advertise the demand for, and market the availability of, reusable used products;
- monitor the output (regardless of whether their input is classified as waste or product) of repair and reuse centres which have been accredited based on Annex IV to the Waste Framework Directive.

One way to foster reuse is establishing products/materials exchange areas in civic amenity sites where residents can deliver products which they wish to discard but still fully or partially functioning or usable (see also the best practice on Civic amenity sites). Forming partnerships with social economy organisations and other stakeholders can be an important

element of best practice.

In relation to electronic items, this best practice covers reuse schemes that complement and go beyond the provisions for Waste of Electrical and Electronic Equipment (WEEE) established by Directive 2012/19/EU (known as the WEEE Directive). In particular, the WEEE Directive requires Member States to: (i) promote product design measures that facilitate reuse, upgrading and recycling of EEE, (ii) arrange return systems for WEEE that are free of charge to final holders, including consumers and distributors who are obliged to accept WEEE free of charge from consumers, (iii) comply with reuse and recycling targets established for national mass streams of WEEE.

## Environmental benefits

WRAP's Benefits of reuse tool (WRAP, 2014a) indicates the life-cycle benefits for reuse of different waste categories within the UK context (Table 1).

**Table 1. Environmental benefits achieved per tonne of product category reused compared with prevailing counterfactuals in the UK**

Category	Avoided global warming potential (kg CO <sub>2</sub> e)	Avoided abiotic resource depletion (kg Sbe)	Avoided fossil resource depletion (MJe)
Clothing	7 510	0.039	57 100
Home furniture	30	0.004	5 000
Home electricals	3 290	0.030	67 100
Source: WRAP (2014a).			

The Surrey reuse network described below under “Operational data” achieved the following benefits within one year of establishment:

- a 22 % increase in diversion of furniture and white goods to reuse, to 600 tonnes per year;
- a 100 % increase in overall recycling rate.

Castellani et al. (2015) report on the following life-cycle environmental savings arising from product substitution through sales of reusable items in an Italian second-hand shop:

- 160 t CO<sub>2</sub>e/year;
- 7 000 000 MJe/year;
- 170 kg PM2.5e/year.

WRAP (2015) estimates that, during 2012, the emission of 1.5 Mt CO<sub>2</sub>e was avoided in the UK through product reuse. This translates into a CO<sub>2</sub>e saving from reuse of 23 kg per capita per year.

## Side effects

Reuse of most products is not associated with any significant cross-media effects. Transport distances for collection of reusable items are unlikely to be greater than life-cycle transport distances associated with production and disposal or recycling of new products.

However, for some types of electrical equipment, from an energy and carbon perspective, it may be better to replace old, inefficient items with newer, more efficient items – recycling rather than reusing components from the old equipment. In addition, it is important to avoid risks associated with malfunctioning electrical equipment (e.g. microwaves).

## Applicability

This best practice applies to all waste management organisations that handle any type of reusable products and waste, in particular garments, furniture and electrical and electronic equipment.

## Economics

### Waste management organisation economics

Local authorities or waste management organisations may work in partnership with each other, and with third-sector reuse organisations, to efficiently design and implement reuse schemes. Such reuse networks can realise significant economies of scale, and achieve “critical mass” with respect to effective advertising and awareness campaigns, thus increasing both supply and demand for reusable items.

Budgetary constraints may decrease opportunities for local authorities to organise and advertise reuse schemes, and to commission agreements with third-sector reuse organisations (Ricardo-AEA, 2015).

Reuse schemes avoid recycling or disposal costs, and may even generate income if reusable items are sold on.

### Societal cost-benefit analysis

In 2012, the third sector in the UK benefited by an estimated GBP 430 million through reuse, and reuse organisations created 11 000 full-time equivalent jobs (WRAP, 2015).

WRAP (2015) estimate that, by keeping goods in circulation for longer and by offering more affordable products, UK households benefitted by an estimated GBP 6 billion from product reuse in 2012. The Surrey Reuse Network described above provides goods to approximately 5 000 low-income household families each year (WRAP, 2014).

Reuse of materials can generate turnover of up to EUR 1 500 per tonne, over 10 times more than the turnover generated by recycled materials (TWG, 2015).

## Driving forces for implementation

Waste prevention through reuse of products as well as preparation for reuse of waste can significantly reduce waste handling and disposal costs for waste management organisations and facilitate compliance with applicable legislation and targets.

Another driving force is consumer demand for used products that are often considerably cheaper, and offer comparable functionality, compared with new products.

## Reference organisations

In addition to the examples detailed below, WRAP has compiled a number of video and downloadable PDF case studies of local-authority-led reuse schemes in the UK, available at the following link: <http://www.wrap.org.uk/content/how-case-studies-and-videos-0>

CERREC – “Central Europe Repair & Reuse Centres and Networks” – is an EU-funded programme implemented through the CENTRAL EUROPE Programme and co-financed by the ERDF that started in April 2011 and lasted for 3.5 years. During this time the consortium of nine partners from seven different Central European countries carried out evaluation, quality management and dissemination activities in the field of reuse and repair of end-of-life items. The Municipal Waste Management Association Mid-Tyrol (ATM) in Austria was the lead partner on the project. Information can be found on <http://cerrec.eu/>, and a list of best practice examples at <http://cerrec.eu/downloads/best-practises/>

RREUSE is a network of social enterprises active in reuse, repair and recycling throughout Europe. Members of the network are listed, with links, at the following web address: <http://www.rreuse.org/about-us/members/>. Members include Repanet in Austria, Envie in France, EKON in Poland, Ateliere F?r? Frontiere in Romania, AERESS in Spain and Reuseful in the UK.

### Box 1 Establishment of Leicestershire and Rutland Reuse Network

WRAP contracted Ricardo-AEA to assist in the development of a reuse plan for Leicestershire County Council, Leicester City Council, Rutland County Council and local third-sector reuse organisations (TSROs). The objective was to support the development of a financially sustainable reuse sector in the region.

Stakeholders involved in the project included local authorities, TSROs, housing associations, waste management companies and businesses. Opportunities that could be realised via collaboration within a reuse network were identified.

A reuse mapping exercise quantified current levels of reuse for items within the bulky waste stream, and estimated the potential for increasing reuse across major material streams.

A four-year action plan for the delivery of the reuse network was devised, based around eight service options to improve rates of reuse and recycling of bulky waste. The stakeholders have adopted the four-year action plan and are exploring options for partnership working, including:

- members of Leicestershire and Rutland Reuse Network (LRRN) have signed a Memorandum of Understanding to work together;
- LRRN is working towards the incorporation of the Network;
- RRN is working with Leicestershire County Council to supply furniture items for the implementation of Leicestershire Welfare Provision (social fund);
- LRRN, with the support of the Producer Compliance Scheme in Leicestershire, is developing a WEEE repair workshop.

*Source:* Ricardo-AEA (2015).

#### **Box 2. Example of the London Reuse Network**

Waste reuse is prioritised within London's Municipal and Business Waste Strategy plans, which identify the third sector as an important growth area and the London Reuse Network as a lead delivery partner to drive reuse targets.

The London Reuse Network comprises various reuse projects, including charities, that work together to collect, repair and sell unwanted furniture, appliances and household items, giving them new homes across London. In addition, the network arranges and provides employment, skills development, training and volunteer opportunities. It is organised around London Reuse Ltd, a central operating company.

London Reuse Network members work with a number of London waste authorities, and this collaboration will be strengthened by a new London Waste Authority Support Programme to be implemented by the London Waste and Recycling Board and WRAP. The London Waste and Recycling Board has a commercial approach to supporting the third sector, encouraging robust business practices.

Cllr Bassam Mahfouz, a London Waste and Recycling Board member, commented: "In order to accelerate the move towards a circular economy in London, reuse, repair and remanufacturing will have ever greater roles to play in our lives".

*Source:* Waste Management World (2014).

#### **Box 3. Waste prevention and reuse employing disadvantaged persons in Graz, Austria**

“Waste Prevention, Responsible Use of Resources and Sustainable Development” is a non-profit company managed by Berthold Schleich that employs 140 disadvantaged persons to wash dishes, cutlery, drinking glasses, and plastic drinking cups from catering companies, festivals, etc. (waste prevention), and also to repair equipment such as mobile phones, table lamps, standard lamps, computers and other electronic and electrical equipment for sale in a reuse shop. The photo on the left below shows the repair desk and on the right mobiles repaired for reuse. The company is 30 % funded by the region of Styria.



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*Source:* Schoenberger (2015).

**Box 4. LIPOR Reuse Lab: repairing electrical and electronic equipment**

'Reuse Lab' is a laboratory established by LIPOR (waste management company in the area of Porto in Portugal), where electrical and electronic equipment can be repaired to bring them back to their original functionality or regular maintenance can be carried out in order to extend the lifespan.

The laboratory is a space where it is possible to experiment and learn skills to recover the functionality of equipment, learn about maintenance and understand major malfunctions.

All activities of the Reuse Lab are supervised by experienced technicians and residents and local organisations are involved in the repair and maintenance of electrical and electronic equipment.



Source: LIPOR (2015).

#### Box 5. Flanders reuse shops



In the 1990 in Flanders (northern Belgium), reuse shops were established with social and environmental purposes. The products delivered to the reuse centres are considered “goods without value” by the parties that discard them and, consequently, are delivered to the reuse centres for free. Non-reusable goods are not accepted. The goods collected receive a monetary value following their sorting process and preparation for sale at the reuse centres. The number of reuse shops increased from 81 in the year 2000 to 124 in 2014, and at the same time the number of customers increased, from 1.56 million to 5 million over the same period. The trend to deliver goods to reuse shops has constantly increased since the 1990s and the turnover of reuse shops in the year 2014 reached EUR 45.4 million.



Source: OVAM (2015).

## Literature

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