

---

# LIFE+ Up and Forward Project: Socio-economic Report

---



**LIFE11 ENV/UK/000389**

---

## Contents

		Page
1.	Waste management costs and recycling revenues	3
2.	Job creation	5
3	Resources for industry	7
4.	Reducing demand for infrastructure	9
5.	Providing second hand products at affordable prices	9
6.	Reducing consumption	10
7.	Conclusion	11
8.	References	11



## 1. Waste management costs and recycling revenues

- 1.1 The replication of the successful elements of the project across Greater Manchester is likely to have a significant economic benefit by increasing the revenue that is made from recycling, and in turn decreasing the amount of residual waste which would need to be treated at a much higher cost.
- 1.2 The greatest level of success was observed in the deprivation campaigns (B1-3), so it is reasonable to suggest that in the future these are the ones that are most likely to be taken forward to the next phase and replicated in other areas. If we assume that these campaigns are replicated across Greater Manchester in all low income areas, then we can extrapolate what the long term economic benefit of the project may look like. It is better to use this method as the basis of a cautious estimate rather than extrapolate based on the four LIFE+ campaign themes - deprived, transient, and cultural and apartment areas. If all these campaigns were extrapolated this would lead to double counting of the potential benefits because there is a significant overlap between the demographics. Many transient households for example are in deprived areas. Also, these campaigns were not as successful as the deprivation campaign and therefore are less likely to be repeated.
- 1.3 According to the 2011 census data 30% of households in Greater Manchester are in the low income bracket as measured by occupation type and employment (ONS, 2012). The table below shows the observed average increase in the quantity of waste collected (across 12 areas) due to the B1-3 campaigns for each waste stream. The observed increase shown in the table has been used to estimate the potential increase in the quantity of waste that could be collected from all low income households, assuming the same level of success could be achieved across Greater Manchester.

Table 1: Replication of the LIFE+ deprivation project across GM

	Pulpables	Commingled	Biowaste	Residual
Deprivation campaign results				
Percentage change in material collected (%)	12.70%	15.90%	45.70%	-19.40%
Waste collected in GM from low income households (tonnes)				
Pre-campaign	26,827	27,045	51,518	114,617
Post campaign	30,234	31,345	75,061	92,381
Change in the quantity collected from low income households (tonnes)	3,407	4,300	23,544	-22,236



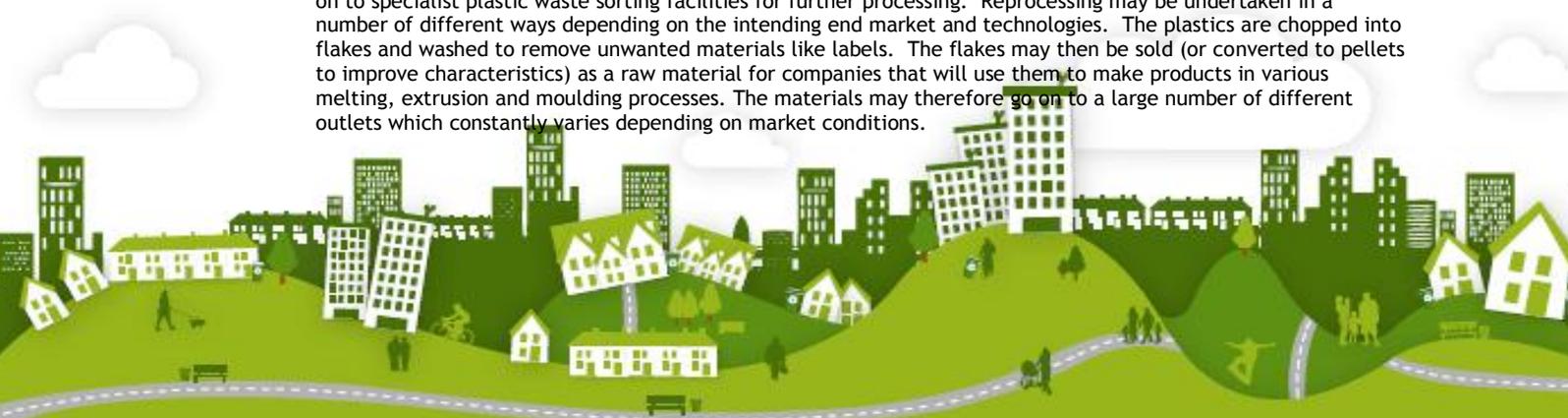
- 1.4 There is direct benefit to the local authority, which is demonstrated in Table 2 that shows the cost that would be incurred if the deprivation campaigns were replicated in all relevant areas. The nine Districts that form Greater Manchester Waste Disposal Authority are part of a joint Recycling and Waste Management Contract (the Contract), and are charged based upon the quantity and type of waste delivered into the Contract. In Tables 2 the waste management charges for four different kerbside collected streams (Authority Meeting Open Budget Report, 13<sup>th</sup> February 2015) have been used to estimate the potential saving.
- 1.5 These agreed charges set the revenue that local authorities receive for pulpables / commingled at £25 per tonne, and a reduced charge of £56.20 per tonnes for the treatment of biowaste compared to residual waste treatment, which is charged at £308.24. It should be noted that these are not actual treatment costs or material prices but a charge to the local authority to cover the total Contract costs that are also designed to encourage recycling and reduce residual waste by heavily weighting the charge for residual waste treatment. If these cost these are applied to the estimated change in the quantity collected following replication of the LIFE+ campaigns in low income areas across Greater Manchester (as modelled above) then the overall financial benefit would be a saving £5.7 million per annum.

Table 2: GM wide replicated long term financial benefit of LIFE+ project

	Pulpables	Commingled	Biowaste	Residual	Total
Quantity (t)	3,407	4,300	23,544	-22,236	
Cost £/t	-£25	-£25	£56.20	£308.24	
Total cost ('000)	-£85.2	-£107.5	£1,323.1	-£6,853.9	-£5,723.4

- 1.5 These materials<sup>1</sup> also provide feedstock to other recycling processes, so there is a further economic benefit to the recycling reprocessors and converters. However, the financial benefit to industry cannot simply be apportioned based on the quantity of waste since onward processing can be a very complex picture. Waste may be processed by several different companies, with each one extracting value from a different element of the waste stream. There will be significant differences in the value of each type of material recovered, and even the price of the same material will frequently fluctuate depending on spot price when the campaign was undertaken. Likewise the cost of the process will be different depending on type of material, and its intended market.

<sup>1</sup>The material collected in Greater Manchester is sent on to a large number of recycling companies, reprocessors and converters. If we take plastic bottles as an example these are separated in to different polymer types by our facility, and sold on to re-processors. Some of the lower value bottles may be sorted to a lesser degree and sold on to specialist plastic waste sorting facilities for further processing. Reprocessing may be undertaken in a number of different ways depending on the intending end market and technologies. The plastics are chopped into flakes and washed to remove unwanted materials like labels. The flakes may then be sold (or converted to pellets to improve characteristics) as a raw material for companies that will use them to make products in various melting, extrusion and moulding processes. The materials may therefore go on to a large number of different outlets which constantly varies depending on market conditions.

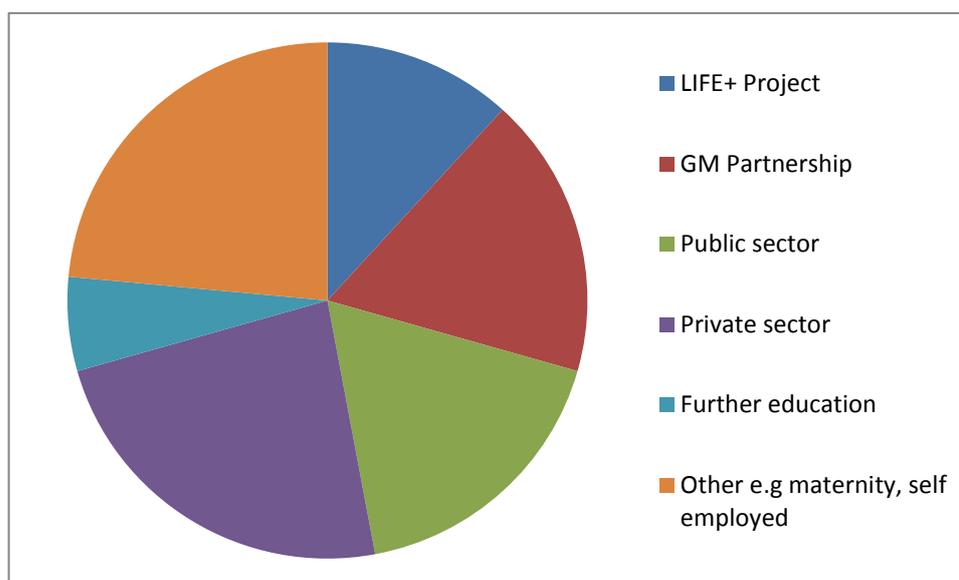


## 2. Job Creation

### 2.1 LIFE+ Project team

- 2.1.1 At the peak of delivery there were fourteen roles in the LIFE+ project. The team consisted of six Campaign Officers, six Outreach Workers, and two dedicated roles for Dissemination, and Monitoring and Evaluation. Due to the short term nature of the contracts, which meant some personnel sought more permanent alternatives, and were unable to complete their contract then more people were employed. Overall, 17 people were employed to work solely on the LIFE+ project.
- 2.1.2 The team consisted primarily of recent graduates, with a small number of more experienced personnel. There is still a small team working on completing the reporting stage of the LIFE+ project but the majority have used the experience to secure employment elsewhere. The chart below depicts the destination of former LIFE+ employees, showing that their new roles are linked to the skills developed during the LIFE+ project. Predominantly, they are now working in roles linked to local government, or for those that went on to work in the private sector, they are now working in communication roles linked to the skills developed working on this project.

Figure 1: Destination of former LIFE+ Personnel



## 2.2 Filming in partnership with Bolton University

2.2.1 As part of the project dissemination eight films were produced. Their production was project managed by Bellyfeel, working in partnership with Bolton University. During the film production stage a student editor was employed (freelance) to work directly on the film production, and 16 third year students studying a Media and Production Degree gained experience in working with industry doing a variety of roles including developing storyboards, filming, script writing, performing and editing, which will benefit their future employment prospects.

## 2.3 Developing software in partnership with Manchester Metropolitan University

2.3.1 The project used three graduate interns and an enterprise associate who was dedicated to the project, all of whom were supported by academic staff. Two of the interns had Master of Science (MSc) degrees in advanced computing, and the other a Postgraduate Diploma in computing. The three graduate interns received training in an economically relevant software engineering field, and gained experience of working on a tangible real-world project. All three have used their experience to now gain graduate level employment.

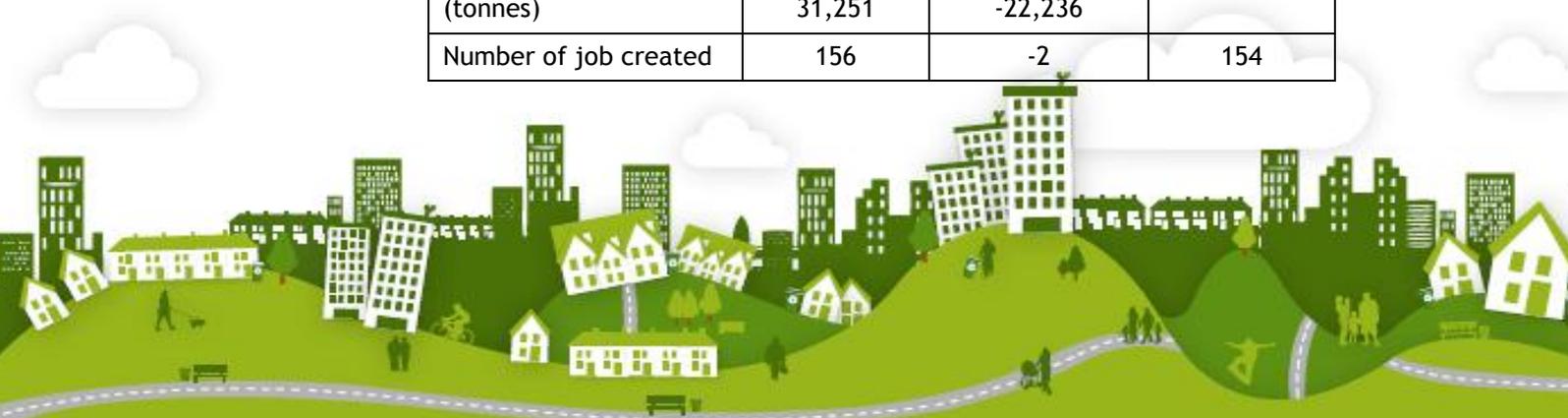
## 2.4 Wider industry employment

2.4.1 It is challenging to measure the exact impact that the LIFE+ project has had on the wider industry. However, the Environment Association Services (ESA, 2013) estimate that 5-10 jobs are created for every thousand tonnes of materials recycled, compared to 0.1 jobs for every thousand tonnes of waste sent to landfill. In addition, larger waste management projects may be expected to generate around 300 jobs in construction.

2.4.2 The model used in Table 1 to replicate the successful LIFE+ project outcomes across Greater Manchester can be used to estimate the number of jobs that may potentially be created in wider industry. Using the lower ESA estimate (5 jobs per 1000 tonnes of waste recycled) the potential job created in Greater Manchester has been calculated in Table 3. The balance between the jobs created by additional recycling against those lost due to less residual waste treatment results in 154 more jobs, overall.

Table 3: Potential job creation through replication of successful LIFE+ project across GM

	Recycling	Waste Disposal	Total
Jobs per 1000 tonnes	5.0	0.1	
Change in waste (tonnes)	31,251	-22,236	
Number of job created	156	-2	154



### 3. Resources for industry

- 3.1 The extrapolation of the successful project outcomes will provide additional resources for industry. Secondary raw materials are becoming increasingly important in order to secure resources for EU industries, and to mitigate the risk to companies of resource scarcity. The quantity of each material type has been estimated in Table 4 below. The data has been produced by applying the proportion of each material (determined by a waste compositional analysis undertaken by GMWDA in 2011) to the overall quantity collected. A slightly different approach was taken for biowaste where all the additional biowaste collected is assumed to be food waste, which reflects what has been observed in practice.
- 3.2 The largest potential increase is observed for food waste, which is sent for co-composting with garden waste. The compost produced will provide nutrients for bagged horticultural products available to residents, or will be used in agriculture. Food waste contains more nutrients than green waste, so will reduce the amount of inorganic fertiliser that needs to be used as well as improving soil structure.
- 3.3 The second largest fraction is glass, for which the end destination will depend primarily on its size, but also content of contaminated material such as ceramics which affect its suitability for closed loop recycling. Essentially, the large glass fraction (approximately 50%) will be used in glass manufacture, whilst the small fraction will be recycled to aggregate. The other components of the mixed recycling stream (plastic bottles and metal packaging) arise in relatively smaller quantities but are more valuable. These will be destined for closed loop recycling.
- 3.4 Although the paper and card fractions are shown separately, these are sent onwards for processing as a mixed paper/card fraction. The tetrapaks will be removed in order to extract the valuable aluminium fraction. However, it is likely that paper and card will be processed together to make board, since that is the predominant market in UK and Europe. In recent years coated paper and newsprint production has shrunk, but capacity for board manufacture has increased making that the most likely destination.



**Table 4: Potential resource availability through replication of successful LIFE+ project across GM**

	Quantity (tonnes)		
	Pulpables	Commingled	Biowaste
Paper	2,680		
Card	712		
Cartons	38		
Glass		2,940	
Plastic bottles		685	
Ferrous cans and aerosols		499	
Non-ferrous can and aerosols		157	
Aluminium foil		20	
Garden			
Organic Catering waste			23,554
<b>Total</b>	<b>3,407</b>	<b>4,300</b>	<b>23,544</b>

- 3.5 The value of these materials to the economy is estimated in table 5 below. The overall value is estimated at £367,525 based upon WRAP 2015 Materials Pricing Report. Biowaste has been excluded from the calculation since this is not traded as a material commodity but undergoes further waste treatment with no market value.

**Table 5: Resource value through replication of successful LIFE+ projects across GM**

	Value (£)		
	Pulpables	Commingled	Total
Paper (£35/tonne)	£93,800		£93,800
Card (52.50/tonne)	£37,380		£37,380
Cartons (£0/tonne)	£0		£0
Glass (0.5/tonne)		£1,470	£1,470
Plastic bottles (£80/tonne)		£54,400	£54,400
Ferrous cans and aerosols (£85/tonne)		£42,415	£42,415
Non-ferrous can and aerosols (£780/tonne)		£122,460	£122,460
Aluminium foil (£780/tonne)		£15,600	£15,600
<b>Total</b>	<b>£131,180</b>	<b>£236,345</b>	<b>£367,525</b>



#### 4. Reducing demand for infrastructure

- 4.1 Increasing recycling will reduce residual waste, which in turn reduces the cost of developing expensive residual waste infrastructure. The situation in Greater Manchester is slightly different because the infrastructure is already in place, but further diversion to recycling will make energy from waste capacity available to be sold to another local authority, so that they do not need to build their own new capacity. Working with other local authorities in this way maximises the capacity available, and results in a cost saving to the Authority.
- 4.2 The savings to society as whole that would be derived from not having to build further capacity are difficult to estimate since the cost of building and operating energy from waste plant varies significantly. Defra (2013) provided some data on the cost of building facilities, processing between 150 ktpa to 350 ktpa, which fell in the range £145-200 million. Over a typical 25 year lifespan of a facility, however, the cost in terms of the total contract which includes additional cost such as debt charges, processing, replacement parts, administration etc. may be around four times the build cost.
- 4.3 One way to consider the financial benefit to the local authority is in terms of market gates fees, so taking the landfill saving figure of £3.2 million calculated (3.5 above) and assuming any spare capacity would be charged at a competitive rate for an energy from waste facility compared to current market gate fees (£99/tonne, WRAP 2014/15) then a further £3.1 million may be gained in selling spare capacity. The net benefit is, therefore, estimated at £6.3 million.

#### 5. Providing second hand products at affordable prices

- 5.1 The UP&FORWARD campaigns delivered to the rental properties promoted the donation of furniture reuse to community organisations. These are not-for-profit or charities organisations, which sell second hand items at affordable prices to directly support their charitable aims, or more often to raise funds. Charitable organisations are becoming an increasingly integral part of life, with around 80% of households having used a charitable service in the last 12 months, and 60% of residents having purchased an item in the last year (IPPR, 2014). Although visiting a charity shop is the most common way residents interact with charities, their services expand much wider, commonly delivering; advice, support, community facilities, housing and education. More importantly, around 12% of residents use charities more than once per week and for these people they provide a means of sustenance.
- 5.2 Communication packs and advice leaflets were developed which encouraged residents to donate to the local reuse organisations that were working in partnership with the campaigns. The success of the campaign was measured through survey data. However, a clear pattern did not emerge in terms of changes to claimed behaviours; perhaps due to the fact different people were interviewed pre and post campaign. The most interesting data came from the Stockport Private Rental Campaign, where the furniture reuse organisation monitored how many residents had made a donation after seeing the leaflet. This showed that 29% of donations were due to the campaign.



- 5.3 WRAP (2011) calculated that the average charity shop sells 30 tonnes of material per annum. Therefore, a similar successful campaign could promote the diversion of approximately 8.7 tonnes from landfill for each charity shop supported by a council campaign. In Greater Manchester that would result in an approximate saving of £2,681.69 per charity supported. The value to the charity shop is more challenging to ascertain since an items condition needs to be assessed on delivery to determine what it may be worth. However, if we assume a fairly low estimate of £40 for an item of furniture, and an average sofa weight of 37kg (Wrap, 2011, derived from Furniture Reuse Network data) then the value of the campaign to the charity shop (or organisation) can be calculated at £9,405.

## 6. Reducing consumption

- 6.1 Educating residents to reduce consumption will have a direct impact on their household finances. There is evidence that getting people involved in composting food waste develops an appreciation of how much food is wasted, and leads to waste reduction. The waste compositional data collated in 2011 show that, on average, households that had an organic waste collection produced 1.09 kg less organic waste than those households which didn't.
- 6.2 Table 6 below show that the average household will save £102 by reducing food waste if they actively participate in separating food waste, because it is likely to change their attitude towards food waste, and influence their purchasing behaviour.

Table 6: Average household cost saving in Greater Manchester for active participants in food waste separation

Quantity of food waste thrown away by UK Households	
Average household disposal to bin, sewer and pet food (kg/hh/wk)	5.00
Average household disposal to bin only (kg/hh/wk)	3.30
Average reduction by active participants in food waste collection services (kg/hh/wk)	1.09
Costs	
Average household expenditure on wasted food (per annum)	£470
Cost saving per annum for active participants	£102

- 6.3 Based on the replication model (i.e. an estimated 300,000 low income properties in Greater Manchester) this would have a significant impact on the economy making around £30 million available overall to be spent on other goods and services.



## 7. Conclusion

7.1 Clearly, there are economic and social benefits to the LIFE+ project, which may be derived through replication of the successful LIFE+ outcomes of the projects that were delivered in low income areas. The main financial benefit is to the local authority by reducing the cost of waste management. However, there are potentially tangible benefits to the households in the areas through reduced consumption and increased availability of affordable second hand products. The benefits may extend beyond the area where the project is delivered by supporting charities, creating jobs, and making more resources available to the recycling industry.

## 8. References

1. Department for Environment, Food and Rural Affairs (Defra, 2013). Incineration of municipal solid waste.
2. Environmental Services Association (ESA, 2013). Realising the positive benefits of local waste management facilities.
3. Greater Manchester Waste Disposal Authority (GMWDA, 2011) Greater Manchester Waste Compositional Analysis and Survey
4. Greater Manchester Waste Disposal Authority (GMWDA, 2015) Open Budget Report, Authority Meeting 13<sup>th</sup> February 2015.
5. Institute for Public Policy Research (IPPR, 2014). Charity Street. The value of charity to British households.
6. Office for National Statistics (ONS, 2012). 2011 census data
7. Waste Resource and Action Programme (WRAP, 2011). A methodology for quantifying the environmental and economic impacts of reuse.
8. Waste Resource and Action Programme (WRAP, 2014/15). Comparing the cost of alternative waste treatment options.
9. Waste Resource and Action Programme (WRAP, 2015). Materials Pricing Report: Full listings.



## Contact details

Greater Manchester Waste Disposal Authority

Media Chambers, 5 Barn Street, Oldham, OL1 1LP

[UpandForward@gmwda.gov.uk](mailto:UpandForward@gmwda.gov.uk)

0161 770 1700

## Useful websites

[www.recycleforgreatermanchester.com/upandforward](http://www.recycleforgreatermanchester.com/upandforward)

[www.gmwda.gov.uk/](http://www.gmwda.gov.uk/)

<http://ec.europa.eu/environment/life/>

[www.recycleforgreatermanchester.com](http://www.recycleforgreatermanchester.com)

