## *14.0 SUMMARY TABLES OF TIER 2 TAXES AND CHARGES*

This chapter presents a synthetic summary, across the nine taxes and charges analysed in Tier 2. The summary tables present – where possible - synthetic information on the application of the tax and the effect on price and costs, the subsequent impacts on the internal market, competition and employment, as well as the effect of the tax on the environment.

**The Application of the Tax and the effect on price and costs**

- Point of Application of the Tax - "Taxable Event" - *Table E1*
- Direct Sectors Affected - *Table E2*
- Tax / Charge Rates – *Table E3*
- What are the Effects of the Tax/Charge on (Input) Price - *Table E4*
- What are the Exemptions to the Tax/Charge - *Table E5*
- Price Elasticities for the Product/pollutant charged/taxed - *Table E6*

**The effect of taxes on competition, trade, internal market and employment**

- Effect on Competition - *Table E7*
- Impact on Trade - *Table E8*
- Internal Market Effects - *Table E9*
- Employment - *Table E10*

**Relating to the Effect and Effectiveness of the Tax**

- Effect on Pollution Emissions / Polluting Product Use - *Table E11 (we need to be aware of which element is caused by the tax and which by the choice of system for the use of revenue)*
- Effect of Tax/Charge on Technological/technical change - *Table E12*
- Revenue Raised by the Product/pollution charge/tax - *Table E13*
- Use of Revenue form the product/pollution charge/tax - *Table E14*
- Administrative Burden of Tax - *Table E15*

***Table E1: Point of Application of the Tax - "Taxable Event"***

| | MS | | MS | | MS | |
|---|---|---|---|---|---|---|
| 1) Nitrogen Oxides ($NO_x$) Taxes and Charges | S | All combustion plants producing greater than 50GWh useful energy, threshold lowered to 40 GWh 1996, 25 GWh 1997 | E (Galicia) | NOx emissions assessed through direct measurement of emissions or through the use of emission factors supplemented by some form of inspection | F | $NO_x$ emissions from power plants (>20MW) and waste incineration facilities (combustion greater than 3 tonnes per hour).<br>Also, plants with excessive emissions (>150 tonnes per annum). Levied on measured quantities or declared emissions. Most plants do not measure emissions |
| 2) Water Abstraction Charges | NL | Groundwater: extraction by water works or other entities (industry, agriculture) Water companies do monitoring and other abstractors carry out self-monitoring | DK | Piped water at delivery ($m^3$) (mainly households but some enterprises) | E | On water price. The water regulation levy subjects all those holding water use rights who benefit from regulation waterworks of surface and groundwater as well as right holders who use specific infrastructures. |
| 3) Waste Water Charges | DK | Direct Discharges of BOD, Phosphorus (P), Nitrogen (N) to surface waters (on basis of monitoring of discharges or according to a table of hydraulic discharge standard values) | NL | Discharges to surface water of COD, Nitrogen, and 8 metals or heavy metals (discharge to sewage covered as well as direct discharges) – monitoring is done by dischargers | D | Direct dischargers of COD, P, N and 7 other including 6Heavy metals and organic halogens |
| 4) Pesticides Taxes/Charges | S | On manufacturers and importers based on active ingredient | DK | On retail price and import where imported for own use | B | On retail price |
| 5) Mineral Surpluses and Fertiliser | NL | Since 1998: tax on Nitrogen-surplus and P2O5-surplus per hectare – based on mineral accounts | FIN | 1976 till 1994: first per kg of fertiliser, later per kg N and per kg P in the fertiliser | S | Manufactured and imported fertiliser, on basis of N and P content |
| | A | 1986 till 1994: retail price of fertiliser on basis of N, P2O5 and K2O content of fertiliser | | | | |
| 6) Landfill taxes | F | Licensed/unlicensed Landfill site operator pays the tax on all household, municipal and mixed industrial (inert) waste. | UK | Licensed landfill operator pays the tax when (all) waste enters the site | A | Landfill operator is responsible for the payment of the tax on all waste disposed at a licensed landfill site or exported. |

| | MS | | MS | | MS | |
|---|---|---|---|---|---|---|
| 7) Aggregates tax | DK | Tax on amount commercially extracted and imported.<br>Materials for export exempt. | S | Tax falls due when the gravel is either sold or used within the business<br>Any company that requires a permit for exploiting a site must pay the tax. | UK | 4 taxable events: Physical removal from the site where it was extracted;<br>sale to another person;<br>use for construction purposes; or<br>mixing with anything which is not chargeable aggregate or water. |
| 8) Packaging Taxes | FIN | Container filler or importer, when product released for consumption | DK | Fillers, packers and importers of taxable products categories | S | Manufacture or import (not clear whether paid by the container manufacturer or the producer of the final drink) |
| 9) Batteries Taxes | I | On retail price. Specific tax | B | On retail price. Specific tax | HU | Charge levied on battery according to weight |

*Tax/Charge as a % of the price of the taxed good (or element) or service.*

***Table E2: Direct Sectors Affected***

| | MS | Sector and extent of burden * | MS | Sector and extent of burden * | MS | Sector and extent of burden * |
|---|---|---|---|---|---|---|
| 1) Nitrogen Oxides ($NO_x$) Taxes and Charges | S | All large power plants– pulp- and paper sector faces largest net cost of the refunded tax, with incineration and chemicals sector Energy producers and food sector are net winners. | E (Gal.) | Not known | F | Heat and power sector (power station and waste incineration plants) and some production plants, with high levels of emissions |
| 2) Water Abstraction Charges | NL | Water companies, Industry and agriculture | DK | Households and selected businesses | E | Households in urban areas<br>Irrigation co-operatives? |
| 3) Waste Water Charges | DK | Sewage treatment plants, Industry and dwellings not connected to sewer | NL | Sewage treatment plants, municipal treatment, Industry | D | Sewage treatment plants<br>Industry |
| 4) Pesticides Taxes/Charges | S | Agriculture and pesticide manufacturers and importers | DK | Agriculture and pesticide manufacturers and importers | B | Eco-tax: potentially wood industry and households; New Pesticides charge: Agriculture only |
| 5) Mineral Surpluses and Fertiliser | NL | Agricultural sector: till 2001 pig and poultry farms and dairy farms with > 2.5 cow equivalent units per ha. From 2001 on: all agricultural farms | FIN | Agricultural sector and fertiliser industry | S | Agricultural sector and fertiliser industry |
| | A | Agricultural sector and fertiliser industry | | | | |
| 6) Landfill taxes | F | Recycling Industry: 0.3%<br>Incinerator operators<br>Municipalities and waste producers | UK | All sectors producing waste | A | All sectors producing waste |
| 7) Aggregates tax | DK | Construction / road building / glass industry. Very little difference in burden between sectors. | S | Construction / road building / glass industries | UK | Construction / road building |
| 8) Packaging Taxes | FIN | Soft and Alcoholic Drink producers and importers | DK | Fillers and importers of containers | S | All drink producers and importers, except milk. |
| 9) Batteries Taxes | I | Consumer<br>Battery Industry | B | Consumer<br>Battery Industry | HU | Consumer<br>Battery Industry |

***Table E3: Tax / Charge Rates***

| | MS | | MS | | MS | |
|---|---|---|---|---|---|---|
| 1) Nitrogen Oxides ($NO_x$) Taxes and Charges | S | 40.000 SEK (4.430 EUR)/t | E (Gal.) | 5000 Ptas/t (1001-50,000 t)<br>5,500 Ptas/t (>50,000 t) | F | 150 FF (22,9 EUR)/t (1991-95)<br>180 FF (27.4 EUR)/t (1996-) |
| 2) Water Abstraction Charges | NL | Water companies 0.34 NLG (0.15 EUR)/$m^3$<br>Industry / agriculture 0.17 (0.08 EUR)NLG/$m^3$<br>Infiltrated groundwater 0.055 NLG (0.025 EUR)/$m^3$ | DK | 1 DKK (0.13 EUR)/$m^3$ 1994<br>5 DKK (0.67 EUR)/$m^3$ 1998<br>plus 25% VAT | E | |
| 3) Waste Water Charges | DK | Standard rates:<br>COD: 1,48 EUR/kg<br>N: 2,68 EUR/kg<br>P: 14,77 EUR/kg<br>Heavy metals: No charge | NL | State waters 65NLG (29 EUR)/ pollution unit<br>Waterboards: average 82 NLG (37 EUR) per pollution unit,<br>Standard rates for state waters:<br>COD: 0,59 EUR/kg<br>Mercury, cadmium, arsenic:<br>294 EUR/kg<br>Copper, zinc, lead etc. 29,50 EUR/kg | D | 70 DM / standard unit<br>translates into the following standard rates:<br>COD: 0,72 EUR/kg<br>N: 1,43 EUR/kg<br>P: 11,93 EUR/kg<br>Mercury: 1790 EUR/kg<br>Cadmium: 358 EUR/kg<br>Chromium, nickel, lead: 72 EUR/kg |
| 4) Pesticides Taxes/Charges | S | 4 SEK (0,44 EUR)/kg active ingredients (a.i.) (1984)<br>8 SEK (0,88 EUR) /kg a.i. (1988)<br>20 SEK (2,2 EUR) /kg a.i. (1994) | DK | Insecticides 54% of retail price; fungicides, herbicides and growth regulators 33%; microbiological agents: 3% of wholesale price. | B | Eco-tax: 10BEF (0,25 EUR)/g toxic a.i. (5 a.i.s) - 2 BEF (0,05 EUR)/g a.i. for less toxic a.i.s ( never implemented)<br>New Charge: 0.1 BEF (0,0025 EUR)/g a.i. (same a.i.'s) |

| | MS | | MS | | MS | |
|---|---|---|---|---|---|---|
| 5) Mineral Surpluses and Fertiliser | NL | 1998:<br>Nitrogen (N): 1.50 NLG (EUR 0.68)/kg<br>Phosphorus (P2O5): 2.50 NLG (EUR 1.13)/kg<br>2000:<br>1.50 NLG (EUR 0.68)/kg N)<br>5.00 NLG. (EUR 2.27)/kg P2O5 | FIN | 1976-1992:<br>Nitrogen/phosphorus (N/P): FIM 0.04 – 0.60 (EUR 0.006 / 0.09)/ kg P/N<br>1993-94: FIM 2.90 (EUR 0.44)/kg P/N | S | 1985-1988:<br>N: 30 ore (0.033 EUR)/kg ; P: 30 ore/kg<br>1988-1992:<br>60 ore (0.066 EUR)/kg N: 120 ore (0.13 EUR)/kg P<br>Jan 1994 – tax on P abolished<br>Nov 1994 – tax on N : 180 ore (0.19 EUR)/kg |
| | A | 1986: Nitrogen: ATS 3.5 (EUR 0.25)/kg<br>Phosphorus (P2O5): ATS 2.0 (EUR 0.15)/kg<br>Potassium (K2O): ATS 1.0 (EUR 0.07)/kg | | 1991 till 1994: ATS 6.5 (EUR 0.47)/kg<br>ATS 3.5 (EUR 0.25)/kg P2O5<br>ATS 1.9 (EUR 0.13)/kg K2O | | |
| 6) Landfill taxes | F | 1993-4: 20 FF (EUR 3.05)/t<br>1995-7: 25 FF (EUR 3.81)/t<br>1998: 40 FF (EUR 6.1)/t<br>1999: 60 FF (EUR 9.15)/t | UK | Inert Waste: £2 (approx. EUR 3)/t<br>Active Waste:<br>£7 (approx. EUR 10.5)/t (1996)<br>£10 (approx. EUR 16)/t (1999)<br>£11/t (approx. EUR 18) (2000) | A | Rates are complex. As at 2000,:<br>Landfills not state of the art:<br>Demolition waste: 100ATS (EUR 7.27)/t<br>Excavated soil : 100ATS/tonne<br>Waste according to Annex. 1 600 (EUR 43.89) ATS/t<br>Other waste: 600ATS/t<br>*State of the art:*<br>Demolition waste 100 ATS/t<br>Residual waste 200 (EUR 14.41) ATS/t<br>Mass waste 300 (EUR 21.8) ATS/t |
| 7) Aggregates tax | DK | 5 DKK (0.67 EUR)/$m^3$ | S | SEK 5 (EUR 0.5674)/t of natural gravel | UK | £1.60 (EUR 2.55)/t |

| | MS | | MS | | MS | |
|---|---|---|---|---|---|---|
| 8) Packaging Taxes | FIN | 4 FIM/litre on disposed (0.67 EUR/l)<br>1 FIM/litre on recycled (0.17 EUR/l)<br>0 FIM/l on refilled | DK | 0.75 – 30 DKK (EUR 0.1 – 4.0)/kg of packaging material (weight based)<br>0.15 – 3.2 DKK (EUR 0.02 – 0.43)/container (volume based)<br>10 - 22 DKK (EUR 1.34 – 2.95)/kg paper or plastic carrier bags | S | 1984 –1993<br>0.08 SEK (EUR 0.0088) on deposit<br>0.1 – 0.25 SEK (EUR 0.011 – 0.0277) on non-deposit |
| 9) Batteries Taxes | I | 1998: Starting Batteries <9Ah: 400 ITL (EUR 0.21)<br>Starting batteries from 10 - 70 Ah: 1600 ITL (EUR 0.83)<br>Starting batteries > 70 Ah: 3200 ITL (EUR1.97) | B | 20 BEF (0.5 EUR) per battery sold (20-30% of sales price) | HU | Batteries filled with electrolite: HUF 38-45 (EUR 0.14-0.17)/kg between 1995 and 2000; later in 2000 HUF 50 (EUR 0.19)/kg<br>Batteries not filled with electrolite: HUF 38-63 (EUR 0.14-0.24)/kg between 1995 and 2000; later in 2000 HUF 70 (EUR 0.26)/kg |

***Table E4: What are the Effects of the Tax/Charge on (Input) Price***

| | MS | Effect | MS | Effect | MS | Effect |
|---|---|---|---|---|---|---|
| 1) Nitrogen Oxides ($NO_x$) Taxes and Charges | S | Abatement cost plus refunded charge (positive or negative) is less than 1% of total production value of each respective sector. | E (Galicia) | Minimal | F | Minimal (Industry bears some small abatement costs, which will not have any measurable effect at the macro level of prices.) |
| 2) Water Abstraction Charges | NL | SMEs and industries:supplied by water works: about 40% price increase<br>Industry with self-extraction of groundwater:about 113% price increase<br>Dutch industry as a whole: 0.03% of turnover, or 0.08% of value added (1996: 0.33% of pre-tax profits)<br>Households: 27% price increase, (against average water tariffs excl. sewage costs) , pay 52% of the tax revenue. | DK | From 1989 to 2000: water bill doubled, from about 12 DKK/m3 to 25 DKK/m3.<br>The water tax is responsible for about half of this increase, while the other half is due to increased water supply tariffs, increased sewage costs and the waste water tax. | E | The levy is set on a case by case basis to recover the infrastructure cost so average values are not very representative. Water prices paid by final users: 1.14 and 0.84 EUR/$m^3$ in urban areas to 0.29 and 0.12 EUR/$m^3$ in other areas. |
| 3) Waste Water Charges | DK | 1998 revenue from sewage plants accounts for 5% of the total sum of user fees for sewage treatment.<br>Connected industry: cost increase less than 0.01% of the wage sum.<br>Direct dischargers with 70% reduction: additional cost of about 0.2% of turnover. Direct dischargers with 97% reduction: cellulose production is most affected (tax = 0.3% of turnover) | NL | The cost of the levies amounted to 0.3% of sales value, 1% of total value added and 3.9% of net profits in 1996. | D | For indirect dischargers: tax accounts for 2% of sewage bill<br>For public sewage treatment plants which do not comply with the BAT (Best Available Technology) standard: increase in costs by up to 10% of total operating costs.<br>For plants that comply with BAT: tax accounts for 2% of total operating costs |

| | MS | Effect | MS | Effect | MS | Effect |
|---|---|---|---|---|---|---|
| 4) Pesticides Taxes/Charges | S | Tax amounts to 5-8% of pesticide price | DK | Tax as % of retail price:<br>Insecticides: 48%<br>Herbicides/Fungicides: 13-14%<br>Manufacturers / retailers appear to absorb some of the tax<br>=2% value of crop production | B | Not available |
| 5) Mineral Surpluses and Fertiliser | NL | Not applicable: the tax is on nitrate surpluses, not on a product | FIN | Price increase of fertiliser +72% (1992-1994) | S | 1984: tax accounts for 10% of fertiliser price<br>2000: about 20% of the fertiliser price<br>1994: fertiliser expenditure accounted for 14% of farm income (Gross Added Value) |
| | A | 1987-1989: 10 to 12% price increase (fertiliser). No pass through to food products. Fertiliser expenditure accounted for 8% of farm income (Gross Added Value) | | | | |
| 6) Landfill taxes | F | Landfill price increase (range)<br>Municipal: 6% to 15%<br>Industrial Mixed: 6% to 15%; | UK | Landfill price increase (range)<br>Inert Waste only: 66 to 200% gate fee increase. (accepting also active waste: +36 to 88% gate fee increase)<br>Active Waste only: 35 to 200% gate fee increase | A | Landfill price increase (range)<br>Demolition waste: 3-15% of gate fee<br>Other waste at Best technology landfill: 6 to 12% of gate fee<br>Average: around 5-15% of total disposal costs |
| 7) Aggregates tax | DK | Tax represents between 33 % and 3 % of raw material price (depending on material) | S | Tax accounts for about 10% of raw material price increase | UK | Varies, though a typical raw material price increase might be 30% |
| 8) Packaging Taxes | FIN | It is assumed that cost of the tax is passed through to consumers, e.g. according to retailers, the bottle deposit system costs consumers an additional FIM 400 million (MEUR 67) annually. | DK | No data in % available; no evidence has been found suggesting the extent to which the tax has been passed on to consumers. | S | Not available. Estimated to be small. |
| 9) Batteries Taxes | I | 1.7% price surcharge on industrial batteries | B | 5% of consumer price | HU | Difficult to estimate. E.g. in the case of car batteries, the product charge is approximately 7-8% of the consumer price. |

***Table E5: What are the Exemptions to the Tax/Charge***

| | MS | Exemption | MS | Exemption | MS | Exemption |
|---|---|---|---|---|---|---|
| 1) Nitrogen Oxides ($NO_x$) Taxes and Charges | S | 1992-5: Plants producing less than 50GWh useful energy per year.<br>1996: Plants producing less than 40GWh useful energy per year.<br>1997: Plants producing less than 25GWh useful energy per year.<br>Non-stationary emissions of NOx. | E (Galicia) | The first 1,000 t of emitted $NO_x$ exempted from tax | F | Production plants which emits less than 150 tons $NO_x$ per year and power stations and waste incineration plants below the tax thresholds. All other NOx emitters (including non-stationary sources). |
| 2) Water Abstraction Charges | NL | Sprinkling and irrigating land<br>Draining of building sites, Small pump capacity<br>Sanitation of polluted groundwater, Emergency extractions (e.g. fire department etc.),<br>Extractions for skating rinks, Draining and mining<br>All surface water abstraction | DK | Farmers<br>Industry | E | Irrigated lands, which do not benefit from Basin Authorities built infrastructures.<br>Most groundwater users<br>Most water users linked to hydroelectric uses that have built and directly paid for the infrastructures<br>Utilities that supply urban water where they have already paid for the infrastructures (75%) |
| 3) Waste Water Charges | DK | 97% tax reduction: fish processing , cellulose, sugar beet industries.<br>70% tax reduction: organic pigments, pectin/vitamins industries. (exempted industries account for 66% of total BOD-discharges, 11% of Nitrogen-discharges and 11% of Phosphorus-discharges) | NL | Subsidies from the levy were given to some industries such as pulp and paper and other industry – these were stopped in 1996 | D | Discounts of 50% are awarded to companies respecting Best Available Technology standards. Also, agreement was reached with the pulp and paper industry |
| 4) Pesticides Taxes/Charges | S | Wood preservatives | DK | "old" wholesale charge still remains on pesticides used in the forestry sector and public health (rodenticides etc.). | B | Eco-tax: All Farmers and most pesticides<br>Pesticides charge: Most pesticides |
| 5) Mineral Surpluses and Fertiliser | NL | Arable farms are not included in the system, but they will be from 2001. | FIN | No exemptions | S | No exemptions |

| | MS | Exemption | MS | Exemption | MS | Exemption |
|---|---|---|---|---|---|---|
| | A | No exemptions | | | | |
| 6) Landfill taxes | F | Owner operated landfill sites<br>Community refuse return<br>Sorting Centres<br>Transfer sites<br>Industrial waste recovery options | UK | Pet cemeteries;<br>Dredging from inland waterways and harbours;<br>Mining and quarrying waste,;<br>Reclamation of contaminated land<br>Backfilling materials for quarries and landfill capping materials and waste from US military bases | A | None |
| 7) Aggregates tax | DK | Extractions for coastal projects<br>Sea floor materials<br>Residual and waste products<br>Top soil and mould<br>Commercial extractions less than 200 $m^3$ annually. | S | Activities within gravel pits and for aftercare at the site are exempt from the charge. Crushed rock is not taxed | UK | Materials used for similar purposes as aggregates - clay, shale and slate;<br>Minerals (mainly for industrial use) whose extraction necessarily involves the extraction of stone, gravel or sand-anhydrite, ball clay, barytes, calcite, china clay, china stone, fireclay, fluorspar, gypsum, potash, sodium chloride, and talc; and<br>Materials such as coal, metals and peat |
| 8) Packaging Taxes | FIN | Exemptions for refillable containers<br>Reduced charge for containers which are recycled in an approved deposit-refund scheme. | DK | Food. Drinking containers that are part of the deposit refund system are charged on container volume basis rather than packaging weight. | S | Only applied to drinking containers, not other packaged goods.<br>Milk containers exempt from 1973. Paper and card exempt from 1984.<br>Reduced charge for reusable containers. |
| 9) Batteries Taxes | I | No exemptions | B | Batteries that are difficult or dangerous to remove (e.g., those in medical appliances), and those part of a deposit refund scheme are exempt | HU | No product charge for dry batteries |

***Table E6: Price Elasticities for the product/pollution charged/taxed***

| | MS | Elasticity | MS | Elasticity | MS | Elasticity |
|---|---|---|---|---|---|---|
| 1) Nitrogen Oxides ($NO_x$) Taxes and Charges | S | N/A. | E (Galicia) | N/A. | F | N/A. |
| 2) Water Abstraction Charges | NL | -0.05 - -0.30 | DK | N/A. | E | Agriculture for low-price ranges: -0.06 to -0.12<br>Agriculture for medium-price ranges: -0.03 to -1.00<br>See Tier 2 Analysis for more details |
| 3) Waste Water Charges | DK | N/A. | NL | N/A. | D | N/A. |
| 4) Pesticides Taxes/Charges | S | Long Term demand: -0.8 | DK | Long Term demand: -0.5 | B | Eco-tax: N/A<br>Pesticides charge: N/A |
| 5) Mineral Surpluses and Fertiliser | NL | Not applicable (Tax is not on a product) | FIN | Elasticity of fertiliser: estimated at -0.15 or less | S | Elasticity of fertiliser: between –0.12 and –0.51 |
| | A | Between -0.20 and –0.29 | | | | |
| 6) Landfill taxes | F | N/A. | UK | SR –0.07 to –0.015<br>LR –0.1 to –0.025 | A | N/A. |
| 7) Aggregates tax | DK | N/A | S | N/A | UK | –0.21 to -0.35 for sand and gravel and –0.3 to -0.5 for crushed rock |
| 8) Packaging Taxes | FIN | N/A | DK | N/A | S | N/A |
| 9) Batteries Taxes | I | N/A | B | N/A | HU | No exact data, but probably very low |

***Table E7: Effect on Competition***

| | MS | Nature, extent of impact, geographic focus of impact | MS | Nature, extent of impact, geographic focus of impact | MS | Nature, extent of impact, geographic focus of impact |
|---|---|---|---|---|---|---|
| 1) Nitrogen Oxides ($NO_x$) Taxes and Charges | S | Revenue neutral overall ('winners' and 'losers' within the energy production sector) Competition effects are small. | E Gal. | Negligible | F | Small, if any. The tax revenue is to a large extent used to subsidise abatement equipment, i.e. redistributed to firms. |
| 2) Water Abstraction Charges | NL | Key issue is within country – competition between industries supplied by water companies as opposed to those abstracting for themselves and those abstracting groundwater and those abstracting surface water (favours the latter) | DK | None – exemptions specified for this reason | E | Agriculture in Spain faces higher irrigation infrastructure and water cost than other "northern irrigated lands" |
| 3) Waste Water Charges | DK | Designed to avoid impact on competition (exemptions), some positive discrimination of waste-water intensive processes | NL | No clear impacts | D | High sewage costs will be levelled out with Urban Waste Water directive; |
| 4) Pesticides Taxes/Charges | S | No significant impact | DK | Reduced incomes at farm level. The tax does disadvantage Danish farmers compared to their EU competitors. However, land tax has been reduced. Potatoes, sugar beets and seed producers most affected by the tax | B | Cheaper wood imports from CEE (not taxed) can affect the Belgian wood preserving industry If tax on agriculture: potatoes/maize/wheat crops mainly. |
| 5) Mineral Surpluses and Fertiliser | NL | No significant impact | FIN | Fertiliser industry faced a decreasing competitiveness. Competitiveness of some export products increased | S | Tax was used for export subsidies. Some revenue is used to support provision of advice Fertiliser industry became less competitive. |
| | A | Tax was abolished in 1994, before joining the EU (because competition with other EU member states). | | | | |

| | MS | Nature, extent of impact, geographic focus of impact | MS | Nature, extent of impact, geographic focus of impact | MS | Nature, extent of impact, geographic focus of impact |
|---|---|---|---|---|---|---|
| 6) Landfill taxes | F | Competition between local landfill sites,. Increased interest in composting and sorting (resp. + 2% and 5% since 93) but slow progress<br>Increased interest in recycling, but lack of infrastructure and workforce. | UK | Waste is expensive to transport so local oligopolies for disposal.<br>Increased interest in incineration<br>Increased interest in recycling/composting. | A | Competition between local landfill sites, to some extent combated by new legislation.<br>Competition between new high-tech sites and older plants in the interim period until 2004 when state-of-the-art technologies are obligatory |
| 7) Aggregates tax | DK | Concerns over export competition issues and therefore raw materials delivered to foreign countries are not subject to tax. | S | Tends to favour larger producers and crushed rock producers. Reduces competitiveness of exports (they are taxed) | UK | Exemptions to combat expected effects |
| 8) Packaging Taxes | FIN | Not clear; some concerns over competition given the financial cost of entry to the bottle refill systems | DK | Not known yet what the effect on Danish industry may be as the tax is so new. | S | Tax abolished in 1994 with the introduction of EU packaging regulations. |
| 9) Batteries Taxes | I | no obvious effect on competition | B | None | HU | Competitive disadvantage for the domestically produced batteries (imported car batteries are usually not filled with electrolytes) |

This is based largely on anecdotal evidence and stakeholder consultation views expressed. This will clearly be linked to the share of tax/charge of sales/turnover, and then linked to understanding of the competitiveness of the market. As a 1% tax as % of revenue will be very significant for certain competitive sectors, where the price increase cannot be passed through to the consumer, but less significant for sectors where there is lesser competition.

***Table E8: Impact on Trade***

| | MS | Type of trade impact; extent | MS | Type of trade impact; extent | MS | Type of trade impact; extent |
|---|---|---|---|---|---|---|
| 1) Nitrogen Oxides ($NO_x$) Taxes and Charges | S | None | E (Galicia) | None. | F | None |
| 2) Water Abstraction Charges | NL | None | DK | None – due to exemptions | E | (See Table E4). On average, small impact. Except on those areas affected by the Tajus Segura Transfer or other recently built infrastructures. Potential important effects in about 1/3 of the total irrigated area of 3 million Has. Production of crops such as maize and beetroot would be affected. |
| 3) Waste Water Charges | DK | Some reduction in use (therefore imports) | NL | No concerns, partly due to recycling of revenues | D | No |
| 4) Pesticides Taxes/Charges | S | None | DK | Current tax level - No significant impact, though maybe greater resort to own purchases from abroad | B | Wood preserving industry: imports from CEE countries, up to 20% cheaper than Belgian treated wood<br>Imports of some pesticides may fall (of the 5 a.i.'s some are not produced in Belgium) |
| 5) Mineral Surpluses and Fertiliser | NL | Small decrease in the amount of animals. Less trade in fertilisers due to less consumption | FIN | Grain market was influenced indirectly, because of the use of revenues for exporting subsidies. Less trade in fertilisers due to less consumption | S | Less trade in fertilisers due to less consumption – most fertiliser is imported. Agriculture affected by price of N. |
| | A | Grain market was influenced indirectly, because of the use of revenues for exporting subsidies - Less trade in fertilisers due to reduced demand | | | | |
| 6) Landfill taxes | F | Not really traded: Expected to be small; exports of municipal waste in line with the proximity principle | UK | Most waste is low value so not readily traded. Only issue may be at N. Ireland / Ireland border | A | Landfill tax also applies to waste exports so it should reduce waste exports based on cost reductions. |

| | MS | Type of trade impact; extent | MS | Type of trade impact; extent | MS | Type of trade impact; extent |
|---|---|---|---|---|---|---|
| 7) Aggregates tax | DK | Little effect as exports not taxed. | S | Would tend to reduce exports of Swedish gravel. | UK | Not expected to be significant |
| 8) Packaging Taxes | FIN | Exporters are exempt from the tax. Importers need to participate in an approved deposit system to achieve lower rates of tax. Some concern on costs of joining an approved deposit system being higher for small producers (often importers) than for large producers (often domestic). | DK | Tax levied on all importers. Unclear impact though some have complained of the difficulties in getting information on the nature and weight of the packaging used in imported products. Similar to German packaging user charges: may reduce the burden on Danish businesses trading with Germany | S | Not clear as the tax was abolished prior to joining the EU and the state had a monopoly on the import of wines and spirits into Sweden |
| 9) Batteries Taxes | I | No obvious effect on trade | B | Only the batteries sold in Belgium were to be subject to the tax. | HU | Product charge has to be paid on domestically produced and on imported products. |

***Table E9: Internal Market Effects***

| | MS | Type and extent of effect | MS | Type and extent of effect | MS | Type and extent of effect |
|---|---|---|---|---|---|---|
| 1) Nitrogen Oxides ($NO_x$) Taxes and Charges | S | None | E (Gal.) | None. | F | None |
| 2) Water Abstraction Charges | NL | None, though some concerns re exemption for agriculture | DK | None – piped water from abroad also taxed (though none imported) | E | Unclear. Literature argues that it is not water prices but the total reference area, quotas and warranty prices of the EU CAP that affects inefficient (in water use terms) crop decisions. |
| 3) Waste Water Charges | DK | None | NL | None – was basis for Commission PPP communication allowing recycling of revenues | D | None |
| 4) Pesticides Taxes/Charges | S | We understand all pesticides used are imported – no impact | DK | Concerns regarding illegal imports of pesticides (owing to price differentials). Also concerns that banned products are imported, but this is not an issue related to the tax. | B | Unclear. Potentially, protection of domestic chemical industry under certain conditions; |
| 5) Mineral Surpluses and Fertiliser | NL | No concerns are raised regarding the effect on the internal market | FIN | Not applicable | S | Probably not affected. There is an issue associated with illegal imports for farmers' own use. |
| | A | Not applicable | | | | |
| 6) Landfill taxes | F | No intensification in movements across border reported for municipal waste: high transport costs & household waste disposal close to origin (see Tier 2 analysis) | UK | Waste disposed proximate to origin.<br>No effect likely as UK waste disposal costs are low compared to other countries.<br>High transport costs<br>Movement across borders unlikely | A | Tax is also levied on waste exports<br>Waste tax low in comparison to potential transport costs |
| 7) Aggregates tax | DK | No issues arising | S | No restrictions on trade. | UK | None expected |

| | | | | | | |
|---|---|---|---|---|---|---|
| 8) Packaging Taxes | FIN | Complaints that the tax favours the refill bottles (which are likely to be domestic based) over recycled containers which are likely to be imported, have not been pursued by the European Commission as the tax rates are considered low. | DK | Unlikely impact<br>The related deposit refund system for drinking containers is the source of dispute with the European Commission. | S | Not clear as the tax was abolished prior to joining the EU. During this time the state also had a monopoly on the import of wines and spirits into Sweden |
| 9) Batteries Taxes | I | No obvious effect on Single Market | B | None so far | HU | No obvious effect on Single Market |

*Include not just concerns of effect of the tax/charge on the environment, but also effect of the internal market/competition effects on the tax.*

***Table E10: Employment***

| | MS | Nature of impact, sector affected and extent of affect | MS | Nature of impact, sector affected and extent of affect | MS | Nature of impact, sector affected and extent of affect |
|---|---|---|---|---|---|---|
| 1) Nitrogen Oxides ($NO_x$) Taxes and Charges | S | None attributed | E (Gal.) | None attributed | F | None attributed |
| 2) Water Abstraction Charges | NL | No information | DK | Positive effect, increased demand on water saving appliances, with benefit to sanitary engineering companies | E | Changes in crops (less water and labour intensive) would entail losses in employment from 2% to 71% in the agriculture sector |
| 3) Waste Water Charges | DK | Employment effect of the green tax shift is positive, but just moderately so. Individual effect has not been specified, but revenue recycling is believed to have a substantial employment component | NL | Expected positive effect, revenue recycled for labour intensive investments in sewage treatment and cleaner technology | D | Positive effect, revenue recycled for labour intensive investments in sewage treatment |
| 4) Pesticides Taxes/Charges | S | No information | DK | None known | B | No information |
| 5) Mineral Surpluses and Fertiliser | NL | Estimates only:<br>+700 and –15.400 jobs in agricultural businesses ( +0.6 to –13% increase).<br>Related industry: -500 to – 8300 jobs (-0.4 to –5.9% decrease). | FIN | No information available | S | No information available |
| | A | Most probably only very small effects. No concerns were raised on the employment impacts and there are no indications that the tax has influenced employment. | | | | |

| | MS | Nature of impact, sector affected and extent of affect | MS | Nature of impact, sector affected and extent of affect | MS | Nature of impact, sector affected and extent of affect |
|---|---|---|---|---|---|---|
| 6) Landfill taxes | F | Some landfill site closures ( not quantified)<br>Reduction in social security payment (TGAP scheme): no trust in double dividend by industry;<br>Lower VAT on collection/sorting activities (TGAP): mall positive effect expected; increase in recycling/sorting: small positive effect, no estimates<br>Use of revenue: impact unlikely | UK | Tax only: small positive effect<br>Reduction in social security payments: little effect<br>Use of revenue: some effect through environmental projects / research<br>Increase in recycling: real positive effect | A | No information |
| 7) Aggregates tax | DK | No effects recorded. | S | No information available – suspected to be positive | UK | Believed to have positive effect (ex ante modelling) |
| 8) Packaging Taxes | FIN | Unclear as little work seems to have been done in the area | DK | Unclear as little work seems to have been done in the area | S | Unclear |
| 9) Batteries Taxes | I | Positive employment effect, but no statistics available; probably small effect | B | None so far | HU | No information given |

***Table E11: Revenue Raised by the product/pollution charge/tax***

| | MS | | MS | | MS | |
|---|---|---|---|---|---|---|
| 1) Nitrogen Oxides ($NO_x$) Taxes and Charges | S | SEK ~600 million (MEUR ~70). but all revenue is refunded | E (Gal.) | ESP ~2333 million MEUR ~14 . | F | FF ~30 million (1991) -70 million (1998) (MEUR ~4.6-10.8). |
| 2) Water Abstraction Charges | NL | 360 million NLG (MEUR163.4) (expected in 2000) | DK | 1600 million DKK (MEUR 214) (1998-99) | E | 1997 6,290m Pesetas (MEUR 37.8) |
| 3) Waste Water Charges | DK | 310 million DKK (MEUR 41.6) (1998) | NL | 1940 million NLG (MEUR 880) (1996) | D | 720 million DM (MEUR 368.1) (1998) |
| 4) Pesticides Taxes/Charges | S | 38 million SEK (MEUR 4.2) in 1998 | DK | 302 million DKK (MEUR 40.5) in 1998 | B | No information |
| 5) Mineral Surpluses and Fertiliser | NL | Estimate: NLG 16 million per year (MEUR 7.3 ) | FIN | No data | S | 1985: SEK 93 million (MEUR 11) environmental charge 1988: SEK 141 million (MEUR 16) (price regulation charge not included) |
| | A | 1986/'87: MATS 737 (MEUR 54) 1993/'94: MATS 1177 (MEUR 85) | | | | |
| 6) Landfill taxes | F | 1997: 906 MFF (MEUR: 138 % GDP: 0.01) 1998: 1837 MFF (MEUR: 280 (% GDP: 0.02) | UK | 1998 –99 £335m MEUR 536 | A | 1997 447.7m ATS (MEUR 32.95) |
| 7) Aggregates tax | DK | 1995: 135.718.000 DKK (MEUR 18.2) 1999: 183.498.000 DKK (MEUR 25) | S | 144.4 m SEK (MEUR 16.0) (1999) | UK | Estimated £380 million (MEUR 605) |

| | MS | | MS | | MS | |
|---|---|---|---|---|---|---|
| 8) Packaging Taxes | FIN | 69m FIM (MEUR 11.6) 1998 | DK | 753mDKK (MEUR 101) in 1999<br>(11 months data) | S | MEUR 13.1 (1992/93) |
| 9) Batteries Taxes | I | NCU 24 billion lira (MEUR 12.4) in 1994 | B | 1996 PROFIT 64.4MBEF (MEUR 1.6)<br>1997 PROFIT 28 MBEF (MEUR 0.69)<br>1998 LOSS 49.4 MBEF (MEUR 1.2)<br>1997 Higher losses predicted | HU | 767.9 MHUF (MEUR 2.90) in 1999 |

*Key: NCU: National Currency Unit (EUR in brackets).*

***Table E12: Use of Revenue from the product/pollution charge/tax***

| | MS | Revenue Use | MS | Revenue Use | MS | Revenue Use |
|---|---|---|---|---|---|---|
| 1) Nitrogen Oxides ($NO_x$) Taxes and Charges | S | Refunded to firms on basis of production of useful energy | E (Gal.) | Fund for environmental restoration (5% of revenues) – remainder to general budget | F | Abatement (66%) and monitoring (17%) equipment and R&D (10%) |
| 2) Water Abstraction Charges | NL | General budget | DK | General budget | E | Recovery of costs of water infrastructure |
| 3) Waste Water Charges | DK | General budget, though a substantial sum was devoted to an independent Water Fund, to finance projects which protect groundwater resources | NL | Hypothecated for identification and funding of investments in sewage treatment plants | D | Recycled for investments in sewage treatment plants |
| 4) Pesticides Taxes/Charges | S | Before 1994, used to fund advice and pesticides action programme. After 1994, the advice continued but not all revenue was used (o general budget, but with continuation of the services) | DK | Initially 55% of revenue was used to reduce county land tax, and around 10% was channelled back to farmers via support to organic farming. The remaining 35% of the revenue was used on research and on monitoring of pesticides in the environment. | B | Eco-tax: state budget<br><br>New Pesticides charge:<br>Used to fund registrations etc. |
| 5) Mineral Surpluses and Fertiliser | NL | General budget | FIN | Export subsidies. | S | Environmental charge: research and environmentally related projects.<br>Since 1994 : state budget, but earmarked for environmental improvements in agriculture.<br>Price regulation tax (abolished at end 1992): costs of exporting grain surplus. |
| | A | support and promote the grain production sector.<br>Subsidise leguminous crops. | | | | |

| | MS | Revenue Use | MS | Revenue Use | MS | Revenue Use |
|---|---|---|---|---|---|---|
| 6) Landfill taxes | F | Recycled to municipalities (mainly) via funds/investments and to a lesser extent, private (waste) sector & research activities | UK | One-off reduction in NICs. In addition, tax credits used to support environmental projects | A | Clean-up of contaminated sites and recycling to landfill sites for environmental investments |
| 7) Aggregates tax | DK | General budget | S | General budget | UK | Employer NICs reduction and new sustainability fund |
| 8) Packaging Taxes | FIN | National Exchequer | DK | National Exchequer | S | National Exchequer |
| 9) Batteries Taxes | I | Revenue used to finance collection of batteries | B | No information given (the tax was not implemented)<br>1997 total income of BEBAT: 260 million BEF (6.5MEUR) | HU | Environmental protection |

***Table E13: Effect on Pollution Emissions / Polluting Product Use***

| | MS | Nature/extent of impact, poss. linkage to tax/charge | MS | Nature/extent of impact, poss. linkage to tax/charge | MS | Nature/extent of impact, poss. linkage to tax/charge |
|---|---|---|---|---|---|---|
| 1) Nitrogen Oxides ($NO_x$) Taxes and Charges | S | 40% reduction (1992 – 1998)<br>25% reduction due too the instrument (1992-1995). Possibly offset by an increase in N2O, CO and NH3 | E (Gal.) | Marginal effect: emissions increased from 1996 to 1999 by approximately 73,000 tons. (this does not mean there has been no incentive or reduction against the counterfactual). | F | No effect attributable to price incentive – ADEME estimates reduction by approximately 56,000 tonnes per year by 1997, due to the use of revenues. |
| 2) Water Abstraction Charges | NL | Estimated reduction in line with elasticity –0.1 – earlier evaluation estimated decline in consumption of 2-12% | DK | 13% reduction in water consumption since 1994, also due to campaigns and awareness raising<br>Leakage from water works has decreased from 43 million $m^3$ in 1993 to 33 million $m^3$ in 1998 | E | Not applicable |
| 3) Waste Water Charges | DK | Decline in discharges from sewage treatment plants by 20-25% (1996-1998), for BOD, P and N. Emissions from industries with direct discharges have increased (15-20% for BOD, P and N). Better compliance by sewage plants but not due to tax only. Slight impact on P-removal, not quantified. I | NL | COD discharges reduced by about 90%se. Net load on surface waters from discharges has been reduced | D | 31% decline in industrial wastewater since 1981.<br>Improved compliance with standards (tax linked to these) |
| 4) Pesticides Taxes/Charges | S | Reduced pesticide use (In1994, use was 35% of 1982-5 levels). However, much of this may be due to advice funded by revenue. | DK | Treatment frequency has been reduced by the tax – has fallen by 11% since 1994-1996. | B | Evidence that diuron consumption by national railways fell by 25% in 1996<br>Small “self limitation effect” (threat of the tax) |
| 5) Mineral Surpluses and Fertiliser | NL | Not yet empirical data available. Research estimates: surplus –15% to –75%. Reduction in fertiliser use: 20 to 30% | FIN | 11-22% decrease in fertiliser use between the 1980s and the 1990s, due to the increase in the tax at the beginning of the 1990s. | S | The tax probably reduced the use of fertiliser-N by 15 to 20% in 1991/92. Nitrate use continues to fall (N tax tripled at end 1994) |

| | MS | Nature/extent of impact, poss. linkage to tax/charge | MS | Nature/extent of impact, poss. linkage to tax/charge | MS | Nature/extent of impact, poss. linkage to tax/charge |
|---|---|---|---|---|---|---|
| | A | 1986: use of fertiliser-N decreased by 15% (without an increase in price of fertiliser!). 1987-94: -0.8% per year fertiliser use. Probably partly due to price, partly to information from extension services | | | | |
| 6) Landfill taxes | F | No existing monitoring of environmental impact of the tax. No significant decrease in total HW / Mixed Industrial waste arisings but some landfill sites closure. No evidence of improved environmental standards on landfill sites and no significant threat to illegal sites. | UK | Waste data available is of very poor quality (availability has improved since tax introduction) Evidence suggests that active waste arisings have not been affected by the charge, but that inert waste volumes have fallen quite considerably. Some increase in recycling | A | Waste data only available up to 1996; no obvious impact on total masses of primary waste. Landfilled household waste fell from 75 to 45% (1988-96). Much of this may be due to recycling initiatives however and requirements to source separate organic fractions. |
| 7) Aggregates tax | DK | 90% of all demolition materials are now recycled This is probably due to the waste tax and new environmental thinking on behalf of the companies involved | S | Some effect (possibly) – though this seems to be in line with pre-established trend | UK | Slight reduction in demand estimated – also increase in recycling |
| 8) Packaging Taxes | FIN | Much higher levels of recycling of cans Support for the existing refill system Very few non-deposit one way containers for drinks are used | DK | Not clear yet, tax has only been in place for 1 year. | S | Difficult to assess the impact of the tax in absence of the deposit refund system. |
| 9) Batteries Taxes | I | +24% in batteries collection rate: between 1991 and 1998. In 1991, 134,000 tonnes of batteries collected by battery recycling consortium COBAT, while in 1998, 166,500 tonnes were collected | B | The 1996 to 1999 collection targets were met: 65.7% of used batteries were collected and recycled in 1999 by the battery industry (BEBAT non-profit organisation) | HU | No data available. |

***Table E14: Effect of Tax/Charge on technological/technique change***

| | MS | Nature and extent of impact | MS | Nature and extent of impact | MS | Nature and extent of impact |
|---|---|---|---|---|---|---|
| 1) Nitrogen Oxides ($NO_x$) Taxes and Charges | S | Purchases of new abatement technology, and, of big importance, learning by doing at plant level (trimming and operational adjustments) | E (Gal.) | we believe the price incentive is too small to have promoted widespread adoption of abatement techniques. | F | The price incentive to abate is probably too small, and the revenue recycling may make emitters reluctant to purchase their own abatement equipment. 82% of revenue is spent on abatement technology and monitoring equipment. |
| 2) Water Abstraction Charges | NL | Not known, though water-saving investments are believed to have been made. Households are metered and this does ensure the tax plays an incentive role both in industry and households. | DK | Development of water-saving appliances such as low-flush water closets. | E | Some technological impacts on industry in urban areas and agricultural areas; likely impact on substitution of types of irrigated crops, towards dry agriculture and abandonment of land. |
| 3) Waste Water Charges | DK | No information given; evidence suggests that the technical guidelines in the Plan for the Aquatic Environment had an impact. | NL | Development of cleaner technology in several important industries | D | Greater investment to ensure adherence to standards |
| 4) Pesticides Taxes/Charges | S | Effect of tax has been limited – effects may have occurred attributable to the advisory services funded by the charge (before 1994), and then the tax. | DK | Reductions in use – revenue also supports organic farming and research into pesticides | B | No information – none expected owing to narrow range of products targeted – key change would be switching from one a.i. to another |
| 5) Mineral Surpluses and Fertiliser | NL | A lot of technological change has occurred in order to increase nitrogen use efficiency | FIN | No information available | S | Probably greater use of manure, compost and leguminous crops in rotations |
| | A | Tax was used to subsidise leguminous crops, resulting in 6% extra reduction of N-use. Increased production of leguminous crops, better utilisation of manure, reduction in excessive use of fertilisers and improved extension services | | | | |

| | MS | Nature and extent of impact | MS | Nature and extent of impact | MS | Nature and extent of impact |
|---|---|---|---|---|---|---|
| 6) Landfill taxes | F | Incentive for industry to minimise "mixed waste" to reduce their cost<br>Incentive for municipalities to develop sorting and recycling programmes. Potentially, some of the illegal dump sites shut down | UK | Increase in industrial waste minimisation initiative<br>Boost to the development of aggregates recycling industry and onsite reuse on C&D waste.<br>Increased innovation in the waste industry | A | The tax has different bands for sites with/without state-of-the-art technology. Evidence suggests that older plants will have a competitive advantage in the interim period<br>(all sites are obliged to have state-of-the-art technology by 2004(. |
| 7) Aggregates tax | DK | Greater recycling of construction materials | S | Increased use of other materials (crushed rock, recycled materials) | UK | Changes in construction methods to reduce wastes / increase recycling |
| 8) Packaging Taxes | FIN | Development of a new deposit system for drinks cans. | DK | Not clear yet. The current tax does not encourage product switching. The intention to switch to LCA based rates in the future should encourage more switching of packaging materials. | S | Not clear that the tax has stimulated any technical change |
| 9) Batteries Taxes | I | No information given | B | In 1985 the alkaline batteries accounted for 75% of the mercury in batteries in Europe and only 31% in 1990 | HU | ??? |

***Table E15: Administrative Burden of Tax (if data available)***

| | MS | | MS | | MS | |
|---|---|---|---|---|---|---|
| 1) Nitrogen Oxides ($NO_x$) Taxes and Charges | S | Administrative cost is 0.3% of revenues collected, Metering costs (equipment acceptable to SEPA) are estimated at approximately 3% of total charge paid. | E (Gal.) | Not known. | F | 6% of revenues collected. |
| 2) Water Abstraction Charges | NL | No quantitative data | DK | Minor – metering was already in place in many houses | E | Costs of the administration of this tax are not identified, as separate from the general O+M costs of Basin Authorities. |
| 3) Waste Water Charges | DK | The Tax and Customs Agency assessed the administrative requirements to be 4 staff and 0.5 mill. DKK (67.000 EUR). | NL | Considered to be very small | D | In 1982 several Länder spent about 50 per cent of the revenue on administration. In the mid-1980s reduction to 25-30%. In the 1990s: about 10% (e.g. 10,6% or 76 million DM (MEUR 38,9) in 1998). |
| 4) Pesticides Taxes/Charges | S | Around 0.01% of the total pesticide tax revenues | DK | Minor | B | For all eco-taxes<br>1996: 60 M BEF<br>EUR: 1.5 M<br>No information on funds spent on eco-tax |
| 5) Mineral Surpluses and Fertiliser | NL | NLG 53.3 million per year (EUR 24.2 million) plus admin costs of farmers | FIN | Small | S | Approximately 0.8% of the tax revenues (SEK 0.5 million) |
| | A | 0.7 - 1% of the tax = ATS 10 million (EUR 0.7 million) | | | | |
| 6) Landfill taxes | F | Not communicated | UK | Of order £2 million | A | Considered to be small |
| 7) Aggregates tax | DK | Seen as small.<br>In 1989 the cost was estimated to 752,000 DKR for the implementation of the tax and 1,135,000 DKR for the annual operation. | S | SEK 3.5 million | UK | £2 million in first year, £1 million per annum after |

| | | | | | | |
|---|---|---|---|---|---|---|
| 8) Packaging Taxes | FIN | The Ministry of Finance and the industry body responsible for running the new deposit system for cans consider that the cost of the tax is low | DK | Customs invested 1.9 MDKK in information and technology systems. Annual 1999 operating cost was 0,2 MDKK and an additional 5 person years of effort | S | Not communicated |
| 9) Batteries Taxes | I | Unclear | B | Unclear, BEBAT leads to smaller burden than ecotax | HU | A maximum 6.5% of the revenue can be used for the administrative costs. -Unclear burden |

***Table E16: Effectiveness of Tax***

| | MS | Effectiveness, and alternative instrument | MS | Effectiveness, and alternative instrument | MS | Effectiveness, and alternative instrument |
|---|---|---|---|---|---|---|
| 1) Nitrogen Oxides ($NO_x$) Taxes and Charges | S | Very powerful mechanism for emissions reduction Many plants are also subject to local regulations. | E (Gal.) | Unlikely to be strong incentive | F | No real incentive from the tax – effectiveness is limited as the net effect is that firms pay into a fund for monitoring and abatement distributed by the state. |
| 2) Water Abstraction Charges | NL | Limited environmental effect, because of exemptions | DK | Consumption fell by 26% between 1989 and 1998 (half of this reduction before the tax)<br>Leakage from water works decreased by 23% (1993-1998) | E | The revenue raising effectiveness of the water regulation levy is low. Low effectiveness of the collection system (62.1% of estimated revenue in 1997). |
| 3) Waste Water Charges | DK | Municipal sewage treatment plants are most affected; their discharges declined, while industries discharges increased (1996-1998)<br>Supplementary role in improvement of compliance | NL | net load on surface waters from discharges has been reduced by 90% (1970-1996)<br>Gross organic discharges from industry in 1996 were reduced to 12% of the amount in 1970 | D | Main effect: impact on compliance with standards. Also a more general incentive to reduce discharges liable to the tax (discharge from industry in the western part fell by 31% between 1981 and 1995) |
| 4) Pesticides Taxes/Charges | S | Impact: financing of instruments such as advisory services, and research and development<br>2% reduction in use expected | DK | Not as effective as desired; Sales of active ingredients dropped by 40% between 1981 and 1996 (this is not only due to the tax) | B | Not available (tax not implemented) |
| 5) Mineral Surpluses and Fertiliser | NL | Anticipated reduction in fertiliser use of more than 20%. Small reduction of manure production. | FIN | 11% reduction in fertiliser use<br>Sweden: 10 to 20% reduction in fertiliser use. | S | Some impact on the use of commercial fertiliser, but main effect financing of action programs leading to a decrease in intensive use. |
| | A | 2.5% reduction of fertiliser use | | | | |
| 6) Landfill taxes | F | Not measured. Criticisms made on the effective use of the Fund (revenue recycling) + related monitoring | UK | Increase in recycling and composting<br>Impact hardly quantifiable because of difficult data situation | A | Little evidence to suggest that the tax has had an impact in reducing waste. |

| | MS | Effectiveness, and alternative instrument | MS | Effectiveness, and alternative instrument | MS | Effectiveness, and alternative instrument |
|---|---|---|---|---|---|---|
| 7) Aggregates tax | DK | Probably very little effect on the extraction of raw materials, but increased use of recycled construction materials.(90% of all demolition materials are now recycled) | S | Unclear | UK | Problematic data situation, but some evidence that no or hardly any increase in recycling |
| 8) Packaging Taxes | FIN | Effective in stimulating the creation of deposit based recycling system for drinks cans. | DK | Not clear yet, tax has only been in place for 2 years | S | Effective at raising revenue. Abolition would suggest that the tax was not as effective as may be desired. |
| 9) Batteries Taxes | I | Almost 95% separate collection (1998 and 1999)<br>From the 166500 tonnes of batteries collected in 1999, 90000 tonnes of recycled lead have been reclaimed, almost 35% of national demand. | B | N/A (not implemented) | HU | Potential positive impact on waste management |