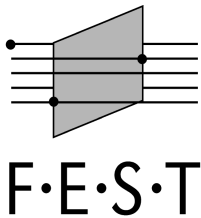
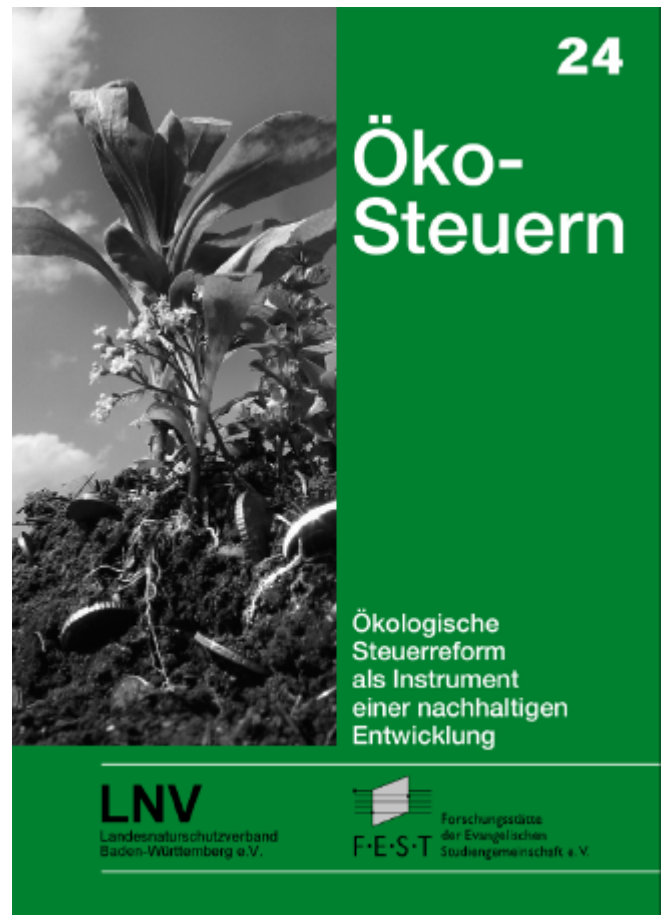


Eco Taxes

**Ecological Tax Reform
as an Instrument for
Sustainable
Development**



Hans Diefenbacher, Volker Teichert, Stefan Wilhelmy

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Preface

The realisation that effective Nature Conservation can only be carried out along with a decisive approach to Environmental Protection has become a truism today. But still I have again and again been surprised how difficult it is for some to follow fulsome declarations of intent with actual deeds. Long before the forest destroying hurricane “Lothar“, the connection between climate change and the burning of fossil fuels had been obvious.

One of the most effective measures in speeding the absolutely necessary transition from finite, climate-changing fuels (like oil and coal) to renewable, climate-neutral ones, is the Eco Tax. Since its introduction three years ago, petrol consumption has fallen for the first time. Purchases of three- to five-litre cars have increased. The Eco Tax provides incentives for investment in environment-friendly technology and creates competitive advantages.

Nonetheless, the general public still frequently meets the Eco Tax with reservations or even rejection. The present debate is often only based on (party-) politics and very much ideologically flavoured - I am convinced that the only thing to lift it to a more reasoned argument is information about the contents, workings and aims of the Eco Tax. With their present LNV-brochure, which I highly recommend to all our members, Hans Diefenbacher, Volker Teichert and Stefan Wilhelmy are offering an important contribution to that aim. I want to thank them for their distinguished treatment of the subject, which over the coming decades will and has to occupy us all – and not just nature and environment protectionists.

Reiner Ehret
President of the
LandesnaturaSchutzverband
Baden-Württemberg
(Federal State Nature Protection Association
of Baden-Württemberg)

1 What Is Sustainable Development?

Since the United Nations Conference on the Environment and Development (UNCED) in Rio de Janeiro in 1992, the term “sustainable development” has found worldwide recognition – at least in the very general definition of the Brundtland Commission. According to this, sustainable development is about meeting the needs of today without jeopardizing the ability of future generations to fulfill their needs.¹ At the so-called Earth Summit in Rio, more than 170 Governments have accepted this principle. At the same time they undertook to implement Agenda 21, the international program of action for the 21st century adopted at that conference. That way, ‘sustainable development’ has been elevated to the status of a guiding principle of global validity.

At the World Summit for Sustainable Development (WSSD) in Johannesburg, which met from August 26th to September 4th 2002, governments and NGOs have been deliberating about progress in implementing Agenda 21. In preparation of this conference, many countries had given an undertaking to work out national sustainability strategies. To further this process, in April 2001 the German Federal Government convened a Council for Sustainable Development. This Council is composed of representatives of public life and its remit is to advise the Federal Government on the development and implementation of the sustainability strategy. In tandem with this, a Committee of Secretaries of State for Sustainable Development (Staatssekretärsausschuss für Nachhaltige Entwicklung) was established, which in April 2002 presented "Perspektiven für Deutschland" ("Perspectives for Germany"), the concept for a national sustainability strategy.

This sustainability strategy stresses the fact that, in view of the global ecological and social problems, economy and society have to follow the guiding principle of Sustainable Development if we don't want to endanger the natural base for the peaceful co-exis-

¹ See: Hauff, Volker (Hrsg.) (1987): Unsere gemeinsame Zukunft. Der Brundtland-Bericht der Weltkommission für Umwelt und Entwicklung. Greven: Eggenkamp, 46.

tence of human beings. The concept of sustainability draws broad support from science and also within the political debate, transcending all party-political divides. Yet with all that general consensus, there is no clear and generally accepted description of what 'sustainability' actually means. And so there are many areas where concrete aims are as controversial as the necessary political and economic measures. There is, however, a broad consensus now that sustainability as a guiding principle should refer to the three dimensions of ecology, economy and society. Sustainable development is only possible if we can avoid a one-sided orientation towards just one of these dimensions. Efforts to preserve our environment have to be harmonized with the social and economic circumstances. Equally, economic aims cannot be pursued at the expense of ecological conditions and social justice. In this triangle of aims, the preservation of global eco-systems and natural resources, of necessity, assumes a central role.

Therefore the parliamentary 'Enquête-Kommission' "Protection of People and the Environment" („Schutz des Menschen und der Umwelt“) has formulated five management rules for sustainable development:²

1. The exploitation of renewable resources – e.g. forests - shall not exceed their rate of regeneration. This echoes the old realisation of forestry, that one can only have lasting use of a forest as long as one doesn't cut more timber than is regrown.
2. Non-renewable resources like oil and coal shall only be used to the degree to which we can create physically and functionally equivalent replacements in the form of renewable resources or higher productivity of renewable and non-renewable resources.
3. The immission of pollutants – e.g. exhaust fumes - into the environment shall not exceed the carrying capacity of the environmental media.

² Enquête-Kommission „Schutz des Menschen und der Umwelt“ (Hrsg.) (1998): Abschlußbericht. Bonn: Deutscher Bundestag.

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4. Human interference with nature has to take into account the time dimension of natural processes and thus the environment's capacity to adapt.
5. Dangers and unacceptable risks to human health through human interventions are to be avoided.

These aspects have been included in the Sustainability Strategy and supplemented by further rules. There is a particular stress here on the necessity to pay heed to the interactions between the three dimensions. With regard to global changes it is stated:

“The structural change, that was triggered by technological developments and international competition, shall be moulded in a way that is economically successful and ecologically and socially benign. To achieve this, the policy areas have to be integrated in such a way that economic growth, high employment rates, social cohesion and environmental protection go hand in hand.”³

The five sustainability rules of the ‘Enquête-Kommission’ have been drafted not least under the aspect of one of the most pressing global environmental problems: the heating up of the Earth's atmosphere and the ensuing climate change. That humanity is influencing the climate can no longer be denied. Among the most important causes of the man-made ‘greenhouse effect’ is the constant increase in carbon-dioxide emissions. These arise from the combustion of fossil fuels like coal and mineral oil and account for ca. 50% of the warming effect.

In 2000, overall German carbon-dioxide production was 858 million tons – equaling 10 tons per head of the population⁴. Internationally, this leaves Germany slightly below the OECD average of 11 tons, but significantly above the per capita emissions of the developing countries (see fig. 1).

³ Presse- und Informationsamt der Bundesregierung (Hrsg.) (2002): Perspektiven für Deutschland. Unsere Strategie für eine nachhaltige Entwicklung. Berlin. 40. Zur Kritik der Nachhaltigkeitsstrategie vgl.: Diefenbacher, Hans (2002): Die Nachhaltigkeitsstrategie der Bundesregierung. In: Blätter für deutsche und internationale Politik. Heft 8/2002, 995-997.

⁴ Here according to OECD data, which because of differing calculation models, differ slightly from the federal government's data.

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Worldwide, overall carbon-dioxide emissions today exceed the estimated absorption capacity of global eco-systems ('sinks') by ca. 50% - and rising. If we take the current world population of ca. 6.1 billion, the climate-neutral and therefore sustainable amount of CO₂ per head would be 2.3 tons per year.

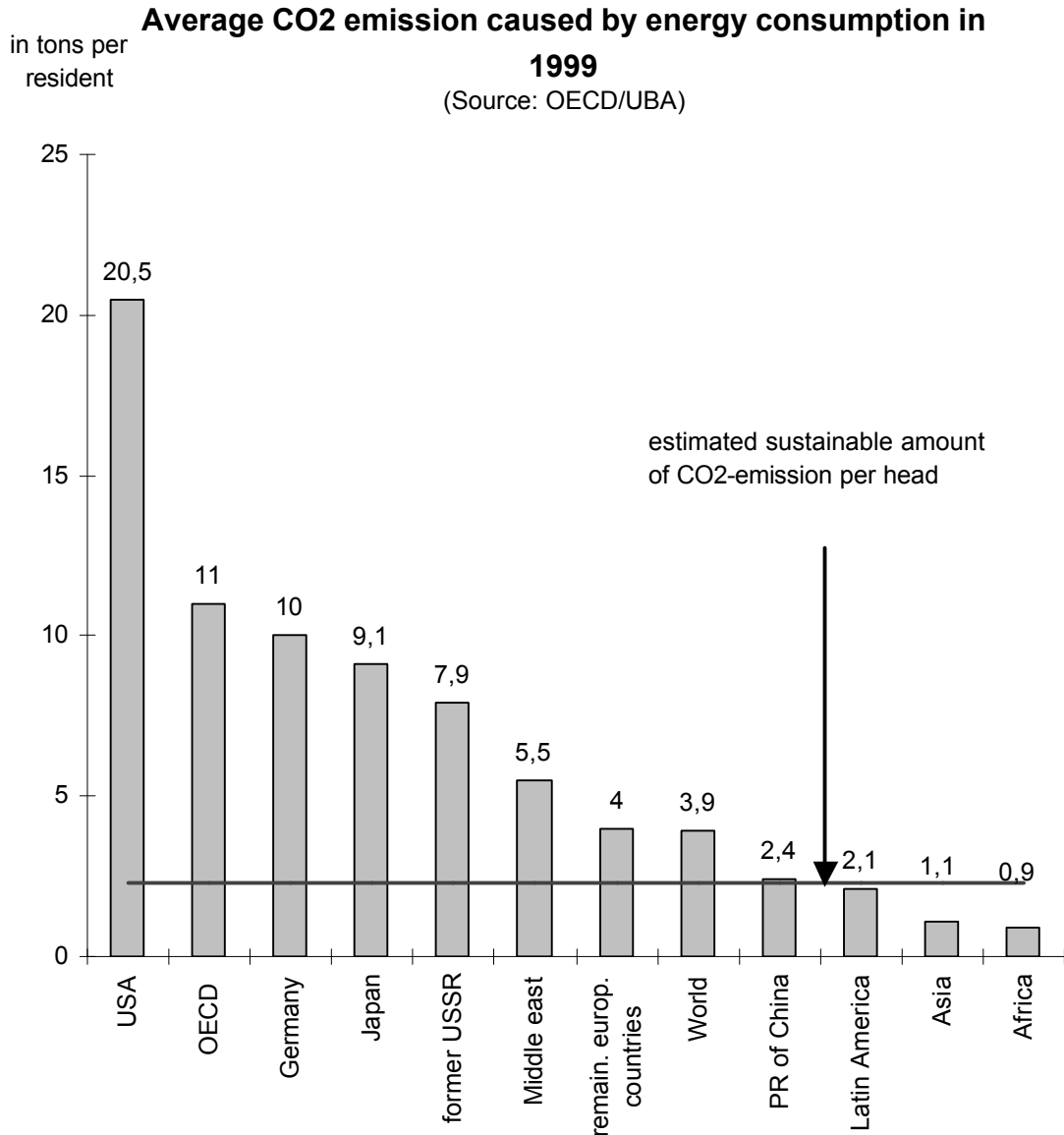


Figure 1

Per capita emissions in Germany are therefore more than four times higher than the estimated climate-neutral amount. These figures underline the need for decisive action. But they also show that it is first of all the industrialized countries – and therefore Germany, too – that have to take effective measures.

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The deterioration of the environment through the use of fossil fuels, however, goes much further than the CO₂ problem:

- Fossil fuel combustion releases further greenhouse gasses like methane and nitrogen oxides, which heat up our climate even further.
- Other emissions like sulfur dioxide and carbon monoxide adversely affect air quality with serious consequences for human health, but also for, say the condition of our forests.
- Ever-increasing traffic volumes and the consequent extension of the roads network lead to a fragmentation and sealing up of the landscape. This in turn significantly diminishes the habitat for flora and fauna.
- Motorized private transport especially is responsible for an increase in noise pollution, with grave consequences for our quality of life and human health.

It is therefore first of all the energy and transport sectors which most clearly demonstrate the consequences of non-sustainable technological and economic practices. Thus politics have to effect a turn-around in these sectors. With the Ecological Tax Reform of 1999, Germany's Federal Government has introduced an instrument that – in different variations - has been under discussion for over 20 years. The basic idea here still rests on a simple principle: Making non-renewable energy sources more expensive to create incentives for a more economical use of these resources and thereby also leading to lower CO₂ emissions.

2 Eco Taxes: The Basics

To understand the possibilities of setting up an environmentally appropriate tax system it seems necessary to start with a discussion of the principles and criteria of an optimally organized tax system as such.

Why taxes anyway?

Far back in antiquity, people were already paying taxes and dues. At that time it was all about e.g. financing the princely households of kings and emperors who in turn promised their taxpayers protection from enemy attacks. In the history of the past 2000 years you'd find many variations: Rulers greedy of power, squeezing their subjects to such an extent that eventually they both were faced with financial ruin; but also wise governments using their tax and rates system to finance pioneering social security measures.

Ever since the first attempts at a 'rational' organization of economics within a theory of state finances, we find reflections on the criteria for an optimal system of taxes and rates – always in search of the royal road between economic efficiency and social justice⁵:

- The purpose of taxes is to finance the activities of the state. The determination of these activities should rest with the free decision-making of the Parliament and not the other way round: Which duties the state can take on must not primarily be dependent on the volume of overall tax intake. In other words: taxes have to be plentiful, the tax system somewhat flexible and adaptatble as regards the fulfillment of the functions of the state.

⁵ See: Neumark, Fritz (1970): Grundsätze gerechter und ökonomisch rationaler Steuerpolitik. Tübingen: J.C.B. Mohr; Haller, Heinrich (1971): Die Steuern. Tübingen, J.C.B. Mohr, 2. Aufl.

- The tax system must not put arbitrary burdens on the individual citizen. For this, taxes must be objectively assessable; tax law must be transparent and drafted in commonly understandable language; and, finally, the assessment base, the tax rate and the payment dates must be economically calculable for the tax payer.
- The spread of the tax burden among individual citizens should satisfy ethical criteria of justice. As ideas on what in a given society is regarded as 'just' often and partially change quite rapidly,⁶ tax theory in recent decades has retreated to some very general criteria:
 - The principle of *Generality* implies that everyone should pay taxes.
 - The principle of *Equivalency* demands that the 'price' for the state's activities (i.e. the overall volume of taxes) should correspond to the benefits the citizens derive from them.
 - Finally, the principle of *Ability* means that all citizens are asked to sacrifice an - as far as possible - equal amount of opportunities for private consumption – a principle that is often used to justify progressive income tax rates.
- A fourth group of criteria aims at optimising the economic steering function of taxes. The assessment criteria for taxes – *what* is to be taxed – and the tax rates – *how much* will it be taxed – have to be varied in such a way that economic structures and activities and the distribution of incomes and assets develop towards the aims of the underlying economic and social policies.⁷ Here, too, theory of economic policies – especially as regards the target index of a socially oriented market economy – has elaborated a number of steering effects of fiscal instruments, including:

⁶ See: Diefenbacher, Hans (2001): *Gerechtigkeit und Nachhaltigkeit*. Darmstadt: WBG, Kap. 4.

⁷ See: Streit, Manfred/Umbach, Dieter (1976): „Besteuerungsgrundsätze“, in: diess. (Hrsg.): *Die Wirtschaft heute*. Mannheim: Bibliographisches Institut, 316ff.

- aims of wealth redistribution policies which can be pursued through property taxes or estate duties and through progressive income taxation;
- the promotion of asset accumulation through tax rebates for certain types of income, like e.g. capital gains;
- aims of structural policies like influencing the choice of investment locations through differential rates of company taxation and rates;
- increasing or decreasing the production of certain products through the levying of special excise taxes;
- aims of growth and stability policies through taxation of speculative share profits, but also through anti-cyclical levies and tax rebates for investments;
- aims of currency policies through differential taxation of foreign and domestic capital gains or through import and export taxes.

There is a widespread scientific consensus on these criteria in their rather general definition; but as to particulars, everything depends on their interpretation and practical application.

Eco Taxes: The most important principles

What was said in the last section should have shown that eco taxes, on the face of it, are nothing special: they are simply taxes intended to achieve a specific steering effect, just as other taxes are designed to have their different effects. The basic idea behind eco taxes is to influence the use of our environment through the price of the 'commodity' environment. During the past twenty years a great number of variants for ecologically oriented taxation have been designed;⁸ when discussing them, however, three central aspects are crucial:

⁸ See: Priewe, Jan (1998): Die Öko-Steuer-Diskussion. Positionen und Kontroversen einer Bilanz. Berlin: edition sigma; Deutsches Institut für Wirtschaftsforschung Berlin/Finanzwissenschaftliches Forschungsinstitut an der Universität zu Köln (1999): Anforderungen an und Anknüpfungspunkte für eine Reform des Steuersystems unter ökologischen Aspekten. Berlin:

- Eco Taxes are aimed at making the consumption of environmental goods more expensive. Through these taxes, the relative structure of prices gets changed and thereby, it is hoped, behaviour detrimental to the environment will become unattractive. It is a frequently heard argument here that raising the price of environmental commodities would lead to an 'environmental truth of prices'. It must be kept in mind, though, that it is irrelevant for the steering function whether the prices including this tax really express the 'true' costs. Even if it isn't possible – as in many cases, e.g. of species protection – to exactly determine the monetary value of specific environmental commodities, the main point here is the *direction* of the price change.
- A tax reform aimed at raising the price of the consumption of our environment should in any case be implemented step by step and it should lend itself to long-term calculation. This creates a perspective for the behaviour of economic agents which would reduce or avoid future shortages of environmental commodities deriving from too rapid consumption. These changes in economic behaviour will, as a rule, benefit the environment as well as employment.
- Revenue derived from the Eco Tax should not become part of the general budget but should be specifically targetted. Various approaches are under debate here: among the advocats of eco taxes a majority prefers strict 'revenue neutrality'.

This means that additional tax yields are fully compensated for by tax and rate reductions elsewhere. Here one could consider different variants: a lowering of social security contributions, but also a reduction of income and corporate tax rates.⁹ A minority of advocats of eco taxes starts from the premiss that the environment has already been damaged to such an extent that at

Erich Schmidt Verlag; on this see: Reiche, Danyel /Krebs, Carsten (1999): Der Einstieg in die ökologische Steuerreform. Frankfurt u.a.: Peter Lang, 25ff.

⁹ On this see: Binswanger, Hans Christoph/Nutzinger, Hans G./Frisch, Heinz et al. (1983): Arbeit ohne Umweltzerstörung. Frankfurt: S. Fischer.

least part of the Eco Tax yield should be used for ecological investment and the promotion of nature protection measures.

Any concept to further develop the ecological tax reform will have to position itself as regards these three questions.

3 Main Characteristics of the Present Ecological Tax Reform

On April 1st 1999, Germany's red-green coalition government passed a historic first ecological tax reform. Early concepts had already been mooted in the late seventies/early eighties (for overviews of the discussion of eco taxes so far see Reiche/Krebs 1999). The basic principle of this ecological tax reform is to make energy and resource consumption more expensive. In turn, labour costs are lowered.

As shown in fig. 2, the share of power plants, district heating plants and industry in CO₂ emissions has been decreasing by 1.2 and 4% respectively since 1990. The share of households and small users remained virtually constant for this period. The share of transport in CO₂ emissions, however, rose from 17.0 to 22.2%. To look at end use, the emissions deriving from heat and electricity production in power plants have to be broken down into households, industry and small users (incl. services and trades people). This highlights that there is a special need for action in these two sectors.

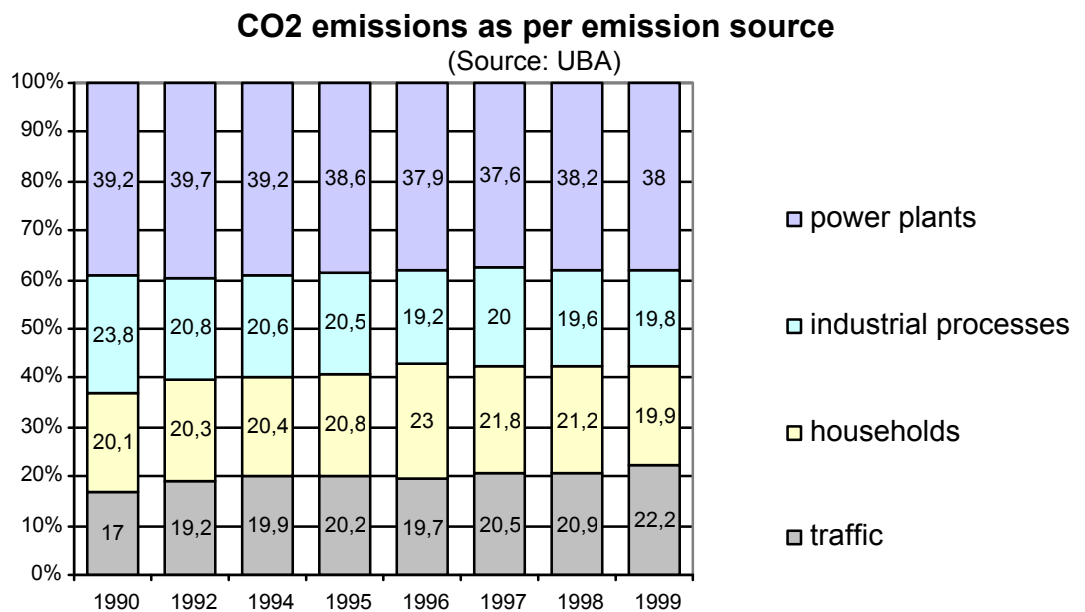


Figure 2

In particular the tax reform is being introduced in five steps: On April 1st 1999, as a first step, the tax on electricity was raised by 2 Pfennigs/kWh, the tax on mineral oil by 6 Pfennig/litre, the tax on heating oil by 4 Pfennig/litre and the tax on gas 0.32 Pfennig/litre. Later, in three further steps, the tax on mineral oil was raised by 6 Pfennig/litre on January 1st 2000 and again on January 1st 2001 and the tax on electricity went up by 0.5 Pfennig/kWh on those same dates. On January 1st 2002, the tax on mineral oil was raised by 3.1 Cent/litre and the tax on electricity by 0.26 Cent/kWh, and on January 1st 2003 we will see in those same proportions the fifth and so far last step of the ecological tax reform. Since 1999, the introduction of the ecological tax reform has yielded an extra €39.3 billion (see table 1), which have mostly been used to lower the contributions to the pension funds by 1.2%. Up to the end of March 1999 the contribution rate was 20.3%. With the introduction of the Eco Tax the pension fund contributions have been lowered to 19.1% of gross wages (as of January 2002). Employers and employees benefit by 0.6% each. As against previous years, in 2002 contributions could not be reduced any further but were kept stable. Without the introduction of the Eco Tax, however, the contributions to pension funds would by now have reached 21%.

Year	Revenue in billion € (DM)**	Reduction of pension contributions *
1999	4.3 (8.4)	0.8
2000	8.9 (17.4)	1.0
2001	11.7 (22.8)	1.2
2002	14.4 (28.1)	1.2
total	39.3 (76.7)	

* As compared to the start of 1998 in per cent.

** For 2001 preliminary figures; for 2002 estimated figures.

In 1999 the reduction of contributions is out of proportion with the volume of income because the income only applied to $\frac{3}{4}$ of the year and the Federal Government increased the reduction.

Source: Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit

Table 1: Revenue and Reduction of Pension Contributions

In addition to this, every year up to €150 million is spent on the promotion of renewable energies (this is roughly equivalent to the tax take from these energy sources). In this way, since 1999, almost half a billion Euro have been made available for the expansion of renewable energy sources.

The ecological tax reform system described above is designed to be 'revenue neutral', because the extra intake of revenue flows back again through the reduction of the pension contributions.

One element that comes under consistent criticism is exemptions and reductions for particular sectors. Agriculture as well as manufacturing industries are granted an 80% reduction of their taxes on heating oil, natural gas and electricity. Enterprises in the manufacturing sector are only charged the standard rate for the first €500 of their oil, gas and electricity taxes; once payments of eco taxes rise above 1.2-fold of the amount saved by the reduction of ancillary labour costs, companies can apply for a full refund from the customs offices. Public rail transport (trains, trams, trolley busses, urban and suspension railways, metros) receives a 50% reduction of the electricity tax, i.e. pays only 0.5 Cent per kWh. This amounts to an annual revenue loss of around €65 million. Since January 2000, all short distance public transport (bus lines, school busses and collective taxi transport) only pays mineral oil tax at 1.5 Cent/litre for its fuel. Existing storage heating systems which were installed before April 1st 1999 are only taxed at half the increased rate. Above these reductions, there are further exemptions, which serve to promote efficient technologies and renewable energy sources. Electricity from combined heat/power generation with an efficiency rate of more than 70% is exempt from mineral oil and electricity taxes. Contract schemes up to 2 MW are also exempt from paying electricity tax. Electricity from renewable sources that is used for on-site production is also exempt. Here the old threshold of 0.7 MW has been abolished; for hydropower it was raised from 5 to 10 MW.

4 Effects of the Ecological Tax Reform

The positive effects of the ecological tax reform have again been highlighted by the Federal Environmental Bureau (Umweltbundesamt) in early 2002: According to calculations based on the current research programme „*Ökonometrische Modellierung der Wirkungen umweltpolitischer Instrumente*“ (“Econometric Modelling of the Effects of Environmental Policy Instruments”)¹⁰, by the end of 2002 the Eco Tax will have reduced CO₂ emissions by more than 7 million tons while at the same time almost 60,000 new jobs will have been created as a result of the tax reform. These figures are preliminary results of simulated calculations; the final figures will be available as from autumn 2002.

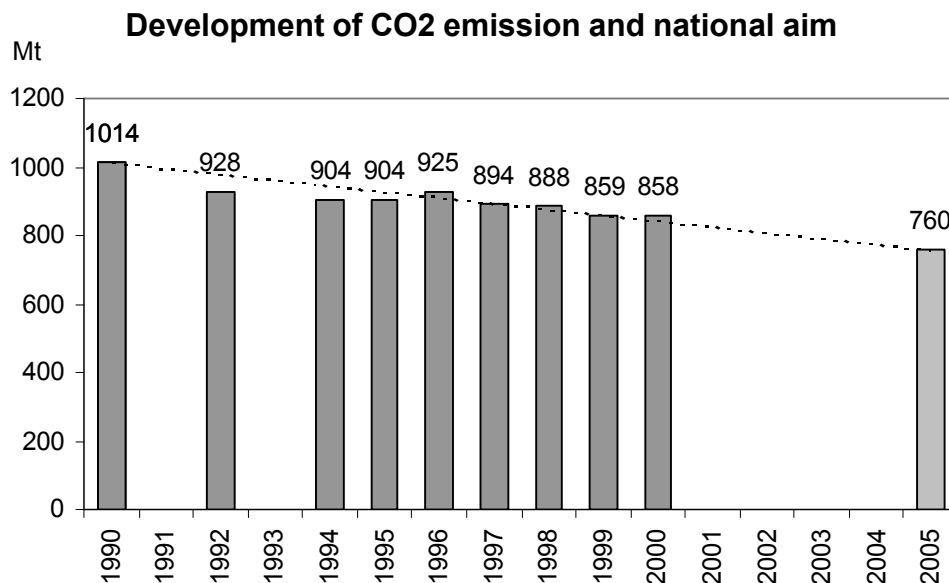
A different research project¹¹ by the *Deutsches Institut für Wirtschaftsforschung* (DIW) (German Institute for Economic Research) and the *Gesellschaft für Wirtschaftliche Strukturfor-*schung (GWS) (Society for Research into Economic Structures), commissioned by the Federal Ministry for Finance, has also found positive effects on employment: Until 2010, according to their modelling, between 176,000 and 250,000 new jobs will be created. The quoted results are based on the assumption that the Trade Unions will show moderation in their wage demands by linking any increases in gross pay to the development of prices and productivity. This also shows how such macro-economic models are dependent on political decisions, which, as a rule, don't lend themselves to adequate modelling. Therefore one should interpret calculations relating to employment effects with due caution and not overestimate their value. As to any effects regarding the distribution of wealth, these calculations show that

¹⁰ See: Pressemitteilung des Umweltbundesamtes vom 3. Januar 2002.

¹¹ See: Bach, Stefan u.a. (2001a): Die ökologische Steuerreform in Deutschland. Eine modellgestützte Analyse ihrer Wirkungen auf Wirtschaft und Umwelt. Heidelberg: Physica Verlag; Bach, Stefan u.a. (2001b): Wirkungen der ökologischen Steuerreform in Deutschland. In: Wochenbericht des DIW, Heft 14, 220-225; Lutz, Christian/Meyer, Bernd (2001): Wirkungen der ökologischen Steuerreform auf Wirtschaft und Umwelt in Deutschland – Ergebnisse von Simulationsrechnungen mit dem umwelt-ökonomischen Modell PANTA RHEI. GWS Discussion Paper 2001/1. Osnabrück: Gesellschaft für Wirtschaftliche Strukturfor-

the ecological tax reform does not leave private households with an equal tax burden. Rather, they are shouldering around 60% of the tax increase for heating oil, gas, petrol, diesel and electricity - while their share of the reduction of the pension fund contributions is only 50%. Overall the authors have arrived at a predominantly positive view of the distribution effects. And as to environmental policies, the ecological tax reform could also contribute to a reduction in CO₂ emissions. According to the project's calculations the ecological tax reform leads to emission reductions of ca. 15 million tons. But if we compare this to the targets of the Federal Government's climate policies announced in 1992, which envisaged a 25% reduction to 760 million tons until 2005 (see figure 3), the Eco Tax can only be one building block towards this aim.

Figure 3



German reunification and the resulting changes in East Germany substantially helped the reduction of CO₂ emissions since 1990, which were especially significant during the first years. During the first half of the 1990s, CO₂ emissions fell by 11%; during the following years, the reductions fell at a much slower rate. The overall reduction for the period between 1990 and 2000 was 15%.

5 Critique and Suggestions for the Further Development of the Eco Tax

The strongest criticism from the environmental organisations was levelled at the reductions for industry and agriculture. With this indirect subsidy these sectors will have saved around €4.6 billion in 2002. Not only the environmental NGOs but also the European Commission has objected to this tax relief. *To further retain the reduction, a bonus on paying the Eco Tax should be considered for companies that have implemented environmental management according to EMAS and/or DIN EN ISO 14001.* In doing this, however certain gradations should be introduced into the regulations: companies, for example, which have already been implementing environmental management since 1995 – that is since the introduction of the EEC Eco Audit Directive – should be relieved to a higher degree than those who only decided on this after the redrafting of the ecological tax reform legislation. Those companies, which introduced environmental management right at the beginning, should thereby pay only 20% of the current Eco Tax rates, while the other companies would have to pay at a rate of 40%. This would also avoid a discontinuation of environmental management according to EMAS and/or DIN EN ISO 14001. Companies that will not agree to these voluntary obligations would then have to pay 60% of the current tax rate on electricity, oil, gas and other fuels. Thus even they would not have to pay the Eco tax at the full rate. Linking the Eco Tax to environmental management can create incentives to expand the so far somewhat hesitant uptake of EMAS and/or DIN EN ISO 14001.

After 2003, revenue from the ecological tax reform should no longer be used exclusively for stabilising pension fund contributions. Rather, only a third of the Eco Tax take should be channelled into the pension funds. After 2003 a further third of ca. €12 billion should – also with regard to the present labour market problems – be used to lower social insurance rates. One could also consider the support of employment policy measures. The last third should be targeted at the promotion of renewable energies and energy saving measures. Home insulation of privately

owned apartments and houses still offers a considerable energy saving potential, but in this area too few incentives have been created in the past. For landlords as well as for tenants the cost of heat insulation measures so far bears no relation to the gains one could expect from the savings on heating oil or gas. Likewise, there should also be support for measures aimed at the conversion to central heating systems with lower emissions. *If – as suggested – a third of the Eco Tax revenue will be used for energy saving and heat insulation initiatives, then the gas and heating oil taxes, which have not been raised since April 1999, should be further increased.*

Designing the ecological tax reform in this manner would somewhat dissolve the present principle of 'revenue neutrality'. But the environmental NGOs, too, have realised by now that the public does not notice the positive effects of the tax reform. It is not for nothing e.g. that the BUND (FoE Germany) points out: *there should be an extra line on the pay slips showing how much money from the Eco Tax is refunded to the citizens through pension funds contributions.*¹² But especially subsidies for heat insulation measures could increase popular acceptance. *We further have to consider how low-income sectors of the population, which do not benefit from a lowering of ancillary pay costs, obtain a social compensation for their payment of eco taxes.* Especially for recipients of pensions, unemployment benefit, social welfare and 'Bafög' (education grants) the ecological tax reform means net losses.¹³ Compensation for their higher tax burden could be arranged through the regular annual assessment and pay-off procedures.

To achieve the Federal Government's climate protection target – minus 25% CO₂ emissions by 2005 as compared to 1990 – eco taxes would, however, have to be increased at ca. 2 ½ times the rate planned for by the Federal Government. That is why we have an ever more intense debate lately on whether and to what degree flexible economic instruments, like emissions trading,

¹² See: BUND (o.J.): Eckpunkte zur Weiterentwicklung der ökologischen Steuerreform. o.O.: hekt. Manuskript.

¹³ Meyer, Bettina (1998): Sozialer Ausgleich erforderlich. In: Politische Ökologie, Heft 56, 62-65.

should complement the ecological tax reform.¹⁴ This instrument envisages the setting of an upper limit for CO₂ emissions. Companies and sectors thereby acquire the right to emit a certain quantity of CO₂. Amongst them they can buy and sell traded emission certificates, so that those who want to increase their emissions have to purchase a corresponding number of certificates.

This leaves companies with the choice to either invest in energy saving and heat insulation measures or to buy emission certificates. The necessary certificates are being offered by companies, which early on had already invested in environmental technologies. The price per ton of carbon dioxide is determined by supply and demand. The European Union intends to open up opportunities for emissions trading from 2005, starting with an initial 5000 companies in 5 sectors, namely energy, steel, paper, ceramics and building materials. The chemical industries and the transport sector are excluded from this regulation. These companies will be obliged to apply to the environmental agencies of their countries for environmental certificates for their CO₂ emissions. From 2008 emission trading will be opened to further companies.

But especially German industries are not in favour of emissions trading. It is the view of the Federal Association of German Industry (Bundesverbandes der Deutschen Industrie - BDI) that setting an upper limit for CO₂ emissions would be the “entry into the European planned economy”.¹⁵ Nine of Germany’s biggest companies – including RWE and Eon, BASF and Bayer and also Dyckerhoff and Thyssen-Krupp – have criticised the plans of the European Commission and declared them to be unbearable for German industry. The Chemical Industry Association (Verband der Chemischen Industrie - VCI) even threatened to relocate the energy-intensive parts of production abroad. These reservations are in contrast to positive experiences which oil companies Shell and BP have had with this instrument. In an interview, the chief executive of BP stressed: “I believe that [the resistance of German

¹⁴ See: Ministerium für Umwelt und Verkehr Baden-Württemberg (Hrsg.) (2001): Flexible Instrumente im Klimaschutz. Eine Anleitung für Unternehmen. Guidelines on CD-ROM or on the web at: <http://www.isi.fhg.de>.

¹⁵ Quote from: Wille, Joachim (2002): Der Streit über die Lizenz zum Klimavergiften. In: Frankfurter Rundschau, 26. January, 9.

industry] is less about the instrument of emissions trading, but rather about the level of Germany's climate protection targets. It would also appear to me that German industry will have to get used to no longer try and deal with this topic by voluntary self-regulation, but rather introduce economic mechanisms which will have companies compete now also for the most efficient emission reduction. We will need such effective measures at the latest when the CO₂ targets get even more ambitious over the next few years. Those who don't prepare for this now will afterwards have to accept a system which they had no part in designing."¹⁶

When further developing the Eco Tax, we have to make sure that any price increases for heating oil, gas, electricity and petrol are implemented with a longer time frame. Thus citizens and industry could early on take account of the price development when planning ahead. With this in mind, it would be necessary to determine the steps until 2010. *One could also design the next steps of the ecological tax reform in such a way that price increases would only be introduced every second year.* Likewise, an annual 0.26 Cent/kWh should increase the electricity tax to at least the same extent. "Many households consume electricity in far too care-free a manner and only rarely reflect that too high a consumption of electricity causes significant environmental problems with electricity generation. A policy of price increases alone will therefore not work. The priority for private households are information campaigns to reduce the stand-by consumption and a better choice of energy-saving appliances."¹⁷

¹⁶ Interview mit BP-Vorstand Peter Knoedel über den Emissionshandel in dem Ölkonzern. In: Frankfurter Rundschau vom 26. Januar, 9.

¹⁷ BUND (o.J.): Eckpunkte zur Weiterentwicklung der ökologischen Steuerreform. o.O.: hekt. Manuskript, 3.

6 How Sustainable is the Eco Tax?

When debating the effects of the Eco Tax, its promoters and detractors operate with widely differing figures. Especially when assessing the secondary, i.e. the economic benefits, and therefore first of all the effects on the labour market, the claims run from “jeopardizing thousands of jobs” to “creating several 100.000 jobs”. Along with the economic effects, under the sustainability aspect we also have to assess ecological and social effects. The way in which particular measures – here the introduction of the Eco Tax – affect these three dimensions of sustainability and their respective sub-divisions can neither be measured accurately nor exactly be calculated even by complex computer modelling. This is because a whole host of factors (like wage policies, global economic developments, exchange rates, the price of crude oil etc.), which can boost or neutralize each other, will always influence the effects that are being scrutinized. It is, however, possible to deduce certain trends, which can subsequently be related to the relevant sub-targets of sustainable development (see figure 4). The following reflections are based on an evaluation model developed by FEST for the assessment of projects and measures for the local implementation of Agenda 21.¹⁸

In the environmental sector, the sub-targets most positively impacted by the Eco Tax are the closely linked “*environmentally and socially sound mobility*”, “*sparing use of non-renewable resources*” and “*low energy input*”: According to data released by the Federal Ministry for the Environment, fuel sales in the first half of 2001 were 5% lower than in the first half of 1999, petrol consumption went down by as much as 12% in this period, while the consumption of diesel fell by just 2%.

¹⁸ Hessische Landesamt für Umwelt und Geologie (Hrsg.) (2001): LiNK21. CD-ROM. Bearbeitet von Volker Teichert und Stefan Wilhelmy. Wiesbaden: HLUG.

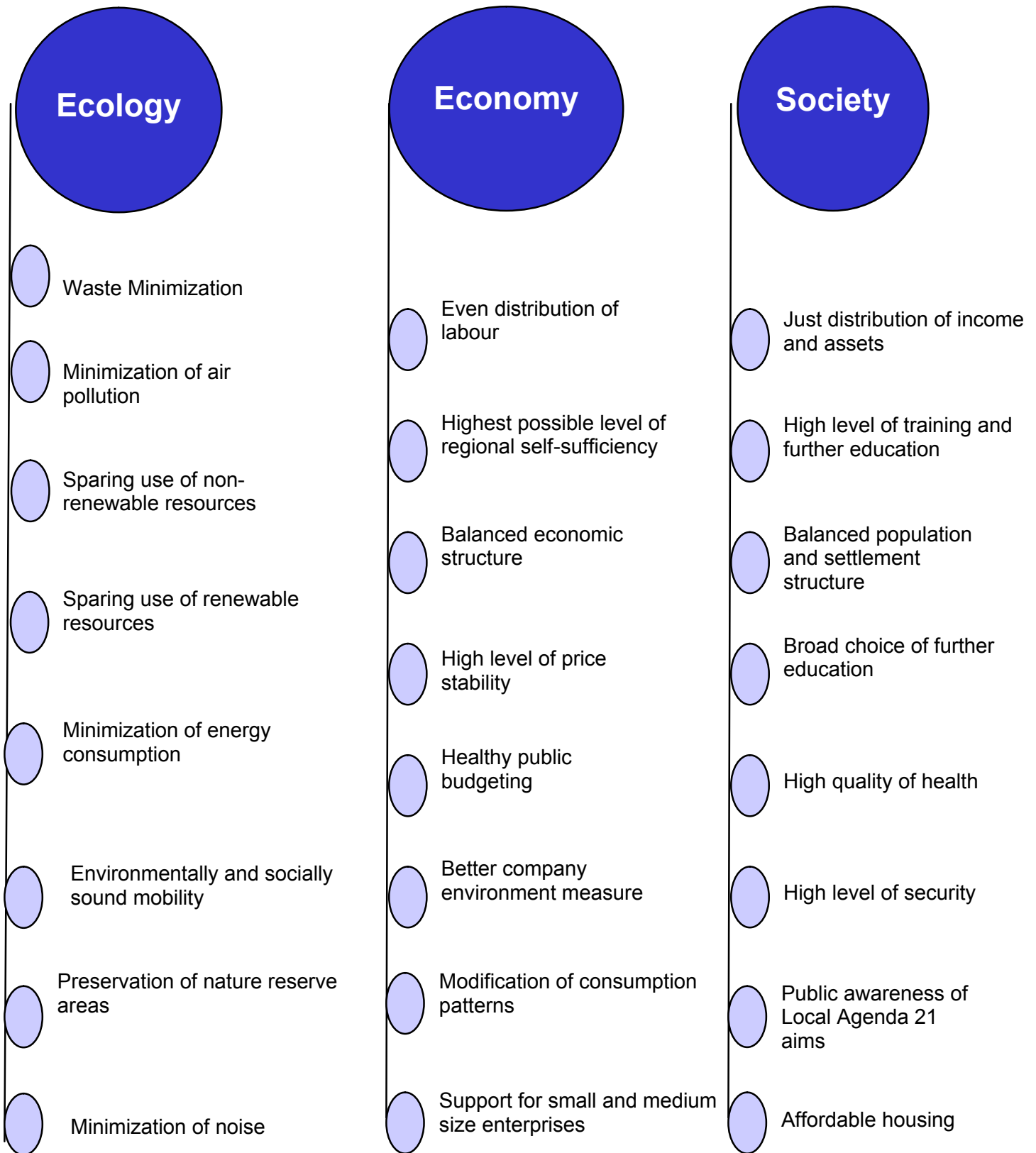


Figure 4

The Deutsche Bahn AG (German Rail) registered a passenger increase of 2% in 2000 while the growth of its rail cargo operation was as high as 7,9%. The popularity of agencies organising lifts in private motor cars (Mitfahrzentralen) was also significantly higher –they saw a plus of 25% in the first half of 2000. The (slight) reduction in the use of private cars expressed in these figures, also has a tendentially positive impact on the sub-targets “*low air pollution*“ and “*low noise pollution*“. Only if this development became permanent could we expect a long term fall in the demand for further areas made over to transport. This – combined with the lower burdening of the environmental media – would have a positive influence on the sub-target “*preservation of eco-systems and bio-diversity*“. A further sub-target emerging from the management rules described above, the “*lowest possible extraction of non-renewable resources*“, is influenced in two ways by the ecological tax reform: on the one hand, tax revenue is used to support renewable energies like wind power and solar energy (while they are also liable for eco taxes), on the other hand the demand goes up for renewable energy sources like wood and rape oil – and so we have to keep an eye on the compliance with regeneration rates and ecologically sound methods of production.

Overall, the effects of the eco tax in the ecology field must be regarded as positive and in some sub-sectors even as very positive. Beyond all this, with the introduction of the Eco Tax important topics like energy saving, resource protection and traffic reduction attracted increased attention in the public debate and environmental protection as a whole became more important in people’s minds. Future political decision making will have to keep in mind that the ecologically positive effects are essentially due to the – temporarily – very rapid increases in fuel prices (especially petrol), which result only partially from the Eco Tax: with falling prices for crude oil and more advantageous currency exchange rates, those effects will decline again. Important aims, like the climate protection target of the Federal Government, demand new accompanying and further-going measures.

The discussion of the effects of the ecological tax reform on the economy is focussed on two aspects: growth and labour market. Different calculation models agree in their conclusions that the

ecological tax reform has only a marginal influence on economic growth.¹⁹ Earlier reservations that the Eco Tax might turn out to be a ‘job killer’ can now be taken as refuted. There are, however, no concrete figures yet to show whether in its present form it functions as a ‘job booster’. But especially because of the reduction and stabilisation of pension fund contributions, we can assume a positive impact on the sub-target “*even distribution of labour*”. The sub-target “*balanced economic structure*” is hardly affected by the Eco Tax, because the existing exemptions for energy-intensive sectors are explicitly designed to lower or remove any pressure for structural change – however necessary it might be under the aspect of sustainability. But if – as suggested here – these exemptions were to be linked to an obligation to introduce environmental management systems (e.g. eco-audit), then we could achieve the additional sub-target “*better company environment measures*”. To a certain degree, however, the sub-target “*support for small and medium size enterprises*” is already being addressed under the present regulations; people in the trades are thus profiting from the growing demand for modern heating systems and small- and medium-sized construction firms from the subsidised heat insulation measures. Given that ‘revenue neutrality’ is almost completely adhered to, the two sub-targets “*high level of price stability*” and “*healthy public budgeting*” should in theory not be influenced at all by the ecological tax reform and in practise just marginally.

The third dimension, the social one, will in the short term above all touch on the sub-target “*just distribution of incomes and assets*”. Based on a micro-simulation model, the DIW arrives at the view that the ecological tax reform means net income losses for most households. While as a proportion of overall household income these are small, they most strongly affect low and medium income households. Here we have to take into account, though, that the ecological tax reform is only part of a far-reaching package of tax reforms, so that, according to the DIW, most households’ finances have been improved.²⁰ As a reduction of private road traffic would

¹⁹ See the calculation in the models PANTA RHEI und LEAN in Bach u.a. (2001b).

²⁰ See: Bach u.a. (2001b), 222.

tend to be reflected in a falling number of road accidents, we can make an early assumption of an immediate positive effect on the sub-target *“high level of security”*. Against that, the sub-targets *“balanced population and settlement structure”* and *“high quality of health”* can only be influenced in the long term.

Under the aspect of sustainability, the Eco Tax can, on the whole, be judged positively. Certain aspects would lead to significant improvements in its effectiveness, though, if their design was more inspired by ecological imperatives than by political and economic interests. The Eco Tax will only have a decisive impact on sustainable development in Germany if it is combined with further instruments like the Eco-Audit or support for renewable energies and as long as it is clear to all players that it is an essential part of a long-term strategy. It follows that the Eco Tax should be continued over the coming years and that it should, in measured steps, continue to contribute to a progressive increase in the price of fossil fuels.

Appendix

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Web Pages:

State Agencies

<http://www.bundesregierung.de>

Federal Government

Information on Eco Tax under „Themen A-Z“ => „Steuern“ => „Ökologische Steuerreform“.

<http://www.bmu.de>

Ministry for the Environment

The web pages of the *Bundesministerium für Umwelt, Naturschutz und Reaktorsicherheit* (BMU) – esp. in the sub-category /oekologische-steuerreform/ –offers up-to-date information on the topic. Just click „Fragen und Antworten“, „Einstieg und Fortführung“, „Energiespartipps“ and downloads and links to two Eco Tax calculators.

<http://www.bundesfinanzministerium.de>

Ministry for Finance

The homepage of the *Bundesministeriums der Finanzen* also offers a collection of information under /Oekologische-Steuerreform/. This includes the text of the laws as a download and a personal Eco tax calculator.

<http://www.bmwi.de>

Ministry for Economy and Technology

The web pages of the *Bundesministeriums für Wirtschaft und Technologie* (BMWi) offers information on energy policy (=> „Politikfelder“ => „Energiepolitik“), including several recent articles as downloads (=> „Publikationen“, e.g. „Energie Daten 2000 – Nationale und internationale Entwicklung“).

<http://www.nachhaltigkeitsrat.de>

The Sustainability Council

This homepage offers recent information on sustainability; numerous documents on this can be downloaded, incl. the federal government’s Sustainability Strategy and a short study by the ‘Sustainability Council’ on the Eco Tax.

<http://www.umweltbundesamt.de>

Federal Environment Agency

Apart from up-to-date environmental data and information on topics like energy and mobility, here you'll also find useful links re. 'environment on the web' („Umwelt im Netz“).

Political Parties

<http://www.cdu.de>

A CDU position critical of eco taxes is under „Beeinflussung des Ressourcenverbrauchs durch Steuerpolitik“ in the area „Politik A-Z“ => „Umweltpolitik“.

<http://www.fdp.de>

Various information as to why in the FDP's view eco taxes are 'hostile to the economy and anti-social' can be accessed through the search option.

<http://www.gruene.de/>

Detailed information and several links are under „Ökosteuer ist o.k.“; press releases, parliamentary speeches etc. are on the pages of the Parliamentary Faction under „Energiewende“ => „Ökosteuer“. Further information on the position of Bündnis90/Die Grünen are on the homepage of the spokesperson on environmental policy of the Green Bundestag Faction, Reinhard Loske (www.loske.de at [/web/umwelt.htm](http://web/umwelt.htm)).

<http://www.pds-online.de>

Information on environmental policy positions of the PDS are on the page „Ökologischen Plattform“ (through „Stichworte A-Z“), on eco taxes ('socially unjust and ecologically counter-productive') also at www.pds-im-bundestag.de (search option under „Archiv“).

<http://www.spd.de>

Information on Eco Tax can be found under „Stichworte“ and „Suchfunktion“.

NGOs / private pages

<http://www.oeko-steuer.de>

Here the Bund für Umwelt und Naturschutz Deutschland offers one of the most detailed web pages on eco taxes with basic information on eco taxes, facts and commentary, news (with a link to the FÖS-Newsletter), downloads of the texts of laws. There's a collection of links, ordered into the categories: Internationales, Literatur, Parteien, Ökosteuer sparen, Verbände und Wissenschaft.

<http://www.oekosteuer.de> bzw. <http://www.foes-ev.de>

This page offers a lot of information and is also a good starting point for further research. There's a long downloadable list of links with categories like: internationale Artikel, deutsche Websites, Ökosteuer in Europa, weltweite Übersichten und weitere Umweltseiten.

<http://akademie.kljb.org>

Next to information on eco taxes there is a personal eco tax calculator that has been jointly developed by Katholischen Landjugendbewegung (Catholic Rural Youth Movement), the BUND and Consumer Organisations.

<http://www.netcity.de/oekosteuer/>

On the private homepage of Carsten Krebs and Danyel T. Reiche you'll find a detailed list of publications on eco taxes by those authors.

<http://www.energienetz.de>

This page offers detailed information on diverse energy topics and a list of informative.

Science

Here a list of websites of scientific institutions that have worked on the topic and offer at least part of their publications as down loads there:

<http://www.rwi-essen.de/>

<http://www.wupperinst.org/>

<http://www.upi-institut.de/>

<http://www.diw.de/>

Transparencies

A detailed set of transparencies (31 pages, pdf-format) on the topic of ecotaxes by Anselm Görres (FÖS) can be downloaded from: <http://www.oekosteuer.de>.

Transparencies on sub-issues of the topic are available from the Umweltbundesamt: <http://www.umweltbundesamt.de>.

A set of transparencies by Member of Bundestags Hans-Josef Fell on eco taxes can be downloaded as a power-point data base from: <http://www.hans-josef-fell.de/download/energie/steuer/folie.ppt>.

List of Abbreviations

BUND	Bund für Umwelt und Naturschutz Deutschland e.V. (German League for Environmental and Nature Protection/Friends of the Earth Germany)
CO ₂	carbon dioxide
CSD	Commission on Sustainable Development / Kommission für Nachhaltige Entwicklung
DIW	Deutsches Institut für Wirtschaftsforschung (German Institute for Economic Research)
EMAS	Environmental Management and Audit Scheme
GWS	Gesellschaft für Wirtschaftliche Strukturforschung (Society for Research into Economic Structures),
Mt	million tons
MW	Mega watt
OECD	Organization for Economic Cooperation and Development / Organisation für wirtschaftliche Zusammenarbeit und Entwicklung
t	ton(s)
UBA	Umweltbundesamt (Federal Environment Agency)
UNCED	United Nations Conference on Environment and Development / Konferenz der Vereinten Nationen über Umwelt und Entwicklung (= Rio-Conference)
WSSD	World Summit for Sustainable Development / Weltgipfel für nachhaltige Entwicklung (= Rio+10)

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