



**ECONOMIC INSTRUMENTS:  
a Tool for Sustainable Development**  
London - 4 October 2001

Rat der Gemeinden und Regionen Europas  
Council of European Municipalities and Regions  
Europæiske kommuners og regioners råd  
Consejo de municipios y regiones de Europa  
Consiglio dei comuni e delle regioni d'Europa  
Raad der Europese gemeenten en regio's  
Conselho dos municípios e regiões da Europa  
Conseil des communes et régions d'Europe

# "ECONOMIC INSTRUMENTS: A TOOL FOR SUSTAINABLE DEVELOPMENT"

*Case studies and opinions from a Seminar organised by LGA, LGIB and CEMR  
on 4 October 2001 in London*

## CONTENTS

	<b>Page</b>
<b>FOREWORD</b>	3
<b>PART I : THE ISSUES AT STAKE</b>	7
<b>I. Overview</b>	7
Why is it important to discuss economic instruments?	7
What are the other forms of non-regulatory approaches?	7
What is the role of local and regional government in achieving sustainable development through the use of economic instruments?	8
What types of economic instruments can be used and what effect might they have?	8
<b>II. Economic instruments at the local level</b>	8
Why should economic instruments in certain cases be implemented locally and why are hypothecated taxes more acceptable at the local level?	8
What are the specific problems for which economic instruments can prove highly effective at the local level?	9
<b>III. Local implementation and impact of national measures</b>	9
What are the arguments in favour of economic instruments at the national level?	9
In which circumstances are national measures used and what is the role of local and regional government in their implementation?	10
What is the impact of national measures on local communities?	11
<b>IV. Potential, acceptability and trade-offs of economic instruments</b>	11
<b>REFERENCES</b>	13

<b>PART II : PRESENTATIONS BY SPEAKERS</b>	15
Economic instruments : EU perspective <i>Mr Rupert WILLIS, DG Environment, European Commission</i>	17
Study on the economic and environmental implications of the use of environmental taxes and charges in the European Union and its Member States <i>Mr Patrick ten BRINK, Institute for European Environmental Policy (IEEP)</i>	19
Economic instruments in the UK <i>Mr Ronan PALMER, Environment Agency of England and Wales</i>	31
Taxes and fees in waste management <i>Mr Francis RADERMAKER, Association of Cities and Regions for Recycling</i>	33
Costing environmental strategies - The waste sector <i>Mr Peter JONES, BIFFA Waste Services Ltd</i>	43
The use of taxes and charges to finance public transport in Europe <i>Mr Tom HOWES, DG Energy and Transport, European Commission</i>	49
CUPID - Transport pricing in the real-world <i>Mr Jo BAKER, Transport &amp; Travel Research Ltd</i>	51
Promoting resource efficiency in EU environment policy <i>Mr William R. DUNCAN, ASSURRE</i>	53
Using free market tools to protect the environment in Germany <i>Mr Axel WELGE, Deutscher Städtetag</i>	57
The possibilities and limits at the local level - congestion charging in London <i>Ms Michelle DIX, Congestion Charging, Greater London Authority</i>	61
Merseyside Transport Network <i>Mr Neil SCALES, Merseytravel</i>	67
The distributional effects of fuel duties : rural households in Scotland <i>Dr Deborah ROBERTS, The Macaulay Institute</i>	73
Sustainability Pact Nuremberg <i>Dr Werner EBERT, Umweltamt Nürnberg</i>	77
<b>DETAILS OF SPEAKERS</b>	79

## FOREWORD

The Council of European Municipalities and Regions has been interested in the issue of economic instruments for many years. It has always been favourable to the introduction of a carbon dioxide tax and has welcomed the conclusions of Jacques Delors' 1993 White Paper on "Growth, Competitiveness and Employment: The challenges and ways forward into the 21<sup>st</sup> century", which introduced the need to uncouple economic prosperity from environmental deterioration.

In view of the increasing recognition of economic instruments as being an effective means of achieving environmental policy objectives and their growing use both at national and local and regional level within the EU, CEMR took the initiative to organise a Seminar on this issue, together with the LGA, whom I would like to thank for their hospitality. This Seminar brought together experts, academics, officials as well as local government representatives, to present case studies and discuss the use of economic instruments at different levels. The present case studies and opinions are the result of this seminar.

The discussions revealed the complexity of economic instruments, which can take many forms and have very diverging objectives. For instance, subsidies provided to farmers under the Common Agricultural Policy can be considered economic instruments just as local waste taxes can. Moreover, whilst some economic instruments are earmarked to fund related environmental improvements others are merely aimed at raising revenue. For the purpose of the debate on the use of economic instruments at the local and regional level it was thus considered that the definition should be more restrictive and should embrace those instruments, which serve to influence attitudes in an effort to promote sustainable development.

### **Key points**

The various presentations that were made during the seminar, and the ensuing discussions, revealed the following key points:

- Economic Instruments must be implemented as part of a more coherent set of measures, including regulatory measures and information campaigns, depending on the specific situation;
- An economic instrument should be designed carefully taking into account flexibility and creativity. Moreover, the following elements are vital to the implementation phase:
  - Transparency;
  - Consultation;
  - Sufficiently long adjustment and review phase;
  - Promotion of the beneficial effects of the instrument;
- Whilst not necessarily in the interest of economic efficiency, the earmarking of revenue generated by the use of economic instruments should be favoured, so as to increase public acceptability;
- A balance should be struck between the revenue generating aspects of the instrument in question and the positive environmental effects that it brings about. The fact that the ultimate objective of an economic instrument entails that revenue generated is not a reliable source of public funds should be borne in mind;

- The concept of efficiency is at the core of the implementation of economic instruments. Such instruments should therefore only be implemented where they are likely to work best.

### ***The issue of competition***

A number of other considerations came up during the discussions, including the issue of competition, in particular between neighbouring towns. Indeed economic instruments implemented in one town may just lead to shifting the problems to the neighbouring towns rather than resolving them. The secondary effects can be loss of competitiveness and trade for the town itself, in particular if the instruments concern road pricing in a city centre for example.

Furthermore, from a national point of view, so as to avoid distortion of competition between member States a certain degree of harmonisation at EU level should be reached with regard to such instruments. This would be particularly beneficial for fuel prices for example.

### ***Social considerations***

Another important consideration was that of the social implications of the use of economic instruments. Whilst economic instruments, as we defined them above, should serve to influence and eventually change attitudes and bring about more sustainable consumption patterns, they might have adverse effects for certain parts of the population.

Such adverse effects can appear when there is no reliable alternative to what is being taxed. This can be the case in particular for rural populations when the national government decides to tax fuel. An example of this concerning the effect of UK fuel duties on rural populations in Scotland is included in this paper. This consideration supports the idea of allowing sufficient flexibility in the design of economic instruments.

Another form of adverse effect is that of the impact that economic instruments may have on low-income households. It was considered however that all citizens should be aware of and understand the real cost to society of environmental deterioration and that flanking measures should be put in place so as to ensure that such parts of the population are not unduly burdened.

### ***The role of local and regional authorities***

It emerged from the discussions that local and regional authorities have indeed a broad scope for using economic instruments. They have an important role to play in implementing such instruments in as much as they are able to target them on one particular problem whilst being in a position to weigh up the impact that such an instrument may have on the local community. They are also in a good position to show the beneficial effects of the instruments, particularly by earmarking them for specific local improvements.

Furthermore, local and regional authorities can provide the necessary accompanying measures so as to ensure successful and coherent implementation of national instruments. It should be pointed out that national measures would, it seems, benefit from a certain degree of flexibility at the local level in order to avoid adverse affects brought about by local conditions.

The fundamental aspect is that economic instruments should be implemented on the most appropriate level, whether it be local, regional, national or international, dependent on the nature of the environmental problem to be addressed.

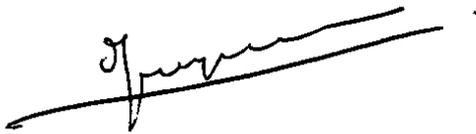
### ***Involvement of the citizens***

Ultimately, one of the main and fundamental keys to changing attitudes is to ensure the full involvement of the citizens. This concept has to be, as mentioned above, at the heart of the design of economic instruments. There are several facets to this issue:

- The implementation of economic instruments should enable citizens to understand the logic of such instruments;
- They should be implemented in such a way that citizens have ownership of the problem and feel they are in a position to benefit from the results of the initiative;
- Citizens should be offered and be made aware of all reliable alternatives;
- The concept of fairness should be at the core of economic instruments.

Finally, so as to ensure effectiveness and coherence there is a need for adequate co-ordination of measures implemented at the local, regional, national and European level.

These are some of the considerations and conclusions that came out of this Seminar. They are only preliminary ideas as this was an initial debate on this question. Furthermore although the concept of economic instruments is more and more accepted as being an important tool to promote sustainable development, the implementation of such instruments is still at an early stage. CEMR is committed to further developing this discussion and to gathering and disseminating good practice in this field.

A handwritten signature in black ink, appearing to read 'Jacques Rey', written over a horizontal line.

Jacques Rey  
Chairman of the CEMR Environment Committee



# PART I : THE ISSUES AT STAKE

## I. Overview

### Why is it important to discuss economic instruments?

There is growing support for the use of economic instruments both at the national and local/regional level. Indeed, it is more and more recognised that standard regulatory instruments are not always able to reach the objectives of sustainable development without the help of new approaches to environmental management. Economic instruments form one of these new approaches, and there are a number of reasons to support the advantages of such instruments in delivering cost-effective environmental improvements:

- Traditional regulation on its own is not always an effective or efficient way of tackling environmental problems and can discourage innovative solutions;
- Economic instruments provide incentives to consumers as well as producers to shift away from environmentally intensive forms of production;
- They enable businesses to adopt methods for achieving environmental improvements that suit them best;
- They can be as effective for diffuse sources of pollution, which are difficult to regulate, as for point sources;
- By raising revenue, they provide the means to give earmarked funding so as to achieve related environmental improvements;
- There appear to be circumstances when environmental taxes can both protect the environment and create jobs.

However there are a number of important considerations to take into account when using such instruments:

- Is the level of incentive sufficient to allow consumers and producers to effectively choose the more environmentally sound option?
- Will people on low incomes and vulnerable groups be unfairly disadvantaged by these measures?

### What are the other forms of non-regulatory approaches?

In the debate on the best way of achieving sustainable development through the implementation of new approaches such as economic instruments, it is also important to consider other new approaches such as voluntary ones. Indeed these are increasingly widespread, as many companies see the benefits both of complying with environmental standards and of improving their production system. Such approaches are also very beneficial on the local level as they provide for co-operation between local government and local businesses and can contribute to achieving better local environmental conditions. An example of such an approach from the city of Nuremberg is provided in the annex. However such voluntary approaches are limited as many companies may be unwilling or unable to undertake real changes in their production systems, and such approaches do not provide the incentives to citizens as economic instruments do.

What is the role of local and regional government in achieving sustainable development through the use of economic instruments?

Whereas taxation policy is often implemented at national level, there is strong evidence that economic instruments in certain circumstances are more adequately implemented at the local or regional level. Indeed, because of regional differences, the implementation of a uniform national instrument will imply different cost burdens on localities and will thus achieve different levels of compliance. Therefore, if the environmental problem is dependent upon local conditions, local authorities should be offered the freedom to vary tax rates according to these conditions. Furthermore, they are in a good position to assess the impact of any new measures on the communities they represent, in particular the impact on people with low incomes and other vulnerable groups, and to respond to local environmental problems. Such local implementation also offers local communities the chance to use the resulting revenues to fund local environmental improvements. An example provided in the annex on the effect of high excise duties on fuel in rural Scotland provides an illustration of the need to take local conditions into account, and the possible contradiction that may exist between local implementation of economic instruments and the internal market.

What types of economic instruments can be used and what effect might they have?

Economic instruments comprise taxes, subsidies and other incentive payments, and tradable emissions permits.

Environmental taxes fall essentially within the following four categories:

- Directly targeted taxes, which are levied directly on a source of pollution or environmental damage;
- Incentive based taxes, which are levied on an activity or product associated with pollution or environmental damage;
- Revenue raising taxes, which are primarily designed to raise revenue, but with associated environmental benefits;
- Hypothecated taxes, where all or part of the revenue is earmarked for spending on environmental improvements.

For each type of tax there is evidence of advantages in devising or adapting taxes to suit local or regional conditions. Locally levied and hypothecated taxes would demonstrate a direct link between the tax and potential benefits to communities.

The use of economic instruments should always be accompanied with clear and reliable information, which can substantially improve the effectiveness of these instruments.

## **II. Economic instruments at the local level**

Why should economic instruments in certain cases be implemented locally and why are hypothecated taxes more acceptable at the local level?

Many sources of waste or pollution impose environmental costs, which vary substantially between different regions. This supports the use of local or regional taxes that are best suited to individual areas.

Local flexibility in the use and scale of charges and the earmarking of revenue to help fund local improvements is crucial to the proper implementation of economic instruments. Indeed, an economic instrument is unlikely to gain public support if no link is made between the tax itself and the use of the revenue to support related environmental or community initiatives. Many environmental problems, which can be tackled at a local or regional level, would benefit from such a link. Furthermore, the use of revenues can play an important role in reinforcing the incentive signals, which the levy is intended to convey.

However the benefits of earmarking taxes, other than that of better public acceptability, are not always clear. Indeed the overall benefits from hypothecated expenditure could be lower than those obtained from spending the same amount elsewhere.

What are the specific problems for which economic instruments can prove highly effective at the local level?

**Transport:**

In the case of transport, economic instruments can be targeted on specific problems and in particular on the pressure points in the road network. However Transport is also affected by instruments implemented at a national level, such as taxes on fuel, which can cause problems at the local level. Indeed, while many of the environmental costs associated with road use are greatest in urban areas, rural car users face a heavier burden from such taxation. Furthermore implementing such economic instruments at the local level can also have the effect of shifting traffic onto neighbouring road networks rather than encouraging alternative modes of transport. An overview of these problems and case studies are provided in the annex.

**Waste:**

Currently, the full costs of waste disposal are not being met by the generators of waste, resulting in high levels of landfill. The costs of waste management and disposal vary widely both according to the type of waste and by locality. Indeed, there are local and regional variations in the volume of waste and in the opportunities available for recycling it. These variations can be substantial and, for example, it is possible that the environmental benefits associated with recycling may be dissipated due to high environmental costs incurred in order to collect or otherwise manage the waste stream, particularly in sparsely populated areas. Furthermore, targeting taxes aimed at reducing the waste stream can be difficult as although households rarely pay directly for waste collection, manufacturers and distributors have more influence on the waste stream than consumers themselves. Therefore, measures in this field should be accompanied by complementary regulations aimed at promoting the sustainable use of packaging materials. An overview of the instruments used in the waste sector throughout the EU is presented in the annex.

### **III. Local implementation and impact of national measures**

What are the arguments in favour of economic instruments at the national level?

While local and regional government is often the most appropriate level to tackle specific problems with economic instruments, national measures are essential for other environmental problems.

Furthermore, environmental taxes at a national level can, in addition to contributing to the reduction of specific sources of waste or pollution, be used to reform the general system of taxation and move it away from taxing jobs towards taxing unsustainable uses of resources. This 'double-dividend' hypothesis presents advantages with regard to improving economic

efficiency and providing incentives for companies and citizens to use resources in a more sustainable way, as well as using part of the revenue to fund environmental improvements.

For global environmental problems such as ozone-depletion and global-warming, the direct benefits to individual nations from environmental taxation may be uncertain or difficult to quantify. The arguments in favour of environmental taxation in such circumstances may be reinforced by adding the 'dividend' of tax reform.

Revenue-raising environmental taxation is intended to make a contribution towards sustainable development both through its direct environmental benefits and by assisting in the general refocusing of the economy on the conservation of resources.

As major employers with labour-intensive services, local and regional government could also expect to benefit from national "ecological tax" reforms. A case-study is provided in the annex on the ecological tax reform which is planned in Germany.

In which circumstances are national measures used and what is the role of local and regional government in their implementation?

Energy taxation can both provide revenue and promote the more efficient use of energy. However there is concern about the heavy burden that it could place on low-income households. Furthermore, there is a limit to the effectiveness of this kind of instrument in so much as there are at present very few appropriate renewable alternatives to fossil fuels.

Road-use taxes are also a widespread form of economic instrument, although these can have the negative effect of shifting traffic from motorways onto municipal road networks.

The use of economic instruments for enhancing the sustainability of water resources is a problematic issue in many countries across the EU, although significant gains have been registered in countries that have implemented this kind of instrument.

National measures have proven effective in particular to reduce non-point pollution. Indeed, while it is relatively easy to identify sources of point pollution, non-point pollution can be equally serious but far harder to monitor. Contributors to this sort of pollution are usually large in number but small in economic size (e.g. farmers) and as a result most are not affected by direct environmental regulation. Economic instruments can thus offer in this sector an effective alternative means of control. In this case taxes can be levied on processes or products associated with non-point pollution (examples are available in Sweden where components of chemical fertilisers have been taxed, but also in Denmark, Norway, Austria and the Netherlands). An overview of a study commissioned by the European Commission on the use of environmental taxes and charges in the EU and its member States is included in the annex.

Economic instruments can also be a tool for integrated product policy. Indeed, national governments have the possibility to provide incentives to transform the market in favour of more environmentally friendly products and services by reflecting the external costs of such products and services through taxation. Such measures can be very beneficial if they are associated with more specific measures in the field of waste management for example.

Subsidies are another form of economic instrument and are often used for environmentally sensitive areas to offset the negative impact of the Common Agriculture Policy (CAP) and are associated with the current system of agricultural price supports used in the context of the CAP. Although subsidies are generally discouraged under OECD protocols and WTO rules, in this context, such measures are an effective means of supporting and promoting sustainable farming practices.

### What is the impact of national measures on local communities?

In considering the use of economic instruments to help deliver environmental objectives, it is essential not to lose sight of issues related to social welfare. Indeed, where the use of an environmental tax might increase the burden of taxation on low-income groups, its introduction should be accompanied by steps to ensure that this is compatible with the social objectives of sustainable development.

## **IV. Potential, acceptability and trade-offs of economic instruments**

There are a number of different issues at stake in implementing economic instruments and the implications of these are numerous. Thus, the success of an environmental tax can depend on some of the following main factors:

- Clear objectives;
- Clear targeting;
- Effective measurement and application of tax rates;
- Price sensitivity: The extent to which a tax will succeed in discouraging production is a function of the sensitivity of the market to changes in price, which in turn depends on the availability of adequate alternatives;
- Availability of substitutes: when considering the implementation of an environmental tax, authorities should also consider the existence or research into viable alternatives to what is being taxed;
- Co-ordination of measures: An important factor for the success of a tax is that it is compatible with relevant legislation and that it is associated with the development of alternatives.

Along with these factors, the early announcement of environmental taxes, extensive consultations with stakeholders and the public, and the gradual imposition of the tax are some of the important steps to be taken by Authorities. Furthermore so as to reach the wanted objective more easily such instruments should be accompanied by complementary regulatory measures. The amount of the tax is obviously a very important factor bearing in mind that if alternatives exist such a tax can have an important effect even if the amount is small.

Local government has come to be regarded as a key actor in creating the relationship between environmental, social and economic objectives required to deliver sustainable development. Furthermore, there is growing evidence that public acceptability is likely to be much greater, where economic instruments are implemented locally, if the revenue generated is used to fund local environmental improvements.

Voluntary approaches to deliver higher environmental standards are fairly widespread. Indeed, compliance with certain standards such as ISO 14001 or Eco-management and Audit systems (EMAS) can enhance a company's chances of gaining business. Furthermore companies can face a win-win situation whereby they are able to reduce production costs as well as the use of the polluting inputs through the introduction of clean technology or more efficient management procedures. However in many circumstances extra pressure may be needed to overcome inertia and unwillingness to incur the transactions costs to change methods of production. Moreover such approaches do not give incentives to citizens in the same way as economic instruments do.

On the whole implementation of economic instruments whether at the national or local level is often very shy, with important exemptions still in place for certain parts of industry and important restrictions on the ability of local authorities to use these instruments. Furthermore, it would seem that economic instruments are often designed and implemented on a case by case basis and are not part of a broader strategy for an ecological tax reform.

References:

- *"Environmental Taxation: A review paper"*, Tony Jackson, Peter Roberts, Greg Lloyd, University of Dundee;
- *"Environmental Taxation: A New Tool for Local Planning?"*, Tony Jackson, University of Dundee;
- *"Study on the Economic and Environmental Implications of the Use of Environmental Taxes and Charges in the European Union and its Members States"*, European Commission, ECOTEC;
- *"Bringing our needs and responsibilities together - Integrating environmental issue with economic policy"*, European Commission, COM(2000)576;
- *"Greening tax mixes in OECD countries: A preliminary assessment"*, OECD.

Websites of interest:

- OECD: <http://www1.oecd.org/env/policies/taxes>
- European Commission: <http://europa.eu.int/comm/environment/enveco/index.htm>
- The Centre for Social and Economic Research on the Global Environment: [http://www.uea.ac.uk/menu/acad\\_depts/env/all/resgroup/cserge/](http://www.uea.ac.uk/menu/acad_depts/env/all/resgroup/cserge/)



**PART II :**

**PRESENTATIONS BY SPEAKERS**



## **ECONOMIC INSTRUMENTS : EU PERSPECTIVE**

***Presentation by Mr Rupert WILLIS***

*Sustainable Development Unit  
DG Environment, European Commission*

### **Commission position**

- Broadly favourable (eg Broad Economic Policy Guidelines, Sustainable Development Strategy)
- Difficult at EU level (require unanimity in Council)
- We encourage Member States to use

### **Steps taken**

- State Aid rules
- Levies and charges Communication
- Energy Products Directive
- Tradeable permits scheme

### **Trade-offs**

- Distorting internal market?
- Revenues vs environmental effects?
- Simplicity vs targeting?

### **Obstacles**

- Regressive?
- Burden on business?
- Too visible compared to other regulatory instruments?

### **Internal market**

- Keep to the rules:
  - Proportionality
  - Necessity
  - Non-discrimination

### **Clever design**

- Use where they work best, so look for:
  - Low administration costs
  - Ease of targeting
  - Range of abatement options available
  - Variation in abatement costs (implies bigger efficiency gains)

### **Income distribution**

- Generate options for substitution
- Use flanking policies
- Clever design
- Phase in
- Signal when rates will rise over time
- Recycle revenues (earmarking?)

### **Avoid Misrepresentation**

- Be transparent about aims - make it a virtue
- Fiscal neutrality
- Long run approach
- Proper consultation

### **Conclusions**

- Eis very valuable but some limitations
- Use where they will work well
- Use flanking measures
- Allow time to adjust
- Be transparent

**STUDY ON THE ECONOMIC AND ENVIRONMENTAL IMPLICATIONS  
OF THE USE OF ENVIRONMENTAL TAXES AND CHARGES  
IN THE EUROPEAN UNION AND ITS MEMBER STATES<sup>1</sup>**

***Presentation by Mr Patrick ten BRINK***  
*Senior Fellow and Head of Brussels Office*  
*Institute for European Environmental Policy (IEEP)*

## **INTRODUCTION**

### **Context, Study Approach and Objectives**

This study was launched in the context of the increasingly strong recognition on the part of policy makers across the EU that economic instruments have real potential to address environmental objectives. At the same time however, concerns were raised in some quarters that such taxes can have a negative impact on employment and economic competitiveness.

This study has explored whether taxes and charges have brought about the environmental benefits that the supporters of such taxes have claimed and whether the concerns raised regarding their impact on employment and competition are real. The study therefore fulfils one of the Commission's stated aims to launch a detailed study in this area, as noted in the 1997 Communication on Environmental Taxes and Charges. Box 1 below lists the main conclusions from this study.

### **Summary of Key Conclusions**

#### **Key Conclusions**

- **The use of environmental levies is widespread throughout the EU, and the use is increasing**, though with more levies in place in "northern" EU Member States. This reflects the long held belief that such levies are an important policy measure. There continues to be a steady flow of ideas for new levies, driven partly by EC and OECD calls for their greater use, especially in the context of encouraging a broader change in taxation policy to increase taxation on 'bad things' e.g. pollution, and to reduce it on 'good things' e.g. employment.
- This study demonstrates that the current levies were **often designed and implemented on a case by case basis** and at low rates. They generally do not appear to be part of a broader strategy of an **environmental tax reform (ETR)**, where the instrument of taxes and charges is a preferential option. However, some countries have started to move towards an ETR: the UK has a soft ETR strategy while the Netherlands and Germany are starting the process.
- Levies are introduced at a national level (even if there are regional elements). There are no internationally agreed levies. This fact has important implications for the subsequent design and introduction of levies, since the potential effect on international competition is frequently a major factor in design. Levies have been introduced in relation to

---

<sup>1</sup> This study was made by ECOTEC, CESAM, CLM, University of Gothenburg, UCD and IEEP (CR)  
[http://europa.eu.int/comm/environment/enveco/taxation/environmental\\_taxes.htm](http://europa.eu.int/comm/environment/enveco/taxation/environmental_taxes.htm)

products (e.g. pesticides), services (e.g. landfill), emissions (e.g. NOx) and resource use (e.g. water abstractions), that cause environmental concerns. Consequently, the range of economic sectors affected by levies is broad.

### Design of Levies

- In assessing the impacts of selected levies, there are two key issues that affect the outcome: firstly, the level of the levy, and secondly, exemptions from the levy.
- **In both cases the design of levies has tended to be very conservative**, with low introductory levels and a significant range of exemptions to protect those most affected.
- There is rarely any systematic parallel empirical review of impacts introduced with the levy; nor any attempt to define the environmental impacts in the absence of the levy (the counterfactual). This renders ex-post assessment of levies more difficult.
- The design of levies is frequently focused on raising revenues, and **not explicitly directed to introducing a new incentive** for changes in environmentally harmful behaviour. However, in many cases the revenue is earmarked for specific environmental policy measures, and through this helps address environmentally harmful behaviour. However, there is no consistent **choice in whether to earmark revenues or not**, given different fiscal policies.

### Environmental impacts

- **The Environmental impacts of levies are positive** but in most cases small relative to the problem being addressed.
- The effects of the levy are often limited because of the conservative nature of design.
- In cases where, over time, the scale of the levy has been increased, then the environmental effects also increase.
- The positive effect of levies on behavioural change is not always reflected in physical changes to the state of the environment.
- The case studies show that **even quite small changes in price/cost can send strong signals as to the desired behaviour**. This suggests that the environmental benefits are greater than would be estimated based on simple concerns on price impacts, given the levy's additional role of raising awareness and offering a "moral" signal.

### Impacts on Cost and Prices

- There are two effects that need to be considered. In the case where levies increase the cost of products, services or resources, the impact depends on the significance of the good in the overall cost base. In the large majority of cases the good represents only a small fraction of total production costs.
- Thus whilst **the levy has sometimes led to significant price increases, the effect on costs to consumers has been small**. In the case of emissions, the impact of the levy will depend on the relative size of the levy to the cost base, and in particular to the costs of pollution abatement as a means to avoid the levy.
- The case studies suggest that **emissions charges have encouraged increase in environmental expenditure by polluters**.

## Impacts on Competition and Trade

- Whilst the objectives of the levy can be understood and accepted, they tend to be promoted by environment ministries. The **major concern expressed in the design of levies is their effect on the competitive position** of affected sectors, especially in international markets.
- This concern has resulted in the conservative designs noted above. In particular, the concern has led to a plethora of exemptions of polluters from the levy because of the perceived danger to the competitive position. As a result, **the impact of levies on competition and trade is generally negligible since the potential for such impacts is eliminated in the design.**

## Impacts on Employment

- There was no evidence of significant negative impacts on employment from the existing taxes and charges, contrary to some arguments presented;
- The lack of negative impact reflects, in part, the extensive list of exemptions; one would otherwise expect some significant structural change to employment, with a move of employment from polluting to less polluting industries and activities (especially important when considering the multiplier effects in the economy);
- There was, however, some evidence that employment gains could be made – both net and gross. The sectors that benefit from the tax signal and also often from the revenue expenditure tend to be more labour intensive (e.g. recycling), though the net employment effects are likely to be more visible in the long term;
- The incentive effect will lead to more employment in “clean technologies and process” activities. Even where there is no net gain, given losses of employment in “old” technologies, it is valuable to labour market analysis to appreciate the winners and losers.

## Key Lessons for Future Environmental Levies

- **Exemptions to affected sectors have been granted too regularly**, often based on a static cost assessment and without reference to the potential dynamic efficiency effects
- The levies that have combined a direct incentive effect supported by hypothecated spending have been more successful in both generating environmental benefits and avoiding adverse economic impacts, not least because they support the dynamic adjustment process
- The competition concerns argues for a pan European perspective to the continued drive to introduce more effective and efficient levies. Exchanging information on intentions and designs might help address certain competition fears and ensure compatibility. It would also help to encourage the design of broader strategies within which levies would be just a part.

These outputs have been achieved through a detailed methodological framework which has encompassed both a synthesis of existing information on European taxes and charges as well as primary research in a number of key areas.

This study has focussed particularly on 9 tax/charge types, with their application assessed in several countries to allow in-depth and comparative insights to be obtained. This

complements a general overview of taxes and charges. Furthermore, three taxes have been explored to an even greater level, where these offer particularly interesting insights – the UK Landfill tax, the Danish pesticides tax, and the German waste water charge. Given existing research and analysis into energy, carbon, and sulphur taxes and charges, these levies are not the subject of this study.

## **PRESENTATION**

### **Presentation Overview**

- **Aim of the Study**
- **Approach**
- **Coverage of Taxes and Charges**
- **Key Conclusions**
- **Lessons**

### **Approach: Main Objectives of the Study**

- Offer a systematic collection of experience from Member States of environmental Taxes and Charges.
- Carry out a systematic, in-depth, analysis of the environmental impact of the use of environmental taxes and charges within Member States.
- Carry out systematic analysis of the impact of environmental taxes and charges on:
  - consumers and producers,
  - the internal market and competitiveness of European Industry; and
  - employment.

### **Approach and Main Questions**

- **Three tiers of analysis**
- **Key Questions**
  - What is the environmental effect (and effectiveness if possible) of the Tax/Charge ?
  - What are the effects on Producers and Consumers and impacts on the Internal Market, Trade and Competition ?
  - What can be said regarding the impact on Employment ?

### **Coverage of Taxes and Charges**

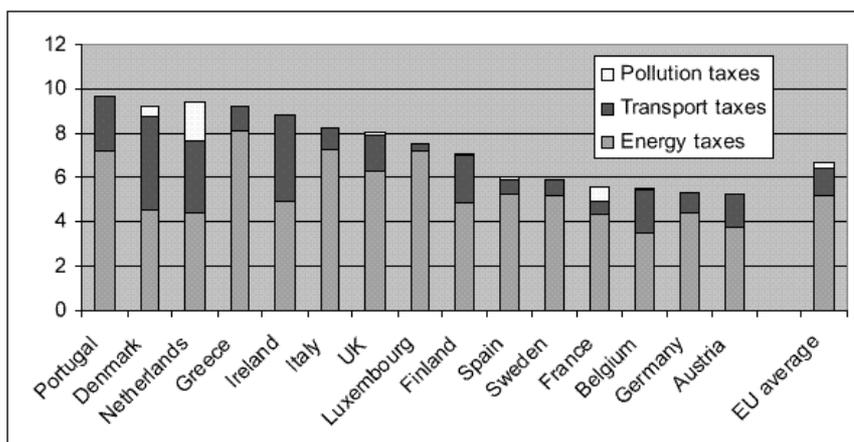
Taxes and Charges Included in the Analysis :

- Nitrogen Oxides (NO<sub>x</sub>);
- Water Abstraction;
- Waste Water Discharge;
- Pesticides;
- Manure and Fertilisers;
- Landfill;
- Aggregates;
- Disposable Containers (Packaging); and
- Batteries.

### Taxes and Charges Formally Excluded from the Analysis :

- Carbon and energy taxes and charges
- Fuel excise taxes;
- Vehicle taxes; and
- Sulphur taxes.

### Context: Selection of Taxes and Charges



### Coverage of Taxes and Charges

1) NO <sub>x</sub>	Sweden (S)	Spain (E) : Galicia	France (F)
2) Abstraction	The Netherlands	Denmark (Dk)	
3) Waste Water	Denmark (Dk)	The Netherlands	Germany (D)
4) Pesticides	Sweden (S)	Denmark (Dk)	Belgium (B)
5) Fertiliser	The Netherlands	Finland (FIN)	Sweden (S) and Austria (A)
6) Landfill	France (F)	Britain (UK)	Austria (A)
7) Aggregates	Denmark (Dk)	B: Flanders	Britain (UK)
8) Disposable Containers	Finland (Fin)	Denmark (Dk)	Sweden (S)
9) Batteries	Italy (I)	Belgium (B)	Hungary (HU)

### Approach: Issues covered in analysis of taxes/charges

- Tax Design
- Process Development of the Tax.
- Organisational Roles/Administration
- Intentionality of Tax
- Revenue and Use of Revenue
- Complementarity within Portfolio of Policy Instruments
- Environmental Effect (and Effectiveness if possible) of the Tax/Charge
- Effect on Producers and Consumers
- Equity and Distributional Effects

- Impacts on the Internal Market, Trade and Competition
- Impact on Employment
- Administrative Burden
- Data Availability and Reliability

### Conclusions #1: Overview of Use of Taxes

- The use of environmental levies is **widespread** throughout the EU, and their use is increasing
- Current (and proposed) levies were often designed and implemented on a **case by case basis and at low rates**
- They do not appear to be part of a **broader strategy** of an environmental tax reform (ETR)
- Levies are introduced at a **national level** (even if there are regional elements). There are no internationally agreed levies

### Conclusions # 2: Design of Levies

- Two key issues that influence the impact of the levy:
  - the **level** (rate) of the levy, and
  - **exemptions** from the levy
- Their design has tended to be **conservative**, with low introductory levels and a significant range of exemptions
- The focus is often on **raising revenues**, without explicitly directed to introducing a new incentive for changes in environmentally harmful behaviour
- In many cases the revenue is **earmarked** for specific environmental policy measures, and through this helps address environmentally harmful behaviour.
- There is **no consistent choice** in whether to earmark revenues or not, given different fiscal policies.

### Conclusions # 3: Environmental Impacts

- The environmental impacts of levies are **positive**, but in most cases small relative to the problem being addressed.
- The effects of the levy are **often limited** because of the conservative nature of design – whether low rates or exemptions.
- The case studies show that **even quite small changes** in price/cost can send strong signals as to the desired behaviour.
- Environmental benefits are greater than would be estimated based on simple concerns on price impacts, given the levy's additional role of raising awareness and offering a **“moral” signal**.

### Conclusions # 3: Environmental Impacts – Examples

- **NOx** charge in Sweden:
  - *40% reduction in NOx per unit of energy (92–98)*
- Danish and Dutch **water abstraction** levies:
  - *DK: 13 % reduction in water consumption since 1999 and 26% reduction in water leakage since introduction in 1989.*
- Dutch & German **waste water** levies:
  - *NL: Discharges of COD reduced by 90 % - mainly from revenue use*
  - *D: 31 % decline in industrial wastewatersince1981 - link to standards*
- Swedish and Danish **pesticides** taxes (use of revenues has played a role)
  - *S: Pesticides use was 35% of 1982-5 levels by 1994*

- *DK: Treatment frequency fell by 11% 1994-1996.*
- The **fertilisers** levies have all had some effect but impact of the levy package itself is difficult to pin down.
  - *NL: Mineral surplus fall of 15% to 75%.; Fertiliser use: - 20 to 30%*
  - *S: Fertiliser use fell by 15 to 20% in 1991/'92*
  - *A: 1986: use of fertiliser-Nitrogen decreased by 15%*
- The UK **landfill** tax: 36 mt/yr of inert construction wastes diverted from landfill
- **Aggregates**, increased recycling Denmark is also related to the landfill tax;
  - *90% of all demolition materials are now recycled*
- Belgian used **batteries**: the proposed ecotax was instrumental in leading to the implementation of a successful voluntary scheme (BEBAT)
  - *65.7% of used batteries were collected and recycled in 1999 (44.9% in 1996)*

#### Conclusions # 4: Impacts on Cost and Price

- The environmental taxes and charges function, inter alia, through the impact that they have on:
  - Price - If the levy is on a product or service, or
  - Costs - if levy is on an input to, or emission from, a process.
- For most taxes / charges, the impact on the cost base is **relatively small**, but difficult to assess,
- Impact on prices paid for products and services can be **relatively large** in percentage terms.
- Possible **exceptions**: the Danish pesticides and the Swedish fertiliser levies - where significant price increases affect a significant share of the cost base.

#### Conclusions # 4: Impacts on Cost and Price - Examples

Areas where taxes/charges have a real impact on cost and on prices include:

- **Landfill tax:**
  - *UK: tax accounts for 35% to 100% of the active waste landfill price;*
  - *F: average 6% to 15% tax share of landfill price for municipal/household waste in 1998.*
  - *A: Similar share of price for best technology sites;*
- **Pesticides tax in Denmark:**
  - *Very significant effect on insecticides prices (54%), Herbicides (33%).*
- **Fertiliser taxes:**
  - *FIN: the price of fertilisers increased by 72% (now abolished) and*
  - *S: tax represents ~20% of the fertiliser price (against 10% in 1984).*

Areas with smaller impacts on price include:-

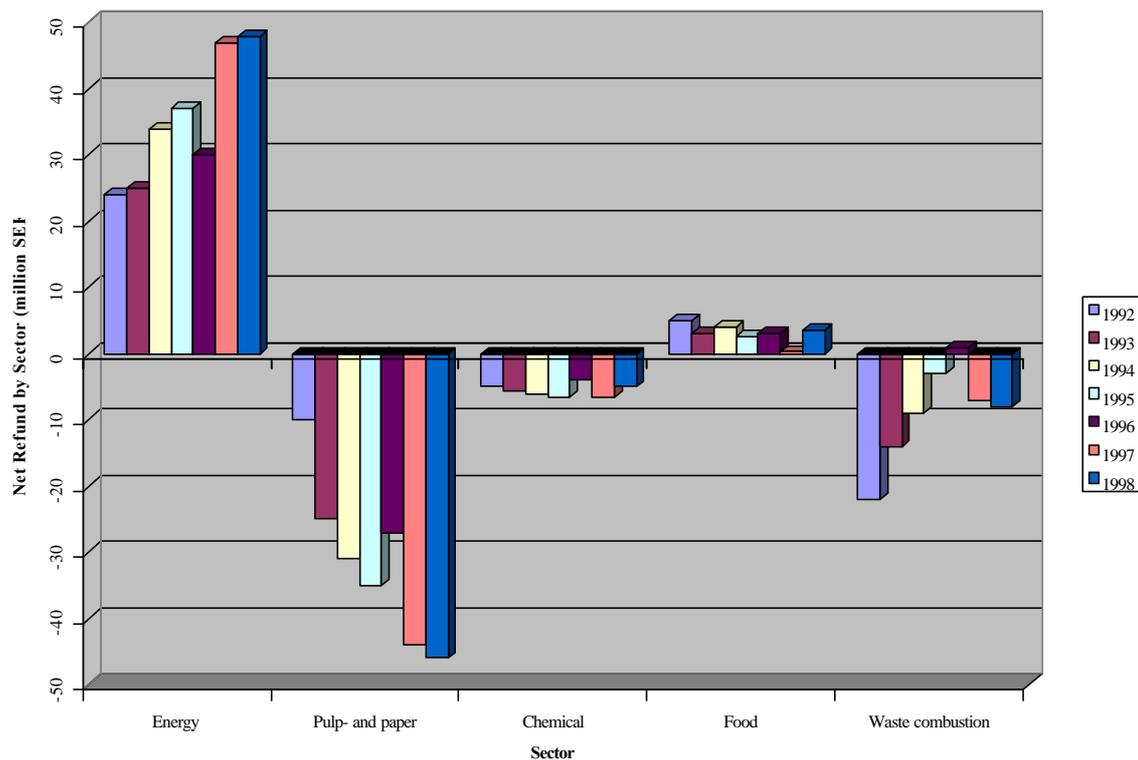
- **Batteries:** *Price impact: 1.7% of battery sale price in Italy & 5% in Belgium.*
- **Disposable containers:** *Sweden: data suggests a maximum effect on prices of 3%.*

#### Conclusions # 4: Impacts on Cost and Price Burden on Industry and Consumers

- **NO<sub>x</sub>:** Power Sector: Net positive burden in S given revenue recycling; Pulp & pulp paper most affected
- **Pesticides** :Agriculture (S and DK - in B farmers exempted); Wood industry (B) and some low income households (B)

- **Manure and Fertiliser:** Agricultural sector and fertiliser industry (NL, FIN, S and A, though intense pig and poultry farms in the Netherlands exempt until 2001).
- **Landfill tax:** All sectors producing waste, except in France (mostly municipal waste). Burden ranging from Construction: 1% to Financial Services: 0.0001% for UK; Municipalities face steep rising cost in landfill (e.g. France, UK and A).
- **Aggregates tax:** DK: Cost is passed on the consumer; little burden on mining industry
- **Disposable Containers:** Consumers, Soft and Alcoholic Drink Suppliers, Manufacturers of containers (FIN, DK, S - with the exception of milk producers)
- **Batteries:** Consumers as Battery Industry able to pass through costs: It, B, HU

### Case Example: Net Refunding per Sector, 1992-1998 (MSEK)



### Conclusions # 5: Impact on Competitiveness and Trade

- The major concern expressed in the design of levies is their effect on the competitive position of affected sectors, especially in international markets.
- This concern has resulted in the conservative designs (levy rates, exemptions)
- In particular, the concern has led to a wide ranging exemptions of polluters from the levy because of the perceived danger to the competitive position.
- In addition, some of the levies affect goods and services which are not widely traded (*e.g relating to Landfill*)
- As a result, the impact of levies on competitiveness and trade is generally negligible.
- At macroeconomic level, the levies examined are insignificant. The competitiveness of 'a nation' is therefore nowhere an issue, the effects being restricted to the microeconomic level;

## Conclusions # 5: Role of Exemptions

- Exemptions are in place for most taxes and charges
- They seem to be in place whenever there is a concern that a particular sector will be burdened, and
- Appear to often be in place even where the concerns are exaggerated.

### Examples:

- **NO<sub>x</sub>**: Small Plant / plant where monitoring difficult
  - S: definition changed of the years given improvements in monitoring equipment;
  - F: small power plants and waste incineration plants exempt.
  - E (Galicia): emissions under a certain value were exempt
- **Abstraction Charges:**
  - Farmers (NI, Dk, and some farmers in E: Galicia).
  - Industry has exemptions in Denmark, as do some water utilities in Spain
- **Manure and Fertiliser**
  - NL: Arable farms exempted until 2001
- **Landfill tax**
  - F: some owner operated landfill sites, Community refuse return and Sorting Centers, and Transfer sites
  - UK: Pet cemeteries; Dredging from inland waterways and harbours; Mining and quarrying waste
- **Aggregates tax**
  - DK: small commercial & non-commercial extractions
- **Disposable Containers**
  - Related to containers re-used / recycled in deposit refund schemes (FI, B, S)
  - S: milk containers and paper & card; reduction for reusable containers.
- **Pesticides (eco) tax**
  - B: farmers but recently a small user charge in place

## Conclusions # 6: Impact on the Internal Market

- **Few of the levies** appear to have given rise to major concerns:
  - The Danish pesticides tax was formally examined and then accepted.
  - The design of the new Danish packaging tax appears to respond to earlier concerns
- However the effect of the internal market on taxes and charges **has been real**
  - Several taxes were dropped in advance of joining the European Union, such as the fertiliser tax in Austria.
  - It would be valuable to explore the reasons for why not all new Members adopted the same approach (Sweden retained its fertiliser tax), and
  - What implications there are for the extensive tax schemes in the CEE applicant countries, given that accession is nearing for many

## Conclusions # 7: Impact on Employment

- **No evidence** of significant **negative impacts** on employment
- This reflects, in part, the extensive list of exemptions;
  - Without exemptions, one could expect some significant structural change to employment;
- However, some evidence that **employment gains** could be made – both net and gross.

- *The sectors that benefit from the tax signal and also often from the revenue expenditure tend to be more labour intensive (e.g. recycling)*
- *But the net employment effects are likely to be more visible in the long term;*
- The incentive effect will lead to more employment in “clean technologies & process” activities.
  - *Even where there is no net gain, given losses of employment in “old” technologies, it is valuable to appreciate the winners and losers.*

### **Conclusions # 8: Summary**

- There do not seem to be any areas where the application of taxes and charges raises real concern for the EU, for its Member States, or trading partners.
  - *However, there is concern that the internal market encourages the abolition of taxes*
  - *This results from concerns, rightly or wrongly, regarding losses in competitiveness, relating to interests in ensuring that financial burdens are minimised.*
  - *This is a particularly important issues given that the next entrants to the EU have extensive environmental tax and charges schemes in place.*

➤ It is important to understand whether it makes sense to change these systems **in advance of entrance** to the EU internal market, and indeed, what the effects of their removal might be.

- Further concern: the use of exemptions to treat competitiveness concerns, as it appears that where concerns are raised, exemptions are often granted.

*This suggests that environmental concerns might be sacrificed in order to avoid economic burdens and possible competitive effects.*

➤ A deeper analysis of whether the exemptions are proportionate would seem to be merited.

### **Lessons for Future Environmental Levies**

- Exemptions to affected sectors have been granted **too regularly**
- Exemption, often based on a static cost assessment, ignoring potential **dynamic** effects
- The levies that have combined a **direct incentive effect** supported by earmarked (hypothecated) spending have been more successful
  - *in both generating environmental benefits and*
  - *avoiding adverse economic impacts, not least because they support the dynamic adjustment process*

### **Lessons for Future Environmental Levies**

- The competition concerns argues for a pan European perspective to the continued drive to introduce **more effective and efficient levies**.
- **Exchanging information** on intentions and designs might help address certain competition fears and ensure compatibility.
- It would also help to encourage the **design of broader strategies** within which levies would be just a part.

## Annex

### Definitions of Taxes and Charges

- Taxes and charges are different instruments, though differentiating between them is still somewhat blurred by the fact that different countries use the two terms to describe otherwise similar instruments as well as inter-changeably.
- In this study we have used the term “**taxes**” where the revenues go to the general budget, and “**charges**” where they raise revenues that are earmarked for a particular use, used for specific service provision, or for other activities when the revenue is not intended to reach the general budget.
- For ease of presentation, we also use the term ‘**levy**’ to refer to both taxes and charges.

### Reasons for Environmental Effects

- **Price impact itself** – through the impact on (intermediate and final) consumer spending patterns
- **A price signal** can be important motive for changes of behaviour, independent of levy rates,
  - *consumer awareness that the items taxed are environmental bads, or*
  - *simply highlight the item as a cost item that needs proper business consideration*
- **Expectation of future price rises**, and hence **anticipatory response**
- **Use of revenues** often linked to environmental expenditure or research/awareness
- **Change in tax structure** of the economy can accelerate medium to long term changes

### Reasons for Environmental Effects: Portfolio Mix

- In many cases a **portfolio of instruments** leads to the environmental benefits
- **Some taxes linked to standards, to other levies, deposit-refund schemes, voluntary agreements, awareness campaigns, R&D, funds and to subsidies:**
  - *Swedish Nox tax – link to revenue recycling*
  - *Danish Abstraction Charge – explicit link to awareness raising campaign, effect influenced by sewage charges*
  - *Dutch waste water charges: link to use of revenue*
  - *German waste water charges: link to standards*
  - *Austrian fertiliser levy: link to “extension services”*
  - *Swedish packaging: link to legislation and environmental agreement*
  - *Danish aggregates: link to landfill tax as much as raw materials tax*
- This can make it **difficult to define the “pure” levy role / define “cause & effect”**
- For **design of instruments** important to explore **appropriate policy mix** in *ex ante* assessment – both for explicit new linkage and linked influence

### Conclusions #A1: Use of Revenues

- **Revenues raised by the study taxes and charges not significant on macroeconomic scale**
  - *They represent only a small fraction of tax receipts*
  - *The only exception is the landfill tax, with revenues representing significant amounts of money at the company/sector level.*

- *They are much less important than labour taxes, VAT and energy taxes / excise levies*
- **In some cases revenue recycled to industry or total taxes kept constant at a national level**
  - *Revenue recycling: e.g. NOx tax in Sweden*
  - *National revenue neutrality: e.g. UK landfill tax*
- **For certain taxes, revenues go directly to the national exchequer / budgets**
  - *Many economists argue that this is more efficient*
  - *More earmarked levies in place, though recently more fiscally tuned taxes implemented*

### Conclusions #A1: Use of Revenues - Examples

- **Manure and Fertiliser**
  - *Netherlands: State budget*
  - *Finland: revenues support exports*
  - *Sweden: since 1994 state budget but earmarked for improvements in agriculture*
- **Landfill Tax**
  - *France: recycled mainly to municipalities via funds/investments and some private sector and research activities*
  - *Austria: clean up of contaminated sites and to landfill sites for investments*
  - *UK: offset national insurance contributions and some environmental projects*
- **Disposable containers**
  - *Finland, Denmark, Sweden: National exchequers*
- **Batteries**
  - *Belgium: funds BEBAT collection and recycling scheme*

### Conclusions # A2: Risks of Negative Environmental Impacts

- **Landfill Tax: tax understood to lead to diversion of some waste to less environmentally friendly uses**
  - *Denmark, Austria and UK - some examples of such practice*
    - *When incentive structures change, potential for avoiding levy will be explored by some parties*
    - *Important to ensure ex ante analysis and ensure additional regulatory resources available.*
- When levies **cannot properly target the cause(s) of pollution**, risk of non environmentally friendly responses
  - ***per kg pesticides taxes** may lead to more damaging use of low dose alternatives*
  - *ex ante assessment of likely responses could help minimise the risk.*

## **ECONOMIC INSTRUMENTS IN THE UK**

***Presentation by Mr Ronan PALMER***  
*Chief Economist*  
*Environment Agency of England and Wales*

### **Overview**

- The rationales - a reminder
- A review of the situation in the UK/EU
- What have we learned?
- Next steps

### **The rationales**

- Economic efficiency
- Incentives to good behaviour
- Funding expenditure
- Effectiveness

### **Local, national, EU or beyond?**

- Scale of problem
- Nature of problem
- Impact of solution on trade
- Acceptability or feasibility of solution

### **Experience in the UK**

- Early steps: fuel & landfill
- 1997 Statement of Intent
- Renewed activity:
  - water (including pesticides)
  - road travel & vehicles
  - aggregates
  - climate levy

### **Experience in the EU**

- Activity in member states (a sample)
  - nutrient taxes
  - pesticides taxes
  - energy taxes
- EU wide instruments
  - a minimum energy tax?
  - carbon trading?
  - water framework directive

### **Lessons learned**

- Design
- Introduction
- Evaluation
- Development

## **Design**

- Science & art
- Multiple goals ⇒ complex design
- Interaction with other instruments
- Negotiation to get maximum value

## **Introduction**

- Implications for competition
- Competitiveness
- Consider losers, not just winners
- Links to complementary regulation

## **Evaluation**

- Background data
  - environmental
  - economic
- Environmental effectiveness
- Behavioural change

## **Development**

- Not just a one-shot game
- Allow for development (honestly) at start
- Announce early future changes
- Look out for the unexpected/unintended

## **Where next?**

- Further development of trading?
  - other pollutants?
  - water?
- Expansion of local initiatives
- More use of multiple instruments
- More concerted international action
  - climate change

## **Conclusions**

- Multiple goals/complex issues
- A negotiation, not just an analysis
- A dynamic instrument - expect to be surprised

## **TAXES AND FEES IN WASTE MANAGEMENT**

**Presentation by Mr Francis RADERMAKER**

*Association of Cities and Regions for Recycling*

### **CONTEXT :**

#### **Powers of European Local Authorities to impose Waste Fees**

This paper is based on a survey made by ACRR on the practice of Pay-as-you-throw Systems by European municipalities. Those systems are spreading throughout Europe and are believed to be powerful incentives to favour environment conscious behaviour of the individual.

The full report is available at ACRR' s secretariat<sup>2</sup>. We will focus here on the general characteristics of the national and local policies of European states (EU Member States + Switzerland) and try to answer to the following questions:

- ◆ Do European Local Authorities have the power to impose waste fees on MSW collection?
- ◆ Which are the main waste fee systems practised?
- ◆ What is the foreseeable evolution of Pay-as-you-throw policies?

Other essential questions are analysed in the full report, e.g. incentives vrs unwanted affects, quantification of waste reduction, increased individual composting and sorting, etc.

### **Waste fees in Europe**

#### **Powers of Local Authorities to impose Waste Fees**

As shown in table 1, in most of the studied countries Local Authorities have the power to impose Waste Fees. In three countries it is an obligation (CH, IT, L), in the UK only this power is denied to municipalities.

---

<sup>1</sup> *Les compétences des autorités locales en Europe en matière de tarification et de fiscalité relatives à la collecte des déchets ménagers.* ACRR, Gulledele 100, B-1200 Brussels. Tel. ++/32/2/775.77.01, fax. ++/32/2/775.76.35, e-mail: [ACRR@IBGEBIM.BE](mailto:ACRR@IBGEBIM.BE)

Table 1: Powers of European Local Authorities to impose Waste fees.

Country	Powers	Legal basis (translations)
Austria	Yes	Constitutional provisions
Belgium	Yes	Constitutional provisions
Denmark	Yes	Art. 48 of the Environment Protection Act of 1991: The Local council can fix fees to cover costs in respect of : [...] collection of waste [...]
Finland	Yes	Art. 28 of the Waste Act 1072/1993 : Municipalities have the right to collect a waste charge to cover the costs of waste management and related tasks organised by them
France	Yes	Art. 14 of Law 74-1129/1974 : The Municipalities [...] which collect wastes and residues may fix a fee in function of the service provided
Germany	Yes	Constitutional provisions
Greece	Yes	Art. 1 of Law 25/1975: The taxes for waste management [...] of municipalities and communities result from the multiplication of each property's square meters to the factor set by the municipality or the community's council
Ireland	Yes	Art. 2 of Local Government (Financial Provisions) Act of 1983: The local authorities are enabled to make charges for providing of services
Italy	Obligation	Art. 49 of Legislative Decree 22/1997: The costs of service related to municipal waste are covered by municipalities through a fee; it consists of a fixed part to cover the essential costs of the service (in particular investments and depreciation) and of a variable part related to waste production amounts, provided service and management costs in order to guarantee the total cover of investments and functioning costs [this applies from 1/1/2000]
Luxembourg	Obligation	Art. 15 Waste Act of 1994: The cost of waste elimination must be born by [...] the holder of the waste [...] art. 17: The taxes for services provided must be related to the real waste production and notably to the type, weight and volume of the waste [...] they are function of the costs of infrastructure [...]
The Netherlands	Yes	Art. 17, of Environmental Management Act of 1993: To cover the costs it incurs in connection with the disposal of household waste, each municipality may institute a fee which may be imposed on persons who whether by virtue of a personal or property right or otherwise , actually use premises in respect of which an obligation to collect household waste applies [to municipalities]
Spain		Art. 25 of Waste Law 10/1998: Public administration [...] may establish appropriate economic, financial and fiscal means to favour prevention, reuse, recycling or other form of waste valorisation
Sweden	Yes	Art. 27 of Environmental Code of 1998: The municipalities can issue regulations that establish charges for collection, transport, recycling and disposal of waste that are carried out by them. [...] The charge shall not exceed the total amount required to cover necessary costs for planning, capital and operation. [...] The charge may be designed so that reuse, recycling or other environmental waste management is stimulated.
Switzerland	Obligation	Art 32a of the Federal Law on Environment of 1998: The "cantons" make sure that the costs of elimination of urban waste, [...] are, through fees or other taxes, born by those which have produced the waste
United Kingdom	No	Art. 45 of Environmental Act of 1990: No charge shall be made for the collection of household waste, except in cases prescribed in regulations made by the Secretary of State

### Main modalities of applying Pay-as-you-throw Systems

The countries in which Pay-as-you-throw Systems are applied can be classed in two groups. In the first group, such systems are developing very fast (B, IT,...) in the second they are widely applied and stabilised (A, CH, D, FIN, L, S...)

In applying Pay-as-you-throw Systems, certain general modalities can be identified:

1. In systems based on collection of bags either the bags are sold (by the municipality or retailers) at a price which includes the fee, either stickers are sold.
2. In systems based on emptying personal bins, the fee will be related to the size of the bin (typically 60 to 240 l). When electronic bin recognition systems are used, frequencies of collection or weight of collected waste are the basis of billing. Such systems are developing.
3. Other parameters are often used to calculate the level of the fees e.g. family size, property size, rebate in case of home composting, social rebates for disabled persons, very large families, or persons with low revenue.
4. Tariffs are often lower for separately collected fractions and specific for commercial waste.
5. There is a frequent if not general tendency to split the waste fees into two parts: one part being a fixed amount, the other varying with waste production. The respective weight of these parts relate in some cases to, respectively, fixed and variable costs. However, this splitting is commonly aimed at:
  - reducing unwanted effects of the implementation of Pay-as-you-throw Systems (fly-tipping, garden burning, etc.);
  - minimising effects on the income of the municipalities of non-payments.

### Foreseeable evolution of Pay-as-you-throw Systems.

As indicated in table 2, in certain European countries Pay-as-you-throw Systems will probably either be considered shortly or spread even more.

Table 2: Probable evolution of the application of Pay-as-you-throw Systems in certain European countries.

Country	Probable evolution
A, CH, D, FIN, L, S	Increase of use and testing of electronic & weighing systems and/or adaptation of tariffs & systems to encourage prevention
B, IT	Generalisation of Pay-as-you-throw Systems encouraged by regional waste plans (B) or law (IT)
F, IRL	Environment ministers consider it's necessary to favour the application of Pay-as-you-throw Systems
UK	In the UK Draft Waste Strategy possible application of Waste Fees at local level is considered

It is interesting to mention that Pay-as-you throw Systems are being developed in certain countries as a policy instruments which seeks not only to cover management costs but also to favour waste prevention, individual composting and sorting. For example :

- ❑ In certain areas of Austria and Denmark a fee rebate can be obtained by households which are making their own compost.
- ❑ In Germany some pilot schemes are testing tariffs in which fees are low for the first volumes of waste produced and are higher for additional volumes.
- ❑ In Italy, the law states that households which participate to separate collection schemes are granted a rebate on the fee for residual waste collection.

### **Conclusions**

In this paper, it is clearly demonstrated that Pay-as-you-throw Systems are an aspect of growing importance of national, regional and local waste policies.

However, one can not conclude on this statement without mentioning that although these systems are a real opportunity to develop incentives for waste prevention, individual composting and sorting, they are also clearly related to unwanted effects.

Today's debate is about identifying the appropriate modalities which optimise the Pay-as-you-throw Systems.

The Association of Cities and Regions for Recycling ( ACRR ) is an International network gathering about 80 Cities, regions and NGO's in 20 European countries. Its various activities aim at developing the environmental, economic, and social efficiency of municipal waste management by the exchange of information and by partnership.

The ACRR offers its members a direct connection and a voice for European developments and debates concerning waste. It helps cities to present their initiatives and to share their experience about legal or economic instruments, voluntary agreements, treatment techniques, communication campaigns etc related to municipal waste management.

### **PRESENTATION :**

#### **Membership of ACRR in 2001**

- Regions, Cities, Urban Communities, Local Waste Management representatives
- Network of Cities, NGO's
- > 70 members
- 20 European Countries

## Why an Association ?

Various solutions and instruments to be adapted at the local physical, economical and social context:

- Climate
- Type of housing
- Existing infrastructures
- Patterns of consumption
- Citizens awareness
- .....



Comparison of approaches and solutions rich in lessons

## TAXES AND FEES

- What can/must local authorities do in EU member states and in Switzerland ?
- Will they be doing it less, more or differently in the future ?
- What are the effects ?

## COMPETENCIES OF LOCAL AUTHORITIES TO IMPOSE TAXES & FEES

Competencies	Countries
Yes	A, B, D, DK, F, FIN, Gr, IRL, NL
Obligation	CH, It, L
No	UK

## CLASSIFICATION OF TAXES & FEES

- General taxation :** i.e. residence tax, professional tax, land tax
- Specific tax :** intended to cover but not necessarily earmarked to waste management
- Fixed fee :** lump-sum supposed to cover collection costs
- Not related variable fee:** related to parameters such as the size of household and housing unit; water/electricity consumption;...
- Related variable fee :** based on the service provided

## APPLICATION OF TAXES & FEES (I)

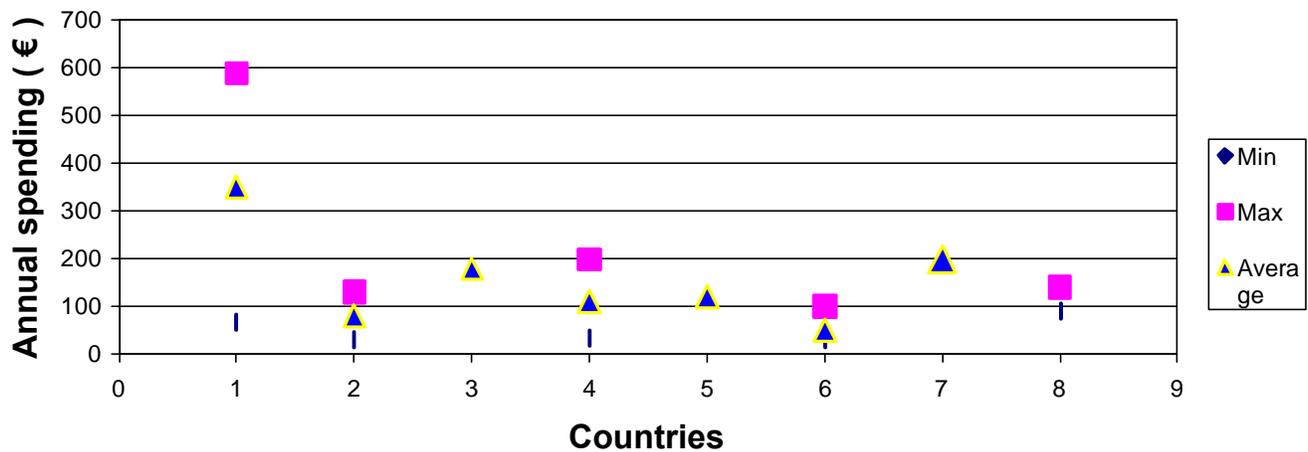
Main Instruments	Application
General taxation	UK
Specific tax	E, F, IT, P

<b>Fixed fee</b>	D, DK, IRL
<b>Not related variable fee</b>	B, CH, F, Gr, NL
<b>Related variable fee</b>	A, B, CH, D, FIN, L, S

### APPLICATION OF TAXES & FEES (II)

Country	Present situation	Probable evolution
A, D, FIN, S, CH	Widespread and stable	Electronic System
B, It	Fast evolution	Strong encouragement/Mandatory
DK, F, NL	Slow evolution	Variable fees and splitting
IRL	Marginal	Fees considered necessary
UK, P	No application	Draft Strategy, recommendation

### Households' Annual spending on waste ( 1996-1998 )



1 = G      2 = B      3 = DK      4 = FIN      5 = F      6 = It  
7 = NL      8 = S

### APPLICATION OF TAXES & FEES (IV)

#### Billing Parameters

- Volume
- Frequency
- Weight
- Other

### Container dependent systems

- Bags : Stickers or pay-bags
- Individual bins : Size

### Splitting of tariffs

- Stable income
- Prevention adverse effects

### EFFECTS OF RELATED VARIABLE FEES

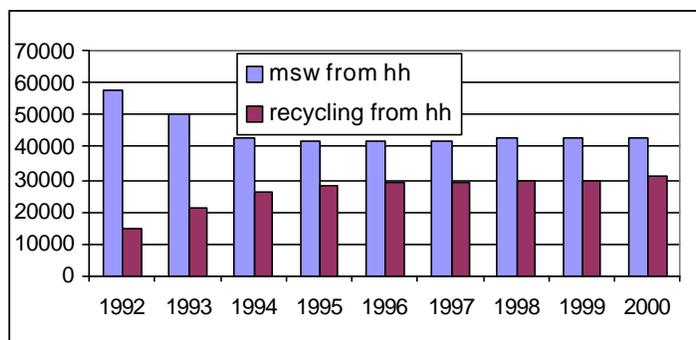
Country	System	OBSERVED EFFECTS
<b>D</b>	Constant marginal cost	-20 to 30 % RHW +11 % sorting +9-19 % other
	Frequency and cost	-46% RHW
	Refundable ribbons	-37% RHW
	Stickers	-20% RHW
<b>L</b>	Complex tariff	-47% to 52% RHW
<b>B</b>		-13% RHW +5% sorting +8% preven + adv. effects
<b>NL</b>		-12 - 30% RHW +6-8% sorting +3-10% adv. effects +3-12% prevention (calcul)

### The BASEL CASE

#### bag tax for msw

- 17 l = 0.5 €
- 35 l = 1.0 €
- 60 l = 1.6 €
- 110 l = 2.6 €

Incineration and recycling paid with the bag tax since 1993  
Minimisation campaign in 95-98



## EFFECTS OF RELATED VARIABLE FEES

### Importance of initial conditions

- Type of tax
- Level of tax
- Payment modalities

### Importance of implementation conditions

- Selective collection
- Communication
- Support of home composting
- Social control & repression

## CONCLUSION

### Growing importance in waste policies

#### Main tendencies

- • Target prevention VRS adverse effects
- • Splitting of tariffs
- • Electronic systems

#### Effects

- • 15 - 50% Reduction
- • 5 - 10% Sorting
- • Prevention & adverse effects
- • Home composting

#### Some additional comments

##### Other financial instruments available :

- Landfill/incineration tax
- Tax on raw materials /energy
- Reduced VAT rate for recycling
- Producer responsibility
- .....

##### Objectives the producer responsibility :

- Internalisation of waste management costs in the price of the products
- Incentives to eco-design
- .....

Variation range between fees for various type of packaging in European MS

Fee for various type of packaging (in € x 10 <sup>-3</sup> )				
	Weight (in kg)	Minimum	Maximum	Max/min
Glass bottle	0,35	0,52	30,52	<b>59</b>
Tetrabrick (1l)	0,027	0,27	25,28	<b>94</b>

PET bottle (1l)	0,03	1,2	45,12	<b>38</b>
Aluminium can (33 cl)	0,015	0,45	13,65	<b>30</b>
Steel can (33 cl)	0,03	0,42	11,97	<b>29</b>
Cardboard box	1	9,98	202,76	<b>20</b>

**For Austria, Germany, Belgium, Luxembourg, Portugal, Spain, France**



# COSTING ENVIRONMENTAL STRATEGIES - THE WASTE SECTOR

*Presentation by Mr Peter JONES  
BIFFA Waste Services Ltd*

## I Synopsis

Five key elements underpin strengths and weaknesses in the waste sector analysis of regulatory impact assessments regarding the cost of sustainability. These are:

- Database issues
- Trend mapping
- Setting sectoral costs in the context of macro economic data for the sector
- European and global comparators
- A variety of technological solutions

The potential exists to exploit existing knowledge and mitigate the gaps created by current knowledge shortfalls and work in 3 core areas is required to accelerate, specifically in relation to mass balance resource flow analysis, the interconnection of database management systems and the emergence of a Green Tax Commission (GTC). The pace at which these developments occur has a key bearing on improved policy making in this area.

## II Database Issues

Whilst poor data is a recurring theme as a block to effective policy development in the waste sector the strides taken in 10 years are impressive. Millions of pounds of largely public investment has underpinned policy decisions which centre on key indicators and trend analysis. Most of those indicators relate to air and biodiversity monitoring where past records are more substantive. In the waste area, however, the Environment Agency has undertaken substantial surveys of industrial and commercial arisings, CIPFA and DEFRA have invested in more extensive analysis of domestic waste arisings and Biffa has committed £6m of landfill tax monies to resource flow analysis (q.v.). Regulatory and fiscal instruments (in the form of landfill tax, the forthcoming aggregates and tradeable permit regimes in packaging regulations) have or will crystallise(d) more accurate understanding of physical output flows at specific points in reverse supply chain logistics systems.

On the debit side many of these systems are still in their infancy or represent “snapshot” approaches based on one off sampling approaches. In the municipal area particularly, response rates are erratic and amount to around 80% of potential respondents and there is no common nomenclature system operating across a number of these subset systems – whether in the public or private sector. Correcting these anomalies is important because **the cost of improved sustainability development in waste is a function of mass of material and toxicity/risk – which in turn impact on the 2 fundamental cost drivers arising in logistics/transport and reprocessing/neutralisation.** At macro level sector turnover is £4bn per annum for processing 100 million tonnes – equivalent to £40-£50 per tonne.

This represents 0.5% of GDP and within the industry it is generally recognised that substantial improvements in resource efficiency or pollution mitigation could be achieved for between a further 0.5% and 1% allocation of GDP to this sector (£4bn-£8bn per annum including ferrous scrap).

### III Trends and Impacts

In the past 5 years significant use has been made of a wide panoply of budgetary, regulatory and fiscal instruments to shift behaviour – sometimes in isolation and sometimes in multiple for specific goods (such as carbon) or industry sectors (such as packaging). Unfortunately they have also been applied from a variety of agencies (DTI, DEFRA, Treasury and Environment Agency) with the result that knowledge is limited on the effectiveness or focus of particular instruments in particular ways. Addressing those weaknesses is a key priority in future years. An added difficulty is that these instruments sometimes result in the transposition of costs from one party to another - Producer Responsibility moves the cost liability for domestic refuse (or elements of it) from local authorities to manufacturers and retailer supply chains for instance. Resistance is generated in this process if affected parties are unclear or uncertain on their ability to recovery these cost transfers in the market place. **Such cost transfers need not be inflationary if fiscal policy takes account of the appropriate transfers.** The following table speculates on the gross cost of more sustainable end life management on a product by product basis.

<b>Product</b>	<b>Tonnage (millions of tonnes)</b>	<b>Gross Sustainable Cost (collection &amp; reprocessing)</b>	<b>Current Cost of Management</b>
Packaging	7	420	210
Household hazardous	0.3	100	10
Fridges	0.3	70	10
Cars	2	140	0
Tyres	0.3	40	5
Organics management	10	100	40
Other electricals/ electronic	0.7	1000	3
<b>Total</b>	<b>19.3</b>	<b>1870</b>	<b>248</b>

The reason why uncertainties operate is that in the above process transfers are occurring from between local authorities to supply chains. Conversely, market prices for recovered materials (which currently fund higher environmental practices) weaken in response to an expansion in supply thus transferring funding liability from reuse markets onto producers of waste.

Trend analysis is relatively undeveloped given that data subsets are still in their infancy. Nevertheless Julia Hummel (Imperial College) has undertaken some interesting work on intra municipal comparators for the costs of municipal management. On the downside the process is bedevilled by a lack of integration between databases in the Environment Agency, DTLR Customs, DEFRA, Office of National Statistics and the waste sector corporate operators.

### IV Macro Economic Data

Even if one accepts that estimates of the cost of end life resource management are plus/minus 20% in the above figures utilising BATNEEC and BPEO even worst estimates are fairly small against the current GDP. Referring to the product sectors identified above then current market

values for fridges are £717m, tyres £700m, electrical and electronic equipment £30bn, packaging £12bn, automotive £30bn, household chemicals £2bn-£3bn.

Clearly this confirms the relatively small share of even a sustainable waste management sector in the context of national GDP. However variations between sectors are quite stark (see exhibit) – particularly in chemicals and electronics where (as one would expect) toxicity/risk is more expensive to mitigate than incremental logistics costs associated with mass. Nevertheless one has only to consider current state VAT yields from the above sectors to realise that the latter would dwarf any incremental costs of improved environmental compliance of sustainability. The VAT yield from tyre sales alone is around 3 times the worst cost estimate of neutralising a product which is obviously difficult to manage in an uncontrolled “waste loop”. **What is required in each of these sectors are sectorally driven agreements on how the mix between 15 odd regulatory and budgetary instruments will operate and how the balance of that cost transfer will be shared between the state and the consumer** (in terms of increased costs through the supply chain). Ultimately the consumer will always pay – the debate is whether we pay it all in the short term at the till, all in the short term through direct and indirect taxation (both of which will be inflationary) or over an extended period via a mixture of both (which is less likely to threaten inflation or jobs). Thus far there is little evidence of any purely sensible high level debate on these types of issues.

## V International Comparators

Given the complexities of this process of industrial transition in the UK economy are there any international lessons available to map the process? The evidence is there – but Europe would be closer to it than most. The strategy for Integrated Product Policy (IPP) has created a greater awareness on the interlinkage in how sustainability inflation pressures can be managed – one has only to look at the debate in the electronic and automotive sectors involving companies like Electrolux, BMW and Volkswagen to see how the P&L and balance sheet impacts of this process are likely to materialise. **Not surprisingly their experience advocates a level playing field, equal application to international imports** (otherwise pollution is merely exported through lower prices to overseas manufacturers) **and brand based schemes (to obviate cost transfers arising from so called orphan products** which are present in the historical stock but whose original producers have gone into liquidation or are otherwise unavailable for comment). Europe is also locked into a definitional debate relating to the meaning of words – particularly with regard to the definition of “municipal” and “hazardous”. In the case of the latter there is also a tendency to move from classifying particular materials (lead solder, mercury, cadmium) as problems and expand the target tonnage of materials to be immediated by defining all the products containing those materials (PCs, fluorescent lamps, switches and whole batteries). Such trends increase the anxiety of manufacturers facing what they thought was a component management cost and expanding it to the weight of their entire production output.

**Europe has also to decide on how it wants Producer Responsibility to operate** – whether end life management costs will be placed on the entire supply chain (from raw material producers to retailers) or on a specific point (manufacturing). It is the latter which is likely to bear the brunt of any such cost initiatives – for reasons of simplicity and ease of monitoring but ex works sectoral turnover values are generally a mere 30% of the total retail sales market value defined above (q.v.). Significant questions also exist with regard to the timing of any changeover. **Regardless of who funds the process once raw material suppliers are confronted with renewable (ex waste stream) materials to be treated they may be faced with wholesale scrapping of existing process technology.** Even where the absolute cost of readjustment can be managed through supply chain/price and tax decisions major reproducers may be forced into bankruptcy because of the balance sheet impacts of major write offs on now redundant process technology (for instance in

paper and pulp, glass and similar sectors). Ferrous/non ferrous and the plastics sectors are relatively less affected simply because they are already geared up for recovered material or have yet to make decisions to do so.

## **VI Technology Issues**

On the upside **the level of knowledge relating to available technologies to process organic and inorganic recovered material is relatively high.** The physico/chemical solutions needed to mitigate pollution by moving up the waste hierarchy – whether through thermal or other processes is widely understood. Numerous examples apply internationally and cost based knowledge systems are advanced – and the reality is that most of these systems operate quite effectively at around £80-£120 per tonne processed. The central blockage preventing a move to these improved technologies is merely that landfill is so cheap an alternative – at around £20-£30 per tonne inclusive of tax in the UK. **Landfill needs to be priced at £50+ per tonne for these technologies to have any chance to compete** and until that happens there will be little movement (except outright regulatory bans on specific materials to landfill of course).

On the downside one must recognise substantial risks when making decisions about particular types of technology. This is because if landfill does rise to £50-£60 per tonne there will be a scramble to install capacity which will probably exceed available supply. This is because technology providers tend to operate in narrow windows and believe that they can secure significant tonnage inputs. Unfortunately broad types of waste can move to more than one type of technology – which is where the waste operator will be in a controlling position for many of these processes. Given potential gate fees of £40+ per tonne, organic waste could move to composting, bio ethanol plants, gasification processes or co-fired incineration. What happens and where is largely a function of distance, scale and the value of resultant outputs. On a risk based approach there is a clear hierarchy of value for these outputs which roughly corresponds to the following (in descending order):

- petrol substitutes
- diesel substitutes
- gas
- electricity
- material reuse
- recycling
- landfill gas
- compost to land
- long term landfill disposal

The difficulty is that those at the top of the hierarchy enjoy highest absolute value but they also incur highest absolute capital investment through the hierarchy of **added** value. Given these risks it is likely that the future will see the emergence of the following characteristics:

- Strategic partnerships between major players in waste collection and end life management (creating a logistics/processing fit of scale).
- Efforts to establish co-terminal contractual agreements.
- An avoidance of specific very large scale technologies dependent on particular calorific profiles of waste which cannot be guaranteed over the life of the capital plant (for instance large scale waste incineration plants).

- Trends towards micro or mini technology in an effort to mitigate high or rising real costs of logistics distribution costs as fuel becomes more expensive in coming decades.

Such decisions will be made within the sector – albeit in expanded boundaries – and will exert a strong influence on the final landscape of reprocessing technology and waste movement in the UK from 2010 onwards. It is to be hoped that these intra sectoral changes will occur in a wider strategic Government driven framework involving holistic approaches from national strategy specifically ...

## **VII Structural Requirements**

... three core shifts are needed:

- (i) Increased mapping of resource flows in the economy on a geographic, material stream and industry sector basis.
- (ii) Database interconnection between the waste sector and Environment Agency/DEFRA/local government/Office of National Statistics/DTI.
- (iii) The creation of a Green Tax Commission to oversee the neutrality/inflationary aspects of this process in an effort to maximise efficiency of the policy making infrastructure.



# THE USE OF TAXES AND CHARGES TO FINANCE PUBLIC TRANSPORT IN EUROPE

*Presentation by Mr Tom HOWES  
Directorate General for Energy and Transport  
European Commission*

## **Commission transport charging policy:**

- 1995 Green Paper on fair and efficient pricing
  - economic assessment of transport policy
    - user pays, polluter pays principle
- 1998 White Paper
  - harmonised charging principles across Member States, to reduce distortions to the single market;
  - common charging principles to all modes of transport
- Charging regimes can fulfil both incentive and financing goals:
  - core principle of cost-based charges *and* accommodate institutional financial constraints with scope for two part tariff/ cost recovery strategies

## **Implementation**

- arguing the case for economic instruments:
  - flexible, better use of existing infrastructure
  - need for packaged approach
  - *does* help finance necessary transport investments
- Developing common principles and methods through High Level Group work, Member State studies, EU research.
- Inter-urban transport:
  - EU Directives on road (1999/62) and rail (2001/14) provide the structure for road and rail charges, the revenues from which finance investments
  - new White Paper plans a framework directive on charging
- Urban transport:
  - EU research, demonstration projects and system trials
- Hypothecation
  - new White Paper on the Common Transport Policy states that revenues should be used in a combination of remedial measures and investments in new infrastructure (and public transport)
    - (within the state aid and public procurement regime of course!)

## **Conclusion**

- White Paper re-emphasises role of charges in reducing congestion and pollution and to finance new infrastructure

- Existing and new directives require cost based charges
- Charging reform based on infrastructure & external costs will help change behaviour and raise finance for further investment

# CUPID - TRANSPORT PRICING IN THE REAL-WORLD

*Presentation by Mr Jo BAKER  
Transport & Travel Research Ltd*

## European State of the Art

- Inter-urban highways
- Estuaries
- Heavy Vehicles
- Taxes
- Access Permits
- Norwegian Experience
- Demonstration Projects

## PRoGRESS

Cities involved : Bristol, Edinburgh, Trondheim, Helsinki, Gothenburg, Copenhagen, Genoa, Rome

For further information, please contact Bristol City Council or view the website : [www.progress-project.org](http://www.progress-project.org)

## Motivation

- Reduce congestion
  - Raise revenues
  - Improve environment
- ⇒ Fair and efficient pricing ?

## Indicative Results

- Singapore
  - Area licensing from 1975: 50% reduction in AM peak flows with 83% increase in bus patronage (1975 to 1992)
  - ERP from 1998: further 15% reduction in traffic
- Norway
  - Toll cordons in Bergen, Oslo, Trondheim: reduction in traffic only 5-7%, main purpose to raise revenues through modest tolls. Trials in Trondheim for CONCERT showed reductions of 10-17% with higher tolls.

## Issues

- Acceptance
- Equity
- Legal
- Motivation
- Use of Revenues

- Institutions
- Politics

### **The Way Forward**

- Limited transferable experience
- Technical feasibility is largely proven
- EUROPRICE II will address political issues
- IMPRINT-EUROPE and MC-ICAM will look at implementation of pricing reform
- Political Sensitivity and User Acceptance are key barriers

*[www.transport-pricing.net](http://www.transport-pricing.net)*

## **PROMOTING RESOURCE EFFICIENCY IN EU ENVIRONMENT POLICY**

***Presentation by Mr William R. DUNCAN***

*Managing Director  
ASSURRE*

- Economic instruments have been on the agenda of many governments for some time
- Between mid 80's and mid 90's only 20 new instruments were added to approx. 80 existing originally across Member States covered in a survey by OECD
- Instruments have typically had a fiscal bias and have been applied along lines of least political resistance
- They have been set at levels well below the full cost of externalities and frequently ignore inter-temporal issues
- Interesting to distinguish "new social regulation" including environment from other groupings (client - interest group - majority)
- There is an asymmetry of interests and of information
- Changed perceptions are needed to move environmental policies into the matrix where both costs and benefits are spread

Economic instruments work best when they are dynamic and:

- They do not prescribe specific solutions but leave it to the target groups to decide how and where to control their process
- They ensure that control can take place where the marginal costs are lowest, thus ensuring substantial cost saving potential.
- When some part of the benefit / revenue generated can be shared within the loop.
- Improvements need to be adequate responses to both public expectations, and what can be supported from a scientific and technical standpoint. Transparency of processes applied and criteria used are indispensable
- Instruments can be effective on a national or regional basis but great care must be taken to avoid creating non tariff barriers to the free flow of goods across the EU
- Pressure needs to be applied at the correct point to get real leverage

Changes in consumer behaviour are driven by socio-demographic trends – the reality of these must be considered

### **EVOLUTION OF SALES UNITS IN FRANCE**

**Cause I : Population growth**

**Cause II : More smaller households**

- Individual households use proportionately more packaging

- Smaller households buy smaller portions

**Cause III : Lifestyle changes**

- Less time for shopping and preparation of meals
- Less frequent shopping trips = more prepacked goods
- More individualised demand = more variety

**Two evolving trends behind growth of 5 billion sales units:**

- 2/3 because of more packaged products
- 1/3 because of smaller portions sold

Deposit systems – extensive experience in beverage packaging across Europe shows (OECD)

- Most systems raise prices to the consumer and lower prices to the supplier
- Retailers reduce choice to the consumer
- Practical only for limited product selections
- Splitting collection systems generates inefficiency
- Can create barriers to trade and / or negative environmental impacts

**BAD EXPAMPLES**

**German Packaging Ordinance**

- 72% minimum for reusable mineral water bottles
- « Good / bad » environmental tax on beverage packaging

**Danish tax measure**

- «can ban » protectionist regulation
- Environmentally « friendly » based packaging tax

**Belgian Ecobonus**

- Tax reduction (VAT & excise) on reusables
- « gift » to HORECA sector / no influence overall

**USA deposit on beverage packaging**

- Reduction or elimination of reusable option in 10 states involved

**GOOD EXPAMPLES**

**Danish**

Command and control policy for water pollution  
→ 45% reduction, but at high costs

### **Dutch**

Variable charging on water quality management :  
→ 80% over a 10 year period in organic discharges

### **Japanese**

SO<sub>2</sub> levy to fund pensions for officially recognised pollution victims  
→ after 10 years = lowest emissions per capita in 98

Heavy use of eco-instruments is expected in CEEC & EU accession countries. They will take two main forms:

- Generators of revenue to fund the setting up of resource management systems
- Suspended levies (sanctions) which will be applied if ambitious targets are not met

## **LESSONS FROM NATIONAL EXPERIENCE**

### **Nordic Group Countries**

- Find areas in common to begin with to avoid paralysing early conflicts
- Detailed priorities cannot be set for individual product groups. Priorities need to be determined in the light of existing political goals

### **The Netherlands**

- Link consumption policy agenda to products and work with industry

### **Germany**

- Much useful experience exists to build on: in areas such as product-related innovation in firms

### **The UK**

- Key priorities need to be agreed, which channels down into focus on the most relevant products.
  - Consensus is key, as is business engagement, including a focus on innovation
- 
- **Reconsider balance of policies, in particular, subsidies**
  - **Reduce government speculation in environment tax revenues**
  - **Change the target groups' perception of costs & benefits**
  - **Redesign economic instruments within an integrated approach**
  - **Plan for a process of change**
  - Economic instruments should be used as part of a broader strategy

- Their value lies in underlining, signalling, or accelerating the need for useful change in society.
- Environmental taxes need a coherent design so that, rather than incidental taxes on batteries, plastic bags, water taps or whatever else their use is related to more sufficient life cycle analysis.
- The most damaging waste streams should be identified, and taxes applied on the basis of material balance accounts – not turnover.

# USING FREE MARKET TOOLS TO PROTECT THE ENVIRONMENT IN GERMANY

**Presentation by Mr Axel WELGE**

*Umweltreferent  
Deutscher Städtetag*

## I. Introduction

The first stages of the ecological tax reform have already entered into force. The “green tax” is aimed at reducing social security contributions from a current 42,3% of gross earnings to under 40% by using revenue from energy taxation; it also aims at taxing energy consumption and promoting energy-saving and environmentally friendly manufacturing processes and products. The main points of the law which is to initiate the ecological tax reform are the Introduction of an electricity tax by way of the electricity tax law (*Stromsteuergesetz, StromStG*) and a modification of the law on mineral oil taxation (*Mineralölsteuergesetz, MinÖlStG*).

From the perspective of environmental protection at the municipal level, raising the price of energy and lowering the price of labour are steps in the right direction. We also welcome the planned increases in energy taxes which are envisaged for stages 2 to 5 of the tax reform, since they can be understood by the general public and encourage ecological patterns of consumption and purchasing. In addition, part of the revenue is to be used in the long term to promote renewable energy sources. As we see it, this is an important step.

A critical point, however, is the limited effect which the increases in mineral oil and electricity tax will most likely have. In particular with regard to the liberalisation of the energy market, the electricity tax increases in stages 2 to 5 will be hardly be “felt” by the general public. Likewise, the increases in mineral oil tax will most likely not suffice to change people's attitudes towards their cars. Furthermore, the further stages of the ecological tax reform do not envisage price increases for fuel. There is no justification for such an approach from the perspective of ecological or climate policy. Finally, the use of revenue generated by the green tax does not lead to significant cuts in associated employer outlay. What is more, from a municipal perspective, green tax revenues should be earmarked for specific purposes to promote environmentally sound transportation and energy sources as well as to eliminate urban environmental damage (e.g. environmental cleanups end noise abatement measures).

## II. The State of the Environment in Urban Areas

As is well known, a major part of the greenhouse effect is caused by urban and industrial growth and is thus linked to congested urban areas. In accordance with the motto “think globally, act locally,” cities in particular are expected to develop, in the framework of Agenda 21, sustainable urban models and strategies for the future which are aimed at reducing the climate-relevant trace gases carbon dioxide, methane and nitrogen oxide. Cities can, however, only partially fulfil these expectations since they have at their disposal only limited means of exercising an influence over the main causes of the greenhouse effect:

- Land consumption continues to rise unabated. Land for housing and transportation constitutes almost 50% of the total area of cities. Areas for compensation and substitute measures

required by environmental legislation are becoming smaller and smaller in cities. As long as surface sealing is not financially unattractive, municipal strategies alone cannot achieve necessary goals such as land-saving construction methods and reversing, as much as possible, surface sealing.

- Despite certain successes, air pollution in cities is still increasing in particular as a result of vehicle emissions, in most cities, nitrogen oxide and diesel soot pollution caused by an increase in road traffic has continued to rise in recent years. Pollution emitted by motor vehicle traffic on busy streets accounts for over 70% of overall urban pollution.
- What is more, people, particularly the inhabitants of congested urban areas, are increasingly suffering from the adverse effects of noise. For example, noise levels that are detrimental to human health (65 dbA during the day, 45 or 50 dbA at night) are often exceeded on busy streets. In addition, there is a considerable amount of noise from aircraft, industrial facilities, rail traffic and leisure activities in sports facilities. It is now generally acknowledged that, given its proven detrimental effects on health, noise may well become the largest urban pollution problem of the future.
- Cities are still fighting the damage being done to ground water by pollutants and damage being done to surface waters by industrial and domestic sewage. The introduction of insufficiently purified surface water and a water maintenance system which is increasingly unnatural are leading to a severe deterioration in the quality of our biological water assets.
- Finally, cities still have to deal with the enormous (financial) problem of cleaning up land contaminated by previous use. In Germany, there are about 150,000 areas which are suspected of being polluted (abandoned sites) and which still have to be rehabilitated. On account of the growing scarcity of land, the task of recycling industrial sites is becoming more and more important but is nevertheless limited by the availability of financial resources.

### **III. Green Taxes and Charges**

In order to improve the environment of cities, not only are the instruments of administrative law, i.e. prohibitions and requirements, to be applied in the future. Increased use should also be made of free market instruments. Higher taxes will be imposed on environmentally harmful energy consumption. Revenue generated by such means will be used for the ecological improvement of cities. In this way, we can promote a deeper understanding for necessary measures among the general public.

Green taxes and charges are to bring about new patterns of consumption which both reduce energy consumption and shape a new attitude towards transportation. At the same time, cities will be provided with additional financial means for an environmentally friendly infrastructure and for the promotion of environmentally friendly energy sources. A true change in attitudes towards energy and transportation which is particularly in the interest of inhabitants of congested urban areas cannot be achieved without reforming taxes and charges in the following areas:

#### **1. Energy tax**

Fossil fuels and electricity must be taxed according to their energy content, and renewable energy sources must be exempted from taxes. Over a period of 10 years, the price of energy consumption in all sectors of the economy should increase substantially. The rate of increase (roughly 40% in 10 years) proposed by the study "Requirements and Starting Points of an Ecological Reform of the Taxation System" conducted by the German Institute for Economic

Research and the Research Institute of Public Finance at the University of Cologne on behalf of the Federal Environmental Agency is a step in the right direction.

## **2. Traffic-related green charges**

- a) Given the constantly fluctuating price of mineral oil, the yearly increase in the mineral oil tax of 6 pfennig/year until 2003, which the ecological tax reform envisages, is insufficient. What is needed is a yearly tax increase of at least 10 pfennig for a period of 10 years. The additional revenue generated by this increase should be used above all to promote rail traffic and municipal public transport.
- b) As soon as the technical requirements are met, a road-use tax should be levied for all roads in Germany. The current road-use tax on heavy trucks using German highways has the undesirable effect of shifting such traffic to the municipal road network and brings about no significant reductions in road traffic.
- c) The existing tax exemption for aviation fuel must be abolished. Air traffic is a major source of environmental pollution. For example, air traffic at Frankfurt Airport already accounts for 10% of the nitrogen oxide pollution in the entire region along the lower Main river. Given the permanent increase in air traffic, further increases in pollution are to be expected. In addition, noise pollution greatly impairs the well-being of those affected. An alternative or additional approach would be to consider an earmarked air traffic charge which would enable cities in the vicinity of airports and landing fields to improve their attractiveness by means of specific improvements in infrastructure and compensation measures. As they are in Switzerland, charges could be dependent on the pollution caused, thus creating a further incentive for low pollution air traffic.
- d) Being an environmentally friendly means of transport, rail traffic should be completely exempted from increases in both the mineral oil tax and the energy tax.
- e) The current blanket amount per km should be transformed in the framework of income-related expenses into a distance-related blanket amount which applies to all means of transport. This would create a further incentive to use public transport instead of private motor vehicles.

## **3. Ground water charge**

Federal and state water laws that ground water be treated with care. Laws on ground water charges have proven their worth since entering into force. For example, the law on ground water charges adopted by the federal state of Hesse has promoted numerous measures aimed at ground water protection such as the use of rain water. For this reason, this charge should be maintained or introduced. Municipal officials are pleased with the reception of programs promoting the use of rain water, water-saving fittings, water meters for individual dwellings and water-saving washing machines. The ground water charge is similar to the water tax (Düsseldorf, for example, has an annual requirement of approximately 60 million m<sup>3</sup> of ground water and an annual outlay of approximately DM 9 million for ground water-related restoration measures; these costs are covered by a charge of DM 0.15/m<sup>3</sup>. This charge clearly shows the relationship between the users of ground water and its preservation).

## **4. Charges on waste necessitating special monitoring**

A charge should be levied on waste necessitating special monitoring. Given the great number of environmental cleanup measures both in western and eastern Germany, this charge is urgently required.

**5. Extending the uses of sewage charge revenue**

The sewage charge is levied on the emission of harmful substances into surface and underground water. It would be conceivable to use the revenue generated to clean up surface and ground water pollution, in particular if the damage is caused by the improper discharge of sewage, for example in defective sewage systems.

**6. Open land charge**

This charge would be levied on special construction projects on sites which have hitherto been used agriculturally or have been open land. The revenue would be used to clean up dangerous contaminated sites or to reactivate industrial sites which otherwise could not be used again.

**THE POSSIBILITIES AND LIMITS AT THE LOCAL LEVEL  
- CONGESTION CHARGING IN LONDON -**

***Presentation by Ms Michelle DIX***  
*Assistant Director, Congestion Charging*  
*Greater London Authority*

**CONTEXT**

Central London suffers from some of the UK's most intense traffic congestion with more than 40,000 vehicles per hour pouring into the centre between 7am and 10am – equivalent to 25 busy motorway lanes. This huge volume of traffic means that drivers can expect to spend a third of their journey time at a complete standstill and to travel at less than 10mph for another 50% of their journey. Delays are costing people and businesses time and money and something must be done.

The idea of congestion charging for London is not new. Its conception as a demand management tool was first outlined in the 1964 Smeed report and many studies have been commissioned since. The Road Charging Options for London (ROCOL) study in 1998 forms the basis for the proposed central London congestion charging scheme of today. The 1999 Greater London Authority Act gave the Mayor of London the power to introduce congestion charging schemes in Greater London. When elected, the current Mayor, Ken Livingstone – who included a congestion charging scheme in his manifesto – decided he wished to examine further the suggestions outlined in the ROCOL report.

The Mayor of London's Transport Strategy, which was published on 10 July 2001, includes details of the proposed congestion charging scheme for central London. Since then the proposed scheme has been through its own public consultation process which ended on 28 September 2001. Having listened to the representations made, TfL has modified the Scheme Order and has decided to hold a further period of consultation on the proposed changes. The Mayor of London will decide by February 2002 whether to proceed with the proposed scheme or not. Should he decide to go ahead, the earliest congestion charging would be introduced is January 2003.

The key aspects of the proposed congestion-charging scheme for Central London are:

- |        |  |
|--------|--|
| Where? | The charging zone would be bounded by the 'Inner Ring Road' in central London. There would be a charge for the use of vehicles (parked or moving) on roads within the charging zone; but not for using the 'Inner Ring Road' itself.   |
| When?  | The charging hours would be 7.00am to 6.30pm, Monday to Friday. There would be no charge on Public Holidays.   |
| How?   | The charge would be £5 per vehicle per day. There would be exemptions and discounts for a range of vehicles and individuals. Drivers would be required to have registered their vehicles on the licence database for the day(s) of use. They would not require to 'display' a licence. |

Enforcement will be undertaken through the use of fixed cameras which will compare vehicle registration numbers with a licence database. Cameras will use automatic number-plate recognition technology.

The scheme is forecast to reduce traffic within the charging area by 10-15%. In those parts of London just outside the charging area, total radial traffic would reduce by 5-10%, while orbital traffic would increase by up to 5%, leading to an overall reduction outside of the area of 1-2%. Inside the charging area queuing delays would be reduced by about 20-30%; increasing traffic speeds by 10-15% throughout the day. The scheme will contribute to the economic, social and environmental goals of the Transport Strategy and will meet the key policy objective of reducing congestion.

The scheme is expected to generate net revenues of around £130 million per year. By law, these revenues must be spent on proposals that conform to the Transport Strategy for a minimum of 10 years.

Congestion charging will also be complemented with a range of measures designed to make public transport and other alternatives to car travel easier, cheaper, faster and more reliable.

## **PRESENTATION**

### **What I will talk about today**

- The major challenge facing London
- Mayor's plans to revitalise transport in London
- The role & effectiveness of congestion charging as an economic instrument in this
- The issues we're facing

### **London is a world city**

- London is:
  - one of the world's most exciting, diverse and economically successful cities
  - engine of the UK's economy
  - Europe's key financial centre
- BUT its world stage pre-eminence is seriously threatened by one major issue - its transport system

### **London's transport problems**

- Our transport system is not entirely fit for 21<sup>st</sup> century
- The transport system has been starved of the necessary investment
- Its capacity and overall performance has fallen far behind what the city needs
- It harms business efficiency and worsens the quality of life

### **London's congestion problem**

- Central London suffers the worst traffic congestion in the UK
  - vehicles typically spend half their time in queues
- Traffic is travelling as fast as horses and carts were in the 19<sup>th</sup> century
- Traffic delays are increasing, costing people and businesses both time and money

## **Our vision at TfL**

- To get London moving again
- Long-term: deliver 40% increase in the capacity of London's public transport
- Medium-term: break the log jam with radical improvement in bus services and introduction of a central London congestion charging scheme

## **The Mayor's Transport Strategy for London**

- Ten key priorities including:
  - Overcoming backlog of investment on the underground
  - Making radical improvements to bus services across London
  - Better integration of the National Rail System with London's other transport systems
  - Increasing overall capacity of London's transport system
- AND reducing traffic congestion

## **Role of congestion charging as part of Transport Strategy**

- It could reduce traffic levels by a greater extent than other available measures
- It could finance improvements to public transport
- Studies suggest that London residents regard charging people for driving or parking their cars in parts of London as the most acceptable method of raising funds for public transport investment.

## **What congestion charging could achieve - the key benefits**

- Reduce the amount of traffic in central London by 10-15%
- In turn, this would cut traffic delays by about 25%
- Less traffic inside and outside the proposed central zone
- Help bus operations
- Produce substantial net revenues for transport in London
- Each week congestion charging would generate more than £2m of traffic benefit in terms of reduced congestion
- The scheme would generate net revenues of £4m per week for investment in transport (ie. about £200m per year)

## **Public reaction**

- Traffic congestion is Londoners' top transport issue
- Public want action on congestion
- Polls show consistent majority support amongst public and businesses
  - 51% in favour
  - 35% against *(MORI, April 2001)*

## **Consultation has been key**

- Active engagement with special interest groups has been critical
  - in total, proposals have been out to public consultation for 18 months
- Real commitment to listening and addressing concerns

## So how could the proposed congestion charging scheme work?

### The choices

- Looked at other options
  - area
  - charging tools
- But for now considered a central London scheme to be:
  - effective
  - feasible
  - more acceptable than any other scheme

### Scheme Operation

- Daily, weekly, monthly or annual licence, for individual vehicle registration number

T 123 CBI

- Flat charge of £5 per day for all vehicles
- Payment by post, telephone, retail, internet,
- Late payment until midnight, but charge rises to £10 after 7pm

### Enforcement

- Vehicle registration numbers observed by fixed cameras and compared with licence database
- Cameras linked to automatic number plate recognition technology
- If no record of payment, penalty charge notice (£80) sent to official registered keeper of vehicle
- Follow up removal/clamping for persistent evaders

### Predicted impacts (inside the zone)

- Total traffic down 10–15%
- Queuing delays down by 20–30%
- Average traffic speeds up by 10–15% throughout the day
- Reduced CO<sub>2</sub> emissions

### Predicted impacts (outside the zone)

- Some increase in traffic (up to 5%) on orbital routes but...
- On radial routes into the centre of the capital, traffic down 5-12%
- Overall decrease in traffic across London

### An integrated approach

How we are improving transport in London – before and after any congestion charging scheme

### Traffic measures funded by TfL

- Working with London boroughs

- Diversion routes (eg. Inner Ring Road)
- Managing “knock-on effects” (eg. traffic calming, environmental management & parking measures)
- Signing
- Improved enforcement of parking and loading restrictions
- Improved co-ordination of streetworks
- Long term impact monitoring

### **Specific emphasis on buses**

- Over 60 bus routes identified in new bus priority programme
- The first two-year phase targeting 27 routes has a budget of £60m
- Enforcement cameras on all 700 bus lanes by end of 2002
- More conductors and better pay and conditions to attract/retain staff
- A fares freeze to make bus travel better value

### **Investing the revenue from congestion charging – short term**

- Radical improvements to bus operations
- Reducing fares on public transport
- Enhancements to the Taxicard scheme
- Better maintenance of roads/bridges
- More facilities for pedestrians/cyclists
- Road safety and personal security
- More late-night public transport services

### **Investing the revenue from congestion charging – long term**

- Expanded Underground and rail capacity with new services across central London
- New Thames Gateway river crossings
- Improved access to London’s town centres
- Light rail and tram schemes
- Improvements to London’s road system

### **Key issues we’re facing**

- Translating the theory into practice
- Presenting congestion charging as part of an overall strategy
- Consultation, consultation, consultation
- Improving public transport
- Traffic management measures

### **Conclusion**

- Final period of consultation ended 28 September
- Final decision by the Mayor on whether to go ahead or not by Christmas
- January 2003 is earliest scheme could start



# MERSEYSIDE TRANSPORT NETWORK

## **Presentation by Mr Neil SCALES**

*Chief Executive and Director General  
Merseytravel*

### **1. Merseyside - Introduction**

- Population
  - total of 1.4 million
  - experienced steady decline since 1950's
  - Liverpool population is 479,000
- Economy
  - unemployment of 8.2% (1998 - twice national rate)
  - entered second period of Objective 1 status
  - other funds addressing deprivation (New Deal, HAZ)
- The Place
  - 5 Local Authorities
  - 25.5 million visitors per year
  - tourism: worth £0.5 bn of spending  
: supports 16,500 jobs
  - 3 Universities in City Centre, 11,000 students

### **2. Merseyside - Transport**

- Liverpool Airport expanding rapidly; 50% growth in 2000
- Highly developed suburban rail network
  - 140km of track; 78 stations
  - 33m passengers per annum
- 92m tonnes of freight handled p.a. in Merseyside area
- 40% of households do not have access to a car
- Approximately 26m vehicles used Mersey Tunnel in 99/00
- Bus - approximately 170m journeys p.a.
- 48 operators in concessionary and prepaid travel schemes
- Average fleet age is 6 years

### **3. Merseyside Passenger Transport Authority (PTA) and Passenger Transport Executive (PTE)**

- 18 local Councillors on PTA
- Responsible for
  - Co-ordination and planning of public transport across Merseyside
  - Rail Services via franchise agreements
  - Information
  - Pre-paid ticketing and concessionary travel
  - Mersey Ferries
  - Mersey Tunnels
  - Bus Shelters and bus stations
  - Non-commercial and socially necessary bus services (15m/year)
- Expenditure £213million (Incl. Council levy of £81million)

- 824 Employees

#### **4. Merseyside - The Challenge**

“ A world-class city-region that attracts people to live, work invest and visit”

- Merseyside’s Objective 1 Single Programming Document

“ The aim of the Local Transport Plan (LTP) is to develop a fully integrated and sustainable transport network for Merseyside, which supports economic, social and environmental regeneration and ensures good access for all in the community”

- Merseyside Local Transport Plan 2001/02 - 2005/06

#### **5. Context of Strategy**

- All schemes within LTP appraised against Government framework:
  - Economy
  - Environment
  - Interchange
  - Safety
  - Accessibility
- Road Traffic Reduction Act
  - car traffic growth not to exceed 21.2% in 2006
  - Total traffic growth not to exceed 20.8% in 2006
- Public Transport is one element in a wider integrated package of measures to deliver “opportunities for all” and “inclusive, sustainable regeneration”

#### **6. Strategy Development**

The LTP has four main Objectives

- To ensure that transport supports sustainable economic development and regeneration
- To moderate the upward trend in car use and secure a shift to more sustainable forms of transport such as walking, cycling and public transport
- To secure the most efficient and effective use of the existing transport network
- To enhance the quality of life of those who live, work in and visit Merseyside

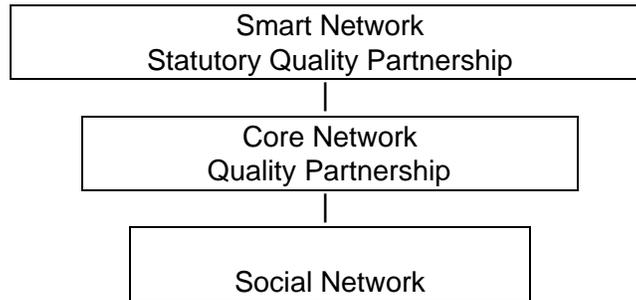
#### **7. Merseyside - The 5 Year Plan**

Key Elements:

- Developing the Bus Network
  - 15 new Quality Bus Corridors
- Developing the Rail Network
  - 25 Station upgrades
  - Underground Station enhancements
  - Merseyrail re-franchise
- Improvements to Interchange
  - 15 new interchanges
- Improvements to Information
  - 1,000 new ‘Local Information Map’ sites
- Park & Ride facilities
  - an additional 5,000 spaces
- Major Schemes
  - Line 1 of Merseytram 3 Line Network
  - Hall Lane area improvements

- Allerton Interchange

### **8. Bus Network: 3 Levels of Provision**



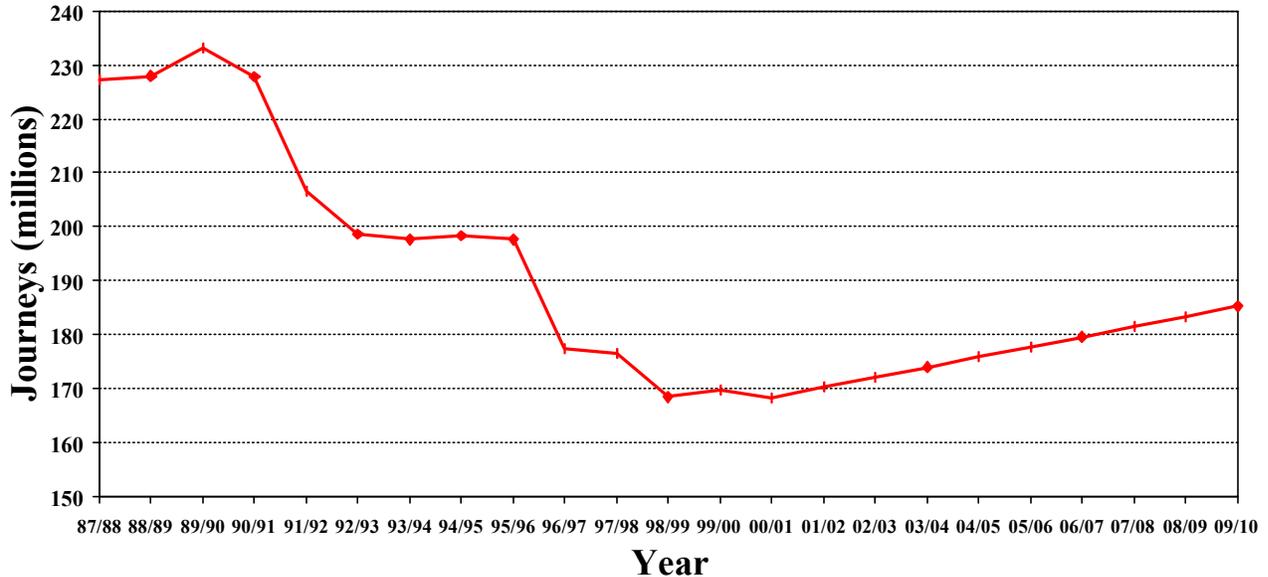
### **9. Definition of a SMART Route/Corridor**

“a quality partnership which combines low-floor accessible vehicles with wheelchair accommodation, with high quality bus infrastructure. Prime shelter sites plus key public transport use points are also equipped with Real Time Information display units; all SMART vehicles are also equipped with RTI display units. Approximate bus priority measures are introduced to support the package, together with a policy ensuring that all facilities are cleaned and maintained frequently and to a high standard”.

### **10. Bus Strategy - Consultation Results**

- Improving reliability is key priority
- 90% felt that Merseytravel should have greater control
- 46% wanted more affordable fares
- 47% supported longer hours of operation of services
- 30% wanted improvements to service information

## 11. Total Bus Passenger Journeys



## 12. LTP Targets and Performance Indicators

- Single Integrated Public Transport Network
  - 15 new interchange sites
  - 100% stops and shelters with information
  - 5000 Park and Ride spaces
- Buses
  - Increase bus patronage to 1996 level (176m)
  - 15 quality bus corridors
  - 90km of bus priority measures
  - Average fleet age to 8 years (already achieved)
  - 98.4% punctuality on supported bus services

## 13. Economic Instruments Available to Merseytravel

- Concessionary Fare Scheme
  - All modes are free to concessionaire after 09.30am
- Bus fares on the subsidised bus network are lower than the commercial bus network
- Government provide a fuel duty rebate to bus operators providing local services
- The bus operators with SMART vehicles are introducing EURO II engined vehicles or better
- The LTP includes measures to attract and retain people to the network

#### **14. Conclusion**

- Deregulation of buses in 1986 removed barriers to entry to the bus market has caused Merseytravel constraints
- Fares policy can only be influenced by Merseytravel on the subsidised network
- The concessionary fares scheme is a significant instrument to encourage people to use the network
- Governments fuel duty rebate is important, but is a 'blanket' subsidy



## THE DISTRIBUTIONAL EFFECTS OF FUEL DUTIES : RURAL HOUSEHOLDS IN SCOTLAND

*Presentation by Dr Deborah ROBERTS*

*Socio Economic Research Programme  
The Macaulay Institute*

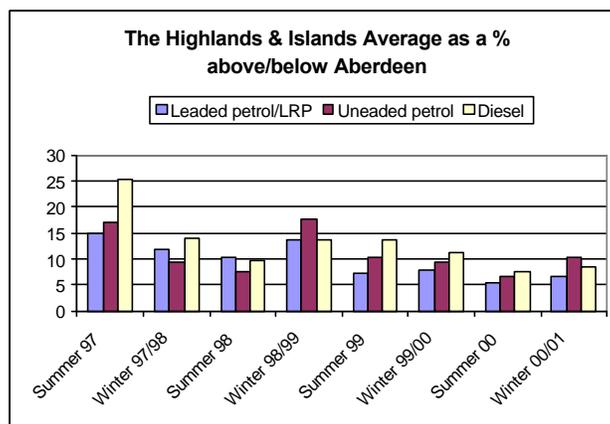
" We [the Royal Commission] recognised that environmental and social costs were lower in rural areas and were aware that higher fuel taxes will to an extent bear unduly on these areas. But we felt that an increase in the fuel price was so desirable that the effects in rural areas could not be avoided."

SILBERSTON, EJ, 1995.

### Distinctive features of rural car use:

- **Rural car users travel longer distances**  
On average, 50% further
- **Alternative means of transport are more limited and more expensive**
- **Car ownership considered a necessity**  
"Private transport is the key to maintaining the rural quality of life"
- **Fuel costs are higher**

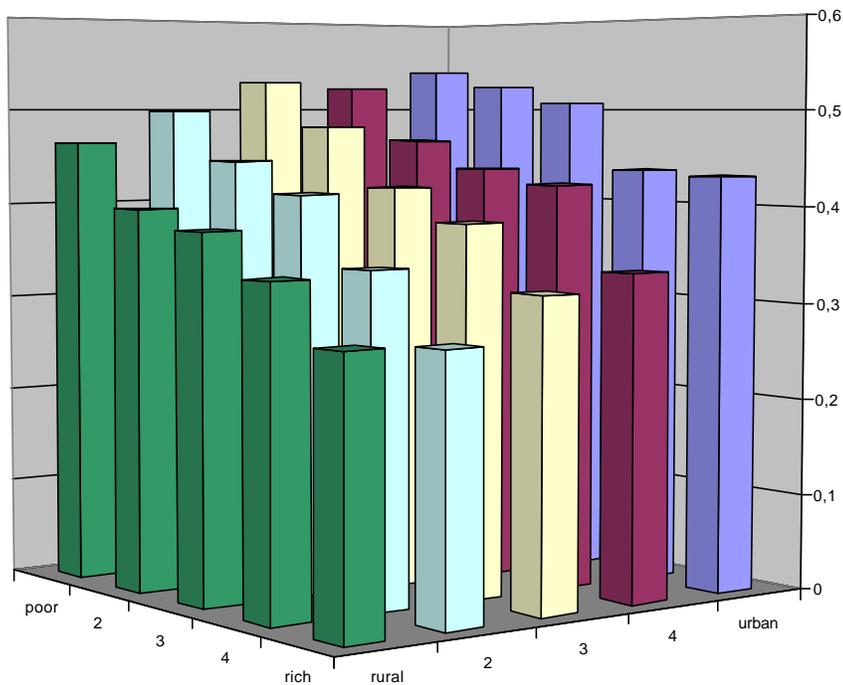
### The fuel price differential



ESTIMATED SOCIAL COSTS OF ROAD TRANSPORT  
(£ BILLION PER YEAR AT 1994 PRICES)

	<b>Eighteenth Report</b>	<b>Newbery</b>	<b>Maddison and Pearce</b>
Air pollution	2.0-5.2	2.8-7.4	19.7
Climate change	1.5-3.1	0.4	0.1
Noise and vibration	1.0-4.6	0.6	2.6-3.1
<b>Total environmental costs</b>	<b>4.6-12.9</b>	<b>3.8-8.4</b>	<b>22.4-22.9</b>
Road accidents	5.4	4.5-7.5	2.9-9.4
<b>Congestion costs</b>	<b>not included</b>	<b>19.1</b>	<b>19.1</b>
<b>Total externalities</b>	<b>10.0-18.3</b>	<b>27.4-35.0</b>	<b>44.4-51.4</b>

The distribution of fuel price elasticities by income level and population density



Highest income rural households: -0.28

Lowest income urban households: -0.54

### Estimated changes in the cost of living following fuel price increases

- Impact more differentiated across income deciles than population densities
- Impact greatest on poorest car-owning households in rural areas
  - 30% increase in price resulting in 1.7% increase in cost of living

### Case study areas

Lewis  
Sutherland  
Aberdeenshire  
East Lothian  
Galloway

### Factors influencing the impact of duties

#### 1) Location

WEEKLY CAR USE PATTERNS BY STUDY AREA

Study Area	Average no. of trips/person/Weekday	Average duration of trips/person/weekday (minutes)	Average distance/person/weekday (miles)
Overall	3.04	63.02	37.85
Galloway	2.92	60.49	37.03
Sutherland	3.76	88.22	59.91
Lewis	2.41	34.70	15.84
Aberdeenshire	3.45	75.38	42.30
East Lothian	2.71	59.21	36.62

- Population density alone is a poor indicator of the impact of fuel price increases
- Other locational and geographical features are important at both meso and micro scale

#### 2) Household composition

- Households with young children most vulnerable due to lack of alternative transport options
- Rural elderly households least vulnerable
  - fall in conscious car dependence with age

#### 3) Occupation of head of household

- Nature of job highly significant
- Those most vulnerable to fuel price increase are those working in distribution/marketing and rural-urban commuters

## The Income-expenditure differential

### WEEKLY PETROL EXPENDITURE BY INCOME LEVEL

Expenditure (£ per week)	No.	%	% of responses				
			Income level (£'000)				
			Under 10.0	10.0 to 14.99	15.0 to 19.99	20.0 to 29.99	30 +
0-10	162	17.5	38	24	15	8	5
10-20	293	31.7	37	38	35	37	18
20-35	261	28.2	13	28	34	34	36
35-50	93	10.1	3	4	9	11	19
50+	66	7.1	1	2	2	6	18
(Don't know)	50	5.4	8	3	5	4	4
Total	925	100	100	100	100	100	100

### Conclusions

- Effect of fuel price escalator **inequitable across space**
  - Rural households bear unfair share of burden
- The impact of increases in fuel duties **varies significantly** depending on number of household specific factors
  - Those most vulnerable in rural Scotland, households with low incomes, young children, travelling long distances and already spending a high prop. of income on fuel.
- Increased duties are an **inefficient** means of reducing social costs of car dependence

## SUSTAINABILITY PACT NUREMBERG

*Presentation by Dr Werner EBERT*

*Umweltamt Nürnberg*

**s.m.i.l.e for business excellence**  
**- sustainable management is leading economy -**

- The Sustainability Pact was signed by the mayor of the city of Nuremberg and the leaders of companies on 7th May 2001.
- In Germany the Nuremberg Sustainability Pact is unique.
- It contains a list of commitments the businessness and the city council have to realise.
- On the level of the network COUP 21 the commitments will be carried out.

### Members :

3wBox GmbH	HONSEL Guss GmbH Werk Nürnberg
Bayern Innovativ GmbH	IHK Nürnberg f. Mittelfranken
CSC JÄKLECHEMIE GmbH & Co. KG.	IAB Institut für Arbeitsmarkt und Berufsforschung
Curiavant Internet GmbH	INTECHNICA GmbH
DaimlerChrysler AG NL Nürnberg	Katholische Stadtkirche
DATEV eG	LGA Bayern
Deutsche Telekom AG Technik-NL	Leistriz AG
DGB Industrieregion Mittelfranken	Lucent Technologies Network Systems GmbH
Die Möbelmacher GmbH	maul + co. – Chr. Belser GmbH
Die Region Nürnberg e.V	NEFkom Telekommunikations GmbH & Co. KG
E-Plus Mobilfunk GmbH Gs. Süd	Neumarkter Lambräu Gebr. Ehrspurger e.K.
Ericsson Eurolab Deutschland GmbH	Novartis Pharma GmbH
Evang.-luth. Kirche in Nürnberg	Nürnberger Initiative Kommunikationswirtschaft (NIK)
FABER-CASTELL AG	OBI Baumarkt Franken GmbH & Co. KG, Nürnberg
Federal-Mogul Nürnberg GmbH	QUELLE AG
Friedrich-Alexander Univ. Erlg.-Nürnberg	Sebaldus Druck und Verlag GmbH
Georg-Simon-Ohm-Fachhochschule Nürnberg	Siemens AG Nürnberg
GfK AG	STAUB & CO. Chemiehandelsgesellschaft mbH
GEYER AG	TEMIC TELEFUNKEN microelectronic GmbH
GfE-Gesellschaft für Elektrometallurgie mbH	Verkehrsinitiative Neuer Adler e.V.
Grundig AG	VERLAG NÜRNBERGER PRESSE Druckhaus Nürnberg
Hetzl-Elektronik Recycling GmbH & Co.KG	VIAG INTERKOM GmbH & Co

### Advising Institutes

- B.A.U.M. e.V., Hamburg
- Difu – Deutsches Institut für Urbanistik, Berlin
- Fachhochschule Nürnberg
- future e.V., München
- Institut für Arbeitsmarkt- und Berufsforschung, Nürnberg
- INTECHNICA GmbH Umwelt- und Managementberater, Nürnberg
- Öko-Institut e.V., Freiburg
- oekom-research, München
- Wuppertal-Institut f. Umwelt, Klima, Energie

### **Why a Sustainability Pact**

- because ecological and social questions have to be linked with economic issues
- because the business region Nuremberg generates a good chance for further development
- because a better exchange of experience and a lead of Know how is possible
- because city administration can change in a more efficient way to a public service company

### **Commitments of the City of Nuremberg**

- Sustainability programme for the city administration
- Common concepts between businesses and city with the aim of considerate use of industrial areas
- To foster life-long-learning
- To foster environment friendly concepts for mobility
- To offer a sustainability prize

### **Commitments of the companies**

- Sustainability management and sustainability reporting
- Integrated Product Policy (IPP)
- Skills development - social and inter-cultural competence
- Climate protection and environment friendly mobility
- To share public-private-partnerships on local level

### **The Working Groups (COUP 21)**

- Climate protection / efficient use of energy
- Integrated Product Policy
- Sustainability-Management / Sustainability-EFQM
- Skills development, knowledge management, inter-cultural competence and gender mainstreaming

**More information available on the following websites:**

**[www.coup21.de](http://www.coup21.de) and [www.smile-management.de](http://www.smile-management.de)**

## DETAILS OF SPEAKERS

Mr Rupert WILLIS  
Sustainable Development Unit  
DG Environment, European Commission  
(Avenue de Beaulieu 5,154)  
rue de la Loi 200  
B - 1049 Brussels

Tel : +32 - 2 - 295.89.52  
Fax : +32 - 2 - 296.95.59  
E-mail : rupert.willis@cec.eu.int

Mr Patrick ten BRINK  
Senior Fellow and Head of Brussels Office  
Institute for European Environmental Policy  
(IEEP)  
18 Avenue des Gaulois  
B - 1040 Brussels

Tel : +32 - 2 - 732.40.04/42.34  
E-mail : info@ieep.org.uk  
Web site : <http://www.ieep.org.uk>

Mr Ronan PALMER  
Chief Economist  
Environment Agency of England and Wales  
Rio House  
Waterside Drive, Aztec West  
UK - Bristol BS32 4UD

Tel : +44 - 1454 - 87.84.91  
Fax : +44 - 1454 - 87.86.81  
E-mail : ronan.palmer@environment-  
agency.gov.uk

Mr Francis RADERMAKER  
Association of Cities and Regions for  
Recycling  
Gulledelle 100  
B - 1200 Bruxelles

Tel : +32 - 2 - 775.75.85  
Fax : +32 - 2 - 775.76.35  
E-mail : fra@ibgebim.be

Mr Peter JONES  
BIFFA Waste Services Ltd  
Head Office  
Coronation Road, Cressex  
UK - High Wycombe Bucks HP12 3TZ

Fax : +44 - 1494 - 463.352  
E-mail : peter.jones@biffa.co.uk

Mr Tom HOWES  
Directorate General for Energy and  
Transport,  
European Commission  
(Rue de Mot 24)  
Rue de la Loi 200  
B - 1049 Brussels

Tel : +32 - 2 - 295.48.80  
Fax : +32 - 2 - 295.58.43  
E-mail : tom.howes@cec.eu.int

Mr Jo BAKER  
Transport & Travel Research Ltd  
16 Bore Street  
Lichfield  
UK - Staffordshire WS13 6LL  
Tel : +44 - 1543 - 41.64.16  
Fax : +44 - 1543 - 41.66.81  
E-mail : ttr@compuserve.com  
<http://www.ttr-ltd.com>

Mr William R. DUNCAN  
Managing Director  
ASSURRE (The Association for the  
Sustainable Use and Recovery of  
Resources in Europe)  
av. E. Mounier 83, box 5  
B - 1200 Brussels

Tel : +32 - 2 - 772.52.52  
Fax : +32 - 2 - 772.54.19  
E-mail : management@assurre.org  
Website : [www.assurre.org](http://www.assurre.org)

Mr Axel WELGE  
Umweltreferent  
Deutscher Städtetag  
Lindenallee 13-17  
D - 50968 Köln

Tél. +49 - 221.37.71.281  
Fax: +49 - 221.37.71.127  
E-mail: axel.welge@staedtetag.de

Ms Michelle DIX  
Assistant Director, Congestion Charging  
Greater London Authority  
Romney House  
Marsham Street  
UK - London SW1P 3PY

Fax : +44-20-79.41.43.80  
E-mail: SuzanneFrost@tfl.gov.uk

Mr Neil SCALES  
Chief Executive and Director General  
Merseytravel  
24 Hatton Garden  
UK - Liverpool L3 2AN, England

Tél: +44 - 151 - 330.11.01  
Fax : +44 - 151 -330.13.68  
E-mail : nscales@mtrav.u-net.com

Dr Deborah ROBERTS  
Socio Economic Research Programme  
The Macaulay Institute  
Craigiebuckler  
UK - Aberdeen AB15 8QH

Tel : +44 - 1224 - 49.82.00 Ext 2383  
Fax : +44 - 1224 - 31.15.56  
E-mail : d.roberts@macaulay.ac.uk

or The Arkleton Centre for Rural  
Development Research  
University of Aberdeen  
Kings College  
Aberdeen, AB24 3UF  
Tel : +44 - 1224 - 27.39.01  
Fax : +44 - 1224 - 27.39.02

Dr Werner EBERT  
Umweltamt Nürnberg  
Lina-Ammon-Str. 28  
D - 90471 Nürnberg

Tel : +49 - 911 - 231.41.89  
Fax : +49 - 911 - 231.38.37  
E-mail : ebert.uwa@gmx.de  
Website : www.gmx.net

## ABOUT CEMR

**The Council of European Municipalities and Regions**, currently presided by Valéry Giscard d'Estaing, is an organisation created by and for local and regional authorities in the European Union and in greater Europe.

Established in 1951 by a group of mayors from the founding countries of the European Community, today, with nearly 100 000 member local and regional authorities represented through 42 associations present in 29 countries, it is one of the principle organisations of local and regional authorities in Europe.

Its main objectives are:

- to develop a European spirit among local and regional authorities in order to promote a united Europe based on self-government for its authorities and their participation in European construction,
- to contribute to the reflections of local and regional authorities on the European Union's main political dossiers which concern them directly: subsidiarity and new forms of governance, reform of the Institutions, employment, implementation of the Charter of Fundamental Rights, equal opportunities...
- to encourage dialogue, exchange of experiences and co-operation between its members using all means available (twinning, partnership, intermunicipal and interregional co-operation),
- to disseminate information from the European Union institutions among its members.
- to ensure that the opinions of its members are taken into consideration by the representative institutions and bodies.

## A PROPOS DU CCRE

**Le Conseil des Communes et Régions d'Europe**, actuellement présidé par Valéry Giscard d'Estaing, est l'organisation que se sont donnée les collectivités locales et régionales des pays de l'Union européenne et de la grande Europe.

Fondé en 1951, il est aujourd'hui, avec près de 100 000 collectivités locales et régionales membres au travers de 42 associations et présent dans 29 pays, l'une des principales organisations volontaires de collectivités territoriales en Europe.

Ses objectifs essentiels sont notamment de:

- développer l'esprit européen dans les collectivités territoriales, afin de promouvoir une Europe unie, fondée sur l'autonomie de ses collectivités et leur participation à la construction européenne,
- contribuer à la réflexion des collectivités territoriales sur les principaux dossiers politiques de l'Union qui les concernent directement: subsidiarité et nouvelles formes de gouvernance, réforme des institutions, emploi, mise en oeuvre de la Charte des Droits fondamentaux, égalité des chances...
- encourager le dialogue, l'échange d'expériences et la coopération entre ses membres, par tout moyen (jumelages, partenariats, coopération intermunicipale et interrégionale).
- diffuser auprès de ses membres l'information issue des institutions de l'Union.
- aider à faire entendre la voix de ses membres auprès des institutions et organismes représentatifs.



**Secrétariat général** (*Secretariat general*):  
15, rue de Richelieu F - 75001 Paris  
Tél. +33 1 44 50 59 59 - Fax +33 1 44 50 59 60

**Bureau de Bruxelles** (*Brussels Office*):  
rue d'Arlon 22-24 B- 1050 Bruxelles  
Tél. +32 2 511 74 77 - Fax +32 2 511 09 49

E-mail: [cemr@ccre.org](mailto:cemr@ccre.org)  
Web: <http://www.ccre.org>