

## **ACR+ newslines-29-2006 (July 21, 2006)**

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informazini sulla gestione dello spreco ed il recupero risorse, non esiti a contattarci e noi potremo esserLe d'aiuto.

Bem-vindo ao novo sistema semanal de informação da ACR+. Este serviço é totalmente gratuito e exclusivo a todos os membros da ACR+. Opcionalmente, cada membro poderá nomear um responsável para receber as informações. Este veículo de informação poderá ser utilizado para trocar todo o tipo de informações entre a ACR+ e os respectivos membros. Qualquer tema ou assunto que julguem de interesse devem enviar para o seguinte email <mailto:kit@acrr.org>kit@acrr.org. Mais uma vez reafirmo a disponibilidade da ACR+ em apoiar os membros no fornecimento de informação sobre temáticas relacionadas com a gestão de resíduos ou outras.

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### **01. ACR+ publishes review of waste plastic bag management policies**

The Association of Cities and Regions for Recycling & for sustainable Resource management (ACR+) have recently issued a report which considers the problems associated with the use of lightweight plastic bags.

Lightweight plastic bags offer many practical advantages, which of course is the reason for their success in supplanting alternatives. They are very light, weighing only a grammes, so even large number do not represent a significant flow of resources. A local authority with one million residents consuming 300 bags pa will be faced with a stream of 300 million bags, weighing some 2,000 tonnes (cf 1-2 Mt of municipal waste).

A comprehensive Australian study of plastic bag flows suggests that most bags (60 per cent) are taken home. From there, one third quickly become waste and are landfilled, while more than half enjoy some form of reuse (before then being landfilled). Less than 3 per cent are recycled. Virtually all bags not taken home are landfilled, except for a small proportion (less than 1 per cent) which become an often visible stream of litter. There are opposing views on the environmental aspects of plastic bag consumption; on the one hand the view that bags are at worst a nuisance, and on the other that they represent a serious environmental and amenity hazard.

The available tools can focus on the provision of information, infrastructure, legal and economic instruments, and each has a particular application, depending on local circumstances and the level of administration at which the policy initiative takes place. Outside Europe draconian bans of plastic bags have been used, though this may well be a step too far in Europe where this level of market intrusion would appear to be unjustified. The power of economic instruments to change behaviour is undeniable.

Whether these can be agreed on a voluntary basis between the stakeholders (Government, the retail supply chain and local authorities), or whether mandatory instruments are called for (to encourage industry or to discourage free-riders) will vary from country to country. If a policy decision is taken to significantly reduce the flow of plastic shopping bags into landfill and litter, then the following actions are shown to be effective:

ending the practice of free bags in supermarkets ensuring that alternative, reusable bags are available in supermarkets providing a collection systems for plastic bags, both through in-store facilities and also integrated within household dry recyclable schemes driving forward local communications and information campaigns to raise consumer awareness of the issue using any revenue from a levy or charge to fund litter clean-up or research

If the goal is to attack the bag as proxy for modern unsustainable lifestyles then sociological and cultural tools are relevant. If littering is the problem to be addressed, then producer responsibility schemes can help. If the concerns are based on the persistence of bags in landfills and in the countryside, then standards and codes to encourage biodegradable bags may be a worthwhile route. Auditing the flow of materials which become waste plastic bags is a very helpful first step.

Copies of the ACR+ report Plastic bags - policies and practices to reduce consumption assessing the application of policies to lightweight single use polyethylene plastic bags (1 MB) are available from ACR+'s website at:

<<http://www.acrplus.org/upload/documents/document259.pdf>><http://www.acrplus.org/upload/documents/document259.pdf>

Or we can email you a copy.

## **02. UK - EfW briefing paper available**

Professor Chris Coggins and the Associate Parliamentary Sustainable Waste Group (APSWG) have prepared a useful 4-pager on energy recovery.

Energy From Waste (EfW) offers no magic wand, and no immediate step-change in UK's overall sustainability; but in the context of government's current Energy and Waste Strategy Reviews it may offer sustainable incremental advances along several strands of current policy, and offer rich opportunities to make the practical, crosscutting connections between policies which deliver real progress. Based on recent literature, this paper discusses the relative sustainability of EfW, describes the technologies, and attempts to identify current drivers, opportunities and constraints defining EfW as an option within UK's wastes and energy policies.

The briefing note (1.5 MB) is not available online at present but we can email you a copy on request.

## **03. Scotland - gearing up for new biofuel initiative**

Terra Eco Systems is set to drive the use of biofuels across Europe following the launch of a new initiative in Scotland that could power up to 5,000 family cars per year.

The initiative, which is the first of its kind in the UK, is being piloted across the east coast of Scotland and will involve local farmers using biosolids as organic fertiliser in the growing of crops which can produce five million litres of biofuels each year, reducing dependency on harmful fossil fuels. Wheat or barley and oil seed rape will be grown at farms in the Lothians before being transported to Europe for conversion into bioethanol and biodiesel respectively.

The system, which will be completely managed by Terra Eco Systems in conjunction with Harlow Agricultural Merchants, will help in achieving EU targets for the production of biofuels as well as reducing the amount of biosolids going to landfill. In addition, farmers involved will benefit from a guaranteed income for three to five years without having to make any additional investment.

Alister Veitch at Terra Eco Systems, said: "This is a very exciting initiative which has significant environmental and economic benefits for Scotland. "It is quite astonishing to think that for every tonne of biosolid material we use in the growing of these crops, we can produce up to 300 litres of road fuel. Over time this could have a great impact on creating a cleaner environment across Europe.

#### **04. France - Grand ménage en bord de mer**

En déplacement au port du Pouliguen (Loire Atlantique), la ministre en charge de l'environnement, Nelly Olin, a lancé une grande campagne de sensibilisation contre les déchets en bord de mer, afin que cet été soit «exemplaire».

Selon Journal de l'environnement, au-delà de l'anecdote, elle a rappelé ses attentes vis-à-vis du projet de loi sur l'eau dans le domaine de la lutte contre les macro-déchets. Cette loi devrait permettre de contrôler les eaux de ballast et de gérer les sédiments des navires afin de prévenir le déplacement d'organismes nuisibles, ce qui contribuera à la qualité des milieux marins.

Nelly Olin a profité de l'occasion pour revenir sur deux sujets collatéraux: la création d'aires marines protégées et la question du démantèlement des navires en fin de vie. Sur le premier point, elle a réaffirmé l'engagement de la France en faveur de la création d'aires marines protégées au niveau international, avec la prise en charge d'une gouvernance en haute mer par les Nations unies.

Sur le second point, Nelly Olin a regretté les conditions «pas pleinement satisfaisantes pour l'environnement et surtout pour la santé des travailleurs» des démantèlements. Etant donné le cadre réglementaire «insuffisant et inadapté», une mission interministérielle sera créée, pour travailler sur deux questions: la création de filières viables en Europe et la contribution à une réglementation internationale.

#### **05. Denmark - new waste prevention project**

The Organic Council (Det Økologiske Råd - DØR) has initiated a project on waste prevention through promotion of repairs. International Waste News from Denmark reports (No. 3, June 2006) that the project will among other investigate whether local repair shops can be established in two locations in Copenhagen. The project will be carried out in cooperation between two agenda centres:

Agenda centre SundbyØster  
Bispebjerg Environmental Centre.

The starting point of the project is the increasing waste amounts.

Although amounts of waste for landfilling have been reduced, it has not been possible to stop the increase in waste amounts. Selection of product groups The project shall test two product groups - electronics and furniture - and in particular concentrate on products with a new price between 400 and 2000 DKK. These have been selected because there is a potential for increased repairs, since a lot is scrapped today when people see no benefit in repairing things. On the other hand there exists a relatively well functioning network of repairmen of e.g. bicycles, cars and white goods. For furniture and electronics with a new price above app. 2000 DKK it must also be assumed that it would be repaired if the item is not totally written-off or outdated. With white goods it must also be taken into consideration that older machines should rather be written-off than repaired, because their power consumption is too high and they may contain CFCs.

#### Existing internet guides

Already today there exists the site

[www.repairationsguiden.dk](http://www.repairationsguiden.dk), operated by the Environment and Energy Centre in HØje Tåstrup but which covers the whole country. It is sponsored by several municipalities, including Copenhagen. This site is recommended because it gives an overview of existing groups of goods and municipalities and the connecting repair shops. However it does have shortcomings. One of the barriers of repairs is that most repairmen operate with a starting fee. For electronics it is often e.g. 800 DKK to even examine the problem. Therefore most people will abstain from this solution unless the new price is well over 1000 DKK. The problem is connected to the fact that mostly the retail shop receives the broken electronic item from the customer but do not carry out the repairs themselves. They send the goods somewhere else and hereby the bear considerable costs before even starting to do any repair work. The guide gives the impression that there are already quite a few repairmen in Copenhagen municipality but also that there are areas with very few of them. In terms of furniture repairs there are several in the municipality but most of them do upholstery and do not repair antique furniture.

Only few can do joinery and are able to repair e.g. broken chairs and tables. Extended warranty Another way of securing goods for longer time is to extend the warranty period. This exists today for instance in the radio and television sector, for MP3 recorders etc. where it is possible to get a four year warranty by paying extra. But the Consumer Council is sceptical of these arrangements because there are cases where retailers have not respected these warranties. The project will review whether it is possible to improve these warranty arrangements. The project is implemented in the period 15 May - 31 December 2006.

## **06. UK - Waste & Resource Assessment Tool for the Environment - new LCA tool**

Terry Coleman from the Environment Agency gave a presentation at the RRF's AGM, explaining WRATE (Waste and Resources Assessment Tool for the Environment) - a Life Cycle Assessment (LCA) software tool for comparing different management systems of Municipal Solid Waste.

WRATE is designed for waste managers. It produces results for waste decision-makers and stakeholders, concerning the potential environmental impacts of alternative technologies in integrated waste management systems. WRATE considers potential impacts stemming from all stages in the management and processing of waste. These include waste collection, transport, treatment and disposal activities, taking account of the associated infrastructure, together with the avoided impacts associated with materials and energy expenditure.

### How WRATE Works

WRATE is Life Cycle Assessment (LCA) software designed specifically to improve the management of waste in integrated municipal solid waste management systems. The software follows the "Gate to Grave" modelling approach. The system boundary is initiated when materials are discarded into a waste management system (the Gate), to its point of recycling, recovery or final disposal (the Grave). The WRATE methodology is composed of three main parts, namely the waste inputs, the calculation engine and the results display/interpretation.

**Waste Inputs** Waste composition is defined by users by waste streams (household waste, street sweeping etc) and by waste fraction (paper, plastic, textile, glass etc)/subfractions (for paper, newsprint, office paper etc). Each fraction and subfraction has a pre-defined chemical composition. The system (or scenario) is then defined, process by process, in a Graphical User Interface (GUI) by the user, for example: collection container, vehicle, collection round distance, intermediate transport and final recovery or disposal.

### Calculation Engine

The basis for calculations is that each process in the waste management system places a burden on the environment. Each burden is described in the generic process structure per unit of waste processed. A process can range from a simple process, such as a bin, to a more complex process, such as a thermal treatment plant. All the outputs are calculated through allocation algorithms that link all the inputs to the outputs of a process. These can be dependent on the waste composition input (fractional or elemental composition), the total quantity of the waste or the properties of the treatment plant. The software draws on a series of databases to do this.

## UK - Waste & Resource Assessment Tool for the Environment - new LCA tool

Results can be provided at the process and scenario levels. A Life Cycle Inventory is calculated, to which several Life Cycle Impact Assessment methods can be applied. Scenarios can be compared and a number of results formats are produced, suitable for communicating to non-technical audiences.

The demonstration version of WRATE is not available yet. Email [wrate@environment-agency.gov.uk](mailto:wrate@environment-agency.gov.uk) to register your interest.

The demonstration version of WRATE is a near fully functioning version of the model. A number of input parameters have been disabled, as have file saving and printing. You can explore the various input fields, run the model and view the type of results that WRATE generates. The Help files are complete and much of the information relating to the way in which the model has been developed and how it should be used is contained within these files.

A user manual describing the theory, use and validation of the model is also available from the Agency's WRATE webpages:

[http://www.environment-agency.gov.uk/wtd/1396237/?version=1%E2%8C%A9=\\_e](http://www.environment-agency.gov.uk/wtd/1396237/?version=1%E2%8C%A9=_e)[http://www.environment-agency.gov.uk/wtd/1396237/?version=1&lang=\\_e](http://www.environment-agency.gov.uk/wtd/1396237/?version=1&lang=_e)

If you would like a copy of Terry's presentation of RRF (0.7 MB), you can collect it from:

<http://www.resourcesnotwaste.org/publicnewsinfo/RRF%28WRATE%29EA.pdf>[http://www.resourcesnotwaste.org/publicnewsinfo/RRF\(WRATE\)EA.pdf](http://www.resourcesnotwaste.org/publicnewsinfo/RRF(WRATE)EA.pdf)

Or we can email you a copy.

### **07. Austria - prognosis tool for estimation of waste amounts**

A prognosis tool for estimation of waste amounts over a 10 year period has been developed at BOKU University in Vienna. International Waste News from Denmark reports (No. 3, June 2006) that the prognosis tool uses 10 central social and societal factors:

- population
- population density
- age distribution in population

distribution of workforce (agriculture/industry/service)  
GNP  
infant mortality rate  
life expectancy  
average household size  
unemployment rate  
tourist overnight stays

The tool was developed on the basis of an investigation that involved 55 cities with each over half a million inhabitants in 10 "old" EU countries and five "new" EU countries. Societal and demographic data was collected for the period 1970 - 2001, and on this background the mathematical models for future waste amounts were set up. The tool assists in making a more precise assessment of future waste amounts and can play an important role before decisions are taken regarding the capacity of new treatment facilities. Using the tool can be instrumental in avoiding costly mis-dimensioning. Assessments made by BOKU University concludes that both in the new and the old EU countries, waste amounts will be on the increase, among other because of increasing GNP, better health and falling household sizes.

The model, manual and project reports can be downloaded from the project's website LCA-IWM under "Project Results":

<<http://www.iwar.bauing.tu-darmstadt.de/abft/Lcaiwm/main.htm>><http://www.iwar.bauing.tu-darmstadt.de/abft/Lcaiwm/main.htm>

This book is the result of three intensive years of investigation performed by partners from 9 European countries, including consulting companies, university institutes and municipalities within the project The Use of Life Cycle Assessment Tools for the Development of Integrated Waste Management Strategies for Cities and Regions with Rapid Growing Economies (LCA-IWM). The project was funded by the European Commission's Fifth Framework Programme.

Each chapter deals in depth with a different aspect of municipal waste management systems. A method for the prognosis of waste generation is described. The reader is also provided with a clear understanding and significant criteria for the evaluation in terms of sustainability of the waste management situation. The book not only answers the question "how we are", but also provides the reader with key tools to the more important point "how can we improve it". One of the most important contributions of the project is the creation of two user adjustable computer assisted tool which support the accurate making of decisions in the waste management field, where rapid developing municipalities find it difficult to successfully plan their systems in order to fulfill the growing requirements of the European regulations. This Handbook also provides guidelines for the use of the developed Waste Prognostic Tool and the Municipal Solid Waste Management System Assessment Tool.

## Waste Prognostic Tool

The LCA-IWM Waste Prognostic Tool is an estimation tool for the future generation of municipal solid waste in European cities. Thereby the focus lies on cities in rapidly growing economies, such as southern and eastern European countries. It enables substantiated forecasts of waste generation rates as well as waste composition estimates. Thereby the consideration of long-term changes of the demographic, social and economic border conditions of a region permit significantly higher forecasting accuracy than usual estimates. Within the framework of this project a prognosis horizon of 10 years was assumed.

In comparison to the usually applied simple methods, such as trend extrapolations, this tool features the following benefits:

Consideration of regional and national indicators: Regional peculiarities of the demographic, social and economic conditions are therefore taken into account  
Provision of default values: The user will be supported in the case of missing data about its region. This enables a trade off between accuracy and practicability for the user.  
Validation for the broad sample of European cities: The underlying model was tested for 55 of 90 major cities in Europe. Thus high reliability can be guaranteed.

## Municipal Solid Waste Management System (MSWMS) Assessment Tool

The tool is an Excel interface programmed with VBA which allows the user to assess, compare and improve the environmental, economic, social sustainability of the waste management system of a city or region either existing or hypothetical. LCA-IWM Assessment Tool applications are:

To support the planning and monitoring of the waste management system of a municipality  
To enable local politicians introducing new and improving existing waste management systems.

With the LCA-IWM Assessment Tool up to four scenarios for waste management systems can be compared.

## **08. UK - WRG Acquisitions sells waste disposal business to Spain's FCC for GBP1.4 billion**

WRG Acquisitions & Finance PLC said it has agreed to sell its waste disposal business other than its waste-to-energy business to Fomento de Construcciones y Contratas SA ('FCC'), one of Spain's leading construction and service groups, for 1.4 bln stg.

Afxnews reports that the transaction is expected to close in the fourth quarter of this year, subject to clearance from the competition authorities.

FCC said that when it completes the purchase it will become a leading player in the waste management sector in the UK, significantly enhancing its existing presence through its wholly owned subsidiary Focsa.

In combination with its current presence in Spain, where FCC is the leader in the waste management sector, and the recent acquisition of ASA, a prominent waste management player in Austria and a number of key Eastern European markets, the acquisition of WRG will position FCC as one of the leading Pan-European waste management operators.

### **09. Wales - health and safety study of kerbside recycling schemes using boxes and bags**

"no significant risks found...."

Centre for Health and Environmental Research and Expertise (CHERE) and Cylch have collaborated on a joint project to explore the issues surrounding occupational health within the recycling sector. Working with nine organisations throughout Wales, CHERE looked at collection systems and the tasks involved in these, utilising video footage and observation sheets to provide an evidence base that would be used to make recommendations for improving health and safety.

The study focused on the collection of recyclables using boxes and bags; with organisations operating their collection rounds using either a co-mingled or source separated process. A central aim of this research project was to produce a training package that could be used to improve working practices throughout Wales, but also to provide a useful context for improving performance throughout the UK. A successful range of seminars was organised, using visual documentation from the study to demonstrate findings.

#### **Aims & Objectives**

To examine the occupational health issues for operatives working on kerbside recycling schemes using bags and boxes

To provide recommendations to assist in developing training to improve H&S

To deliver a series of regional training sessions based on these findings

Using boxes and bags in kerbside recycling operations create no significant health and safety risks, according to new research by Centre for Health and Environmental Research and Expertise (CHERE).

In stark contrast to a Health and Safety Laboratory (HSL) report earlier this year, the CHERE report found no "significant risks within kerbside recycling operations using boxes and bags that could not be effectively managed and controlled." The CHERE report analysed nine collection schemes across Wales while the HSL report looked at only three schemes.

"The report puts another nail in the coffin for those advocating co-mingled collection in wheelie bins on health and safety grounds" said Mal Williams, CEO of CYLCH (Wales Community Recycling Network). "It also paints a more balanced picture of potential risks as it assessed nine schemes in total - three times the number of operations observed by the much publicised HSL report earlier this year." He continued, "There now seems to be nothing particularly wrong with using boxes or bags to collect recyclates."

On the issue of assessing kerbside sorting systems against co-mingled collection systems, the report notes that a true picture of risks must involve both the collection and sorting process.

Des Bushell, Workers' Safety Advisor with CYLCH welcomed the CHERE comments, saying; "For co-mingled collection, health and safety risks in a materials recovery facility (MRF) also need assessing because by the time a vehicle operating a kerbside sorted system enters the depot the materials are already sorted. We must compare H&S issues to the same point in the materials recovery process to get the full picture. It is essential we compare like with like."

We can email you a copy of the study (1.4 MB) on request.

The report was produced by CHERE with financial assistance from the Knowledge Exploitation Fund. Further financial support, in equal part came from; CYLCH, Community Recycling Network UK and Community Recycling Network Scotland. CHERE provides impartial expert advice and consultancy services to public, private and voluntary sector bodies. The Centre has been created through a strategic partnership between the University of Wales, Aberystwyth's Institute of Geography and Earth Sciences, and Cardiff University's College of Medicine, Biology, Life and Health Sciences.

Cylch is an umbrella membership organisation that promotes sustainable resource (waste) management in Wales. Cylch advocates community ownership of the waste issue and sees waste materials as a valuable resource that, managed effectively, can create environmental, social and economic benefits for local people.<../../configuration/emailprofile/edit/www.cylch.org.uk> [www.cylch.org.uk](http://www.cylch.org.uk)

## **10. UK - testing an approach to reducing carrier bag waste shows the challenges involved**

A report detailing the findings from the "Choose to Reuse" bags trial, which took place last Autumn in Bristol and Edinburgh, has been published by the Waste & Resources Action Programme (WRAP).

The "Choose to Reuse" campaign, run in conjunction with major supermarket retailer partners, the Scottish Waste Awareness Group (SWAG), British Retail Consortium and Scottish Retail Consortium, encouraged people to take a bag with them when they went shopping in an effort to cut down on the number of free carrier bags used at the check-out. The campaign also encouraged shoppers to reuse their bags "any bag they chose" as often as possible for shopping, and to recycle them when they were worn out. The trial failed to show that such techniques, used over such a timeframe, can change consumer habits significantly.

### **Background**

In the autumn of 2005, WRAP (the Waste & Resources Action Programme) and a number of major supermarket retailers ran a trial to see whether consumers could be persuaded to use fewer free carrier bags on their shopping trips, by encouraging them to reuse bags instead. The following full report explains how the trial was set up and shows how the campaign, using "Choose to Reuse" as a key message, was promoted to consumers, and their response to it. The impact of the trial was measured through independent research and the details of the results are included in the report.

Two large cities, Bristol and Edinburgh, were chosen as suitable trial locations. WRAP were asked by Defra, the Scottish Executive and the Welsh Assembly Government to explore ways to reduce carrier bag waste, estimated to amount to 100,000 tonnes per annum across the UK. A trial was set up to encourage consumers to reuse bags when shopping, with a particular emphasis on supermarket shopping, since the vast majority of disposable free carrier bags are dispensed from these stores.

Carrier bags are reusable but WRAP's research showed while they are used for various purposes in the home, they are rarely used for repeated shopping trips, which means consumers continue to take free bags at the check-out. WRAP and their project partners discussed the best approach and agreed that if shoppers could cut back on the number of bags they use, through reusing shopping bags instead, they could make a contribution to saving resources and reducing waste.

### **"Choose to Reuse" Campaign - key messages**

The "Choose to Reuse" campaign was about getting people into the habit of using their shopping bags again and again for supermarket trips. The campaign asked people to remember to take a bag when they left home, along with other essentials such as their

keys and handbag. If shoppers found they had to take a free carrier bag at the till, they should try to reuse it as often as possible, and then recycle it when it was worn out. The slogan for the campaign was "Choose to Reuse" with a sub headline "the Bristol (or Edinburgh) Reusable Bags Trial." The trial messages and iconography were developed by WRAP and their contractors, with the Scottish Waste Awareness Group (SWAG), the British Retail Consortium (BRC), the Scottish Retail Consortium (SRC) and the participating retailers.

### Trial structure

The promotion of campaign messages ran for 10 weeks with a media campaign, local promotions and in-store activity. The launch was on 19 September 2005, and the Campaign closed on 28 November, with baseline and exit surveys conducted before and after to measure impact. A Public Relations campaign was conducted by WRAP and Grayling PR with support from SWAG in Scotland. Both trials had the support of the City Councils. Originally, the period of promotion had been planned as a 6 week campaign, but was extended to 10 weeks at the request of some of the retailers. 5 Evaluation of the impact of the trial Research was conducted to examine the effectiveness of the "Choose to Reuse" campaign.

This consisted of collecting and analysing three sources of data:

**Attitudinal survey** A programme of face-to-face interviews conducted among shoppers in 4 stores in both Bristol and Edinburgh, conducted before the campaign and at the end of the campaign. The views and attitudes of more than 800 shoppers were secured in each of the two waves of the survey

**Observational survey** A large scale observational study, conducted across 8 stores in Bristol and Edinburgh, both before the campaign and at the end of the campaign. The bag use behaviour of more than 9,000 shoppers, who between them used more than 30,000 bags, was observed in each of the two waves of the survey.

**Retailer bag usage** Bag data, supplied by some of the retail partners: sales of reusable bags or "bags for life" available at check-outs, and usage of free carrier bags.

The research into the impact of campaign was conducted on behalf of WRAP by Brook Lyndhurst. Their findings and interpretation are included as part of the full report. However, a précis of the analysis follows below:

### Analysis of the results

The attitudinal survey indicates some mild, positive changes in bag reuse behaviour and associated attitudes to bags: shoppers said they were less likely to put everything into free carrier bags, and they bought and used more "bags for life" than previously.

The observational survey shows that actual bag reuse declined slightly between the two survey waves.

In contrast, the data from retailers showed an increase in the sale of "bags for life"/ reusable bags during the campaign, and data on overall bag usage showed a slight decline in the use of free carrier bags.

Reuse of bags appears to be greater for more 'medium-sized', possibly planned shopping trips (2-5 bags used), but lower for "top-up" shops (i.e. 1 bag) and very large shopping trips (5+ bags used).

Older age groups are more likely to undertake medium-sized shops than other age groups. In the Phase 1 interview survey, for example, 66% of shoppers aged 55 and over were using 2 to 5 bags, compared to 59% of shoppers aged under 35; and only 22% of older shoppers used a single (or no) bag, compared to 30% of younger shoppers. (This pattern was maintained through the Phase 2 survey).

It was noted that stores experiencing increases in reuse had a higher proportion of shoppers from older age groups (55+) who were more likely to be undertaking a medium sized shopping trip, i.e. from 2-5 bags of shopping. The "Choose to Reuse" Trial

## Conclusions

The "Choose to Reuse" trial was a research exercise to test whether a broad mix of consumers, using different supermarkets, could be moved to adapt their ingrained habits of taking free carrier bags at the till, through a combination of local Public Relations and point of sale (POS) marketing materials in-store. In practice it proved difficult in a pressured retail environment, to sustain all of these activities throughout the trial period of 10 weeks. In the event, the trial was inconclusive on the central point of whether such techniques, used over such a timeframe, could be sufficient to change consumer habits significantly.

However, the trial did expose some interesting differences between customers, in terms of the type of shopping trip which may engender bag reuse, and the social groups/age groups most likely to be receptive to the campaign messages. This suggests that certain groups and certain types of shopping (i.e. planned regular trips to supermarket, more highly associated with older shoppers rather than "top up" shopping) may be more amenable to shopping bag reuse.

Also the results show that in stores where the reuse rate was low at the start of the campaign there was observed to be an increase in reuse, and consumer attitudes towards reuse, by the end of the campaign. In these stores, consumer attitudes changed towards the levels seen in the stores where reuse was high by UK standards at the beginning of the trial. In stores where there was already a strong reuse rate prior to the campaign, there was no evidence of further improvement.

The focus of any further work in this field may benefit from targeting these factors to see whether better results could be achieved. The three most important factors that appeared to influence how susceptible the public were to campaign messages were:

Whether or not a shopping trip was planned: those who plan a modest, regular shop and "intend" to fill a few large (reusable/ bag for life) bags at check-out.

Age of shopper: those over 55 years of age, some no longer working, and probably much more able to conduct well planned shopping trips, where bags come with them.

Social group: those in social groups D and E were apparently more likely to respond positively. 'Pre-meditated' shopping was most highly associated with those over the age of 55 and those undertaking medium sized shopping trips. Perhaps more research into these groups would need the benefit of store-by-store catchment information, which the partner retailers in the trial may have, so that more interpretation could be drawn from the make-up and habits of these different groups, and their regular use of the stores.

Copies of the report are available from WRAP's website at:

<[http://www.wrap.org.uk/downloads/Choose\\_to\\_Reuse\\_Report\\_-\\_June\\_2006.fd25b229.pdf](http://www.wrap.org.uk/downloads/Choose_to_Reuse_Report_-_June_2006.fd25b229.pdf)>[http://www.wrap.org.uk/downloads/Choose\\_to\\_Reuse\\_Report\\_-\\_June\\_2006.fd25b229.pdf](http://www.wrap.org.uk/downloads/Choose_to_Reuse_Report_-_June_2006.fd25b229.pdf)

Or we can email you a copy on request.

## **11. USA - study calls for national electronics recycling law**

Current statewide electronics recycling laws that have different requirements can lead to inefficiencies and high compliance costs for U.S. electronics companies and all stakeholders, according to a new study issued by the U.S. Department of Commerce.

A new study released by the U.S. Department of Commerce, Technology Administration titled Recycling Technology Products: An Overview of E-Waste Policy Issues at the governance meetings of the Institute of Scrap Recycling Industries, Inc. (ISRI) in Washington, D.C. provides recommendations for a national electronics recycling system based on feedback from manufacturers, retailers, recyclers and environmental organizations.

Currently, four states have passed statewide electronics recycling laws that have different requirements:

California  
Maine  
Maryland  
Washington

There are also five states that ban CRTs from landfills:

California

Maine  
Massachusetts  
Minnesota  
New Hampshire

"This report will help policymakers understand the complexities of electronics recycling so that legislative or regulatory proposals strengthen, rather than hinder, the marketplace for these materials," said Robin Wiener, ISRI president, in a statement.

Electronics recyclers estimate that an average of about 400 million units a year will be scrapped, translating into three billion units during the rest of this decade. The report calls for a clearly defined list of covered products for recycling, collection methods, a financing system for recycling used electronics and the role of government. At this time there is no consensus on how to finance a national recycling system. Currently, states are using several methods including an "advanced recovery fee" that is paid by the consumer at the time of purchase, and "producer responsibility" in which manufacturers pay for the recycling. Other recommendations include management guidelines for recycling such as EPA's guidelines for the Plug-In to eCycling Program, and an auditing system to evaluate dismantlers and recyclers. Other findings justify industry participation in the development of any design standards or materials bans if they are to be part of any legislation. There is also a need to standardize product labeling requirement so producers only face one set of requirements for compliance across the U.S., according to the study.

The report also encourages incentives in the private sector for programs that reward environmentally-friendly designs such as the Electronic Product Environmental Assessment Tool (EPEAT), Energy Star, Design for Environment Program and Green Suppliers Network. ISRI advocates for a competitive environment among manufacturers in order to reduce the costs of recycling electronic products and to enhance Design for Recycling (DFR). DFR is a concept that ISRI said it developed more than twenty years ago that calls for manufacturers to design products that can be easily recycled and that minimizes or eliminates the use of toxic materials.

Copies of the report Recycling Technology Products: An Overview of E-Waste Policy Issues (2 MB) are available from the US Government Technology Department's website at:

<<http://www.technology.gov/reports.htm>><http://www.technology.gov/reports.htm>

Or we can email you a copy.

## **12. Thailand - local sustainable packaging initiatives backed by Coca-Cola**

TIPMSE is in discussion with the Bangbuathong Municipal to develop and implement a selective waste collection and recycling model for the Nonthaburi community.

FoodIngredients.com reports that the Thailand Institute of Packaging Management for Sustainable Environment (TIPMSE) recently signed a Memorandum of Understanding (MoU) with two major universities to develop waste segregation, collection and recycling models for universities across the country. TIPMSE, sponsored by the Coca-Cola system in Thailand, signed the MoU in late June with Thammasart University - Rangsit Campus (Pathumthani province) and King Mongkut University of Technology - Thonburi Campus (Bangkok).

TIPMSE is also in discussion with the Bangbuathong Municipal to develop and implement a selective waste collection and recycling model for the Nonthaburi community. The Institute will sign an MoU with the Office of the Local Administration this month to launch the pilot community waste recycling bank.

TIPMSE was established in October 2005 as a nonprofit organization endorsed by the Federation of Thai Industries. The institute is funded solely by contributions from five core packaging supply industries (glass, paper, metal, plastic, aluminum) and relevant businesses, such as the Coca-Cola System in Thailand. The institute promotes post-consumer selective waste collection and recycling and integrated waste management -- targeting a 10% reduction of post-consumer packaging waste over the next 5 years.

The Coca-Cola system in Thailand, with other large multinational companies, played a major role in establishing TIPMSE. The institute works closely with Brazil's CEMPRE (Business Commitment for Recycling) to promote integrated waste management systems for developing countries.

### **13. USA - EPA assessment of dioxin understates uncertainty about health risks and may overstate human cancer risk**

Although the U.S. Environmental Protection Agency presented a comprehensive review of the scientific literature in its 2003 draft reassessment of the risks of dioxin, the agency did not sufficiently quantify the uncertainties and variabilities associated with the risks, nor did it adequately justify the assumptions used to estimate them, according to a new report from the National Academies' National Research Council.

The committee that wrote the report recommended that EPA re-estimate the risks using several different assumptions and better communicate the uncertainties in those estimates. The agency also should explain more clearly how it selects both the data upon which the reassessment is based and the methods used to analyze them.

"Failure to fully characterize uncertainty can convey a false sense of precision in the conclusions of the risk assessment," said committee chair David L. Eaton, a professor and associate vice provost for research at the University of Washington, Seattle. "EPA could

improve the transparency and credibility of the assessment by more clearly identifying the assumptions used to support risk estimates and by updating them when significant new findings are made."

Dioxin and related compounds have been a concern since they were found in Agent Orange, a herbicide widely used during the Vietnam War. The chemicals result unintentionally from many industrial processes and persist in the environment, allowing them to build up in the food chain. Humans are exposed to dioxins primarily through the consumption of beef, pork, fish, and dairy products, although occupational or accidental exposure can be higher. Efforts to reduce dioxin and related compounds in the environment in recent years have resulted in lower concentrations of the chemicals in humans.

EPA first assessed the risks of dioxin in 1985. After new scientific data emerged, the agency issued a draft reassessment in 2003. The Interagency Working Group on Dioxin, consisting of representatives of seven federal agencies, recommended further review of the new document.

In its 1985 assessment, EPA classified dioxin as a "probable human carcinogen," but the agency's 2003 reassessment says that dioxin is better characterized as "carcinogenic to humans." Since 2003, however, EPA has issued new guidelines for classifying the carcinogenicity of chemicals. The Research Council committee was split on whether the available evidence met all the criteria for classifying dioxin as "carcinogenic to humans" under the new guidelines, but it was unanimous in agreeing that dioxin should at least be considered "likely to be carcinogenic to humans."

The committee considered the choice of phrasing to be more a question of semantics than science, and said that the public health implications of the two classifications appear to be identical. And although the epidemiological evidence supporting classification of dioxin as a human carcinogen is not strong, occupational studies show a modest association between relatively high concentrations of dioxin in the body and increased mortality from all cancers. Animal studies provide additional support for classifying dioxin as a carcinogen.

The committee did express concern, however, with how EPA estimated cancer risk from dioxin. Because the data indicating cancer risk are from occupational and animal studies where doses of dioxin are much higher than those to which human populations are typically exposed, mathematical models are used to extrapolate the effects of lower doses in order to estimate human risk.

The committee took issue with EPA's decision to rely solely on a "linear" model that assumes the risk of cancer is directly proportional to dose at all levels of exposure, including the levels found in the environment, which are generally much lower than those shown to cause cancer in animals. Such an approach usually results in higher risk estimates than those based on nonlinear assumptions, where biological responses do not vary proportionally with dose. EPA said there was a lack of data to support a nonlinear

approach, but the committee said that compelling new animal data from the National Toxicology Program -- released after EPA completed its reassessment -- when combined with substantial evidence that dioxin does not directly damage DNA, is now adequate to justify the use of nonlinear methods for estimating cancer risk at relatively low levels of exposure. Such a nonlinear model would result in a lower estimate of risk. The report recommends that EPA estimate cancer risk using both a nonlinear and linear model and describe the strengths and weaknesses of each.

The agency also should make clear how it chose its "point of departure" dose, which corresponds to the lowest experimental dose associated with adverse health effects; extrapolation is used to estimate the risk at lower doses. The point of departure is typically associated with an incremental effect, such as 5 percent more cancers, which would be expressed as a 5 percent "effective dose." However, very low effective doses, such as the 1 percent effective dose used by EPA in its reassessment, require more supporting data in order to detect such a small increase in effects. The committee said that EPA did not adequately justify its use of a 1 percent effective dose. The report recommends that cancer risks be estimated using a number of points of departure and that the uncertainties associated with each be fully explained, and quantified when possible.

To assess risks other than cancer at very low doses, EPA usually identifies a "reference dose" below which it anticipates no adverse effects. But the agency said that establishing a reference dose in the dioxin reassessment would not provide useful information. The committee, however, said a reference dose would supply valuable information, such as the risks faced by populations, including workers, who may be exposed to more than the reference dose.

The committee agreed with EPA's conclusion that dioxins are probably toxic to the human immune system, but it said that the agency's finding that dioxin-like compounds are immunotoxic at "some dose level" is inadequate. EPA should expand on this issue in its reassessment by discussing the biological mechanisms by which exposure to low doses of dioxins could compromise the immune system. The agency also should more thoroughly address how developmental and reproductive harm caused by dioxins in animals may relate to human risks.

The committee endorsed EPA's use of a "toxic equivalency factor" for estimating the toxicity of dioxin-like compounds relative to dioxin. Toxic equivalency factors assign a percentage of toxicity; for example, a certain dioxin-like compound may present one-tenth the risk of dioxin, which is important when considering the cumulative risks of exposure to multiple dioxin-like compounds in the environment.

Overall, EPA addressed many sources of uncertainty qualitatively, but the committee noted that the report would be substantially strengthened if the agency included more quantifiable measures of both the uncertainty and variability in the available scientific data used to estimate dioxin risks to public health. It recommended that EPA write a more thorough chapter on risk characterization -- a culmination of all the relevant toxicity and exposure data and their relationship to potential health effects -- that includes a

comprehensive discussion of uncertainties. The agency also should routinely monitor dioxin-related research and establish criteria for deciding when findings such as the new National Toxicology Program data are compelling enough to revise the most recent dioxin risk assessment.

The committee's report was funded by the U.S. Environmental Protection Agency, U.S. Department of Agriculture, and the U.S. Department of Health and Human Services. The National Research Council is the principal operating arm of the National Academy of Sciences and the National Academy of Engineering. It is a private, nonprofit institution that provides science and technology advice under a congressional charter. A committee roster follows.

Copies of HEALTH RISKS FROM DIOXIN AND RELATED COMPOUNDS: EVALUATION OF THE EPA REASSESSMENT are available to purchase from:

<<http://www.nap.edu/catalog/11688.html>><http://www.nap.edu/catalog/11688.html>

There is a 6-page briefing PDF (free) from:

<[http://dels.nas.edu/dels/rpt\\_briefs/dioxin\\_brief\\_final.pdf](http://dels.nas.edu/dels/rpt_briefs/dioxin_brief_final.pdf)>[http://dels.nas.edu/dels/rpt\\_briefs/dioxin\\_brief\\_final.pdf](http://dels.nas.edu/dels/rpt_briefs/dioxin_brief_final.pdf)

Or we can email you a copy.

The original EPA draft reassessment of the risks of dioxin can be viewed at:

<<http://www.epa.gov/ncea/pdfs/dioxin/nas-review/>><http://www.epa.gov/ncea/pdfs/dioxin/nas-review/>

#### **14. Malaysia - moves towards RDF**

The Malaysia National News Agency reports that as big cities continue to absorb new residents each year, the clock is ticking fast for local authorities in their quest to find solutions to the ever-increasing volume of waste generated by the people. While some Malaysians have responded well to the calls to separate their garbage and to recycle, others remain lackadaisical as they continue to dump rubbish at places convenient to them, such as on open spaces, and into rivers.

The government, which is seriously looking into this problem, has come up with various awareness programmes to safeguard the nation's environment and water resources, including the setting up of a Cabinet Committee on Environmental Issues headed by Deputy Prime Minister Datuk Seri Najib Tun Razak. The committee held a meeting more than a month ago to decide on a final proposal for the country's solid waste management, and was to accept the recommendations in previously approved projects as well as new views on the best way of managing waste. Thus far, the government finds sanitary

landfills and incinerators as the best options in addressing its waste management problem.

Malaysians have generally been supporting the choice on landfills until the recent leachate problem at the Bukit Tagar landfill, which has raised eyebrows over the effectiveness of such method in safeguarding the environment. As solutions to overcome the leachate problem are being sought, the government has also been focusing on recycling and conversion of waste into refuse-derived fuel (RDF). The RDF technology is being used in developed countries, such as Europe and Japan.

Malaysia's RDF project, started this month when the country's first waste-to-energy plant in Hulu Semenyih began its operations, is said to be capable of processing up to 1,000 tonnes of municipal waste each day and generate enough power to sustain a small town the size of Kajang. The RDF technology is a step-by-step segregation of combustible and non-combustible materials, with the former converted into free-burning pellets to produce energy.

The thorny issue seems to be about incinerators, as some claim that the normal incineration temperature of 850 degrees Celsius would not destroy dioxins and furans. Dioxin gas is an endocrine-disrupting chemical (EDC) released when plastics and other wastes containing chlorine-based chemicals are burnt. EDCs, including dioxin and furan, are some of the most hazardous chemicals known to science. They are the primary components of Agent Orange and furans are also by-products of chemical, manufacturing and combustion processes. The prospect of seeing the emission of these deadly gases are reported to be among the reasons why the RM1.5 billion Broga thermal treatment plant project has not taken off the ground as local residents protested, claiming that the project poses risks to the environment and to their health.

Another reason for the delay is due to the original site of the waste treatment plant having to be relocated twice to the present site which meets the environmental standards set by the Department of Environment (DOE). "But unlike conventional incinerators, many of today's incinerators are equipped with advanced technologies capable of avoiding the emission of such gases," Naoyoshi Ando, representative of the consortium of Ebara Corporation and Hartasuma Sdn Bhd told Bernama, adding that such plants were also capable of converting waste into energy.

### Community-driven

Citing Asahi Environmental Centre (AEC), a state-of-the-art waste management facility introduced in Kawaguchi city in Tokyo, Japan, Ando said the plant involved a holistic, community-driven approach that focused on waste prevention, reduction, segregation and recycling. "The AEC is located smack in the heart of the city, bordered by roads connecting the residential areas around it, so that is how safe the plant is," Ando said. Established in November 2002, the AEC had been designed to keep its environmental impact to an absolute minimum and recover recycled materials from the waste and to recover reusable energy.

The AEC, using the fluidised-bed gasification and ash-melting system (TIFG), has a recycle plaza for collection of resource waste -- a group of recyclable materials, such as paper, bottles and cans -- as one part, and incineration facility for the treatment of municipal waste -- kitchen waste, non-recyclable waste, as another.

In addition, the ash produced at the waste treatment centre in another prefecture is also received for further treatment at the AEC. The facility processes the municipal waste of the city at the rate of 420 tonnes, and the ash from the other areas at the rate of 37 tonnes for each daily.

### Most advanced technology

Known as the most advanced environmental technology in Japan, the fluidised bed system uses heated fluidised sand to incinerate refuse. A bed of sand grains of 0.5mm to 1.0mm in diameter is heated, swirled, and blown up in air currents in various velocities from the bottom of the chamber.

This waste treatment plant in Kawaguchi city consists of four major facilities -- the waste-receiving and feeding facility to receive municipal waste or ash; the gasification and mass-melting facility to classify the waste and treat it in high temperature; the heat-energy recovery facility to recover useful heat; and the flue gas treatment facility to remove the toxic substance from flue gas, thus ensuring the problem of environmental impact is absolutely minimum. Interestingly, the receiving platform at the centre has a double door, which opens when the garbage truck arrives and immediately closes once a lorry goes inside, to trap the odour, hence avoiding it from being felt by those outside.

Compared to the conventional incinerators which could burn at only 850 degrees and create loads of problems to the people living nearby and to the environment, the AEC could burn dioxin in very high temperatures above 1,300 degrees Celsius. In each emission, the actual emission of dioxin is significantly less than the national emission control standard and meets all international dioxin emission standards. The figures are apparently no secret to the residents. All the emission figures are executed real-time. The ash, once cooled, becomes a slag and is reusable as road construction material, for instance. The AEC has reused the slags as bricks and as tiles for stairways and road pavements.

### Added feature

Ando said in Japan, many of those using the conventional incinerators had already added the gasification ash-melting procedure as the new attachment to solve the dioxin problem. At the AEC, the electricity generated is being reused by the plant to provide power (heating) during winter for its public swimming pool located at the top of the building. The AEC is also selling its power to the power suppliers. The flue gas is highly discharged into the atmosphere at 100 metres above ground and the smoke is not visible.

The permissible level of dioxin at the facility in Kawaguchi is well below the permitted level.

Heat generation will eventually pave the way for the minimum amount of ash that has to be sent to a landfill - about five per cent - so, in this case the life of the landfill is lengthened. Ando said it was important to segregate day-to-day waste. "But the most important of all is for people to find ways to reduce waste disposal and that waste treatment should be part of an integrated waste management approach, incorporating waste generation, treatment and disposal at landfills."

### **15. Australia - shoppers in Victoria to pay for plastic bags**

Free plastic bags will be banned in the Australian state of Victoria from 2009 in an effort to reduce landfill, protect wildlife and stem the wasteful use of resources. The ban is expected to drastically reduce Victoria's current annual consumption of 1.1 billion plastic bags. The ban on free plastic bags is an important part of the State Government's A\$200 million Environmental Sustainability Action Statement, announced by Premier Steve Bracks today. Environment Minister John Thwaites said legislation enabling a ban on plastic bags was an Australian first and a major step towards making our everyday lives more sustainable.

"This legislation will send a clear message that these bags come at an environmental price that we can no longer ignore," Mr Thwaites said. "About 10 million of these bags become rubbish that enters our waterways, threatens marine life and damages property and machinery. Non-biodegradable plastic bags kill substantial numbers of whales, seals, turtles and other marine wildlife and can take up to 1000 years to break down in the environment. While Victorians are to be congratulated for using 800 million fewer plastic bags in the last four years, we need to go one step further. A 10 cent fee for plastic bags introduced by Bunnings has seen bag use cut by 99 per cent - we would like to see the same impact across the State."

Retailers who wish to give out plastic bags must charge a minimum of 10 cent for each bag. Appropriate exemptions for fresh produce, biodegradable bags, retailers with an accredited phase-out plan and small retailers are being considered. Legislation providing Government with the power to ban plastic bags will be introduced to Parliament this month. State, Territory and the Commonwealth Environment Ministers have made a commitment to phase out single use, lightweight plastic shopping bags by the end of 2008.

Victoria's legislation will come into effect on January 1, 2009, if bags aren't phased out through voluntary measures by then.

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