

wasteline

ISSUE 4 WINTER 09/10





John Quinn

When arc21 was established almost a decade ago recycling rates across the region stood at just 7.5%. Today, thanks largely to the efforts of individual households, recycling rates stand at a record 33.9% (see page 3).

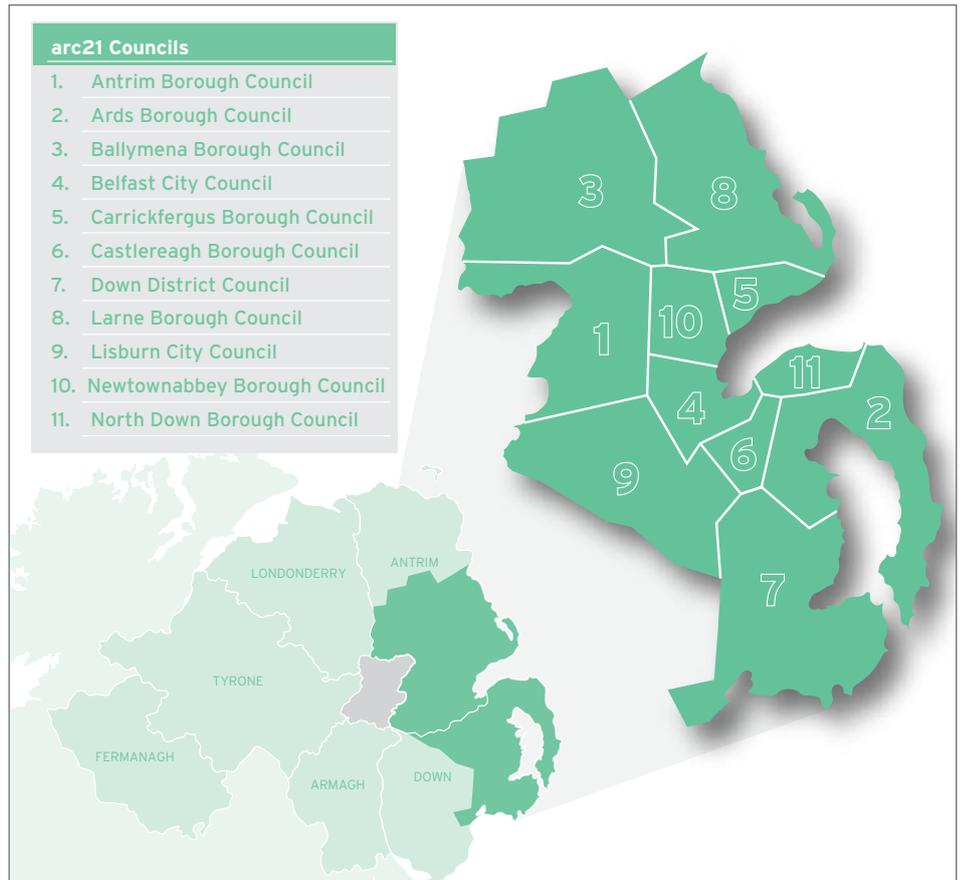
That's a fantastic achievement which sets us well on the way to meet our target of recycling or composting at least 50% of all household waste by 2020. For more information please see our 2009 Annual Report available on www.arc21.gov.uk

While the focus of arc21's work remains on minimising waste and recycling what we do produce, a significant proportion of waste just isn't suitable for recycling. In the past the answer was to simply discard it en masse in landfill sites - a practice which European regulations are bringing to an end.

In line with best practice in the rest of Europe, arc21 is developing new Energy Recovery facilities to turn this non-recyclable waste into renewable energy. These new facilities combined with more recycling activity will ensure that arc21 meets its targets and minimises the environmental impact of waste.

By working together we can turn 'rubbish' into a resource that benefits society. So keep up the good work and keep recycling!

ABOUT ARC21



Representing 11 councils in the east of Northern Ireland, arc21's area accounts for almost 60% of the Province's municipal waste output, about 550,000 tonnes a year.

Environmental concerns and new EU regulations mean that we simply can't keep sending our waste to landfill sites. Failure to address the problem could lead

to potentially huge EU infraction fines (up to £500 in extra rates per household every year).

arc21's aim is to encourage households and businesses to reduce, re-use and recycle as much as possible, and to deliver new waste infrastructure to manage waste efficiently and in an environmentally friendly manner.

For more information please see our 2009 - 2012 Corporate Plan available on www.arc21.gov.uk



RECYCLING RECORD BREAKERS!



New figures have revealed that recycling rates have reached record levels across the arc21 region.

During 2008 / 09 the average household recycling rates jumped an impressive 7% to just under 34%, while the amount of waste produced by a typical household also fell by 7% to 1.2 tonnes per annum.

Those increased efforts meant that the amount of municipal waste going to landfill from the region fell last year by 29,000 tonnes to just over 384,000 tonnes (down 7%). Of that waste just over 260,000 tonnes was classified as biodegradable which was well within Government targets for the year.

Welcoming the figures, Ricky Burnett, arc21's Policy and Operations Director, said:

"This is a fantastic achievement by householders from right across the arc21 region. Over the last number of years we've been promoting recycling messages and providing the public with the means by which they can recycle and compost more. The figures clearly demonstrate that the public are up for the challenge.

"It may also be the case that the recession has reduced the amount of material we consume, thereby cutting down on the waste we create in the first place. I also believe that retailers and industry are taking onboard the need to reduce the amount of packaging they produce."

RECYCLING RATES PER HOUSEHOLD

ANNUAL HOUSEHOLD RECYCLING RATE



AMOUNT OF INDIVIDUAL HOUSEHOLD WASTE PRODUCED ANNUALLY

ANNUAL TONNES PER HOUSEHOLD



ARC21 - LANDFILL DIVERSION TARGETS

Year	BMW Landfilled*	BMW Allowance Target
2005/06	316,732 tonnes	380,427 tonnes
2006/07	295,622 tonnes	353,773 tonnes
2007/08	280,735 tonnes	345,244 tonnes
2008/09	261,721 tonnes	336,761 tonnes

* BMW = Biodegradable Municipal Waste

Although recycling rates are at an all-time high, more still needs to be done if we're going to reach a recycling / composting rate of at least 50% and if landfill rates are to fall to just 35% of 1995 levels - both targets which the EU has set a deadline of 2020 to meet. Ricky added:

"We're still some way behind the best performing nations in Europe, but the gap is beginning to close. New technology such as Mechanical Biological

Treatment and Energy from Waste facilities which arc21 is procuring will help, as will the provision of new and easier ways to recycle materials such as food waste.

"The most important action remains, however, for everyone to keep on 'Reducing, Reusing and Recycling' as much as possible. Not only will it improve the environment, it will also help keep rates bills down."



PAPER TRAIL

In the last edition of Wasteline we took a look at what happens to the 150 tonnes of recycled material which is sent everyday to a Materials Recycling Facility (MRF) run by Bryson House at Mallusk, just outside Belfast. This time round we're going to take a closer look at what happens to all those paper products which end up in your recycling bin or kerbside box.

Paper and card account for about 20% of all household waste in Northern Ireland and recycling as much as possible makes good environmental and economic sense. Producing virgin paper is an energy intensive process and, apart from felling trees, also involves the use of chemicals and large quantities of water. So, the more we recycle, the less strain we put on the environment.

The US Environmental Protection Agency has estimated that recycling one tonne of paper saves 17 mature trees, 30,000 litres of water, enough landfill space to fill 27 Albert Halls, two barrels of oil and enough electricity to power the average American home for six months. That's not bad going for leftover newspapers and print paper.

What happens to your paper, though, once it reaches Mallusk? Most of the paper is separated from the rest of the waste early on in the sorting process, ending up on one of three conveyors in a sorting room where contaminants are picked out by hand. The paper is then baled and stored until it's forwarded to a recycler.

At present it goes to a paper mill in Shotton, County Durham, or Norsk Skog in Norway where it is recycled into newsprint. The remainder is sent down the M1 to Lurgan where it is turned into egg boxes and drinks trays.

In the next edition of Wasteline we'll take a look at what happens to plastic bottles.



Paper Pulper

Recycling Paper to Create Newsprint

- Used paper is sorted and bailed at Mallusk MRF
- Forwarded to paper mills in England or Norway
- Water is added to turn the paper into pulp
- Paper is screened, cleaned and de-inked
- Ready to be reused as newsprint

What you can recycle:

Newspapers, magazines, catalogues, brochures, office paper and junk mail

What you can't recycle:

Wet or dirty paper, envelopes, plastic wrapping, kitchen roll, tissues or paper towels

FAST FACTS

- Personal computers use 115bn sheets of paper annually
- The average family uses six trees every year
- Making recycled paper uses 30% - 70% less energy than virgin paper

ENERGY FROM WASTE, THE DUTCH WAY

SenterNovem is a Dutch Government agency that promotes sustainable innovation by delivering projects across a range of sectors including energy, climate change, environment and spatial planning. arc21, in conjunction with Herman Huisman, a senior expert at SenterNovem, takes a look at Holland's experience of Energy from Waste (EfW) which is 15-20 years ahead of Northern Ireland's.

The Netherlands produces c.60m tonnes of waste annually of which only 5% is landfilled; the remainder is recycled and recovered. Holland has one of the highest recovery rates in Europe and lowest levels of landfill.

That's come about thanks to a waste management strategy over the past 15 years that's focused on prevention, reuse and recovery, and minimising landfill. It's also combined planning, stringent standards and landfill bans. Holland has also adopted landfill taxes that make

it more expensive, a highly effective economic instrument that's diverted waste from landfills to other treatments.

At present, Holland's EfW capacity is 7m tonnes with a further 600,000 tonnes of capacity under construction. By 2010, no combustible waste will be sent to landfill. None of the material sent to EfW is practical for recycling and it is used to produce electricity and heat. As half of that energy is regarded as renewable, waste incineration has formed an important part of all Dutch Government renewable energy subsidy schemes for the past 10 years.

History of Waste Management

Holland's new approach to waste management dates back to 1990 when a number of problems were identified with old style incinerators that had a poor operating record. Five incinerators were closed which caused a major problem in parts of the country which no longer had the capacity to deal with municipal waste (landfill was not considered as an option due to its negative environmental impact, especially in densely populated western parts of the Netherlands).

As a result, ambitious new policy targets were set for waste prevention, reuse and recovery, and the creation of a new EfW infrastructure to deal with non-recyclable material. EfW capacity planning was handled at a national level and strict environmental standards were set that exceeded EU requirements. Thanks to the excellent performance of the new EfW plants, which made use of the best available flue gas cleaning and energy recovery technologies, there was little opposition.

Waste Incineration or Recycling?

When Holland's National Waste Management Plan was revised, one of the main debates was about whether EfW would frustrate recycling. Having considered all the arguments, the consensus was that it wouldn't have a detrimental effect and the evidence has borne that decision out - recycling rates continued to improve alongside an enhancement of EfW facilities.

In July 2003 national capacity planning for EfW was discontinued to deregulate the waste market and encourage the development of new capacity. In 2007 the Dutch border was opened to imports/exports of combustible waste with a view to creating an international market.

The expansion of capacity has led, as expected, to a reduction in the fees levied on waste received by EfWs. Known as the gate fee, this cost is expected to drop from an average of €95 per tonne to €70-€80. This, combined with a drop in prices for recycled material, may mean that gate fees for EfW may be less than that for other sorting and recycling plants.

This has reignited a debate in the Dutch parliament about whether or not an EfW tax should be levied to restore the price differential. For the time being, though, it was decided to continue to monitor the market rather than raise gate fees. It should be noted, though, that this present debate is about fine tuning Holland's EfW capacity, not whether EfWs are necessary; that debate was concluded many years ago in favour of using the technology.



Holland has been using Energy from Waste for almost two decades

GOOD PRACTICE GUIDE

Ever wondered why your local council goes to such efforts to constantly remind ratepayers about what can and what can't be recycled?

At present all dry recyclable material, which is currently collected in a blue or green bin depending upon your council, is processed through a Materials Recovery Facility (MRF) at Mallusk. Although the MRF is designed to accept a wide range of materials, items such as plastic bags, wet card or bulky plastic can and do damage its machinery. It's also estimated that the cost of handling contaminated bins is up to five times that of a properly filled load.

While the level of inappropriate material (contamination) ending up in the MRF is good by UK standards, there's always room for improvement. For its part, arc21, in conjunction with local waste officers, has just issued a good practice guide for councils to advise them of what further steps they can take and to encourage them to continually improve their systems.

If you've any doubt about what can or can't be recycled please contact your local council, visit their website or check out their recycling guide.

Please bear in mind that bins which are contaminated may not be collected.



EFW YOUR QUESTIONS

arc21's ambition is to deliver an operational Energy from Waste (EfW) plant within its region by 2017. This will enable local councils to meet strict new EU targets to reduce the amount of waste being sent to landfill and help turn what would be otherwise unusable waste into renewable electricity and heat.

Although commonplace in the rest of Europe, EfW will be new to Northern Ireland, so it's not surprising that there are questions about how it works and the potential impact it might have. Wasteline takes a look at three of the more challenging queries....

One of the by-products of EfW is ash - what will happen to it?

As with any combustion process, ash will be produced by the EfW plant - about 10% of the material's original volume. Two types of ash are created - bottom ash (or clinker), which is usually a fine material that gathers at the EfW's grate, and fly ash, which is collected in the stack by the plant's various filter systems.

Fly ash must currently be disposed of in specially designated landfill sites, although technology is emerging that has the potential to recycle this material. EfW has a proven track record of handling ash in a safe and controlled environment.

At present it's likely that fly ash will be removed to a special site in GB while some of the bottom ash will be recycled for use in the construction industry.

Does EfW mean that we will burn waste instead of recycling it?

Some people argue that EfW is incompatible with high rates of recycling, but the evidence from Europe doesn't support that claim. Countries such as Germany and Sweden which use EfW extensively already enjoy much higher rates of recycling than Northern Ireland (see pg 7).

arc21's target is to increase recycling from 34% today to 50% by 2020. Since its formation our focus has been on the '3Rs' of Reducing Reusing and Recycling, helping quadruple recycling rates from

2000. EfW is only one part of arc21's overall waste management strategy and the '3Rs' will continue to be our priority.

Are EfWs Safe?

In September the Health Protection Agency (HPA) issued a new report looking into 'Municipal Waste Incinerators'. The report reviewed all the available research and concluded that "the impact(s) on health.. if any exist, are likely to be very small and not detectable". As such, the HPA has recommended that there was no need to conduct further public health studies near modern EfWs.

The 2007 English Waste Strategy also concluded that there is "no credible evidence of adverse health outcomes for those living near incinerators" while in December 2008, the Irish Environmental Protection Agency stated that a proposed new facility in Dublin "will not endanger human health or harm the environment in the vicinity of the facility or over a wider area".



EUROVISION

When it comes to waste - who's topping the charts in Europe?

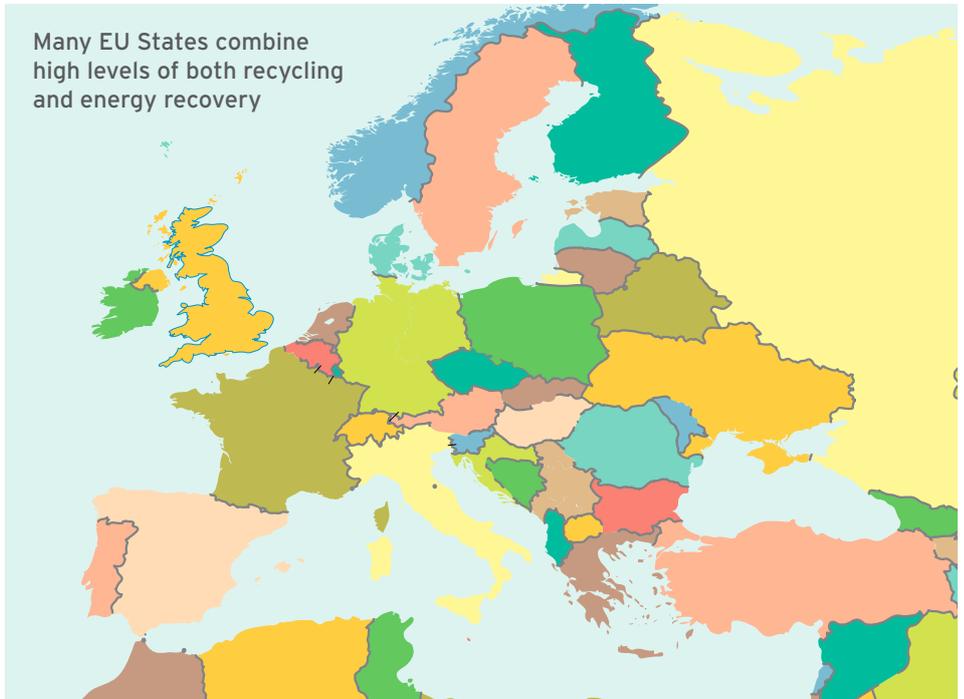
Figures produced by the European Union have given an insight into how effectively countries are managing their waste. The good news for Northern Ireland and the rest of the UK is that we're by no means the most wasteful parts of the European Union; there is, however, definitely room for significant improvement.

The report found that the average person in Europe produces 522kg of municipal waste, of which 42% is still landfilled; 22% is recycled, 17% is composted and 20% is redirected to Energy from Waste (EfW) facilities and other thermal waste treatments.

The Danes produced the most waste at 801 tonnes per person while the Czechs produced a mere 294 tonnes - the UK figure is 572 tonnes.

There was also a significant difference in how waste is treated. In Bulgaria, for example, 100% of waste is still landfilled while in Germany, Sweden, Holland and Denmark less than 5% ends up in landfill. Thermal treatment in these countries was also popular. Of all their waste, 53% is treated thermally in Denmark while in Germany the figure is 35%.

By comparison, Northern Ireland currently sends over 70% of its waste to landfill and



recycles / composts about 30%; nothing is sent to thermal treatments such as EfW. arc21's aim is to increase our recycling / composting rate to at least 50% by 2020 and introduce new waste technology such as EfW to turn non-recyclable material into renewable energy.

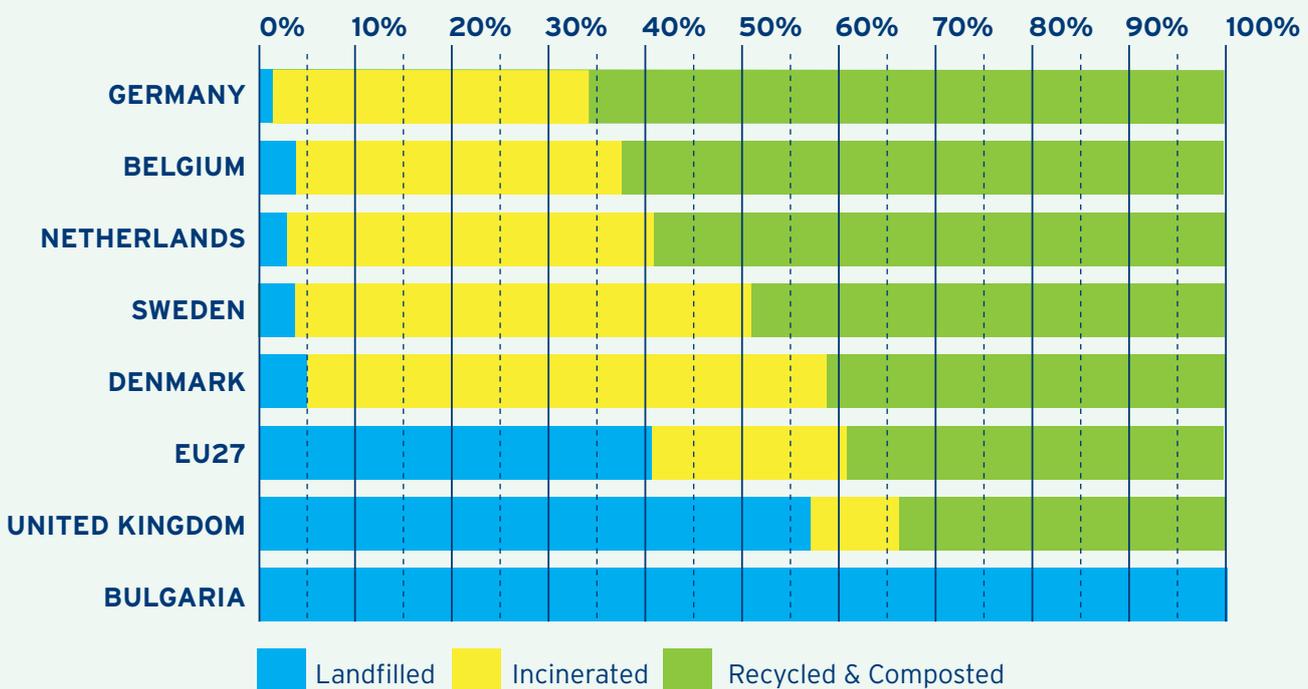
Ricky Burnett, arc21's Policy Director, said:

"These are interesting figures, particularly the relationship they demonstrate between recycling rates and the thermal treatment of waste. Some people argue that EfW is incompatible with recycling, but the data contradicts that."

"For instance, Germany, which has the best recycling and composting rate in Europe at 64%, sends over a third of its waste to thermal treatment. In Belgium, the comparable figures are 62% and 34%."

"In Northern Ireland at present, none of our waste is thermally treated. If we're going to reduce the amount of waste, literally going to waste in landfill, we need to keep the focus on 'Reducing, Reusing and Recycling' and adopt new technologies that can turn our waste into renewable energy."

MUNICIPAL WASTE MANAGEMENT



WHAT'S BEEN HAPPENING NEAR YOU?

Castlereagh Cllr. Gareth Robinson and Eric Randall, Bryson House, launch a new food waste recycling service



Food Waste Collections in Castlereagh

Castlereagh Borough Council is trialling a new food waste recycling service for 1,200 households.

Food waste accounts for around 20% of the contents of the average household bin in Northern Ireland, material which generates harmful greenhouse gases if it is sent to landfill to decompose. Under the new scheme run by Bryson Recycling, food waste will instead be composted for use in landscaping, agriculture and horticulture.

Each home in the trial area has been supplied with an outside collection bin, a caddy for collecting food waste in the kitchen and a supply of biodegradable liners. Food waste bins will be emptied on a weekly basis on the same day as the kerbside boxes. All food waste can be recycled through the service including both raw and cooked food waste such as meat, fish, dairy products, fruit, vegetables, breads, cakes, pastries, rice, pasta, beans, tea bags, coffee grounds and leftover food from plates and dishes.

Downpatrick Students Get Behind EfW

Earlier in the year, 20 students from the Downpatrick area got the chance to try their hand at being local councillors for the day, giving the thumbs up for an Energy from Waste (EfW) facility.

During a mock debate in the council chamber, the students from local secondary and grammar schools discussed whether or not to give the go-ahead for the construction of a local energy recovery facility to turn waste into heat and electricity.

Although a Downpatrick-district based EfW plant received strong backing, the students also rejected proposals for a nuclear power plant on the Co. Down coast line.

Charged Up to Recycle

150,000 households in Belfast, Castlereagh, Ballymena, Newtownabbey and Carrickfergus will soon be able to recycle batteries using their kerbside box. The scheme, which is being run by Bryson Recycling in partnership with Valpak

and local councils, follows a successful scheme in other parts of Northern Ireland. Over 600 million household batteries are sent to landfill every year in the UK, all of which are recyclable. The aim is to help households here make a significant contribution to reducing this figure and meeting UK recycling targets. Once collected, the batteries are sorted and their metal component is extracted to help make new products.



Antrim Borough Council celebrate "Fair with Flair"

Antrim Borough Council came up with a unique way to celebrate Fairtrade Fortnight 2009; hosting a 'Fair with Flair' fashion show in partnership with sponsors All-Tex Recyclers and the Hilton, Templepatrick.

The sell-out show, which attracted more than 300 people, highlighted the importance of supporting Fairtrade and focused on the topical issues of clothing reuse and recycling - an important message during today's credit crunch.

A wide range of clothing for the fashion show was donated by All-Tex clothing recyclers and Fairtrade-linked charity, Oxfam. Up-and-coming fashion designers, Cathy Villiers and Julie-Anne Graham of Curious Tales, created a number of bespoke outfits for the event which were created entirely from recycled and 'pre-loved' clothing.

Chair of Antrim Borough Council's Fairtrade Committee, Councillor David Ford, said: "The event was a huge success and we were delighted to have been able



'Fair with Flair' fashion show in Antrim

to send our guests home with two very valuable messages - that making the change to Fairtrade is very easy and being

fashionable during the present economic climate doesn't have to be difficult or expensive."

Glam up your glad rags!

In an era when High Street clothes are becoming ever more disposable, it's been calculated that in Belfast alone, enough textiles are thrown away to fill five double-decker buses every week.

To help encourage people to think about mending or embellishing clothes which they think may be past their best, the council hosted a three-day workshop during Waste Week entitled 'Stitch and Style'.

The event proved highly popular with all 120 places being filled by those keen to learn from seamstresses and designers about how to stitch, sew and revamp garments. There was also a recycled fashion fair with recycled jewellery, clothes and accessories for sale, and a fashion show attended by 200 people who were treated to a showcase of collections from local second hand shops, vintage boutiques and local designers.

In keeping with the theme, paper-based publicity for the event was kept to a minimum. Extensive use was made of

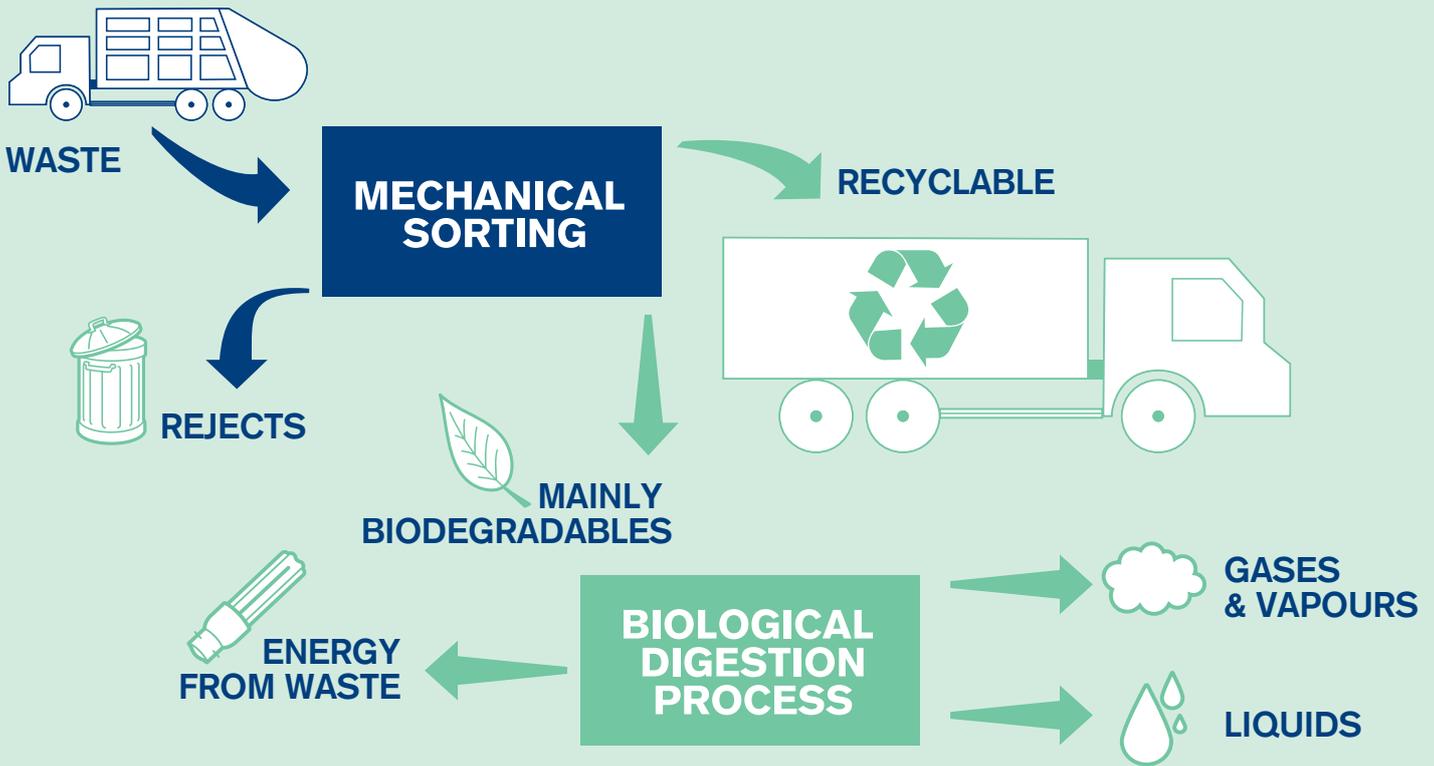
online sites such as Facebook and Twitter; very few posters were printed and instead of paper leaflets the council's website was stencilled onto scrap material and distributed as promotional bookmarks.

The award-winning Waste Week 2009 was a great success and 'Stitch and Style' has been short-listed for a Green Award for Best Green Event.

Keep up to date with other upcoming events by clicking onto www.belfastcity.gov.uk/waste



Belfast City Council's 'Stitch & Style'



MBT WHAT IS IT?

MBT, otherwise known as Mechanical Biological Treatment, is not a phrase which trips off the tongue lightly or which is well known outside the waste industry. However, as we move to develop new technologies to reduce the amount of waste going to landfill, it's an acronym which will receive increasingly more public attention. Wasteline takes a look at what it entails...

To complicate matters, MBT isn't actually a single technology. It would be fairer to say that it's used as a catch-all phrase to describe a family of processes which combine different elements in a variety of uses. It does, though, as the name suggests, encompass two separate and distinct treatments - one mechanical and one biological.

HOW IT WORKS

Stage 1 - Waste Delivery

Black bin waste - that which hasn't been separated out for recycling or composting - is delivered to the facility. Deliveries are made indoors as most MBTs operate within fully self-contained buildings; this minimises any potential disruption such as noise or odours.

Stage 2 - Mechanical Treatment

Waste is broken down into smaller amounts - usually by physically shredding it and mechanically recovering recyclable material which has inadvertently ended up as black bin rubbish.

Stage 3 - Biological Treatment

The remaining waste is then composted or digested to produce a more stable material which weighs considerably less than when it arrived at the facility (mostly due to the removal of moisture). If anaerobic digestion is used this produces methane gas which can help provide energy to run the plant.

Stage 4 - Onward Use

The final material can be sent to landfill, used in land remediation projects or be used as a 'fuel', as proposed by arc21, for an EfW plant.

OUR PROPOSAL

As part of its £1bn Residual Waste Project, arc21 plans to develop up to two MBT facilities which will boost recycling rates by at least 5% across the region as well as producing a refuse-derived fuel for an EfW plant from material which can't be recycled.

Another way to think about it is to consider MBT as a type of refinery that uses black bin waste instead of crude oil to create a fuel - albeit unlike oil-fired power stations, the energy produced by EfW is classified as renewable.

arc21 is currently progressing this project as part of an overall strategy to manage our waste more responsibly and efficiently, and to meet stringent European targets to reduce landfill. It's anticipated that planning permission will be submitted in late 2010 with the first facility operational by 2012.



Typical MBT Facility

WASTE WATCH PROJECT UPDATE

arc21 has announced details of a three-strong shortlist of consortia bidding to deliver new technology that will help Northern Ireland meet European landfill targets. The £1bn project, one of the largest public procurement projects undertaken in Northern Ireland's history, will provide facilities that could generate enough green energy to supply the needs of 40,000 homes. It's estimated that the project will also create 600 construction jobs over a three-year period.

The three shortlisted consortia are bidding to build up to two Mechanical Biological Treatment (MBT) facilities and one Energy from Waste (EfW) plant. The MBTs will boost recycling levels by improving sorting processes and turn left-over, non-recyclable waste into a green energy fuel to be used by the EfW facility. The facilities are needed to help arc21's constituent councils meet strict European landfill diversion targets and avoid potentially severe infraction fines.



With the first MBT due for completion in 2012 and the EfW by 2017, the new facilities will also deliver around 90 permanent operational jobs. The shortlisted consortia are a mix of UK and international waste specialists which include a number of Northern Ireland-based construction firms and consultancies.

They are:

- Greenstar Holdings Ltd/
E.On Energy from Waste AG
- SITA Holdings UK Ltd
- Veolia ES Aurora Ltd

Ricky Burnett, arc21's Operations & Policy Director, said:

"This marks the achievement of another important milestone in our process. The next phase involves the development of detailed submissions relating to the provision of Mechanical Biological Treatment facilities and an Energy from Waste plant.

"arc21 remains committed to implementing its waste management plan which aims to encourage people to reduce waste in the first place and boost recycling rates to at least 50%. There are sound financial and environmental reasons to minimize landfill and that means developing new infrastructure to treat the waste that it is not possible or practical to recycle.

Ricky also stressed that:

"Experience throughout Europe clearly shows that high recycling rates can be achieved alongside Energy from Waste. Establishing these facilities is not only necessary to avoid heavy fines from Europe, but they can also help satisfy future energy needs and act as potential stimulus for local economic development."

It is anticipated that the procurement process will be completed by spring 2011 with the award of the contract.

INDICATIVE TIMETABLE

OJEU Notice Published	September 2008
Appoint Preferred Bidder	Autumn 2010
Planning Permission (1st MBT)	Winter 2010
Award Contract	Spring 2011
1st MBT Operational	Summer 2012
Planning Permission (EFW)	2013/2014
EfW Operational	Autumn 2017

GREEN CHRISTMAS



Just because we want a 'White Christmas' doesn't mean we can't have a 'Green Christmas' as well.

It's estimated that during the holidays the average person will produce 50kg of waste, most of which will end up in landfill sites. To help cut down the environmental impact, Wasteline has put together a Top Five to think about:

1. In the UK we produce 32 sq miles of wrapping paper - enough to entirely cover Guernsey. Why not use stockings for smaller presents or even use alternatives such as fabric. Most shiny wrapping paper is made of plastic film and can't be recycled.
2. A common complaint this time of year is that we all eat too much (not surprising as the UK will munch its way through 10 million turkeys. If you're responsible for Christmas dinner this year, think about portion sizes and remember to put kitchen waste into your food caddy.
3. Use rechargeable batteries instead of disposable ones.
4. After Christmas, if you have a real tree don't forget to put it into your home composting bin or take it to a local council recycling centre.
5. In the UK we send upward of one billion Christmas cards - that's a lot of trees! Many shops, though, now collect and recycle cards, so have a look if you're out and about at the sales (and don't forget your reusable bags!).



KIDS' CORNER

WASTE BUSTER!

Last time round we asked you to come up with a name for our special arc21 bus which is jam-packed with information on what we can do to do recycle more and help the environment.

The winning answer was 'Waste Buster' and three lucky people were drawn from the hat: Chloe Connolly, Ballynahinch PS, Sasha Lawther, Templepatrick PS and Laura Stewart, Moira PS. **WELL DONE!**



SPOT THE DIFFERENCE



COMPETITION TIME!

If you're aged between eight and 14-years old, and fancy winning an arc21 environmental hamper made up of top-of-the-range recycled products, why not enter this edition's Spot the Difference competition?

Simply find the five changes which have been made to the photograph above, fill in the form with your details and the changes, and send to arc21 at the address below. Winners will be drawn at random - closing date, **26th Feb, 2010.**

NAME

ADDRESS

TEL:

AGE:

ANSWERS

1.

2.

3.

4.

5.

FRESH FACES



Since the last edition of Wasteline there have been a couple of new additions to the arc21 team...

Deirdre StJohn - Residual Waste Treatment Project Assistant

Deirdre is a qualified solicitor and joined arc21 in January 2009 on secondment from the legal firm Arthur Cox.

As part of her training with Arthur Cox in the Republic of Ireland, Deirdre gained experience in the area of Planning and Environmental law, and has particular experience in the waste, planning and procurement sectors.

Laura Allen - Residual Waste Treatment Project Accountant

Laura joined arc21 in January 2009 on secondment from PricewaterhouseCoopers. She is the Project Accountant for the Residual Waste Treatment Project and provides support to the Project Director and Finance Director for related finance matters.

Laura also liaises with the advisors to the Project Board and is involved in the day-to-day running of arc21's Finance Department.

John Green - Residual Waste Treatment Acting Project Director

Since December 2008 John has been on secondment from the Strategic Investment Board (SIB) as Acting Project Director.

John joined SIB in December 2007 after 25 years in the private sector, the last 17 years of which were spent working on

Public Private Partnership (PPP) projects across various sectors, both in the UK and abroad.

From near Liverpool originally, John has strong family links to Northern Ireland; his grandfather was born in Kilkeel to a family of lighthouse keepers while his in-laws live in Enniskillen. He is responsible for ensuring that arc21's Residual Waste Treatment project, one of Northern Ireland's largest ever PPPs, is delivered as planned.

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