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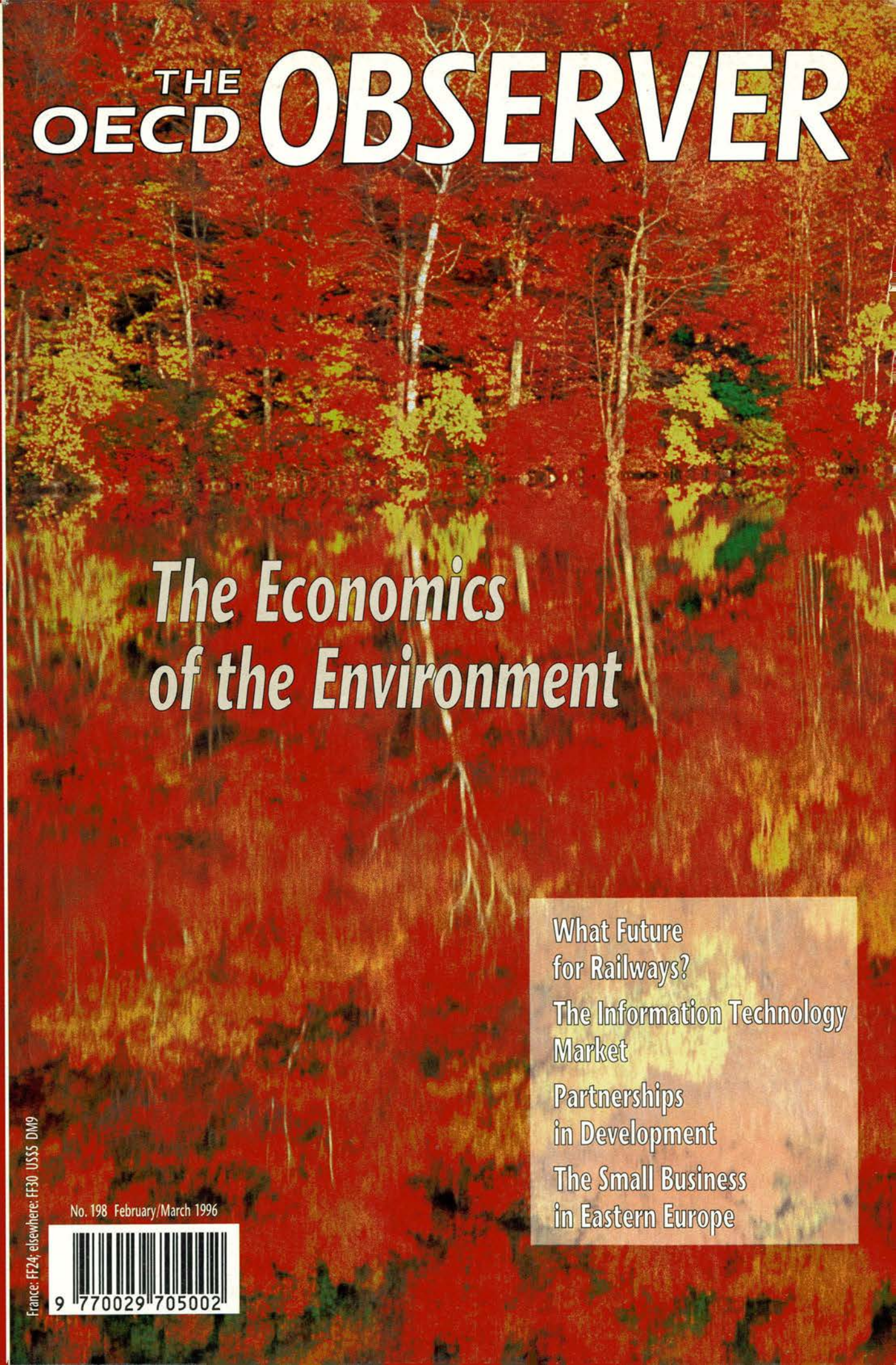

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No. 198 February/March 1996

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Investing in a Clean Environment

Jean-Claude Paye, Secretary-General of the OECD

In February 1996 the OECD's Environment Policy Committee will commemorate its 25th anniversary with a fifth meeting at Ministerial level. Environment ministers will be taking stock of the progress made by OECD countries in protecting and managing the environment in that quarter-century, and sharing views on likely challenges and co-operative responses.

Ministers can point to many important accomplishments. Scientific understanding and technological tools for establishing and monitoring risks to human health and the environment have improved dramatically since the early 1970s. All OECD countries now have in place comprehensive environmental legislation, supported by specialised institutions for policy design, implementation and enforcement. The results of these efforts are increasingly evident in the form of cleaner air and water, and improved protection of natural areas, notwithstanding the many complex problems that remain.

In spite of this progress, and an apparent bedrock of public support for environmental goals, the environment ministers will be assembling at a time when further investment in environmental management is being questioned in some quarters. The reason is that the costs of environmental protection are perceived as being too burdensome for governments struggling with large budget deficits, and for industries confronting intensified international competition in a globalising world economy.

This reaction has stimulated government policy-makers to search for alternatives to traditional 'command-and-control' approaches to environmental management, now judged to be too expensive and inefficient, has prompted calls for the application of strict cost-benefit analysis to new proposals for environmental policy, and has caused some observers to begin to ask: 'How clean is clean enough?'.

Thus, after 25 years of substantial investment of human and capital resources by OECD countries, it seems fair – particularly at this time of budgetary stringency – to pose the question: 'Is a clean environment affordable?'

The Convention which established the OECD in 1961 mandated the Organisation to promote the highest sustainable economic growth. And this requires that as much attention must be paid to the quality of growth as to its quantity. Clearly, a decent quality of life for citizens around the world involves clean water, clean air and green space for recreation and contemplation, as well as economic well-being and respect for human rights. The American philosopher-writer Thoreau made this point when he asked: 'Of what use is a house if there is not a decent planet to put it on?'

Further, during the past decade, scientific evidence has emerged that the intensity and scope of human activity has reached the point where, if protective measures are not taken, the basic life-support systems of the earth can be placed at risk. The destruction of the ozone layer and deforestation of the tropics are two worrying examples.

In view of the scope and magnitude of environmental problems yet unsolved, the continuing growth of human populations and economic activity and the tremendous stakes involved for society if environmental 'limits' were to be exceeded, a clean environment clearly must remain high on the political agenda of the international community as a whole, and of the OECD countries in particular, as they must continue to show the way.

But can it be afforded without distorting and damaging national economies, adding to unemployment, and otherwise undercutting the very economic growth required

to provide the resources on which environmental protection depends?

The OECD countries have been spending between 0.5 and 2% of GDP over the past 25 years on environmental protection. OECD studies of the impact of such expenditures reveal little evidence that environmental investments have been detrimental to economic growth. And, since virtually all OECD countries introduced environmental programmes at about the same time in the 1970s, there has been time to establish that significant distortions in competitiveness have not emerged.

The environmental costs to industry, in terms of both capital and operating costs, have also been low, relative to total investments. On average, spending by industry on pollution control has been less than 3% for large branches of industry, although this figure has risen to 20% or more for some of the more polluting industries, such as chemicals and mining.

These costs must also be seen in relation to the benefits received, both by society and by industry. Encouragingly, corporate leaders are acknowledging with increasing frequency that it is possible for industrial operations to be both clean and profitable, demonstrating that, 'environmental protection makes good economic sense'. With industry now making impressive strides in cutting costs through the conservation of energy and raw materials in the input of manufacturing processes, a double dividend is accruing through the resulting reduction of waste products and pollution emissions.

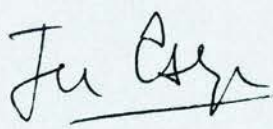
Concerns have been raised that environmental policies are contributing to the loss of jobs as they drive up business costs and, at their extreme, force firms to 'move offshore' to countries with less rigorous environmental standards. But recent OECD studies on employment-environment relationships fail to find empirical evidence that environment is a 'job-killer'. On the contrary, the rapid growth of an 'environment industry' in OECD countries in the last decade suggests that strong environmental policies have had, overall, a beneficial (although small) impact on employment. A variety of other factors, including access to transport and raw materials, the availability of a skilled workforce and the features of national legal systems, tend to overwhelm environmental costs in determining industrial mobility.

Relationships between environmental policy and economic issues are complex and evolving, and will require continuing surveillance in a world in which economic, technological and societal conditions are changing so rapidly. The past is certainly no guarantee of the future, neither in the environment nor elsewhere.

What does seem clear is that OECD governments will be under heavy pressure to reduce public expenditures for the foreseeable future. Further, international competition for markets will force industrial firms to find cost savings wherever they can. Yet there are some environmental threats, particularly climate change and the deteriorating quality of urban air, that could require investments in environmental protection well beyond the volumes seen in the past.

To assist governments in responding to current environmental challenges, and in anticipating and meeting new ones, the OECD is concentrating its environmental efforts on ensuring that the interactions between environmental and economic policy are taken fully into account in dealing with these challenges. The OECD Environment Programme was created in the early 1970s precisely to help find answers to three basic and abiding questions: How much does it cost to protect the environment? Who should bear the costs? And how can environmental goals be attained at least cost?

In the complex, interdependent world of the mid-1990s, understanding the economics of environmental management has taken on increased importance and urgency for OECD countries and for the entire community of nations. This month the OECD ministers of the environment will have the opportunity to provide further directions for the pursuit of environmentally sustainable development, and to help ensure that the OECD is positioned to contribute effectively and efficiently.



Integrating Environment and Economy

Michel Potier

If there is to be genuine progress in managing the environment, ecological concerns must be given due weight by those who manage government action in other areas, through economic policy and sectorial policies, not least for transport, energy and agriculture. Furthermore, this kind of policy integration seems to be the most effective way of promoting sustainable development, by actively preventing harm to the environment rather than simply repairing damage once it is done.[1]

National environmental plans are a key tool for making economic, sectorial and environmental goals more consistent. A number of plans of this kind have been adopted in OECD countries, in particular in Austria, Canada, France, Japan, the Netherlands (box, p. 8), Portugal and the United Kingdom.

These plans, which are developed by environment ministries in conjunction with other departments, set medium-term goals for environmental protection and prescribe the means necessary to achieve them. The plans vary in scope and complexity, and in the degree of co-operation that they involve. Some plans establish quantitative targets, although most set qualitative goals. The French plan debated in the National Assembly in October 1990 proposed a comprehensive approach to the environmental challenges France will face by the end of the century, and listed the goals to be achieved. Some are quantitative, such as reducing SO_2 by 25 to 30% by the year 2000, stabilising CO_2 emissions at 1990 figures by 2000–2005 and increasing the rate of household wastewater purification from one-third to two-thirds by the year 2000. It said nothing about the cost of these measures, or about the contributions that individual sectors would be expected to make.

Only if all parts of society (industry, trade unions, NGOs and the public at large) participate more actively in environmental decisions – and the environmental plans do much to promote such participation – will it be possible to make goals more consistent. Today, nearly all OECD countries encourage public participation and disseminate information on the state of the environment, and some even recognise a right of access to environmental information for all.

Michel Potier is Head of the Economics Division of the OECD Environment Directorate.

The Side-effects of Intervention

Governments intervene in the economy by fixing prices, imposing and monitoring standards, paying subsidies or regulating sectors such as energy, agriculture or transport. Some of this intervention can be harmful to the environment since indirectly it masks the full cost of tapping and using environmental resources in these sectors. Determining which kinds of intervention have these side-effects is by no means easy. Yet correcting harmful intervention can both improve the environment and enhance economic efficiency.

Transport

Transport is one of the most highly regulated sectors in all OECD countries. Most government intervention is aimed at controlling the overall supply of transport, changing the distribution of individual modes of transport or introducing taxes and charges paid by users. As a rule these measures take little or no account of the environment, and their effects may in some cases be damaging. For example, road transport has been heavily subsidised through the building of highway infrastructures, resulting in oversupply and overuse of this mode of transport and, from an environmental standpoint, in increased air and noise pollution. It has been estimated that in the United States road transport pays for only 79% of its total costs through taxes and tolls paid by road-users, the remaining costs being borne by the government in what amounts to a direct subsidy to road transport.[2] Moreover, if similar subsidies granted by cities for the construction of parking facilities are included, these figures are

1. ***Integrating Environment and Economy: Progress in the 1990s***, *OECD Publications, Paris, forthcoming 1996.*

2. *J. J. MacKenzie, R. C. Dower and D. D. T. Chen,* The Going Rate: What it Really Costs to Drive, *World Resources Institute, Washington DC, 1992.*

3. *R. P. Steenblik and P. Coroyannakis, 'Reform of Coal Policies in Western and Central Europe',* Energy Policy, *Vol. 23, No. 6.*

twice as high. The lower volume of subsidy in France is no doubt explained by the fact that petrol prices and road tolls are higher than in the United States.

Conversely, there are examples of intervention aimed at improving the environment, such as Switzerland's recent decision to subsidise the financing of the infrastructure necessary for a combined road-rail route through the Alps in order to protect the country from the harmful effects of road traffic in transit.

Some kinds of tax relief can also encourage the excessive use of cars. In Germany, it has been estimated that tax deductions for people driving to work have increased traffic and hence generated additional costs, through accidents and air pollution, in the range of a billion Deutschmarks per year. In France, the fact that the annual car-registration tax is 50% lower for models over five years old has the effect of keeping older, more polluting, cars on the road. By contrast, France's policy of granting a rebate to anyone purchasing a new car provided their old one is scrapped – a measure introduced in 1994 and which the government extended last year to stimulate car sales – may perhaps be a step in the right direction.

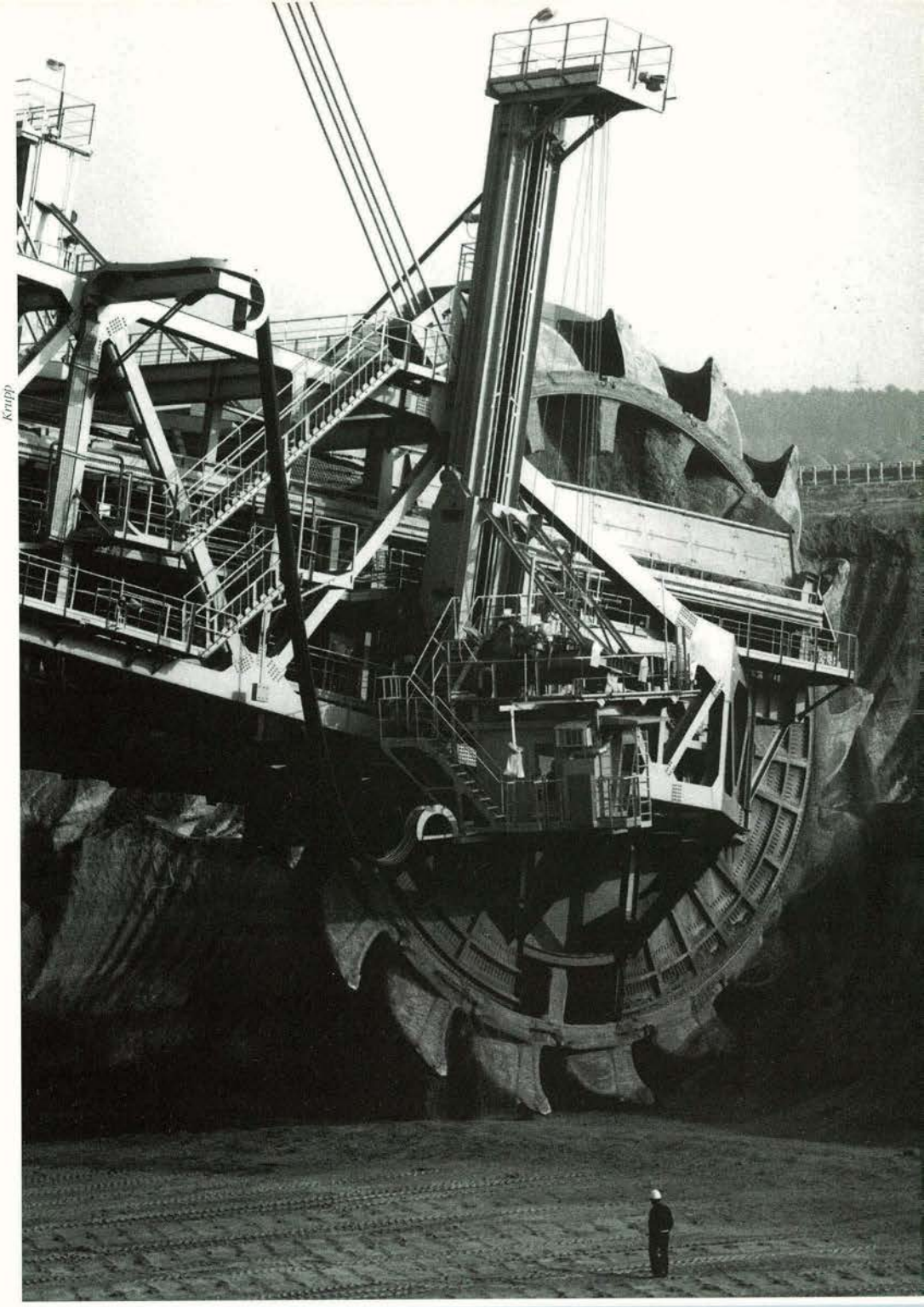
Identifying and eliminating these contradictions should be one of the main priorities in trying to integrate environmental and transport policies more effectively.

Energy

Governments usually intervene in the energy sector to maintain a state monopoly, to regulate charges and prices (electricity, petroleum products, natural gas) and to grant subsidies (coal). From an ecological standpoint, it would be better if environmental costs were incorporated into electricity and fuel prices and charges and coal subsidies were eliminated. The higher coal prices that would result from this measure would help bring less polluting and less expensive substitutes to the market, and lower the demand for coal.

In the event, direct coal subsidies have been cut in Germany, Japan and the United Kingdom since the 1980s, but that has not led to major shifts in the types of fuel used. The amount of the coal subsidy is only one of many factors that can influence the decision to change to a different fuel, such as the age of production facilities and opportunities to switch to alternative fuels. By reducing domestic coal subsidies and importing more coal from abroad – in particular from South Africa, Australia or central Europe – western European countries could reduce their volumes of methane and CO_2 emissions.[3]

Methane emissions would be lower because imported coal primarily comes from open-cast mines and not, as in European mining regions, from deeper mines that generate large amounts of methane. The lower degree of CO_2 emissions would come from the different type of coal imported (a switch from soft to hard coal), which would more than offset the increased consumption resulting from lower world coal prices. Another study of the United States concluded that reducing subsidies might help stabilise greenhouse-gas emissions, provided the funds previously used for subsidies were reinvested in the



Krupp

Energy policy which involves subsidising the price of coal can stimulate over-consumption and increase pollution.

Integrating Environment and Economy

FOCUS

The Dutch Environmental Plan

Of all the environmental plans developed so far, the Dutch plans seem the most complete and detailed. The first 'National Environmental Plan' (NMP), published in 1989, is the result of concerted efforts between central government, provincial and municipal authorities and a number of target-groups representing various sectors of industry and society. The NMP identifies eight major themes and nine target-groups.

Themes	Target groups
Climate change	Farmers
Acidification	Traffic and transport
Eutrophication	Industry and refineries
Dispersion of toxic substances	Delivery of natural gas and electricity
Waste-disposal	Construction
Disamenities	Consumers and retailing
Dehydration	Environmental trade
Wasted resources	Education and research
	Community organisations

Source: Ministry of Housing, Physical Planning and the Environment

For most of the themes, overall quantitative goals – performance indicators – were assigned to the target groups. In February 1994, Parliament adopted the second National Environmental Plan (NMP2), aimed, like the first, at promoting an environmental policy oriented towards sustainable development based on what local environments can support. With this in mind, it sets specific goals in environmental quality and in pollution-reduction to be reached by the year 2010 for each theme and each target-group, all within a specific local and national setting. The plan lays down how environmental goals are to be integrated into sectorial policies, describes the initiatives to be undertaken, specifies the necessary human and financial resources, sets goals for enterprises and municipal governments and recommends the participation of the general public and public agencies. In laying down these goals, NMP2 takes account of the difficulties encountered in implementing the earlier plan, especially in putting the announced measures into effect, and it reassesses the means to be used to achieve the targeted goals. It places special emphasis on the role of voluntary agreements and the monitoring activities associated with the implementation of environmental legislation. The plan's provisions are designed to fit in with the environmental programmes adopted each year by Parliament.

Through this planning process the various ministries working together improve their understanding of the goals they are each trying to achieve, and take fuller account of environmental concerns in economic and sectorial policies. Nevertheless, policy integration has its limits. Experience shows that although key ministries such as finance, transport and agriculture are ready to co-operate in harmonising their plans, they are usually less willing to sacrifice their main economic-development goals.

In spite of these limits, the example of the Netherlands presents a promising approach to increased integration of economic and environmental policy. It could be taken as a model, especially for countries where plans with quantitative goals play an important role in decision-making.

economy in order to promote environmental initiatives and programmes.[4]

Agriculture

For many years the agricultural sector has benefited from a vast range of subsidies that have not taken environmental concerns into account: production incentives (for wheat, for example), income support (direct payments to farmers), set-aside programmes (subsidies for withdrawing land from agricultural use in order to reduce surpluses) and crop diversification schemes (quotas).

Some countries are now reducing their total support to the agricultural sector (Canada, New Zealand), while others (Sweden, for example) are increasing support as part of a restructuring of their subsidy systems. Aid to production (direct price support) is gradually being replaced by direct payments to farmers, in line with the thrust of the Uruguay Round agreement.[5]

From an environmental standpoint, these are encouraging developments in that they will reduce incentives for farmers to plant marginal land and to practice intensive farming, which generally leads to the overuse of fertilisers and pesticides. The reduction in the subsidies and tax concessions granted for wetland draining and land clearance in Europe and the United States has had the effect of slowing down the draining of wetlands and increasing forested areas.[6]

But reducing subsidies can also have a harmful effect on the environment if farmers compensate for the income lost from withdrawing some land from use by stepping-up intensive farming of their remaining land. In mountain areas, lowering subsidies will in many cases prove harmful to the environment, since alpine pastures will no longer be grazed. This is one reason for the increasing talk of replacing subsidies with compensation to farmers for the positive externalities generated by their activities (maintaining the countryside, preserving wild fauna and flora, and so on).[7]

Evaluating the environmental impact of lower subsidies is a more difficult and complex task than it initially seems. Integrating environmental and agricultural policies calls for awareness of both the beneficial and the adverse effects.

Better Use of Market Mechanisms

The OECD has long argued in favour of the better use of market mechanisms to integrate the environment and the economy. Markets must be left free to send signals, and prices should reflect the real scarcity of natural resources and the environmental costs stemming from economic activities.

Economic instruments, such as emission taxes or charges, service charges and product taxes, which influence the market through financial transfers from polluters to the community, are

especially effective tools for integrating the economy and the environment.[8] They can even lead to the emergence of new markets, as occurred with tradable emission permits. Economic instruments generally have some definite advantages over the traditional regulatory instruments, being more cost-effective, more flexible and more efficient when there is a large number of polluters, in addition to providing a continual incentive to reduce pollution and a potential source of revenue. In a sluggish economy, it is not surprising that they are being increasingly widely used.

In 1987, economic instruments were being used in approximately 150 instances in 14 OECD countries, including some 80 examples of pollution taxes and charges. Between 1987 and 1993 the number rose by 25–50%, depending on the country.[9] The largest increase was in product taxes, especially energy taxes aimed at reducing CO_2 emissions in Denmark, Finland, the Netherlands, Norway and Sweden, and sulphur taxes in France, Norway and Sweden. Deposit-refund systems in packaging also grew considerably (between 35 and 100%, depending on the country), while taxes and charges on polluting emissions seemed to be developing more slowly. Programmes of tradable permits or rights were expanding in the United States, but were limited in scope elsewhere.

The introduction of these economic instruments, especially new kinds of taxes, is sometimes combined with a restructuring of the existing tax system, as was done for energy taxes in Denmark and Sweden.[10] It can also provide an opportunity to carry out a thoroughgoing tax reform, as in Sweden in 1991, including a reduction in income and wealth taxes, offset by new environmental taxes on SO_2, CO_2 and NO_x.

In spite of the growing use of economic instruments, they have yet to become the primary tool for implementing environmental policies, which continue to rely largely on regulation and also, more and more, on voluntary agreements.[11] But these instruments have tremendous potential for the future provided they can be made more acceptable to taxpayers.

To integrate the environment and the economy, it will not be enough to internalise environmental costs using tools such as economic instruments; prices must also be made to reflect the real scarcity of natural resources. Resource pricing that does not take into account the scarcity of the resource in question (water, air, land, etc.) and the costs connected with its consumption (including delivery and depletion costs) encourages overuse and will lead to the deterioration of this resource. For example, water prices that are kept artificially low can result in excess consumption, the construction of unnecessary reservoirs or a drop in groundwater levels, with serious repercussions for the aquatic system. It can also lead to overuse of water for irrigation, with further contamination of aquifers by nitrates, phosphates and pesticides and soil deterioration through compaction and salinification.

Inappropriate pricing of water for industrial uses can also lead companies to consume excessive amounts of water to dilute effluents in order to comply with legal standards on concentration, which can then make it more difficult to eliminate these pollutants. In recent years a number of OECD countries (such as France, Germany and the United Kingdom) have begun to raise water prices, but the user-pays principle is still a long way from becoming a reality.

Improving Institutions and Decision-making

Structural and institutional reform is often necessary before environmental policy and other sectorial policies can be properly integrated. It is for this reason that many countries have set up inter-ministerial working groups or commissions of inquiry to ensure effective co-operation among all the government departments concerned. For example, Canada established national and provincial round-tables on the environment and the economy, drawing together representatives of business and the general public as well as government to devise strategies for environmentally sustainable development. A commission on eco-taxes was set up in Belgium. In France, an inter-ministerial commission made up of representatives from the Ministries of Agricult-ure and the Environment as well as farmers' associations was established to develop a programme for reducing the use of nitrates. Various countries have also established environmental support-units in ministries of agriculture, transport and energy, a major step towards incorporating environmental concerns in sectorial policies.

Since environment ministries simply do not have the necessary human and financial resources to supervise and monitor the status of environmental goals across the whole of the economy and society, this is a welcome trend. But it does raise certain difficulties. Sectorial ministries are unwilling to take on added responsibilities unless their budget is enlarged or their internal resources are reallocated. In addition, they may well expect something in return, and want to shape or amend environmental policy goals so as to protect the sector for which they are responsible.

More extensive use of analytical tools which can improve decision-making, such as cost-benefit analysis, environmental impact assessments and environmental indicators and accounting, can also contribute to policy integration by making both private and public decision-makers more aware of the environmental consequences of their actions.

There are also macro-economic models of the environment that can take into account the main interactions between economy and environment and give general pointers to possible convergence or trade-offs. In the Netherlands and Norway models of this type have encouraged in-

4. M. Shelby, A. Christofaro, B. Shackleton and B. Schillo, The Climate Change Implications of Eliminating US Energy and Related Subsidies, *Environmental Protection Agency, Washington DC, 1994.*

5. Carmel Cahill, 'OECD Agriculture after Uruguay', **The OECD Observer**, No. 196, October/November 1995.

6. See pp. 47–50.

7. Philippe Mubeim and Priscilla Salant, 'Capturing the Value of Rural Assets', **The OECD Observer**, No. 190, October/November 1994.

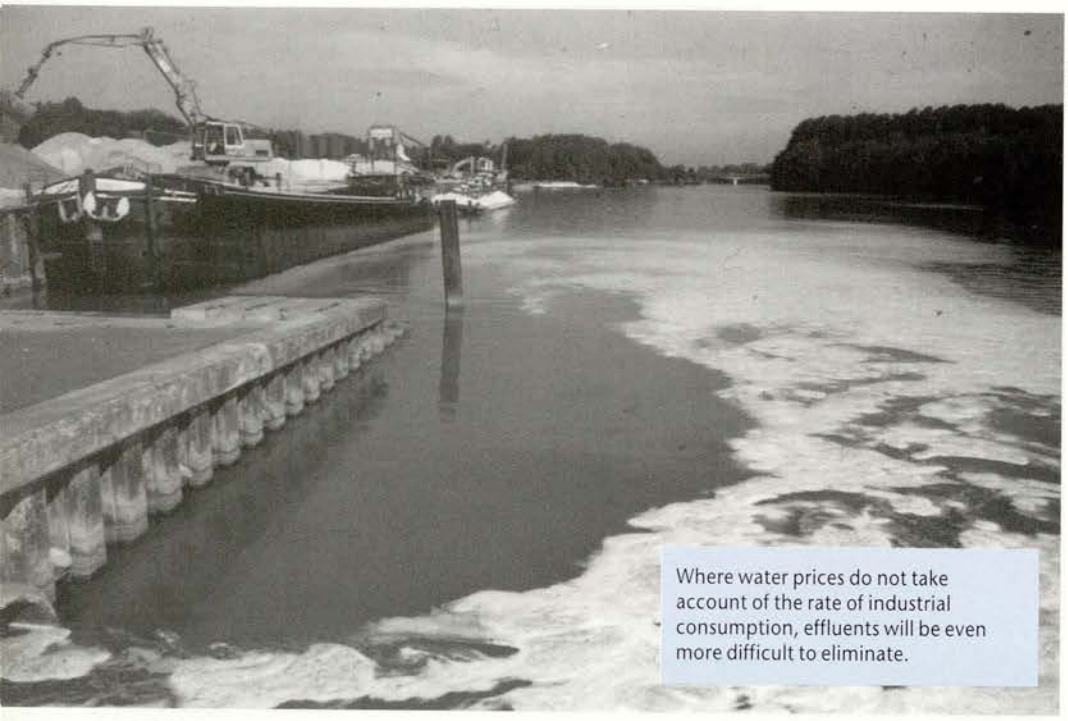
8. See pp. 11–16.

9. ***Managing the Environment: The Role of Economic Instruments***, *OECD Publications, Paris, 1994.*

10. The Swedish Experience: Taxes and Charges in Environmental Policy, *Ministry of the Environment and Natural Resources, Stockholm, 1994.*

11. Michel Potier, 'Agreement on the Environment', **The OECD Observer**, No. 189, August/September 1994.

Integrating Environment and Economy



Valls/Ferrican

Where water prices do not take account of the rate of industrial consumption, effluents will be even more difficult to eliminate.

creased co-operation between the finance and environment ministries. Sectorial forecasting models can also be extremely useful for evaluating the environmental impact of the expansion of a given sector such as transport or tourism.

To make these models better known and promote their use, the OECD has undertaken a systematic inventory and analysis of the available methods for carrying out a monetary appraisal of the benefits of environmental policies or environmental damage.[12] Much progress has been made in developing these methods in recent years, but they are still highly technical. This no doubt explains why the results they have produced have had little impact on the decision-making process, except perhaps in Germany and the United States where economists have been more successful in gaining acceptance of their methods.

On the other hand, all OECD countries now have legislation that incorporates environmental impact assessments. Until mid-1985, most EIAs were carried out for individual projects, but since then the trend has been to broaden their scope and to extend the concept to programmes and policies. This practice, known as strategic environmental assessment, may involve assessing particular government measures in the light of their environmental impact. This is an interesting approach, for it is a step towards increased policy integration, but its influence is as yet hard to judge.

The development of environmental indicators can also contribute to more integrated decision-making. This is a long-term project in which the OECD is playing a major role by participating in the development of three sets of indicators: the measurement of environmental performance, the integration of environmental concerns into sectorial policies (energy, transport, forestry, agriculture) and of environmental concerns into economic policies through environmental accounting.[13]

■■

The integration of environmental, economic and sectorial policies remains a key factor for implementing sustainable development policies. It will require a strong political commitment to develop broader and more effective co-operation among those responsible for environmental policy and other policies at all strata of government, as well as between government and the private sector, non-governmental organisations and, more generally, the public at large. Given the scope of this task and the relatively modest progress achieved so far, the integration of environmental and economic policies will remain a major challenge for OECD countries in the years to come. ■

12. ***Project and Policy Appraisal: Integrating Economics and Environment***, *OECD Publications, Paris, 1994*; ***The Economic Appraisal of Environmental Projects and Policies: A Practical Guide***, *OECD Publications, Paris, 1995.*

13. Natural Resources Accounts: Taking Stock in OECD Countries, *OECD Environment Monograph No. 84, OECD, Paris, 1994*; Environmental Accounting for Decision-Making – Summary Report of an OECD Seminar, *OECD Environment Monograph No. 133, OECD, Paris, 1995 – both available free of charge from the Economics Division of the OECD Environment Directorate.*

OECD Bibliography

- **Integrating Environment and Economy: Progress in the 1990s**, forthcoming 1996
- **The Economic Appraisal of Environmental Projects and Policies: A Practical Guide**, 1995
- **The Uruguay Round: A Preliminary Evaluation of the Impact of the Agreement on Agriculture in the OECD Countries**, 1995
- Carmel Cahill, 'OECD Agriculture after Uruguay', **The OECD Observer**, No. 196, Ocotber/November 1995
- **The Environmental Effects of Trade**, 1994
- Michel Potier, 'Agreement on the Environment', **The OECD Observer**, No. 189, August/September 1994
- **The Contribution of Amenities to Rural Development**, 1994
- Philippe Muheim and Priscilla Salant, 'Capturing the Value of Rural Assets', **The OECD Observer**, No. 190, October/November 1994
- **Managing the Environment: The Role of Economic Instruments**, 1994
- **Project and Policy Appraisal: Integrating Economics and Environment**, 1994
- **Natural Resources Accounts: Taking Stock in OECD Countries**, 1994.

The Evolution of Eco-taxes

Jean-Philippe Barde and Jeffrey Owens

The idea of using economic, and in particular fiscal, instruments for environmental protection is gaining support; indeed, a number of experiments have taken place in OECD countries. In particular, the potential of tax measures for tackling cross-border environmental problems is now subject to intense analysis and debate, as part of a heavier reliance on the use of economic instruments in environmental policy.[1]

Lower taxes on diesel than on other forms of fuel has increased atmospheric and noise pollution, especially in towns.

In recent years interest has been growing in using charges and taxes on polluting emissions and products, tradable emission permits and deposit-refund systems and other economic instruments (EIs) to achieve environmental policy objectives more effectively and at lower cost. Indeed, the last decade has witnessed a significant increase in the use of such instruments in OECD countries.

The largest number of EIs in use in OECD countries involves charges and taxes. Charges are usually payments for services rendered (for example, for waste collection or sewage treatment); taxes, by contrast, are not earmarked for specific environment or other purposes. But this distinction is not clear-cut, and the terms are often used interchangeably since both have a fiscal or quasi-fiscal character.[2]

The 'greening' of taxes can be done in two complementary ways. One involves the restructuring of existing taxes by raising the relative prices of products and activities that generate more pollution than others. This approach is being pursued by a number of OECD countries and is attracting growing interest in others. For instance, 16 OECD countries have introduced differentiation between the taxation of leaded and unleaded petrol. In ten countries, car sales and/or annual vehicle taxes have been modified to stimulate the purchase and use of vehicles that produce less pollution.

A second approach is to introduce new 'eco-taxes', specifically aimed at raising the prices of products which create pollution as they are manufactured, consumed or disposed of. Examples include special taxes on lubricants, fertilisers, pesticides, non-returnable containers, mercury and cadmium batteries, 'feedstock' chemicals and packaging materials (box, pp. 14–15).[3] In most cases, the eco-taxes are implemented on an *ad hoc* basis to tackle specific environmental problems. For example in France, a sulphur tax was introduced in 1985, and environmental taxes applied to a variety of industrial air pollution emissions in 1990. In Belgium, a more systematic approach is followed: under the

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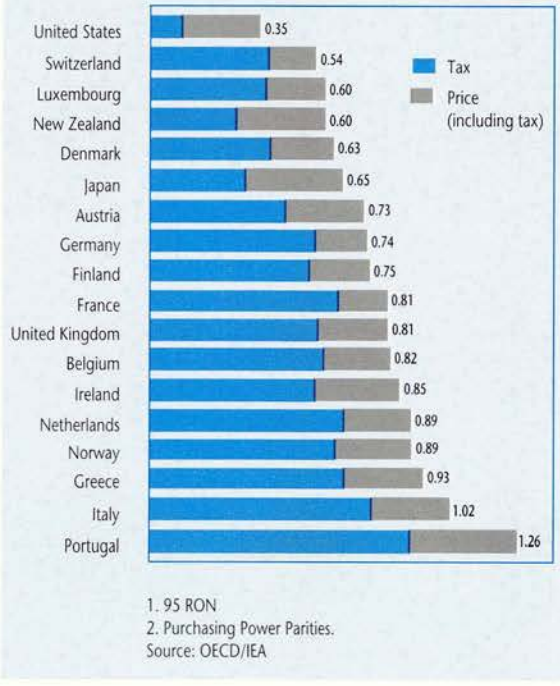
1. ***Implementing Strategies for Environmental Taxes***, *OECD Publications, Paris, forthcoming 1996.*

2. ***Environmental Taxes in OECD Countries***, *OECD Publications, Paris, 1995.*

3. *Candice Stevens, 'The Environmental Life-cycle and Trade',* ***The OECD Observer****, No. 188, June/July 1994.*

The Evolution of Eco-taxes

Figure 1
Prices and Taxes in Unleaded Gasoline,[1] 1994
$PPP[2] per litre



1. 95 RON
2. Purchasing Power Parities.
Source: OECD/IEA

'Eco-tax Law' of 1993, eco-taxes have been introduced for a wide range of products – drink containers, disposable razors and cameras, selected packaging for industrial use, pesticides, paper and batteries.

Tax Reforms

New eco-taxes have to be carefully integrated into tax stuctures. The modification of existing taxes is similarly complex: although some existing taxes – on transport use and the consumption of energy – can be easily identified as 'environmentally relevant' and beneficial, others may have perverse effects. Indeed, there are many taxes which contribute to environmental degradation, and produce what are viewed by the environmental community as 'market or intervention failures'. Tax breaks for industrial or agricultural use, for example, can induce the degradation of wetlands, and preferential tax-treatment for felling trees can encourage the over-exploitation of forests.[4]

In transport, many tax provisions result in adverse environmental effects. Preferential taxation of company cars and tax deductibility of commuting expenses promote the use of private cars, encouraging congestion, pollution, noise and accidents. Lower taxation of diesel fuel for motor vehicles (in many countries diesel taxes are half the equivalent of taxes on petrol) induce the over-development of road transport (freight in particular) as well as the multiplication of diesel-powered vehicles which can create serious pollution problems, particularly air pollution and noise in urban settings. And agricultural policy measures such as price support, can lower input prices, encouraging the over-use of fertilisers.

Some countries have already started to identify and modify such environmentally distortive taxes (those, for example, which encourage urban sprawl). This is technically difficult, and also likely to be politically perilous, as it invariably affects conflicting interests and pressure-groups, such as farmers and road-transport lobbies. Addressing these policy conflicts is nevertheless an essential prerequisite for an efficient 'green' tax reform. In particular, subsidies that have detrimental effects on the environment (in energy, transport, agriculture, manufacturing) should also be tackled in the context of broader tax reforms, since subsidies are paid out of tax revenues.

As energy is a major source of both pollution and of tax revenue, the restructuring of energy taxation is one of the most pressing and obvious paths to reform. Existing energy taxes could be restructured and/or additional eco-taxes levied. Instead of a flat rate applied to the volume of fuel used, fuel taxes could be based (at least in part) on their content of carbon and other polluting components. Indeed, several countries, particularly in Scandinavia, have done so.

Comprehensive environmental tax reforms are usually applied in a revenue-neutral manner, with additional eco-taxes being offset by the reduction of other taxes, so as not to increase the total burden. A major tax reform in Sweden in 1991, for example, was based mainly on a substantial decrease in income taxes, compensated for by the introduction of a variety of new eco-taxes, in particular on carbon dioxide, sulphur and nitrogen oxides. This resulted in a redistribution of the tax burden equivalent to 6% of the GDP. A similar path has been followed in Norway since 1992. Denmark is also committed to implementing a comprehensive tax reform over the period 1994–98.

To be most effective, for taxes on pollution emissions, the payment should be linked to the quantity of pollutants generated. But measuring emissions is not always easy, and can be costly. Emission taxes may thus prove difficult to implement, the more so when the discharge of a given activity is a complex mix of different substances (for example, discharges into water from chemical or pulp and paper industries usually comprise a mix of organic matters, particulates and chemicals such as chlorine and heavy metals). A compromise often has to be found between sophisticated linkage formulas and over-simplified ones. Yet a loose linkage will produce little incentive and guidance to the taxpayer to reduce his emissions. Generally speaking, the linkage should be as direct as possible and the tax base simple and explicit.

Tax rates should be high enough to ensure that environmental goals are achieved. In reality, taxes will often reflect compromises between conflicting aims and interest-groups. Taxpayers will exert pressure to minimise the impact of taxes, and conflicts may arise between the treasury and the environment department over the objectives and desirable levels of proposed eco-taxes. In addition, the more environmentally effective an eco-tax is, the faster its

4. ***Market and Government Failures in Environmental Management: Wetlands and Forests***, *OECD Publications, Paris, 1992; see also pp. 47–50.*

5. The St Petersburg Guidelines on Environmental Funds in the Transition to a Market Economy, *OECD, Paris, 1995, available free of charge from the Non-Member Countries Branch of the OECD Environment Directorate; see also pp. 29–32.*

6. *See pp. 17–21.*

revenue will decrease as the taxable base diminishes. The Swedish sulphur tax, for example, which triggered a 40% decrease in the sulphur content of fuel oil between 1990 and 1992, accomplished its environmental objectives but resulted in much lower revenue than the Treasury expected. Thus, although environment authorities will try to apply a rate high enough to achieve the environmental goal of the tax, treasuries may prefer to opt for a lower tax, which is less environmentally effective but ensures a more sustainable and predictable revenue yield.

Using the Revenue

Whether revenues from eco-taxes should be earmarked for specific environmental purposes or remitted to the general treasury is also strongly debated. In fact, environmental taxes and charges are widely earmarked in OECD countries; indeed, that was often the driving argument for their introduction (in particular for water- and waste-management). Earmarking often presents a clear advantage in gaining public acceptance and political support. It may also be necessary and effective in financing 'catching-up' measures for the economies in transition and developing countries.[5]

But there are pitfalls. In particular, earmarking runs against conventional wisdom in tax policy since it could reduce the latitude of the government in allocating tax revenue. It can lead to undesirable patterns of state spending and prevent the introduction of new, revenue-neutral eco-taxes. The purpose of eco-taxes should be first and foremost to induce less polluting behaviour, thus making unnecessary the earmarking of eco-tax revenue for environmental purposes (except in the case of user-charges which, by definition, are earmarked but not primarily designed to change behaviour).

The use of environmental taxes and environmental tax reform to accomplish other social goals is also heavily debated. With high unemployment in many OECD countries, a number of studies has attempted to evaluate whether green fiscal reforms could be devised so as to provide benefits both for the environment and for employment.[6] This so-called 'double dividend' objective is currently stimulating considerable controversy.

The European Commission has made a strong plea for a reduction of taxes on labour (in particular, social-security contributions paid by employers) which would be offset by a proposed tax on carbon emissions; the double dividend would be a concurrent reduction in carbon emissions and an increase in employment. The existence and size of the double dividend would depend on how much effect the reduction of taxes on labour would have on job-creation and how much of the burden of the environmental tax would be borne by labour. The effects on employment are difficult to determine and would undoubtedly vary substantially among countries. The available evidence seems to suggest a potential double dividend, but one very limited in scope and in time. This approach is not likely to make a significant contribution to the solution of structural unemployment problems.

Distributive Implications

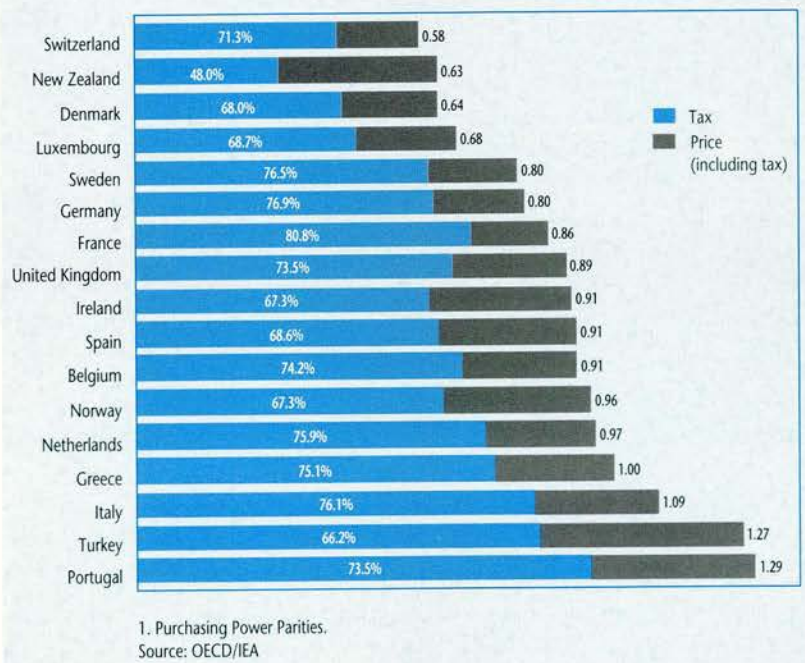
The distributive implications of environmental taxes are a growing concern. Eco-taxes, applied to mass-consumption products such as packaging, batteries, motor vehicles, energy and other necessities have an impact on virtually all consumers, but in a relative sense hit lower-income households most heavily. Eco-taxes on production (for instance, input taxes on industry and agriculture and emission taxes) will also be reflected in higher prices to the consumer – as intended.

Yet a distinction must be made between rather low and limited eco-taxes, say, on packaging, batteries, fertilisers and detergents, for example – and on higher and more general taxes, such as energy taxes. It is the first category that prevails in most OECD countries. Although product-specific eco-taxes are still limited in scope, they do not seem to have any discernible distributive impact, although there are as yet no solid empirical studies to offer confirmation or contradiction.

But major taxes, as on energy, are quite different. Several recent studies, for example, have estimated the potential distributive impact of carbon taxes. One analysis of the possible distributive impact of the proposed EU carbon tax in the

(continued on p. 16)

Figure 2
Prices and Taxes in Leaded Gasoline, 1994
$PPP[1] per litre



1. Purchasing Power Parities.
Source: OECD/IEA

The Evolution of Eco-taxes

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Environmental Taxes and Charges in OECD Countries, 1 January 1995

Environmental Tax Measures	*Motor Fuel* Leaded/unleaded (differential)	Diesel (quality differential)	Carbon/energy taxation	Sulphur taxation	Other excise taxes (other than VAT)	*Other Energy Products* Carbon/energy taxes	Sulphur tax	NO_x charge	Other excise taxes	*Vehicle-related Taxation* Sales/excise/registration tax differential (cars)	Road/registration tax differential (cars)	*Agricultural Inputs* Fertilisers	Pesticides	*Other goods* Batteries	Plastic carrier-bags	Disposable containers	Tires	CFCs and/or halons	Disposable razors	Disposable cameras	Lubricant oil charge
Australia	•				•				•									•			
Austria					•				•												
Belgium	•				•				•	•	•			•		•			•	•	
Canada					•					•	•						•				
Denmark	•	•	•		•	•	•		•	•	•		•	•	•		•	•			
Finland	•	•	•		•	•			•	•			•			•					•
France	•				•		•	•	•												
Germany	•				•				•		•										
Greece					•				•	•											
Iceland	•				•					•	•				•	•					
Ireland	•				•				•	•	•										
Italy	•				•				•	•	•										
Japan					•				•		•										
Luxembourg	•				•				•												
Mexico	•				•				•	•	•										
Netherlands	•		•		•	•			•	•	•										
New Zealand	•				•																
Norway	•	•	•	•	•	•	•		•	•	•	•	•			•					•
Portugal	•				•					•											
Spain	•				•				•		•										
Sweden	•	•	•	•	•	•	•	•	•	•	•	•	•	•							
Switzerland	•				•				•	•	•										
Turkey	•				•					•	•										
United Kingdom	•				•				•												
United States					•				•	•							•	•			

	Oil pollution charge	*Direct Tax Provisions*	Environmental investments/ accelerated depreciation	Employer-paid commuting expenses as part of taxable income	Free parking as part of taxation income	Commuting expenses deductible from taxable income only if public transport used	*Air Transport*	Noise charges	Other taxes	*Water Charges and Taxes*	Water charges	Sewage charges	Water effluent charges	*Waste-Disposal and-management Charges*	Municipal waste	Waste-disposal charge	Hazardous-waste charge
Australia	•		•	•	•			•			•	•	•		•	•	•
Austria																•	
Belgium								•								•	•
Canada			•						•						•		
Denmark			•	•							•	•			•	•	
Finland	•		•	•							•	•			•		•
France			•					•			•		•		•	•	•
Germany				•				•			•	•	•		•	•	•
Greece																	
Iceland												•			•		•
Ireland																•	
Italy																•	
Japan																	
Luxembourg																	
Mexico												•	•				
Netherlands			•					•				•	•		•	•	
New Zealand																	
Norway			•					•	•		•	•			•	•	•
Portugal			•	•					•			•	•		•	•	•
Spain				•								•			•	•	
Sweden				•					•			•			•		
Switzerland								•							•	•	
Turkey												•				•	
United Kingdom				•							•	•			•	•	
United States			•	•	•	•			•		•	•			•		•

Source: OECD

The Evolution of Eco-taxes

Eco-taxes on non-returnable containers have been introduced in a number of countries.

United Kingdom shows that it would have a substantially larger impact on the energy consumption of poorer households than others: a carbon tax of $10 per barrel would reduce overall domestic consumption by 6.5%, but it would reduce by 10% the consumption of the 20% poorest households.[7] Available evidence suggests large differences in the potential distributive impact of the proposed carbon taxes in European countries, but in most cases, the regressive incidence would be small.[8]

Nevertheless, because of the growing number and coverage of eco-taxes, their distributive implications will require careful analysis and sustained vigilance. Corrective measures may be required to the benefit of the poorest members of society or of the most affected sectors of the economy. Such measures should be carefully designed: tax rebates or exemptions may erode the incentive effect of the tax so that lump-sum transfers would be preferable.

Trade Implications

Proposals for eco-taxes are often contested by claims that they will hurt industrial competitiveness. Another concern is that industries will be induced to relocate to other countries where eco-taxes do not exist or are lower – the so-called 'pollution haven' effect. But there is little evidence to support such assertions.

It is clear, though, that environmental policy in general has a potential impact on trade and competiveness; eco-taxes are only one of the instruments applied. It is the compound effect of the mix of policy instruments – regulations, tradable permits, and so on – that matters (although it is extremely difficult to disentangle the effects of these different policy instruments). And there is no firm evidence so far that environmental policy has had substantial effects on trade. Various empirical studies indicate either that the impacts on the balance of trade are marginally beneficial or marginally adverse. Some simulations do predict somewhat stronger effects on competitiveness for particular sectors of the economy with relatively higher costs in pollution-control (iron and steel, chemicals).

A distinction must also be drawn between short- and long-term restructuring effects. In the longer term, eco-taxes should lead to a more efficient functioning of the economy as they operate to minimise the overall cost of pollution-abatement across sectors. But, in the short term, effects on competitiveness in highly polluting sectors of the economy may occur if high emission-taxes are adopted and, in the case of product taxes, no offsetting 'border tax-adjustments' are put in place. These adjustments involve exempting exports from a particular eco-tax, or applying the domestic tax to similar imports, thus treating domestic and imported goods equally – an approach consistent with GATT rules.

That does not mean that the trade implications of environmental taxes can be disregarded. Indeed, rightly or wrongly, this issue has become a stumbling block for the introduction of new eco-taxes. The EU carbon-energy tax proposal has failed so far largely (though not exclusively) on trade grounds: EU countries are reluctant to apply it as long as competitors will not commit to applying similar measures (the so-called 'conditionality clause'). And, when eco-taxes are introduced unilaterally, exemptions are often granted by the particular government to the domestic firm likely to be affected by international competition, as is the case of carbon taxes in the Scandinavian countries. The EU carbon-energy tax proposal also provides for exemption of energy-intensive industries.

The issue of border tax-adjustments is far less clear with emission or input taxes than with taxes on products. Under the current interpretation of GATT rules, emission taxes do not qualify for border tax-adjustments. The situation is unclear for input taxes, such as energy taxes: the Uruguay Round allows energy taxes to be remitted on exported goods, but is silent on whether a border-tax adjustment can legally be applied to imports. These rules must therefore be clarified.

▪▪

Environmental taxes seem to be at a crossroads. Both fiscalists and environmentalists have come to an agreement on their usefulness and potential. Although a number of such taxes have been applied in most OECD countries, only a small number of countries have put in place comprehensive 'green' tax reforms. Further progress depends upon stronger political will to improve the efficiency and effectiveness of environmental policy, and further international co-operation to mitigate real or alleged trade implications. ▪

OECD Bibliography

- **Implementing Strategies for Environmental Taxes**, forthcoming 1996
- **Environmental Taxes in OECD Countries**, 1995
- **Life Cycle Management and Trade**, 1994
- Candice Stevens, 'The Environmental Life-cycle and Trade', **The OECD Observer**, No. 188, June/July 1994
- **Market and Government Failures in Environmental Management: Wetlands and Forests**, 1992.

7. *M. Pearson and S. Smith*, The European Carbon Tax: An Assessment of the European Commission Proposals, *Institute of Fiscal Studies, London, 1991.*

8. *S. S. Scott, 'Theoretical Considerations and Estimates of the Effects on Households', in J. FitzGerald and D. McCoy (eds.).* The Economic Effects of Carbon Taxes, *Policy Research Series, Paper No. 14, The Economic and Social Research Institute, Dublin, 1992.*

A 'Green' Impact on Jobs?

Jean-Philippe Barde and Michel Potier

Although the economic impact of environmental policies may be slight, their actual or potential consequences for employment have always aroused heated debate. Some commentators hold that environmental protection threatens jobs by saddling the productive sector with unnecessary constraints. Others see it as an opportunity and a source of employment in new activities. Beginning in the 1970s, as the industrialised countries were adopting their first environmental policies, the argument has had its ups and downs, taking on tones that change with the times.[1]

In the early 1970s, with a booming economy and full employment, the impact of environmental policies on employment was hardly ever seen as a problem. The oil crises of 1974 and 1979 brought it centre-stage. It was felt at the time that environmental spending was diverting resources from the 'productive' sector, which generated value-added and employment. When recession started forcing companies out of business, the blame was sometimes laid on environmental constraints. At the beginning of the 1980s, the debate took on a more scientific dimension, thanks to a series of macro-economic and sectorial studies on the effects of environmental policies. Most of those studies indicated that the net impact on jobs was very slight – slightly beneficial or slightly adverse.

Between 1990 and 1994, the ranks of the unemployed in the OECD countries swelled from 25 million to 35 million (or to 8.5% of the workforce). Although no one now questions the importance of environmental policies, industry and unions sometimes voice their suspicions that measures intended to protect the environment can destroy jobs; other commentators persist in contending that the environment creates jobs instead.

The problem is not a simple one. Three series of questions arise. If the environment creates employment, what is meant by 'environmental jobs', and how many of them are there? How does the environment create or destroy work? And can one co-ordinate, even integrate, environmental policies and employment policies?

What are 'Environmental Jobs'?

There are many types of environment-related jobs, foremost among which are a whole series of pollution-abatement activities. The so-called 'eco-industries' sector includes manufacturers of pollution-abatement materials and equipment, measuring systems, and so on. But the exact definition of the sector itself is not easy. Some kinds of equipment, such as waste-water purification devices, are classed under construction and public works; should jobs in the building of a sewage network or other drainage systems be categorised as environmental employment?

In addition, the environmental sector is increasingly becoming one of service industries: engineering, impact studies, environmental auditing, and so on. Although some research consultancies specialise in the environment, others take on such work only periodically. The most sensitive area involves new emission-reducing technologies that are built directly into production processes; for these so-called 'clean technologies' it is extremely difficult, if not impossible, to estimate the proportion of total expenditure and employment that could be attributed to the environment.

A further complication is that the environment touches upon an extremely diverse variety of activities and sectors. Waste offers an example. Is collecting household refuse an environmental job? Some countries assume it is, others don't. Is supplying drinking-water an environmental activity? And what about energy-saving activities? In nature protection, there are any number of jobs (in park maintenance, gamekeeping and the like) that might, or might not, be deemed environmental. It is interesting, too, to distinguish between work in the public and private sectors and to categorise the forms that employment takes.

In short, it is anything but easy to ascertain the meaning of 'environmental employment', and definitions, when they exist at all, differ from country to country. Furthermore, statistics are thin on the ground. The available data gathered by the OECD show that direct and indirect environmental employment varies between 1 and 2% of the labour force in most member countries: 1.7% in France (418,000 people), 1.9% in western Germany (546,000 people), 3% in the

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1. ***Environmental Policy and Employment***, *OECD Publications, Paris, forthcoming 1996.*

A 'Green' Impact on Jobs?

FOCUS

The Potential for Co-ordination between the Environment and Employment

- *Using spending on environmental protection as a government-sponsored recession-fighting programme.*
- *Focusing job-creation programmes on environmental protection activities.*
- *Integrating special programmes for environmental protection with job-creation schemes. For example, the Green Jobs programme in Ontario is expected to create 11,000 jobs between 1993 and 1996.*
- *Active policies for environmental employment, through training schemes for specialists in various disciplines and techniques related to environmental management, redeployment of the unemployed into environmental protection activities, pilot projects, and the creation of new environment-related businesses and activities.*
- *Measures for preserving employment that is jeopardised by environmental regulations (temporary subsidies and exemptions, deferred compliance, phased-in enforcement).*
- *Tax reform aiming for a 'double dividend' whereby the taxation of labour (and employers' social contributions in particular) is reduced but the shortfall in tax revenue is offset by new eco-taxes.*
- *Developing new activities and new industries in recycling, extending product lifetimes, re-use and maintenance.*

Do these men work in the environmental sector? Some countries think so, others do not.

Decout/REA

United States (4 million jobs). These figures fairly closely match environmental expenditure, which in the OECD countries hovers between 1 and 2% of GDP. Table 1 consolidates the data available on direct employment in the environmental-protection sector.

Job Destruction or Creation?

Although the data available point to an important, if limited, volume of environmental employment, the question that has to be asked is whether, from a long-term, macro-economic standpoint, these jobs represent a net gain or simply work that has vanished somewhere else, for example, in the sectors hit hardest by environmental constraints. The environment – and pollution-abatement in particular – can, in fact, damage employment, and in such a variety of ways that some observers even refer to the environment as a 'job killer'.

Clearly, the environment does have a cost. Outlays (capital investment and operating costs) for pollution-abatement, for example, may have a detrimental impact on other, more directly productive, forms of investment and can affect a company's competitive position. Although average environmental expenditure is limited (1–2% of production costs), industries that are major polluters (chemicals, cement, pulp and paper, agro-food) can be affected more deeply. Even though certain marginal industries or sectors may be hurt by having to make even minimal environmental protection expenditure, there are scarcely any data to suggest that plant closures have been primarily, let alone exclusively, caused by environmental considerations. In the case of financially troubled marginal businesses, the environment is only the last straw in an accumulative process of unprofitability. A study by the US Bureau of Labor Statistics shows that, in 1988, American employers estimated that only 0.1% of layoffs could be attributed to the environment.

The environment can also weigh on employment when complex, drawn-out administrative procedures block or delay new investment, expansion or the creation of new facilities. The construction of new pollution-generating plants may be prohibited in some areas. A question encountered more and more frequently is whether these businesses move ('relocate') to other countries with less stringent regulations or which are not as keen to enforce them. Here, too, there are no compelling data on instances of corporate relocation genuinely being

*2. Rolf Alter, 'Foreign Investment: Engine for Employment?', **The OECD Observer**, No. 190, October/November 1994.*

3. See p. 8.

4. 'Economische gevolgen van een NMP scenario', mimeo, Central Plan Bureau, Amsterdam, 1989.

Table 1
Direct Employment in the Environmental Sector

	Years	Environment Industry[1]	Environmental Services[2]		Total	Share of total employment
			Private	Public		
		thousands	thousands		thousands	%
Australia	1993	..	..	..	10.8	0.15
Austria	1993	..	5.7	3.3	9.0	0.26
Canada	1992	..	..	..	60–70	0.53
Denmark	1990	19.2	..	3.7	22.9	0.86
Finland	1990	15.0	..	..	15.0	0.60
France	1992	110.0	139.0		249.0	1.12
Germany	1993	171.5	90.0	67.0	328.5	0.94
Italy	1990	9.6	..	..	9.6	0.05
Japan	1991–93	550.0	172.9	91.3	814.2	1.27
Netherlands	1992	18.0	6.4	..	24.4	0.37
Norway	1993	4.1	..	..	4.1	0.20
Switzerland	1990	15.6–18.3	..	..	15.6–18.3	0.44–0.51
United Kingdom	1991–92	38.5	103.2		141.7	0.55
United States	1992	..	..	..	1,385.0	1.18

.. not available
1. Estimates based on widely different national definitions.
2. Mainly waste and waste-water management (excluding water utilities).
Source: OECD

prompted by environmental regulations, especially since other factors (labour costs, infrastructure, taxation, proximity to markets, etc.) carry far more weight in investment decisions.[2]

As a rule, any role that the environment might play in job losses is tiny compared to the powerful structural and cyclical factors that underlie contemporary underemployment.

But the environment can also create employment. The figures, limited though they are, point to a sizable number of environmental jobs (Table 1). Environmental constraints stimulate both technological innovation and the 'eco-industries' sector, which is expanding rapidly (by more than 5% a year in the OECD area) and is a big exporter. In addition, from a macro-economic viewpoint, environmental expenditure has an expansionist effect by increasing demand for intermediate goods and services (through the investment multiplier and accelerator). All of the economic models that assess the employment impact of environmental policies indicate that the overall effect, although admittedly slight, is more beneficial than adverse over the long term.

One decisive factor is the degree of international co-ordination of the policies pursued. The impact on employment is more positive when competing countries apply similar environmental policies. A recent study in the Netherlands, for example, assessed the macro-economic consequences of various scenarios for sustained development (implementation of the 1989 national environmental plan[3]): the employment impact of a substantial increase in spending on the environment, to 4% of GDP, would be positive in the medium term and slightly negative later on.[4] But if the Netherlands' main trading partners were to carry out similar policies, the effect on jobs would be clearly beneficial (Table 2). In France, it is estimated that the water authorities' sixth five-year plan (1992–96), costing $7.5 billion, will have created a net total of 33,000 new jobs by the time it is completed.

Mutual Benefits?

Can environmental policies be tailored and implemented in a way that is conducive to employment? According to the OECD study, several aspects and operational features of environmental policy have a direct or indirect potential for job-creation (box, far left).

Environmental Expenditure as a Weapon against Recession

Spending on environmental protection, especially if it encourages such highly labour-intensive activities as refuse-collection and re-cycling, waste-water treatment and reclamation of polluted sites, can be used as a tool to stimulate the economy and create jobs. This (typically Keynesian) approach was put into practice in the early 1970s, not least in Germany and Sweden, where government specifically earmarked stimulus packages for environmental protection. But as budget deficits swelled, this approach had to be dropped, although a number of new programmes have recently been implemented or proposed (box, p. 20, left). For example, the European Commission's White Paper on Growth, Competitiveness and Employment (1994) projects ECU314 billion in environment-related spending by around 2005.

Combined Environmental/ Employment Policies and Programmes

The aim here is to make environmental protection measures and job-creation programmes mutually beneficial. Three approaches are possible.

The first is to have job-creation programmes 'target' the environment. For instance, if an injection of public funds is to create jobs in a given region or sector, all or part of those appropriations can be earmarked for environmental protection activities. Such actions usually have limited time-frames and are confined to specific sectors or regions suffering from underemployment. In the 1970s and '80s, most programmes of this type made it financially

Table 2
Macro-economic Impact of the Dutch Environment Strategy
Scenario III: Maximum use of existing environmental technologies

Accumulated effects in 2010	Middle Projections	Deviations from Middle Projections	
		A[1]	B[2]
GNP volume (%)	+99.4	–4.2	+0.5
Consumption (%)	+120.0	–2.1	–1.2
Employment (x 1,000)	+1,200.0	–20.0	+65.0
Unemployment (x 1,000)	–400.0	+18.0	–58.0
Public debt (%)	–1.8	+1.6	+1.1

1. Without the same policy measures by trading partners.
2. With the same policy measures by trading partners.
Source: Netherlands Central Planning Bureau

A 'Green' Impact on Jobs?

possible to make up for lost time in investment in the abatement of air- and water-pollution. In Germany, 51,000 jobs were created in this manner between 1974 and 1978, and 11,800 in Denmark between 1975 and 1983. Since then, other similar programmes have been launched (box, below). For instance, a portion of eastern Germany's job-creation effort was directed towards environment-related activities: some 117,000 environmental jobs were created between 1991 and 1992. In France, in 1993, 45,000 'employment-solidarity contracts' were drawn up for environmental work (including 5,000 for river maintenance).

Such co-ordination between employment and environmental concerns can take a variety of forms, which include:

- initiating or expediting projects that subsequently become viable
- aiding local initiatives that could not survive without state subsidies
- creating small local pollution-abatement facilities
- underwriting the environmental aspects of bigger projects
- financing pilot projects, such as demonstrations of new pollution-abatement devices
- aiding local environmental protection organisations or associations.

A second, somewhat symmetrical, approach is to begin by assessing environmental protection requirements and objectives and then to meet them in such a way as to create the maximum number of jobs. With this kind of approach, environmental and employment aspects can be integrated more closely, through measures that are more structural in nature and are taken farther upstream. For example, based on pollution-abatement objectives, measures to develop clean technologies that generate employment (in research, development, pilot projects, spreading information, promoting exports, and so on)

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Government Spending Programmes for Environmental Protection

European Union
Commission White Paper on 'Growth, Competitiveness, Employment' (1994); financial support from the EU for large environmental projects in the member states ECU 314 billion by 2005

Denmark
Government package 'A New Growth Perspective'
DKK 230 million in 1994 for environmental projects; to be continued

France
'Environment Package' of the Plan to Stimulate Economic Activity (1993); FF 1.8 billion

Germany
Various regional spending programmes, of which: Schleswig-Holstein Programme 'Jobs and Environment'
DM 90 million for environmental investments in 1991
North-Rhine Westphalia's 'Future-oriented Investment Programme for Jobs and Environment' (1995–99: DM 13.1 billion)

Sweden
Government support of projects creating jobs in the environmental sector
SKR 400 million in 1994; SKR 100 million in 1995

Switzerland
'Arreté fédéral de 1993' for public investment enhancement
SF200 million for environmental projects

Canada
'Infrastructure Renewal Program' including environmental projects

Japan
Investment Programme for the Improvement of the Quality of Life
¥630 billion by 2005 (including environmental infrastructure investment)

Sources: OECD, European Commission.

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Active Employment Policies in Environmental Activities

Canada
Green Industry Strategy (1994)

Denmark
'New Growth Perspective' Package includes training programme for long-term unemployed (285 in 1994)

France
Promotion of environment-related occupations and qualifications: target of creating 35,000 'green jobs' within 2 years (Law of 27 July 1993); budget: FF 300 million

Germany
Industry Promotion Fund of Lower Saxony (1994): Supports firms' expenditure on environmental auditing and training; Environmental Consulting & Services (B&SU) Berlin: supports transition from job creation in the 'undeclared' labour market to competitive jobs via enterprise creation; annual budget: DM86 million

Netherlands
Promotion of corporate environmental management systems (1990–94): includes education activities

Spain
'Programa Industrial y Techológico Medioambiental' (PITMA): supports training for professionals in engineering firms

United Kingdom
'High Technology National Training Programme': to stimulate provision of occupational training in high-tech skills: about £1 million, for environment related technologies (1992): discontinued in April 1993

European Union
'Youthstart' programme to provide training and education for young people under 18 (also in environmental activities)

Sources: OECD, European Commission and IFO (Munich).

In 1993 France drew up 45,000 'employment-solidarity contracts', including 5,000 for river maintenance.

would be put in place. Policies to promote and export pollution-abatement technologies are carried out, in various forms, in a large number of countries. Another type of approach is illustrated by Ontario's Community Development Programme, which consists of local initiatives to enhance waste and water management and boost energy efficiency, leading to the creation of new activities and stimulating local production; 11,000 jobs will have been created between 1993 and 1996. Several specific projects for sustainable development – say, of renewable sources of energy, or of waste recycling – have considerable potential for creating employment.

'Active employment policies' consist in setting up special training programmes in environmental protection and management, in order to develop the new skills required. In Denmark, the so-called 'New Growth Prospects' initiative includes training schemes for the long-term unemployed. In the United Kingdom, the High Technology National Training Programme (1992–93) earmarked £1 million for training in environmental technologies. Similar programmes exist in Canada, France, Germany, the Netherlands and Spain.

Labour taxes that are too heavy can have a detrimental impact on employment. For this reason, it has been suggested that this burden be reduced, replacing it, at least in part, with eco-taxes (on carbon in particular) in order to maintain a steady inflow of tax revenue. This would yield a 'double dividend', reducing underemployment and improving environmental protection.[5] Numerous discussions of the true extent of this double dividend have taken place. The European Commission strongly advocates such an approach, which is under study in a number of countries. In the United Kingdom, the new landfill tax, applicable in 1996, will be offset by a reduction in employers' national-insurance contributions.

■■

Although environmental and employment policies are not truly complementary, they are in no way incompatible and, in some cases, can be mutually reinforcing. The fears and accusations which hold that environmental policies destroy jobs are entirely unfounded. In the long run the employment impact, although slight, is likely to be more beneficial than damaging. Even though it is not the aim of environmental policies to create jobs, the experience of the OECD countries over the past twenty years shows that a whole series of measures and policies have made it possible to combine environmental protection with job-creation. Most of the time, such measures have been taken on a case-by-case basis and are limited in scope. For this reason, although a certain form of complementarity between environmental and employment considerations can exist in specific situations, it cannot be said that the environment is a powerful engine of job-creation – nor, for that matter, that it constitutes a threat to employment. Even so, if forecasts of rapid growth for the eco-industries prove accurate, the impact on employment can be expected to become more favourable. ■

5. *See pp. 11–16.*

OECD Bibliography

- **Environmental Policy and Employment**, forthcoming 1996
- **Foreign Direct Investment, Trade and Employment**, 1995
- Rolf Alter, 'Foreign Investment: Engine for Employment?', **The OECD Observer**, No. 190, October/November 1994.

Testing Pesticides

Jeanne Richards

What would you do if you were a government regulator with too much work, too small a staff, a limited budget – and a queue of legislators, journalists, industry and environmental representatives and others pounding on your door, demanding that you meet impossible deadlines? Pesticide regulators in OECD countries have recently come up with a promising solution to this problem – reducing their workload by tackling it together. Rather than proceeding as before, with each country working away at its own programme to assess and control pesticide risks, the OECD countries are finding ways of sharing their common tasks and thereby reducing the amount of work faced by each individually.

Anyone who has used insecticide in the home or weed killer in the garden will have noticed safety warnings on the label along with the instructions for use. Depending on the particular hazard of a pesticide, the warnings may tell the user to wear rubber gloves, to avoid inhaling vapours, to remove pets from the area to be treated, and so on. Pesticides sold for use in agriculture – sometimes much more potent than those sold for home and garden use – may have stronger warnings and restrictions. For example, they may require a farmworker to wear protective equipment, to avoid spraying near water sources or on windy days, or to have special training before using the pesticide at all.

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These warnings and restrictions are based on a large battery of tests that must be done on a pesticide before it can be licensed – or 'registered' – for use in any OECD country. Both government regulators and pesticide manufacturers must devote years of work and substantial resources – millions of dollars for the manufacturers, thousands of staff hours for the government – to test and evaluate a single pesticide. The tests measure acute toxicity (to estimate the risk of poisoning) and chronic toxicity (the risk of cancer or other long-term effects). They reveal the pesticide's potential effects on the nervous and reproductive systems, and its ability to cause birth defects. They also provide data on physical and chemical properties, the way and rate at which the pesticide is metabolised, whether it causes genetic mutatations, and the residues that could appear in food. Tests also provide information about the acute and reproductive effects on birds, fish and other wildlife. They predict effects on 'non-target' plants, both aquatic and terrestrial. They show how long the pesticide is likely to persist in the environment, and whether it is likely to leach through soil into ground water.

All of this information, produced by the manufacturer, is analysed by government regulators who then must decide whether or not to register the pesticide. The regulators must also determine whether to restrict access to the pesticide to trained professionals. They must specify on what crops, plants or sites it can be used, with what intensity, and with what safety measures. And they must set limits, or 'tolerances', for residues of the pesticide that can appear in food.

The Burden of Re-registration

In recent years, pesticide regulators in OECD countries have been spending a lot of their time not on registering new products but on 're-registering' old ones. Re-registration involves re-testing and re-evaluating pesticides registered years or even decades ago when fewer, and sometimes different, health and environmental tests were required. The purpose of re-registration is to fill gaps in the data and ensure that all registered pesticide products meet current requirements.

Re-registration is a massive undertaking. Hundreds of 'active ingredients' (the part of the pesticide that does the work), and tens of thousands of products, or 'formulations' (the active ingredient plus inert ingredients), must be re-tested by industry and re-evaluated by government regulators. The job will not be finished this century. Meanwhile, a growing number of countries, as well as the European Union, have decided to institute a continuous re-registration

1. Final Report on the OECD Pilot Project to Compare Pesticide Data Reviews, *OECD Environment Monograph No. 198, OECD, Paris, 1995; available free of charge from the Environmental Health and Safety Division of the OECD Environment Directorate.*

2. Data Requirements for Pesticide Registration in OECD Member Countries: Survey Results, *OECD Environment Monograph No. 77, OECD, Paris, 1994; available free of charge from the Environmental Health and Safety Division of the OECD Environment Directorate.*

system, whereby all pesticides must be re-registered every five to seven years. This is intended to prevent the current situation from reoccurring – but it will also create more work.

The burden of re-registration is one reason that the OECD countries have decided to work co-operatively on pesticide assessment. Countries found that, to a large extent, they were all re-registering the same pesticides and evaluating the same information on health and environmental effects. So why not do it together?

Sharing the work of re-registration is not as straightforward as it sounds. The procedure is simple: it means sharing the reports that countries write when they evaluate the health and environmental effects of a pesticide. Thus, if country A has already reviewed a pesticide now under consideration by country B, country B would simply adopt country A's report as a basis for its decision to re-register, rather than reviewing the same data and writing a separate report.

But in practical terms, sharing re-registration is much more complicated. It requires countries to accept others' approaches to evaluating chemical hazards. Hazard assessment is based on 'hard facts', but it also involves a considerable amount of scientific judgement.

In 1992, when OECD countries first began working together on a series of pesticide projects – which was later to form the basis of a new Pesticide Programme in the OECD Environment Division – they were not very optimistic about the extent to which they could share the burden of re-registration. They knew little about one another's pesticide evaluation programmes but imagined there would be important differences, and that these could pose real barriers to working together.

The countries involved have already made bigger strides than they ever had predicted. They have identified the main ingredients of hazard assessment where progress toward 'harmonisation' can be made. They have found areas where countries are already in accord. Perhaps most important, they have discovered ways to share not only their pesticide evaluation reports, but also their ideas and experience. This means they can do more than reduce their workload – they also have an opportunity to improve their own national pesticide programmes.

One of the first steps in co-operation is to harmonise the data on health and environmental effects, so as to ensure that countries are evaluating the same information when they register or re-register a pesticide. Harmonisation concerns both data requirements – the types and numbers of tests required to support a pesticide registration – and test guidelines – the instructions given to prospective registrants on exactly how to carry out each study (the number and species of animals to be used, the doses to administer, the analyses to perform, and so on). Differences in either area can make it hard for countries to work co-operatively. For example, if country A requires two studies of teratogenicity (birth defects) in mammals and country B requires only one such study – or if country A insists that tests for acute toxicity to fish be done on rainbow trout while country B calls for tests on carp – they may have difficulty accepting each other's pesticide evaluations.

Two initial projects undertaken under the OECD Pesticide Programme provided important information about pesticide testing. The first revealed that, although countries had often evaluated different studies on the same pesticide, they nevertheless came to the same overall conclusion about its hazards to people and the environment.[1] The other showed that countries have similar ideas about the test data that should form the core of a pesticide registration.[2] The OECD programme is therefore working to resolve the differences and establish a more common approach to pesticide testing, through projects on data requirements and test guidelines (box, above). This should help the pesticide industry as well as government regulators, by reducing the extra testing required to comply with different national requirements.

Improving Hazard Evaluation

The next step, harmonising approaches to hazard evaluation, would seem to be a much more difficult goal. Scientists do not always agree about how to interpret test results. Knowledge is always evolving. And new discoveries can overturn previously accepted notions – about the significance of metabolic differences between humans and the laboratory animals, the best model for estimating cancer risks, the importance of secondary effects like anaemia or reduced weight gain, and so on. It might appear unrealistic to think that countries – or even scientists in a single country – will ever agree on the best way to evaluate chemical hazards.

Yet the OECD work on re-registration of pesticides has shown that progress can be made toward harmonisation without requiring individual countries to abandon their preferred approaches. Scientists participating at the outset reported that the biggest problem was not lack of familiarity with a hazard-assessment approach but lack of clarity and transparency in the reviewer's written report of an evaluation. In the few cases where a report was clear and transparent, the scientists could easily use it despite

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Developing the OECD Test Guidelines

The OECD countries have been working for more than a decade, together with experts from academia and industry, to develop guidelines for testing chemicals. These OECD Test Guidelines can be used for pesticides, but they were not developed specifically for this purpose. They also apply to pharmaceuticals, cosmetics, food preservatives, and the like. Two important advant-ages of the guidelines are that they describe precisely how studies should be done, thus ensuring consistent and high-quality study results, and that they are accepted by all OECD countries, which means a regulator who wants to use another country's pesticide evaluation can be confident that the studies reviewed conform to his own government's requirements.

Nearly 100 guidelines have been developed since OECD began its 'Test Guidelines Programme' in 1979.[1] But many more are required, especially for tests for new biopesticides and for circumstances unique to pesticides, like ex-posure of bystanders who live near sprayed fields, toxicity to honey bees and other insects that benefit agriculture, and metabolism in soil and water. Fourteen such test guidelines are now complete or under development.

1. **OECD Guidelines for the Testing of Chemicals**, 2nd edition, OECD Publications, Paris, 1993, 6th addendum, December 1995.

Pesticide Safety

FOCUS

Biopesticides: New Scope for Co-operation

The joint approach to evaluation and (re)-registration allows countries to address new issues, such as those raised by the rapidly growing market for biological pesticides or 'biopesticides'. Biopesticides can include micro-organisms like Bacillus thuringiensis, *a bacterium that stops insect larvae from developing into adults, 'beneficial' predatory insects that eat pests that attack gardens and crops, and pheromones that can confuse insects and disrupt mating. Just a few examples of the use of biopesticides: Australia has controlled the Prickly Pear cactus with the caterpillar* Cactoblastis cactorum, *and rabbits with the virus* Myxomatosis. *Japan successfully eradicated the melon fly on several islands through the release of sterile insects. California peach growers are using pheromone-based mating disruption to control Oriental fruit moth. Virtually all OECD countries use* Bacillus thuringiensis *to keep down the numbers of insects on vegetable and fruit crops and in forests.*

Many people are enthusiastic about biopesticides because they generally pose lower risks to human health and the environment than their chemical counterparts. Data requirements for biopesticides in OECD countries are relatively recent, are still evolving in some cases, and can be applied in different ways. That makes life difficult for the manufacturers – often small companies – for whom the cost of conducting different tests for different countries can be prohibitive. The OECD began work on data requirements for biopesticides in 1994, two years after beginning to tackle chemical pesticides.[1] The goal is to develop common sets of studies for both types of pesticides that will be acceptable in all OECD countries as the core of their registration procedures. Industry would then be able to reduce the number of animal tests it performs, while the registration of biopesticides could proceed more quickly and efficiently.

1. *Data Requirements for Registration of Biopesticides in OECD Countries*, OECD Environment Monograph No. 106, OECD, Paris, forthcoming 1996; available free of charge from the Environmental Health and Safety Division of the OECD Environment Directorate.

differences in approach. Language differences also posed fewer problems than expected. In an initial project, all seven countries involved managed, with only a few delays, to identify a common language or to translate reports if necessary.

The OECD countries have therefore agreed – jointly with the European Commission – to harmonise and improve the way they write pesticide evaluation reports. They are developing a detailed plan to ensure that future reports follow the same structure, are clear and readable, and include all the necessary information. They are also writing a harmonised format for data submissions from industry, so that registrants do not have to reformat their submissions every time they apply for registration in a different country.

Meanwhile, the countries are finding still other opportunities to move ahead. The OECD work on re-registration showed that they could already use one another's pesticide reports, in place of a separate national review, for test areas such as acute toxicity and fate in the environment, where the study results are especially straightforward. As a result, countries are now sharing one another's evaluations, or parts of them, in re-registration decisions. At the end of last year some 200 evaluations had been exchanged, and the OECD was establishing a data base of national evaluation schedules to facilitate future exchanges.

Several countries are also pursuing another approach to co-operative work. Canada, Germany and the United States have initiated staff exchanges lasting from a week to a month to give pesticide reviewers a chance to work directly with their foreign colleagues and compare ideas and methods. The work on re-registration has demonstrated that such co-operation not only teaches government scientists a lot about other approaches to pesticide review, but also gives them confidence in each other's work and suggests ways to improve their own programmes back home.

3. Activities to Reduce Pesticide Risks in OECD and Selected FAO Member Countries, *OECD Environment Monograph, OECD, Paris, forthcoming 1996; available free of charge from the Environmental Health and Safety Division of the OECD Environment Directorate.*

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Now that OECD countries are well on track to sharing the work of pesticide evaluation and re-registration, they are exploring other opportunities to co-operate. The activity that has captured their attention is 'risk reduction' – meaning everything countries do beyond hazard evaluation and registration to reduce risks from pesticide use. That includes projects to increase the safety with which pesticides are used, as well as programmes to help farmers reduce their reliance on chemical pesticides by adopting biologically based methods. Virtually all OECD countries are active in both areas: running programmes to teach farmers and retailers how to use and store pesticides safely; and starting projects to encourage a more sustainable approach to farming, by increasing the use of biopesticides in forests and greenhouses, building model farms that show how to switch to biological methods, offering subsidies for environmental farming, or drawing up guidelines and eco-labels for using integrated pest management in given crops. And the OECD countries are not alone in this area: developing countries and the United Nations Food and Agriculture Organisation similarly have experience in pesticide risk reduction, and thus have been included in the OECD project.[3]

Countries plan to move ahead in risk reduction just as they have done in hazard evaluation and re-registration: by tackling common problems, sharing information and using new ideas to improve their own national programmes. This time they are a step ahead, with the experience and confidence gained from their co-operative work on hazard evaluation. The new policy direction toward risk reduction gives them a rare opportunity to act globally and locally at the same time. ■

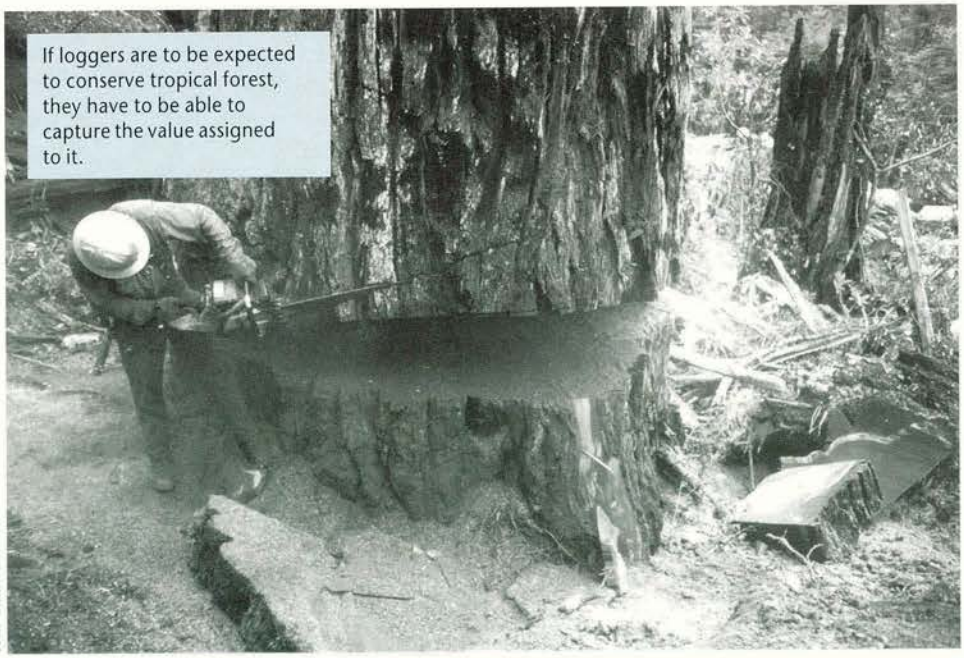
OECD BIBLIOGRAPHY

OECD Guidelines for the Testing of Chemicals, 1993 (6th addendum, 1995).

Economic Incentives for Biodiversity

James Tobey

The term 'biological diversity', or 'biodiversity', refers to the number, variety and variability of all living organisms, in terrestrial, marine and other aquatic ecosystems, and to the ecological complexes of which they are part. In its widest sense it is synonymous with 'life on earth'. It is only recently that the relative 'smallness' of the planet, the extent to which human activity can cause the extinction of species, and the implications for the environment (including human society) have come to be recognised. The OECD has recently completed a two-year project that examined how policy can guide human action towards the conservation and sustainable use of biodiversity.[1]



If loggers are to be expected to conserve tropical forest, they have to be able to capture the value assigned to it.

Holt Studios/Sunset

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There are many reasons that biodiversity is important to human society. It facilitates ecosystem functions that are vital for the continued habitability of the planet – carbon exchange, watershed flows of surface and groundwater, the protection and enrichment of soils, the regulation of surface temperature and local climate. It offers aesthetic, scientific, cultural and other values which are intangible and non-monetary – but which are nonetheless almost universally recognised. Biodiversity is a source of foodstuffs, fibres, pharmaceutical inputs and chemicals, and is a fundamental source of information for and input to biotechnology. It allows the improvement of existing varieties of crop and livestock, and the development of new ones. Lastly, the uniqueness and beauty of diverse ecological systems provides a wide range of recreational uses.

The importance that governments now attach to conserving diverse biological resources and using them sustainably led to the rapid ratification of the Convention on Biological Diversity, one of three international environmental treaties signed at the United Nations 'Earth Summit' at Rio de Janeiro in 1992. The Convention, which calls for 'the conservation of biological diversity, the sustainable use of its components and the fair and equitable sharing of the benefits arising out of the utilisation of genetic resources', came into force in December 1993 and has now been ratified by over 120 countries.

What Causes Biodiversity Loss?

The rate at which species are becoming extinct is unclear because so many species are unknown (box, p. 26), and because of the absence of a baseline from which to measure extinctions. A recent United Nations report indicated that, over the next quarter-century, from 2 to 25% of species residing in tropical forests may become extinct. This is between 1,000 and

1. A publication on this subject is in preparation.

Economic Incentives for Biodiversity

10,000 times higher than the expected rate of extinction.[2]

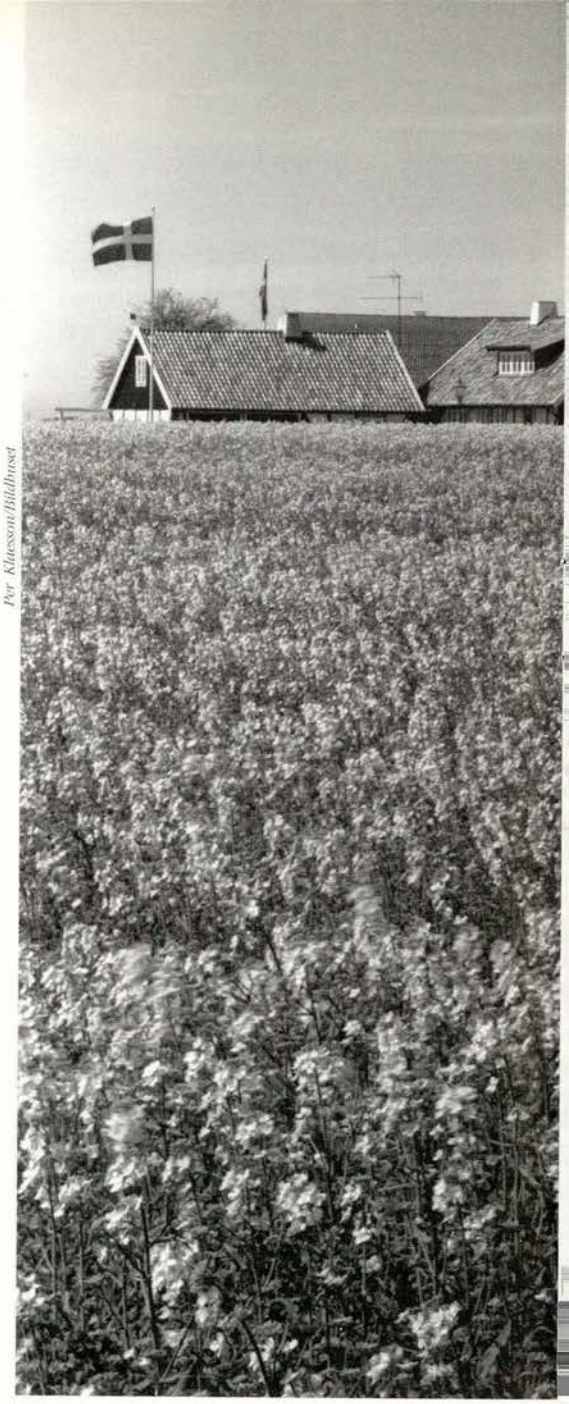
Several reasons are advanced for the loss of biodiversity. Among the most commonly heard is that the interplay of market forces does not secure the economically 'correct' balance of habitat conversion and its conservation. Such 'market failure' can arise from ill-defined, disputed or non-existent property rights, from missing or incomplete markets for biological resources, or from 'externalities' which fail to capture the environmental benefits of resource conservation (for example, failure to impute the costs of biodiversity losses to transport systems or water pollution from agricultural production). A forester may have little incentive to undertake costly changes in harvesting practices that are beneficial to biodiversity since others in society, and not necessarily the forester himself, will benefit from the change.

Indeed, economic systems have historically failed to enable those who generate benefits from conservation to capture them through an international market. For example, citizens of temperate countries might (mentally) assign high value to the maintenance of biodiversity in tropical forests but, in the absence of a market in which that value can be established, exporters of tropical timber fail to appropriate the benefit, and will thus continue to destroy the forest.

But it is not always the absence of markets and of price signals that cause the loss of natural habitat. Government policies, too, can have unintended and harmful side effects on biodiversity. Price controls and subsidies in agriculture, urban development, water provision, transport, energy and forestry can distort the costs of the use of biological resources. The volume of agricultural assistance for the OECD area as a whole in 1994 was $175 billion – equivalent to about 43% of the value of total agricultural production. Such support creates major distortions in agricultural prices, affecting production and farm practice, and often promotes the clearing of forests on land unsuited for agricultural production.

Another source of biodiversity loss can be ignorance of the functions and structure of ecosystems, coupled with lack of hard data to demonstrate their importance. As a result, policy decisions may not be environmentally sound, offering 'perverse incentives' which encourage behaviour that depletes natural resources. The full spectrum of biodiversity values and the impact of human activity on the stability and resilience of ecosystems (their capacity to recover from external stress and shocks, such as habitat destruction, water pollution or acid precipitation) therefore have to be much better understood. Many scientists contend, for example, that ecosystems undergo an irreversible collapse when certain 'thresholds' of damage are reached. But knowledge of such thresholds is at present poor, although it is of critical importance for the design of biodiversity policy. Where such thresholds exist, it may mean that the rate of environmental exploitation should not simply be slowed down but ultimately restricted (through land-use zoning or other regulations, for example).

Poor information on the economic value of natural resources underlines the importance of continued theoretical and empirical research into the measurement of the benefits of biodiversity. The objectives are to establish the right degree of biodiversity protection, and to define and calibrate the economic incentives required to secure it.



Per Klaesson/Bildhuset

The many uncertainties about biodiversity mean that policy formulation should be based on the 'precautionary principle' and the idea of safe minimum standards. The precautionary principle suggests that where there is a likelihood of serious or irreversible biodiversity loss, lack of full scientific knowledge should not be used as a reason for postponing an action to prevent that loss. The safe minimum standard requires a presumption in favour of safeguarding biodiversity unless the opportunity costs are very

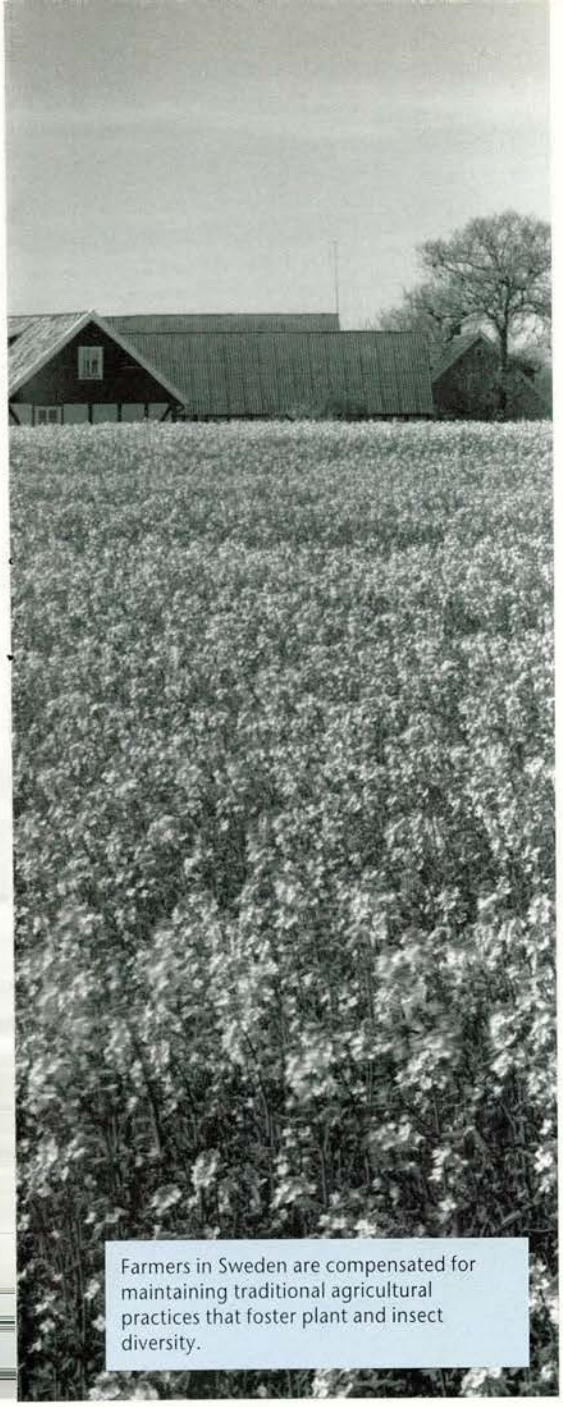
2. Global Biodiversity Assessment, *United Nations Environment Programme/Cambridge University Press, Cambridge, 1995.*

3. Economic Incentive Measures for the Conservation and Sustainable Use of Biological Diversity: Conceptual Framework and Guidelines for Case Studies, *Environment Monograph No. 97, 1994; available free of charge from the Economics Division of the OECD Environment Directorate.*

BACKGROUND

How Many Species Are There?

The number of species on Earth is not known even to within an order of magnitude. An estimated 1.7 million species have been described to date. Most are thought still to be undescribed and unnamed; estimates of the total number that could exist range between five million and nearly 100 million. A figure of about 12.5 million has been proposed as a sound conservative working estimate. In terms of number of species alone, life on Earth consists largely of insects and micro-organisms; these groups likewise make up virtually all the species hypothesised to exist although not yet discovered and described.



Farmers in Sweden are compensated for maintaining traditional agricultural practices that foster plant and insect diversity.

high. The safe minimum standard and precautionary approaches are similar in that they both reflect a conscious policy decision to err on the side of safety.

Integration and Incentives

Since individuals respond to price signals, it is the economic aspects of biodiversity policies, and in particular the use of measures based on economic incentives for conservation and sustainable use, that are attracting particular attention.[3]

Measures which use the price system and market forces improve decision-making on biological resources by reducing the differences between the value of biodiversity to individuals and to society as a whole. For example, farmers who receive a return in the form of a government payment for maintaining biological diversity on their land will be more willing to use farm practices that sustain biodiversity values than they otherwise would.

Economic incentives can be grouped into four categories:

- positive incentives, in the form of monetary or non-monetary inducements, which encourage governments, organisations and individuals to safeguard biodiversity
- disincentives, which internalise the costs of use of and/or damage to biological resources in order to discourage activities that deplete them
- indirect incentives, including trading mechanisms and other institutional arrangements, which create or improve price signals in markets for biological resources
- perverse incentives, which by contrast induce behaviour that reduces biodiversity, most being unanticipated side-effects of policies designed to attain other objectives.

The removal or reform of the most perverse incentives that affect biodiversity is one of the most cost-effective means of promoting its conservation. Not only does this reduce public expenditure, but since perverse incentives undermine the effectiveness of economic instruments, by distorting markets and prices for biodiversity, they make the conservation of biodiversity more expensive than it otherwise would be. The example of the Delta Smelt (a species of fish) demonstrates how water subsidies can threaten an endangered species. The sole habitat of the Smelt in the Sacramento-San Joaquin Delta in California has faced considerable threat from a combination of drought and high rates of water abstraction – which can be traced directly to subsidies to agricultural irrigation.

The avoidance of such perverse effects requires the integration of sectorial policies with biodiversity concerns. Indeed, the Convention on Biological Diversity requires that each contracting party shall, as far as possible and as appropriate, integrate consideration of the conservation and sustainable use of biological resources into national decision-making. That means that all economic and sectorial policy should be appraised for its impact on biodiversity. Considerations of biodiversity maintenance should thus be fully integrated into sectorial planning for forestry, transport, water-management, agriculture, coastal zones and rural development, as well as into broad national strategies for the pursuit of sustainable development.

Some countries are experimenting with new institutional structures. The Norwegian government, for example, now requires that relevant government ministries prepare their own strategies for addressing biodiversity conservation within their spheres of influence. The Ministry for the Environment is responsible for integrating these sector-specific strategies into a national plan of action. Other countries, such as the Netherlands and Australia, have adapted strategies in which the major national environmental and development plans are analysed in relation to the provisions of the Biodiversity Convention to identify gaps in existing or proposed measures.

Since they are market-based, incentives can 'filter' through the entire economic system. For example, limiting development rights in an ecologically sensitive area, and making such rights tradable, sends a price signal that affects the entire economic system by its direct impact on property values and economic development. This is a critical advantage, because addressing the underlying causes of biodiversity loss requires 'bottom-up', integrated processes throughout the economy. Financial incentives can make it the enlightened self-interest of property-owners and people using resources to put their knowledge and skill to work on behalf of conservation. Underlying eco-labelling schemes for timber products, for example, is the premise that informed consumers, through their actions in the marketplace, can provide a powerful incentive for producers to engage in sustainable forest management.

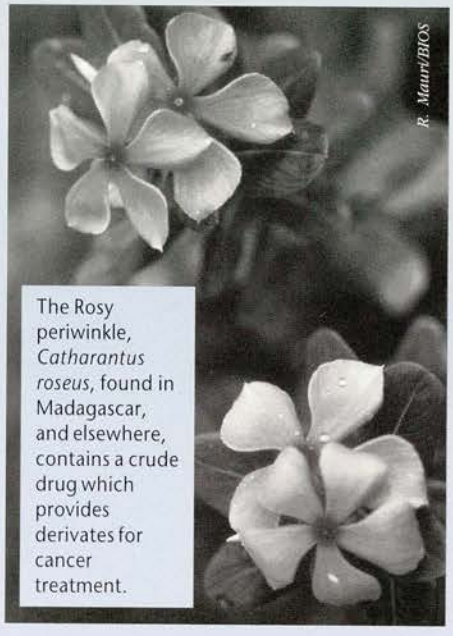
Incentive measures can be directed at three main target-groups: people whose behaviour enhances biodiversity-related goods and services, and tend to bear the cost of conservation (such as farmers and other landowners), people

FOCUS

Biodiversity Prospecting Deals

Wild plants and animals have developed a vast range of chemical mechanisms and compounds to repel pests, resist infection, elude predators, capture prey and increase reproductive success. These characteristics are potentially of enormous value if they can be adapted for human use. For example, aspirin, a drug that was synthesised early, is a modification of the natural chemical salicylic acid (found in plants). Another natural chemical is taxol, from the Pacific yew tree of western North America, which has been found to be an anti-cancer compound. These have stimulated the design and negotiation of 'genetic prospecting deals', which provide a mechanism for compensation payments for the use of biodiversity. These are contractual arrangements in which one party (a pharmaceutical firm, for example) compensates the other party (usually a government organisation) for access to naturally occurring substances, thus providing an incentive to maintain habitat and maximising the likelihood of useful discoveries.

Interest in 'genetic prospecting', and in searches for products of potential agricultural, industrial and, particularly, pharmaceutical value among wild organisms, has grown recently. There are now more than 20 organisations engaged in such prospecting, and the number is growing. One of the best known arrangements is the contract between Merck, a private US pharmaceutical firm, and Costa Rica's Conservation Program and National Bio-diversity Institute (INBio). Compensation in the Merck-INBio contract takes the form of royalties in the event of discovery, and up-front payments.



The Rosy periwinkle, *Catharantus roseus*, found in Madagascar, and elsewhere, contains a crude drug which provides derivates for cancer treatment.

The Convention on Biological Diversity deals with a number of issues arising from the commercialisation of wild genetic resources. Article 15 expands on the principle of national sovereignty over genetic resources to provide a basis for government ownership of the genotypes of wild resources found within their sovereign territory. This establishes a clear basis for claims for compensation. The same Article requires that each contracting party should take legislative, administrative or policy measures necessary to ensure the fair and equitable sharing of benefits of arrangements for commercialising genetic resources. Such arrangements can be within or between governments (the US National Cancer Institute and the National Institute of Health have a number of agreements, for instance), or between governments and private firms.

who benefit directly from biodiversity-related goods and services and who thus attach significant value to biodiversity (for instance, anyone who enjoys the natural landscape, or diversity in farm products), and those whose behaviour diminishes or harms biodiversity-related goods and services (such as urban developers, or the operators of industrial plants that pollute the air and water).

In principle, groups or individuals who damage biological resources should pay the costs of preventing and repairing damage. Likewise, the users should pay for the benefits they receive from biodiversity-derived goods and services. And the costs associated with the delivery of non-market benefits should be reimbursed through the use of positive incentives.

Compensation paid to farmers and other landowners for the additional costs associated with the delivery of biodiversity values is an example of payments to providers of biodiversity. In Sweden, for example, ancient and unimproved meadows and pastures are an important source of the country's plant and insect diversity. Farmers are compensated for maintaining traditional farming practices that sustain and improve the biodiversity in these areas. Disincentives (such as entrance fees to parks, fines for damage to the natural environment, and marine pollution liability) and indirect incentives (such as individual transferable fishing quotas, tradable development rights, and biodiversity prospecting deals – box, above) can cause the users and damagers of biodiversity to pay, at least in part, for their consumption of biological resources.

Some of these measures generate revenues and can thus provide a powerful incentive to local communities and the other providers of biodiversity who bear the opportunity cost of conserving it. In one mountain community of northern Italy (Communalie Parmensi), the harvesting of wild mushrooms on communal land has always been very important for local people. When mushroom harvesting by visitors began to generate serious competition for the resource, an access fee was introduced. Now the revenues from mushroom-picking fees account for 50% of the community's total annual revenues.

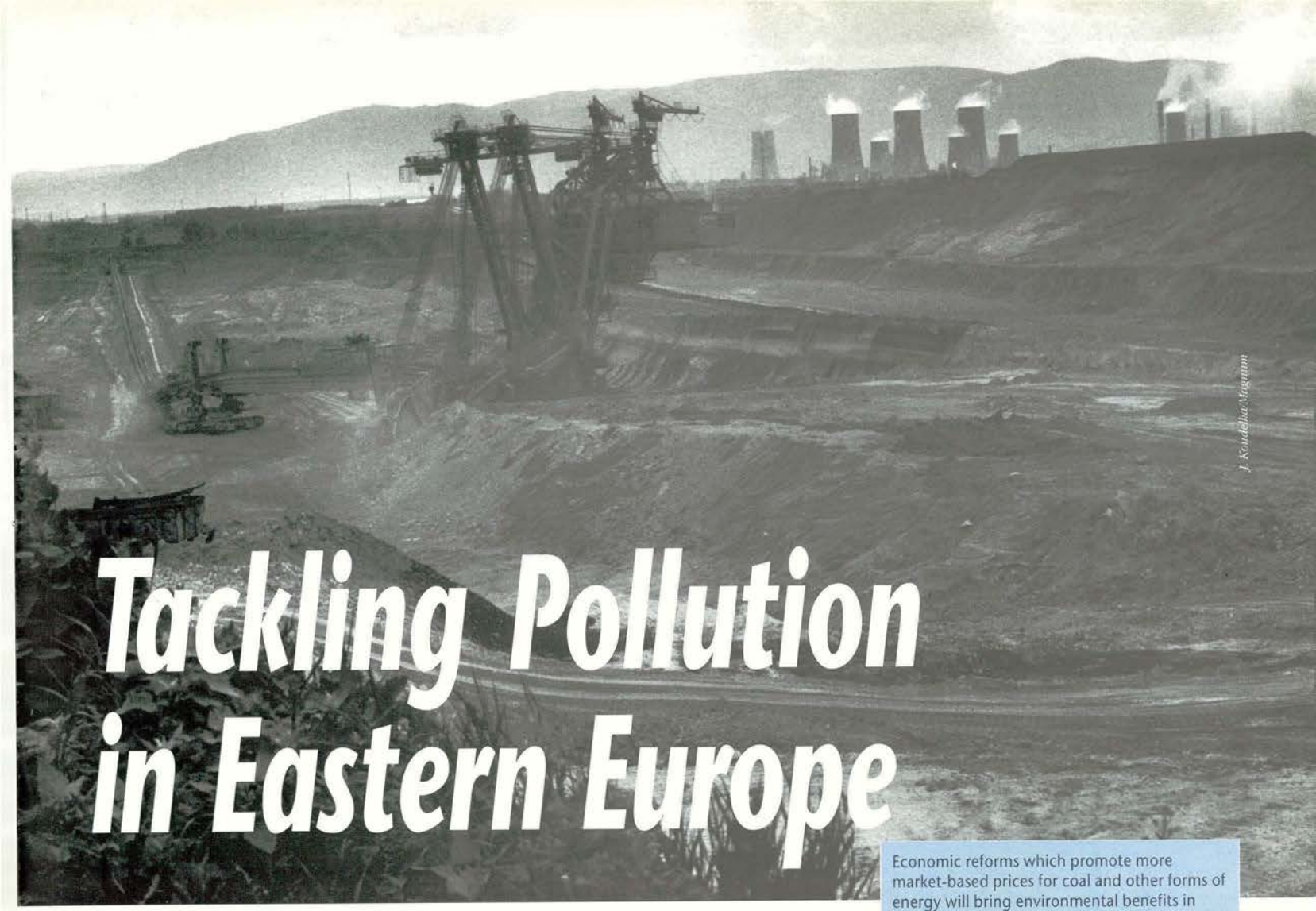
■■

The effectiveness of a given policy measure in addressing biodiversity issues will depend on the particular legal, political, economic and physical conditions in the country in question. It is therefore difficult to generalise on what specific incentive measures, or mix of measures, might be most appropriate in any specific situation. The most successful applications will nonetheless be those which use a combination of strategies, policy instruments and tiers of government, and which are sensitive to local, national and international conditions and effects.

Incentive measures are not alternatives to conservation laws and other traditional regulatory techniques but rather a means to support and complement them. Education and awareness campaigns have complementary roles to play with regulatory and incentive-based measures. All evidence suggests that people are willing to pay more for conservation when they are aware of what is under threat and why corrective actions are vital. Similarly, where the risks of irreversible loss of biodiversity are acute, incentive mechanisms may have to be complemented by a regulatory safety net that assures an identifiable degree of protection.■

OECD Bibliography

- **Managing the Environment: The Role of Economic Instruments**, 1994
- Jean-Philippe Barde, 'From Stick to Carrot in the Environment', **The OECD Observer**, No. 186, February/March 1994.



J. Koudelka/Magnum

Tackling Pollution in Eastern Europe

Economic reforms which promote more market-based prices for coal and other forms of energy will bring environmental benefits in their wake.

Brendan Gillespie

Environmental conditions in many of the central and eastern European countries have improved since the collapse of communism, with some drastic reductions in pollution being registered. But the most important cause of these improvements has been the drop in output that came after economic restructuring. Western help has been useful in the transition to a market economy – but there are encouraging signs that the countries themselves are taking matters in hand.[1]

The environmental policy measures and investments introduced in many of the central and eastern European countries (CEECs) since 1989 seem to have been effective in combating some of the most serious environmental legacies of central planning, not least toxic air-borne pollutants and municipal and industrial discharges to water. Bulgaria, Poland and Romania, for example, have all recorded substantial reductions in air emissions of lead and other health-threatening heavy metals. In Poland, the Czech Republic and a few other countries, moreover, there is encouraging evidence of a 'de-coupling' of pollution intensity from the resumption of economic growth.

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Nevertheless, the pollution- and resource-intensity of most CEECs is still two or three times higher than in OECD countries. Further efforts are required if the 'environmental dividend' of the transition period is not to be lost as economic growth begins to produce pollution on the scale formerly known. New policy measures are also required to cope with a variety of new environmental pressures from economic restructuring, not least the rapidly expanding use of motor vehicles, increased waste from western-style consumer products, an expanding food-processing sector, and the development of tourism and other economic activities.

Many economic reforms in the CEECs, in particular those which promote more market-based pricing of energy and natural resources so that inputs are used more efficiently, are having environmental benefits. Indeed, there is growing recognition that the phasing-out of subsidies on the consumption of energy, water and

1. This article was prepared as part of the programme of the OECD's Centre for Co-operation with the Economies in Transition.

Tackling Pollution in Eastern Europe

Table 1
Environmental Expenditures, 1989–94[1]
% of GDP

	1989	1990	1991	1992	1993	1994
Bulgaria	1.4	1.2	1.0	1.3	1.3	..
Estonia	..	..	..	1.8	2.1	2.8
Moldova	..	0.4	0.4	0.6	0.4	..
Poland[2]	0.5	0.7	1.0	1.0	1.0	1.0
Slovakia	..	3.1	2.9	2.5	2.2	1.7
Ukraine[3]	..	1.3	..	2.1	2.8	2.7

.. not available.
1. Estimates; current prices; includes international assistance.
2. Investments only.
3. Substantial uncertainty about GDP estimates in most recent years.
Source: OECD

other raw materials is a pre-requisite for an effective framework for environmental policy. Yet the social, economic and political barriers to removing these subsidies, particularly in low-income countries, are often formidable. This is a challenge that has to be met successfully throughout the region, but it is especially difficult in the New Independent States (NIS) of the ex-Soviet Union.

More generally, progress in implementing 'win-win' policies, which promote environmental and economic objectives simultaneously (for example, removing subsidies that encourage the excessive use of fossil fuels and water in industry, agriculture and households), has not matched its potential. Although this criticism can also be directed at many OECD countries, there are some specific impediments in transition economies: the strongly vertical organisation of government and competition among ministries for investment resources under central planning have created an administrative culture with a particularly strong resistance to horizontal, inter-departmental co-operation. This insularity, and the low priority assigned to the environment by many governments in the transition period, have made sectorial ministries reluctant to accept responsibility for the environmental consequences of their policies, or to co-operate with environment ministries in elaborating national environmental action programmes (NEAPs).

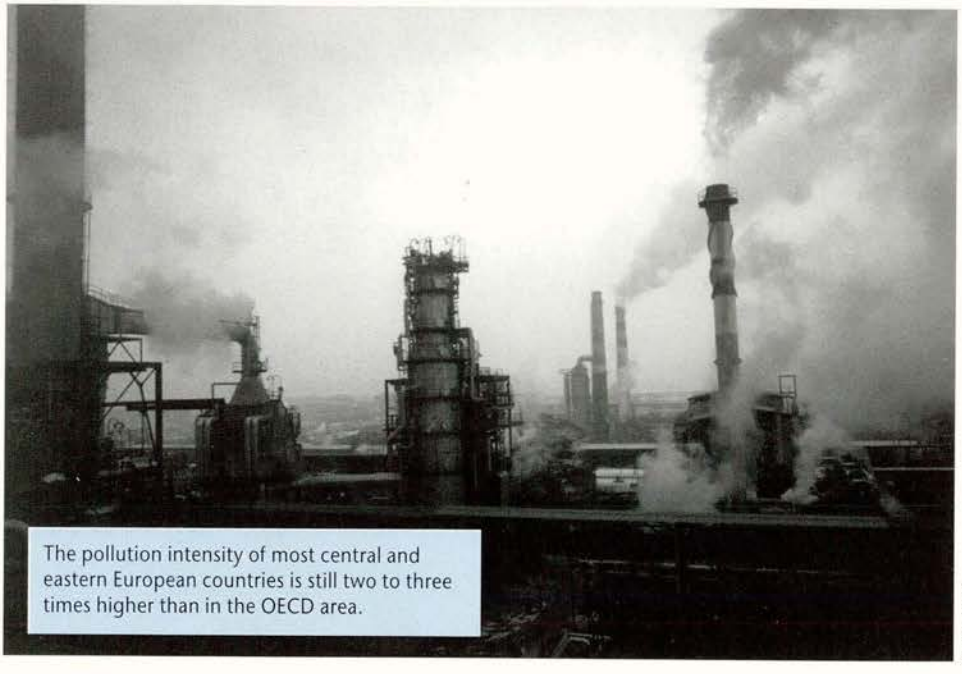
The development of NEAPs has therefore tended to be a task undertaken by environment ministries, with limited involvement of other departments. Nevertheless, there have been a number of encouraging trends:

- authority for managing environmental problems in enterprises and municipalities is being decentralised to lower strata of government, and with it the establishment of more democratic, participatory decision-making institutions
- realistic priorities in environmental policy are now being designated, and there has been a move away from a 'wish-list' approach to policy formulation
- data and analysis (including economic data) are playing an increasingly important role in policy formulation and implementation
- many CEECs have learned how to use western assistance in policy reform more effectively, and to prepare viable projects which can be financed by domestic and/or international sources
- a broader range of policy instruments has been deployed, including market-based instruments and environmental impact assessments.

But there are some important steps that still must be taken. Most CEECs have to move from broad policy goals to coherent action-oriented programmes. That requires more discipline in identifying major problems and strengthened efforts to mobilise the human, institutional and financial resources necessary to tackle them.

In parallel with policy reforms, many CEECs have upgraded the institutions responsible for environmental protection. Many governments have succeeded in maintaining the importance of environmental administrations relative to the size of the administration as a whole. Moreover, resources have been redeployed and used more efficiently. For example, monitoring programmes in a number of countries now collect fewer data, but the information is more directly relevant to policy purposes.

Decentralisation is an integral part of the democratisation process in the CEECs. It can provide a more effective means of resolving environmental problems by engaging the parties most directly affected by an environmental problem and its solution. But in most CEECs the capacity of local authorities to deal with environmental problems is circumscribed: they seldom have a say in the allocation of central-government funds, and public-finance laws frequently make it difficult for them to raise their own rev-



The pollution intensity of most central and eastern European countries is still two to three times higher than in the OECD area.

Serge Attal

enues for environmental infrastructure. By contrast, there are examples of decentralisation being carried too far, with responsibility devolving to local authorities which lack the human and financial resources to tackle the worst environmental problems.

The capacity to manage such problems in most CEECs has been substantially strengthened by training, frequently provided by western donors. The degree of technical skills in most ministries generally is high; what is lacking usually is management and economic and financial skills.

Table 2
Financing of Environmental Expenditures, 1994[1]
%

	State budget	Regional budgets	Extra-budgetary funds	Enterprises' own resources	International loans and grants
Bulgaria	20	8	5	63	4
Estonia	14	2	5	44	35
Moldova	28	1	1	70	..
Poland[2]	7	16	47	25	5
Slovakia	50	16	16	16	2
Ukraine	25	5	1	65	..

.. not available
1. Estimates.
2. Environmental investments only for 1993.
Source: OECD

Whence Investment?

Although external financing can have an important catalytic role, there is growing recognition that lack of foreign capital is not the major obstacle to mobilising the resources required to restore and protect economic growth. Rather, the main constraints are the high cost of commercial capital in the CEECs, the limited flexibility of financing mechanisms, and inadequate institutional arrangements for focusing available domestic resources or environmental priorities.

A recent OECD study of six CEECs – Bulgaria, Estonia, Moldova, Poland, Slovakia and Ukraine – indicates that environmental expenditures have decreased roughly in line with GDP. But since GDP has fallen sharply, that has meant a similar drop in spending on the environment. Even so, allowing for difficulties in measuring and comparing GDP, the volume of environmental expenditures in the six CEECs examined seems to be comparable with those in many OECD countries relative to the degree of economic activity.

The CEECs and the OECD countries differ in the sources of revenue spent on the environment. Public-sector sources still play a central role in all the CEECs studied, whereas the private sector and households shoulder a larger part of the burden in OECD countries for spending on pollution control and environmental infrastructure. The transition to a market economy requires fuller implementation of the Polluter-Pays Principle, and thus a reduction of direct and indirect state support. It also implies deeper involvement by the private sector and households in financing environmental improvements, and in paying the full costs for environmental goods and services.

Nevertheless, the results of another OECD study show that environmental commitments to the CEECs and the New Independent States of the ex-Soviet Union (NIS) by OECD countries, the European Commission and international financial institutions (IFIs) has increased markedly since 1993. Poland, the Czech Republic, Bulgaria and Russia have received the largest amounts in absolute terms. Various factors account for this change, one being the increased capacity of these countries to attract and use external resources for investing in, for example, more efficient and less environmentally damaging energy- and water-treatment.

Table 3
Pollution and Resource Intensity: Poland and OECD Europe

	Poland		OECD Europe[1]
	1989	1993	1993[2]
GDP per capita[3] ($1,000/inhabitant)	5.5	4.6	14.6
Energy intensity (toe/$1,000 of GDP)	0.6	0.6[4]	0.2
Water-use intensity (million cu m/$1,000 of GDP)	71.9	70.4	40.5
Pollution intensity			
Municipal waste (tonnes/$ of GDP)	65.7	53.9	26.9
SO_x (kg/$1,000 of GDP)	18.6	15.6	2.5
No_x (kg/$1,000 of GDP)	7.1	6.4	2.1
Particulates (kg/$1,000 of GDP)	11.4	8.7	..
CO_2[5] (tonnes/$1,000 of GDP)	2.1	1.9[4]	0.5

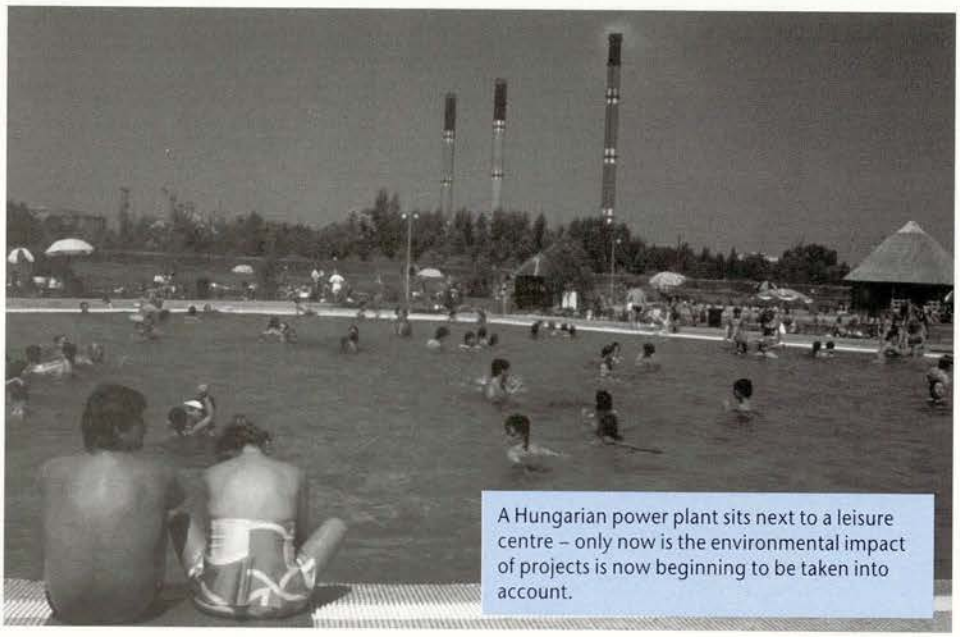
.. not available
1. 'Pollution' data include OECD estimates.
2. Or most recent year.
3. GDP at 1991 prices and PPPs; data for Poland are preliminary estimates based on 1990 prices and PPPs.
4. 1992.
5. Anthropogenic CO_2 emissions from energy use only; international marine bunkers are excluded.
Source: OECD; Central Statistical Office, Warsaw.

What Institutions?

The institutional framework for environmental financing has been strengthened in a number of the CEECs by the establishment of environmental funds, capitalised by environmental taxes and charges which are then re-allocated to support important environmental investments. Such funds, when properly designed, can play a valuable role in supporting urgently required investments to control air- and water-pollution and to establish monitoring and enforcement mechanisms. Donors and IFIs are showing increasing interest in working with and through domestic financing arrangements of this type. Several other measures to strengthen environmental financing institutions are being designed:

- 'green' equity schemes, to provide equity in projects and companies investing in environmental improvements; the Nordic Environment Finance Corporation (NEFCO) provides one model of such a scheme in the Baltic region
- loan-guarantee schemes, to cover the political risks associated with a loan, whereby a lender is compensated if someone borrowing money for an environmental project fails to repay the loan because of political (not commercial) reasons

Tackling Pollution in Eastern Europe



Serge Attal/REA

A Hungarian power plant sits next to a leisure centre – only now is the environmental impact of projects is now beginning to be taken into account.

• strengthened co-operation between donors and IFIs to 'blend' their resources in order to accelerate environmental investments

• pilot projects for joint activities aimed at reducing emissions of greenhouse gases within the auspices of the UN Framework Convention on Climate Change.

The Bulgarian and Swiss governments recently negotiated a debt-for-environment swap. Switzerland has agreed to 'forgive' SF20 million, or approximately 20%, of the official Bulgarian debt to Switzerland; in exchange Bulgaria will invest the equivalent of SF20 million in an 'eco-trust' used to fund priority environmental projects, particularly to support cleaner production processes in the industrial sector. The focus on domestic environmental issues is different from the kind of debt-for-environment swap which Poland concluded with several donors at the beginning of the decade, since that was confined to projects of international importance, not least climate change.

Partnerships and Participation

Effective, sustainable environmental management requires the participation of everyone with something to gain or lose – basically, the population as a whole. That necessitates a sharp break from the decision-making procedures of central planning. Dissemination of information and participation must replace secrecy and top-down decision-making. Considerable progress has been made since 1989 in the CEECs in collecting and disseminating environmental information. State-of-the-environment reports are now widely available, and the first pan-European state-of-the-environment report has been prepared.[2] These developments are helping to make sure that public opinion is better informed.

New laws and policies have also sought to encourage public participation. In some countries, such as Bulgaria, assessment of the environmental impact of particular projects has fostered public involvement. A few ministries have established an open dialogue with national NGOs. But there is a long way to go before public opinion and participation become the force for environmental improvement that they are in most OECD countries. Many environment ministries have been slow in setting up arrangements to involve the public in environmental decision-making, particularly when establishing the goals of policies and programmes which they regard as their own preserve. And national environmental groups have not always developed the skills or expertise to intervene effectively in policy debates.

The private sector now typically accounts for 40–55% of GDP in the CEECs. That is stimulating new forms of dialogue and co-operation between business and government. Several joint public/private-sector projects are underway in central Europe to demonstrate to businessmen how and why the environment is important to business success, and to identify areas which could motivate a constructive dialogue.

There is a variety of private-sector activities which are beneficial for the environment, not least the growing environmental goods-and-services industry (estimated at $15 billion in the CEECs in 1990 and forecast to grow to $21 billion by the year 2000[3]). Co-operative programmes are being developed in many CEECs to promote 'cleaner production' and compliance with high environmental standards, in part to help gain access to markets in western European and other OECD countries.

■■

Economic and structural changes are essential to promote the more efficient use of resources, to encourage a shift towards less environmentally damaging economic activities and technologies, and to generate the resources required by government, enterprises and households to finance environmental expenditures. There are encouraging signs that this is happening in a number of CEECs. And the multiplication of successes can be promoted through expanded dialogue and co-operation among them. Accordingly, the next phase of environmental improvement should increasingly be undertaken by the CEECs themselves. ■

OECD Bibliography

- **Environmental Performance Reviews: Bulgaria**, CCET/OECD, 1996
- **Environmental Funds in Economies in Transition**, CCET/OECD, 1996
- **Promoting Cleaner and Safer Industrial Production in Central and Eastern Europe**, CCET/OECD, 1995
- **Environmental Performance Reviews: Poland**, CCET/OECD, 1995
- Brendan Gillespie and Tony Zamparutti, 'A Framework for the Environment in Eastern Europe', **The OECD Observer**, No. 185, December 1993/January 1994
- **The OECD Environment Industry: Situation, Prospects and Government Policy**, 1992.

2. Europe's Environment: The Dobris Assessment, *European Environment Agency, Copenhagen, 1995.*

3. ***The OECD Environment Industry: Situation, Prospects and Government Policy**, OECD Publications, Paris, 1992.*

Whither Railways?

Michel Violland

Faced with the massive and repeated losses made by national railways, European governments are gradually beginning to open up the rail sector to market forces in a development that will inevitably bring changes to the type of services railways provide. At the same time, the advent of high-speed rail and concern over environmental issues call for a re-appraisal of the future prospects for rail travel in Europe.[1]

Since the early 1970s the number of passenger and freight movements in Europe has practically doubled; in effect, the transport sector has been growing faster than the economy. The past quarter-century has also seen massive growth in the use of road transport. The volume of freight transported by road in the member countries of the European Conference of Ministers of Transport[2] over this period has increased by 240%, while car traffic has risen by 210%. In contrast, the volume of freight transported by rail over the same period has fallen by 8%, while passenger traffic has grown by a meagre 30%. Over 70% of all passenger and freight traffic in the ECMT area is now transported by road.

The railways have had to contend with two highly damaging trends: the decline in heavy manufacturing industries and the failure of rail services to meet the current demands of users, for keeping to timetables, speed, flexibility and availability. For personal travel, the versatility of the car, which rising standards of living have made far more accessible to the population, has not been matched by public transport services, except perhaps in some urban areas.

The impact of these changes can clearly be seen in the financial situation of the railways. In 1995, the SNCF (French railways) reported a loss of around FF11 billion (despite FF30 billion in subsidies), raising its long-term debt to some FF175 billion. In the same year, the SNCB in Belgium reported a loss equal to 13% of its operating revenue and long-term debts amounting to 120% of total revenue. Almost all the railway companies in Europe are in a similar position.

Applying private-sector methods in the rail sector would undoubtedly signal an end to many of the current activities of European railways. Although such an outcome would obviously be politically unthinkable, it is clear that most railway networks place an unbearable strain on public finances. Yet at the same time rail transport does offer some indisputable advantages:

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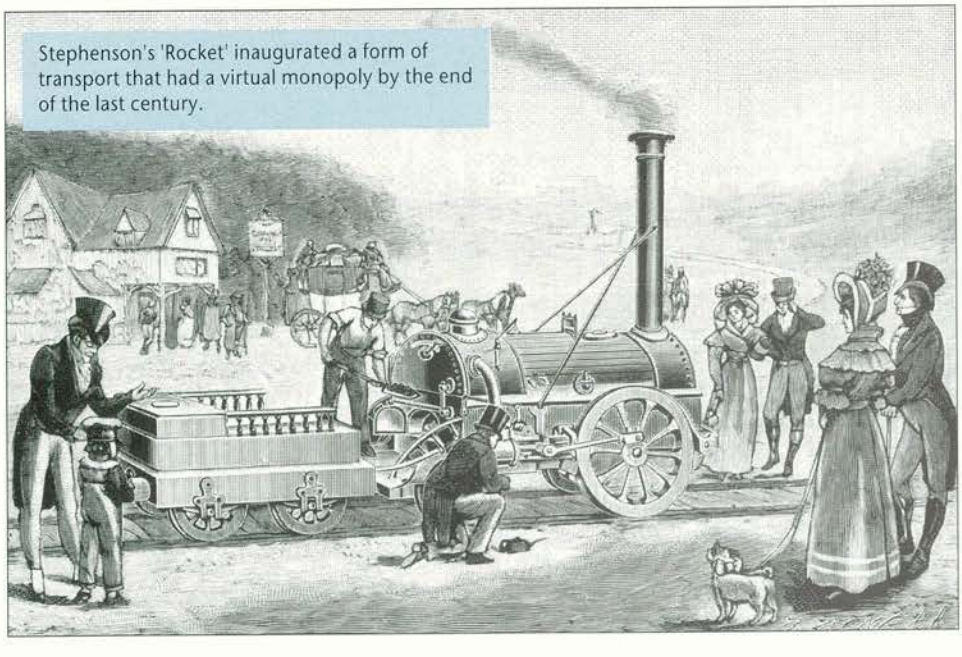
1. ***Why Do We Need Railways?***, *ECMT/OECD Publications, Paris, 1995.*

2. *The European Conference of Minister of Transport (ECMT) is an inter-governmental organisation established by a Protocol signed in Brussels on 17 October 1953. The Council of the Conference comprises the Ministers of Transport of 31 European countries: Austria, Belgium, Bosnia-Herzegovina, Bulgaria, Croatia, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Latvia, Lithuania, Luxembourg, Moldova, the Netherlands, Norway, Poland, Portugal, Romania, the Slovak Republic, Slovenia, Spain, Sweden, Switzerland, Turkey and the United Kingdom. Associate member countries: Australia, Canada, Japan, New Zealand, the Russian Federation and the United States; observer countries: Albania, Armenia, Belarus, Georgia and Morocco. For administrative purposes, the ECMT Secretariat is attached to the OECD Secretariat.*



Stephenson's 'Rocket' inaugurated a form of transport that had a virtual monopoly by the end of the last century.

Mary Evans Picture Library

Whither Railways?

protection of the environment, safety, energy savings, high-speed travel, combined transport services, and more. Governments therefore have to make some crucial decisions which will reflect not only the way in which the railways have developed in the past, but also the way in which society itself has developed.

Historical Background

The railways were first built and developed by forward-looking entrepreneurs who had clearly understood the economic advantages of this mode of transport. Unlike canals, railways could readily overcome natural barriers by means of bridges and tunnels. In addition, railways were less affected by the adverse weather conditions which, particularly in winter, limited the use that could be made of roads and canals. Because of these advantages, governments awarded concessions to the railway companies in order to extend the rail network to all parts of the country, both for economic and for strategic reasons. By the end of the 19th century the railways had a virtual monopoly on the supply of transport.

The development of the combustion engine and growth in the use of motor vehicles in the interwar period was to transform road into a major mode of transport. In terms of comparative technical advantage road transport eliminated breaks in the supply chain by making door-to-door deliveries possible, and transport by road steadily became faster than rail. Thus road gradually started to gain the upper hand in the contest between road and rail and the rail networks were eventually nationalised in view of the financial losses they had suffered and in order to maintain public services on a national scale.

Does each mode of transport therefore enjoy a period of dominance and subsequent decline brought about by technical progress to which transport policy is committed and which it cannot hold back? The answer to this question is 'no', since clearly there are also economic reasons for the decline of the railways. In spite of their monopoly on rail transport, it is only in recent years that the railways have been able – through the development of high-speed trains – to adapt their services to meet the new requirements of users.

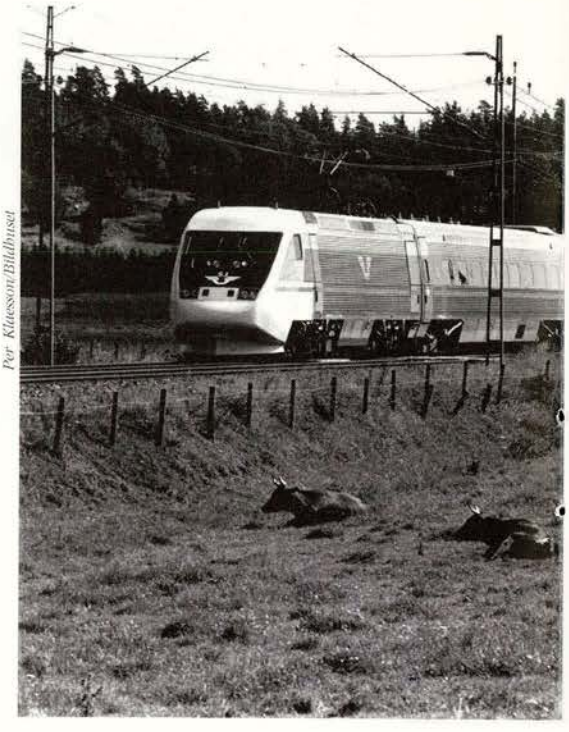
Moreover, the scale of the obligation of public service imposed on the railways by governments (the provision of services in rural areas, subsidised fares, and so on) without any real form of financial compensation has lowered the operating revenues and thus the investment capacity of the railways. In spite of the repeated losses in the rail sector, governments have endeavoured to maintain the role of rail in response to the weight of public opinion which has always been fiercely opposed to the closure of even the least frequented lines.

Thus the extensive networks which railway companies operate, and which are far too large given both the requirements of users and the multiplicity of services offered, are in part simply a legacy from the past or from an earlier conception of the role of the railways.

The Potential of High-speed Trains

The success of the TGV Sud-Est high-speed train line in France (opened in 1981) – with over 20 million passengers a year and occupancy rates of over 70% – would seem to show that high-speed train services can win back market-share from other modes of transport, air travel in particular. In fact, the figures simply reflect the number of new passenger movements induced by high-speed rail, as may be seen in the 230% increase in rail traffic between Paris and Lyon over the past ten years.

The advent of high-speed trains in Europe has confirmed that the railways could excel in a given market. Reductions in travel time are clearly useful both to the general public and to businesses and are fast becoming a major factor in users' choice of mode. High-speed trains (which can travel at speeds of over 250 kph) have a decisive edge over other forms of transport over the medium-haul distances (under 1,500 km) commonly travelled in Europe. It could thus be argued that this advantage offers rail a competitive advantage to allow it to compete with both road and

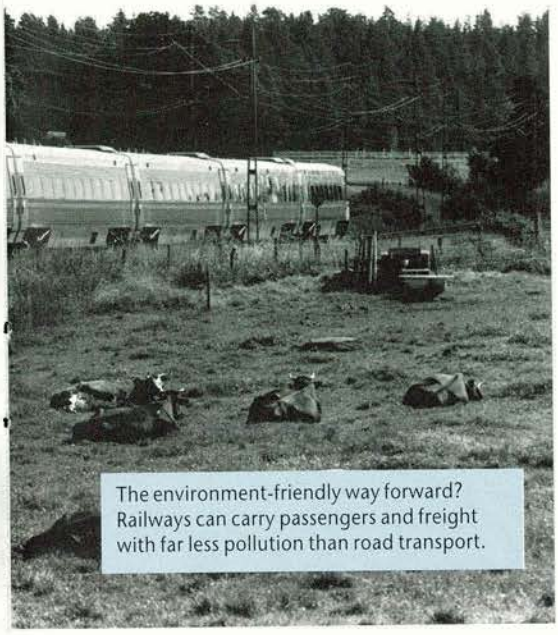


Per Klaesson/Bildbyset

air. Another factor in the success of high-speed rail services is that they are both frequent and reliable. High-speed rail is a new approach to transport. Indeed, the difference in quality between high-speed train services and the services which the railways have provided hitherto is so big that high-speed rail could even be viewed simply as a new mode of transport.

The success of high-speed rail in France has prompted other European countries and industries to build similar systems. But the fact that virtually every country has developed its own technology – the ICE and Transrapid in Germany, the ETR and Pendolino in Italy, the X2000 in Sweden, and so on – illustrates the divisions and lack of co-operation between the countries concerned. The problems posed by these divergent approaches, which in the past have led to differences in terms of signalling, traction current, gauges, safety procedures, and the like, should not be underestimated. They undoubtedly constitute an obstacle to the development of high-speed rail services in Europe, since every border crossing will mean a change in railway technology. Nevertheless, Siemens and GEC Alsthom, the two leading railway equipment manufacturers in Europe, have recently signed an agreement to collaborate on the development of the next generation of high-speed trains.

Another obstacle to high-speed rail lies in the opposition voiced by ecologists to the construction of the new lines that will be necessary if the railways are fully to realise the potential of high-speed rail. Although such opposition is perfectly legitimate, it results in delays and adds to the



The environment-friendly way forward? Railways can carry passengers and freight with far less pollution than road transport.

final cost of projects (detours, tunnels or noise barriers).

That raises the question of the cost and the return on the investment in high-speed rail. Although the Paris-Lyon line proved to be highly profitable and was built without the aid of government subsidies, the SNCF could not have built subsequent high-speed lines in France without financial assistance from the state. The new high-speed link planned between Paris and Strasbourg, for example, is expected to cost FF30 billion for 430km of track and to produce a return of little more than 4% compared with the 15% return on the Paris-Lyon line.

There can be no doubt that the beneficial impact on a region of high-speed train lines has led to an increase in the number of such projects. In Japan, this aspect of high-speed rail led to a large number of new lines being built without regard for their economic viability. This resulted in a colossal volume of debt ($314 billion) which ultimately had to be borne by the Japanese taxpayer following the radical re-organisation of Japanese railways (privatisation, break-up of the network, 35% reduction in staff) in 1987.

Although the rate of return on high-speed rail lines will clearly depend on the physical obstacles encountered during construction – lines built through mountainous or densely populated areas will obviously be more expensive – it also depends upon the density of traffic flows and the choice of technology. In Germany, for example, the cost per kilometre of the new line built between Hanover and Würzburg was almost three times that of the new line between Paris and Lyon, not only because of the nature of the terrain but also because Deutsche Bundesbahn had decided to operate freight as well as passenger services on their high-speed lines. This decision increased the severity of the track specifications (higher axle weights, tunnels to reduce gradients, sidings) and limited the speed of passenger trains to 250 kph (compared with 300 kph for the latest results in France).

At their 1994 summit meeting in Essen, European heads of state gave the go-ahead to construction of a number of missing links in the projected European high-speed train network (Lyon-Turin, Madrid-Montpellier, Berlin-Verona, Paris-Strasbourg, Paris-Brussels-Cologne-Amsterdam-London). But the cost of building these links is expected to amount to around FF350 billion and the problem of funding has yet to be resolved.

A pan-European high-speed rail network would offer huge advantages in terms of safety (over 65,000 people are killed every year on the roads in ECMT countries, compared with approximately 500 fatalities in the rail sector), energy savings and protection of the environment (a high-speed train emits about 20 times less nitrogen oxide per person transported than a car). If all these advantages are taken into account and costed (as transport economics does in the form of externalities), the provision of public funding for high-speed train lines would have no real impact on the allocation of government resources.

The road transport sector could contribute to the construction of a European high-speed train network by introducing higher taxes on fuels. They could be justified by the high external costs of road transport (accidents, pollution, noise, damage to the environment, and so on) which, depending upon the method of calculation used, account for 2 to 7% of the GDP of ECMT countries.

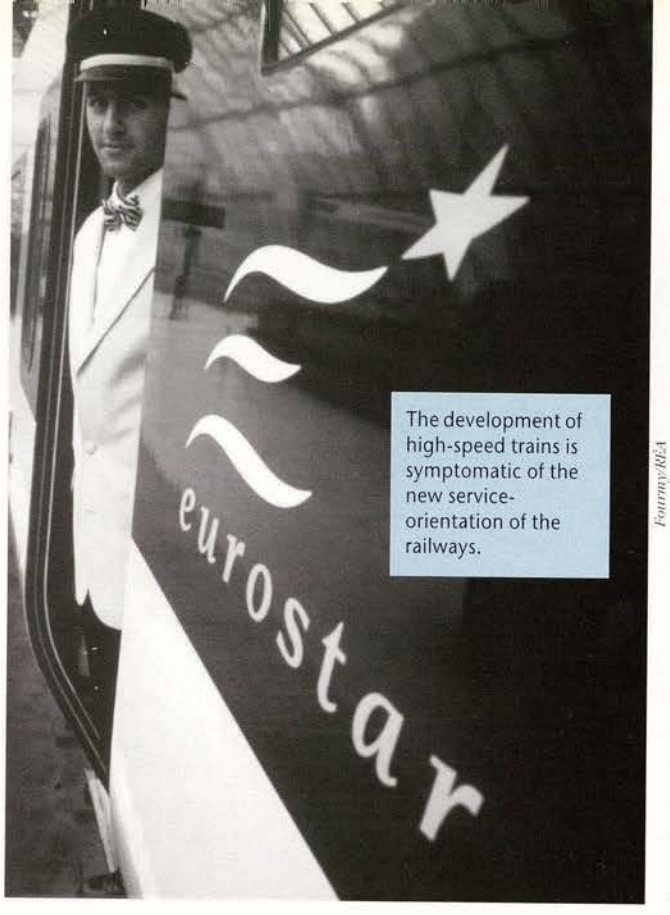
But the price that might have to be paid for focusing too narrowly on high-speed rail could well be the emergence of a 'two-speed' railway network, unless, that is, other rail services can acquire an equally modern image through improvements in quality (reliability, speed, in-train services). The development of high-speed trains therefore requires a thorough re-appraisal of all the services offered by the railways. That can only be achieved by changing the way in which the railways are managed.

Privatisation and Competition

Constant interference by government in the policies and management of national railway companies – which in the past have been told, for example, to create jobs or to support ailing rolling-stock manufacturers – has led to decisions being taken, and services supplied, on political rather than economic grounds. But meeting the requirements of customers must remain the prime strategic objective of the railway companies as part of a market-oriented approach that should also go some way towards solving the financial problems faced by the railways. A growing awareness of this imperative has prompted the governments of many European countries to embark upon radical re-organisations of their rail networks (Finland, Germany, Italy, the Netherlands, Sweden, the United Kingdom).

Differences between networks in terms of their extent of indebtedness or social rigidity (employees can oppose any attempt to change their status as civil servants or equivalent) mean that approaches to privatisation vary from one country to another. In this respect British Rail is an extreme case in that the network is to be broken up into a large number of separate entities with a complete separation between service operators and the organisation responsible for managing infrastructure (itself currently being privatised) which will charge access fees to operators using the infrastructure. Freight services are to be entirely sold off to the private sector, whereas passenger services will split up into franchises and subsidised according to a competitive system of bidding. For the time being, in view of the distinctive nature of rail costs (infrastructure and rolling stock costs are very high, are almost non-reversible and can only be recovered in the long term) and the complexity of transactions in the now fragmented rail sector in the United Kingdom, it would seem that bidders will not be

Whither Railways?



The development of high-speed trains is symptomatic of the new service-orientation of the railways.

Fourny/REA

found for all the services put up for franchise.

It is for this reason that other countries have adopted different approaches. The outcome of the privatisation of Japanese railways would seem to indicate that this was the right course to follow in that most of the new railway companies are now reporting profits. After re-organisation Deutsche Bundesbahn, too, reported its first-ever operating profit (DM88 million on revenue of DM24 billion) in 1994, although the debts of the company had been taken over by the government.

At the same time, the introduction of open access to networks (EC Directive 91/440) now grants international groupings of railway undertakings access to third-party networks and should foster competition within the European Union. Open access will also encourage railways to cost the technologies they utilise and should raise the quality of international passenger and freight transport services. These changes represent a real revolution in the way in which European railway companies operate and in time may completely transform the nature of the services they provide; it will now be possible for several competing railway companies to offer services on the same international route.

Of course, doubts may still remain over the ability of the rail sector to maintain integrated, reliable and punctual services on routes shared by different operators. What about interconnections between services in cases where several operators are competing to offer the same type of service? What about through-ticketing? For the time being, in contrast with air transport, no conclusive answer can be given to these questions in the rail sector.

What Services in the Future?

The railways offer domestic users a wide variety of services which must ultimately be directed towards meeting demand in transport markets as fully as possible. Managerial autonomy may well have to be given priority over public service obligations and full employment: manning figures in German railways are set to be cut by over 25% within the next three years. Rather than attempting to become universal carriers, the railways must above all evaluate potential demand for their services, adapt their products to customer requirements and learn how to sell the services they propose.

In seeking to develop rational and targeted services, the railways must constantly be mindful of the intrinsic technical and economic characteristics of the services they supply: high volumes of passengers or freight traffic are necessary to secure a return on infrastructure; high-speed trains can now be used to carry such traffic flows.

This is exactly what Europe requires over the next few decades: a high-capacity transport system that is fast, reliable and environmentally friendly. The railways could therefore develop services on many corridors where existing road and air connections are now saturated. Furthermore, innovative schemes combining public and private-sector funding could be used to encourage the private sector to invest in such routes.

Besides high-speed passenger services, the railways can offer competitive rates for transporting large quantities of freight between major industrial centres in Europe by providing direct, full-load freight services, at frequent intervals, on lines from which passenger traffic has been transferred to new high-speed lines. Combined transport also offers a way of relieving congestion on the roads and can be used to ship freight through inaccessible regions (mountainous areas, for example) or areas that are particularly hard-hit by pollution from road transport. This sector cannot be fully opened up to competition as long as road hauliers continue to charge low rates by virtue of the fact that ex-ternal costs are not priced into tariffs and lorry drivers' working hours are far longer than those found in other sectors.

Heavy subsidies for public services will thus be maintained on high-density rail links between the centres of major urban areas and outlying suburbs, not least for commuting. But here, too, it would be perfectly feasible to envisage some form of contractual arrangement with commitments as to the nature and quality of services, as well as productivity gains, and indeed this type of approach is becoming increasingly common (France, Germany, the Netherlands).

■■

In view of the hierarchy of services that the railway networks must establish, investment in new high-speed infrastructure, whose short-term profitability is difficult to predict, will be necessary in Europe if the principle of sustainable – that is, environmentally friendly – mobility is to be respected. This is clearly a choice that society must make independently of any short-term policy considerations, for without such investment, even in a period when resources are scarce, the railways will find themselves relegated to the few sectors in which they have already shown themselves to be profitable.■

OECD Bibliography

- Why Do We Need Railways?, ECMT/OECD, 1995
- Privatisation of Railways, ECMT/OECD, 1993
- Guided Transport in 2040, ECMT/OECD, 1992
- High-speed Trains, ECMT/OECD, 1991.

The Information Technology Industry

Vivian Bayar and Pierre Montagnier

The market for information technology is one of the fastest-growing in the OECD area, spurred by the unprecedented scale and speed of progress. Information and communications technologies are essential tools for the storage, processing and diffusion of information which is, in turn, central to economic growth and job creation. These technologies also underpin the global information infrastructure as well as new applications and services, such as multimedia, which will have enormous impacts on the economy and society of the 21st century.[1]

Over the past decade the world information technology (IT) market – computers, their components, software products and related services – has been expanding rapidly, at an average annual rate of 8%. In 1994, IT worldwide was already a $430 billion industry. Demand remains highly concentrated, with more than 90% in the OECD countries, and over 80% of the total in only five (the United States, Japan, Germany, France and the United Kingdom), indicating that the 'information gap' still exists within the OECD area as well as between OECD and non-OECD countries (Figure 1). As yet, the information society is far from global.

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About 40% of spending on IT is on hardware – computers themselves. In spite of forecasts of the death of the mainframe, these larger computers are alive and well and still constitute a cost-effective solution for many tasks, such as high-volume online transactions processing (OLTP) applications. In recent years, their share of the market has declined only slightly and still accounts for 12% of the total value of computer sales. Personal computers (PCs) used by individuals at home, school or work account for over half of total spending on equipment, and over the past decade the market has been growing, on average, by 11% per year. More than 47 million personal computers were sold worldwide in 1994, an increase of 20% over the previous year. Asia-Oceania has the fastest-growing sales figures of any region in the world – 37% – but still accounts for less than one-fifth of world sales. The remainder of the market is taken by medium and small-scale computers.

The number of PC users more than doubled in the last decade in the United States, one of the largest producers and by far the largest consumer in the world. About 46% of employed Americans use computers at work, and more than 25% of adults have computers at home. Although computer literacy for the population as a whole is increasing, it is in the younger age-groups that familiarity with computers is most concentrated – more than 60% of American schoolchildren use computers and over 30% have a computer at home. Overall, more than a third of US households are estimated to own a PC, a penetration rate higher than their principal counterparts in western Europe, not least in the United Kingdom, Benelux, Denmark and Germany.

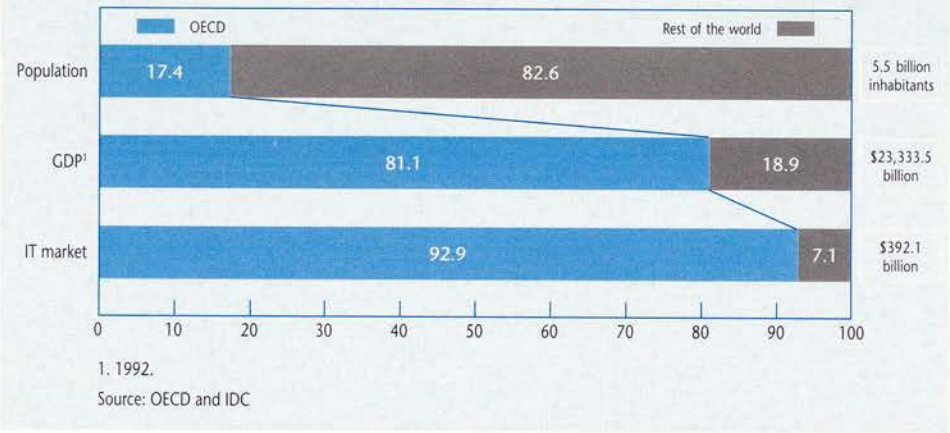
The introduction of IT varies widely among countries, industries, activities and groups of workers. Use of computer-controlled equipment for product design, manufacture and handling – advanced manufacturing technologies (AMT) – is growing. Japan and Sweden have the most widespread use of AMT, followed by Germany and Italy who have profited from AMT in their motor-vehicle and mechanical-engineering sectors. US industry has implemented relatively more computer-aided design and computer-aided engineering applications.

Innovations in product and process and declining prices are both features of the entire IT equipment industry, but nowhere more strikingly than in the components sector (Figure 2). The increase in the performance and capacity of individual computer parts – semiconductors, hard disks, flat screens – is driving the growing penetration and acceptance of IT by users and the development of the 'information society'. In spite of substantial reductions in unit prices of certain components – the price of Intel's 80486 DX microprocessor, for example, was halved in the United States and Europe in less than three years – the increase in the volume of semi-

1. ***Information Technology Outlook***, *OECD Publications, Paris, 1995.*

The Information Technology Industry

Figure 1
Information Technology (IT):
OECD Countries and the Rest of the World, 1993
%



1. 1992.
Source: OECD and IDC

conductor sales was such that their value grew by around 30% in both 1993 and 1994, with South Korea, Hong Kong, Chinese Taipei and Singapore among the fastest-growing markets.

Successively more powerful generations of memories, micro-processors and application-specific chips follow one another every few years or so, despite the increasingly enormous investment costs required for production. The capacity of dynamic random access memories (DRAMs) grew by a multiple of 64 in less than five years. Micro-processors in desktop computers now have raw processing capabilities equal to that of a 1985 mainframe. The average capacity of hard disks in personal computers is growing rapidly in parallel with the space required to accommodate the requirements of the newer software packages and of data storage.

The growth of spending on software products (mainly 'packaged software') has outpaced that on equipment, with a trend growth of 12% per year since the mid-1980s. The OECD area accounts for 94% of the market, estimated at $80 billion in 1994. US firms, with a 75% share of the world market, dominate the development and supply of almost all types of packaged software. In Japan, there is more recourse to the production and use of custom software, tailored to specific applications.

Indeed, development techniques have made enough progress to ensure that the capacity of packaged software to meet the wide variety of users' requirements is advancing at a rapid pace. In addition, software products have announced their arrival on the mass consumer market – seen most recently in the launch of Windows 95 by the US company, Microsoft, and accompanied by an unprecedented public-relations exercise. The move to software 'suites', which combine a number of applications – such as word-processing, spreadsheets and graphics in a single, less expensive package – constitutes another important trend in the highly competitive packaged-software market. This in turn has stepped up the pressure to reduce unit prices.

Computer-related services make up more than a third of the IT market ($146 billion in 1994). They range from the supply of purpose-written software for individual customers, through 'outsourcing services' whereby a client transfers responsibility – for operation, management and maintenance – for some or all of its information systems to a third-party vendor, to 'systems integration', which may involve complete re-engineering of a firm's hardware and software. But growth in the provision of services over the past ten years (9% per year) has been slower than packaged software (12%) as customers opt more for newly available and cheaper off-the-shelf solutions. Nonetheless, demand is also growing for services which adapt packaged software and existing products to individual requirements. The United States alone accounts for over half of expenditures on such services in the OECD area, Europe for close to a third, and Japan for around a tenth.

The IT Sector and the Economy

Computers play a bigger role in the OECD economies than output or market figures for the IT industry itself – the so-called 'direct' contribution to economic activity – might suggest. The computer sector accounts for less than 3% of OECD manufacturing output, employment (Table) and investment. But this equipment is the key to productivity and competitiveness in most manufacturing and service industries.

Although still small compared to the total number of jobs in manufacturing activities, employment in the computer equipment sector has grown by almost 15% since the early 1980s, creating close to 150,000 new jobs across the OECD area. This expansion occurred despite the extensive restructuring of the sector during the second half of the 1980s and contrasts with the general fall of employment in manufacturing. Furthermore, this relatively small sector accounts for a sizable share of research and development, more than 13%, performed by firms in OECD countries.

World production of computing equipment remains highly concentrated. The OECD countries account for well over 80% and the Dynamic Asian Economies (DAEs) for the bulk of the remainder. Most OECD output is by the United States and Japan (70%); France, Germany, Italy and the United Kingdom jointly account for another quarter.

Trade in computing equipment is one of the most rapidly growing sectors of world merchandise trade, with computers and semiconductors

*2. Georges Ferné and Richard Haukins, 'A New Electronic Tool for Business', **The OECD Observer**, No. 196, October/November 1995.*

doubling their share of OECD exports since 1980. In 1993, OECD countries exported about $100 billion and imported $121 billion of computer products, trading mostly within the OECD area. The DAEs provided about 27% of OECD imports, the recent growth in their share helped by the relocation of production facilities by OECD firms as well as increasing dependence of OECD firms on these foreign sources for components.

The Importance of Networking

Computer links facilitate and speed communication and know neither geographical nor national boundaries. Massive investments in upgrading the telecommunication infrastructure, reform of regulation and advances in digitisation technology underlie the creation of the global information infrastructure. Digitisation has made possible the processing, retrieval, communication and dissemination of all forms of information worldwide.

A burgeoning number of households and workplaces, particularly in the United States, can quite easily connect their computers to communications networks, encouraging the growth of on-line services, which bring marketing, discussion groups, electronic mail and countless sources of information direct to home and work. The availability of such services has, in turn, made 'going on-line' an attractive option for an increasing number of users. The US company CompuServe, one of the largest service providers, saw an annual average growth of 35% in the number of subscribers and 20% in revenue in 1989–94. In Europe, with the exception of the public Minitel system in France, which provides telephone directory and a number of other on-line services to 6 million terminals, and a growing number of firms offering access to Internet, there is no major domestic on-line services provider. Some service providers from the United States are therefore starting to make inroads: CompuServe, for example, reached an estimated 200,000 European subscribers in 1994.

The Internet is a highly visible symbol of the information society (box, p. 40). It is also the driving force behind the growth in on-line services, largely through its capabilities for electronic mail and exchange of data (EDI)[2] as well as sound and video. In the coming years, advances in technology which allow faster downloading of information and the implementation of security measures for electronic transactions and communications will spur growth in these services. More and more, personal computers will come ready-equipped with communications capabilities and be able to hook into networks directly. Already, the major telecommunications and software companies are entering the market. AT&T is expanding its on-line services, and Microsoft provides a built-in link to its own offering of on-line services with Windows 95.

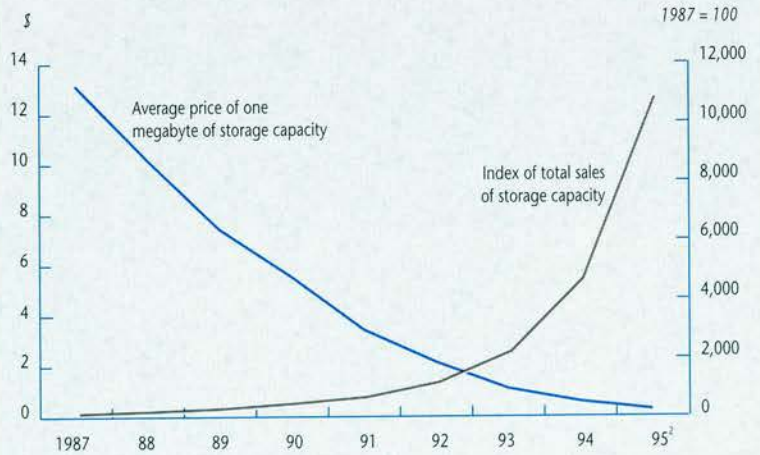
Technical boundaries are blurring, with convergence both in information products and in markets. For example, CD-ROM ('compact disk-read only memory') technology allows the storage and distribution of large amounts of data, far surpassing the capacity ('bandwidth') of the Internet or currently available on-line services. Pending the availability, at the right price, of enhanced telecommunication infrastructures, CD-ROMs are the main vehicle for the new mass-market multimedia applications, which integrate sound, video and textual

Table
Employment in the IT Sector

	number	% change		
	1980	1980–85	1985–87	1987–91
Canada[1]	13,541	37.3	-6.8	-6.5
Mexico	5,649	35.0	-2.4	5.8
United States	387,744	7.1	-17.9	-18.9
Australia	29,072	-9.3	-25.0	-3.5
Japan	213,625	65.1	x	12.9
New Zealand	283	149.5	18.7	-4.9
Denmark	1,800	33.3	8.3	..
Finland	2,537	88.3	-21.5	-5.6
France	49,208	18.9	-12.8	22.3
Germany	78,504	20.3	5.9	-5.8
Italy	17,406	72.4	-6.7	-16.5
Netherlands	9,000	-11.1	x	21.4
Norway	1,735	67.1	23.5	-18.5
Portugal	584	180.7	5.2	..
Spain[1]	4,646	-18.3	8.6	77.2
Sweden[2]	8,733	38.0	0.8	2.9
United Kingdom	45,991	8.7	-10.0	40.8
EU (4)[2]	191,109	21.9	-3.8	8.6
Other Europe[3]	29,035	22.5	1.0	8.4
Average of above 17 countries[3]	870,058	25.2	-8.3	0.1

.. not available
x less than half the smallest unit shown
1. 1990, not 1991.
2. France, Germany, Italy, United Kingdom.
3. OECD estimates.
Source: OECD

Figure 2
Hard-disk Capacity: Price and Sales Worldwide, 1987–95[1]



1. Winchester-type hard disks.
2. Estimate.
Sources: OECD and IDC

The Information Technology Industry

FOCUS

The Internet

The Internet is a worldwide network of smaller computer networks that use a common communications language or 'protocol' which defines how data and messages travel through telephone and other communication links. In over 150 countries, users connected to the Internet have access to a wide variety of on-line services, not least, electronic mail, electronic bulletin boards covering thousands of topics, real-time 'conversations', and data and information from electronic libraries and other databases. It has recently been opened to commercial activity.

The Internet has its origins in defence research in the United States in the late 1960s. It was at first funded by the Defense Advanced Research Projects Agency (DARPA) to link together universities and high-technology defence contractors, and later (until recently) by the US National Science Foundation. Although the mechanisms for making information available to users were somewhat arcane and technically complex on the Internet before 1990, scientists, graduates and other relatively sophisticated users quickly discovered its potential and put it to many innovative uses.

The popularity of the Internet surged along with the availability of more user-friendly applications for 'navigating' and 'browsing' the network and linking information stored in different computers. Gopher, a menu-based text system, first helped move information along the Internet route. Then the World Wide Web (WWW), developed at the European Centre for Nuclear Research (CERN), introduced means for linking text, sound and pictures from equipment all over the world. With the help of graphical user interfaces like Mosaic and Netscape, the Internet has generated interest among a broader audience and entered a new era.

Growth in the number of hosts (computers permanently connected to the Internet) has been phenomenal – from 1,000 in 1984 to 100,000 in 1989 and to over 4.8 million in early 1995. It is estimated that the number of actual Internet users (as opposed to official host connections) passed 30 million in mid-1995. Growth is currently put at around 160,000 new users a month.

As well as user-friendly software to 'navigate' on the Internet, the capacity and price of telecommunications will influence the rate of future use of 'the Net'. At present, 65% of Internet users are in the United States, 22% in Europe and 7% in the Asia-Oceania region (of which 2% in Japan). Use outside the United States has been limited partly by the relatively high price of telecommunications but is expected to grow as competition drives prices down. The home-computer segment is also underdeveloped because of the high price of Internet connections, but may be the largest future market. Internet development in turn affects the on-line services market in important ways. Although many traditional on-line service providers are choosing to also provide connections both for electronic mail and for browsing on the WWW to satisfy customer demand, many new firms have specialised in providing Internet access.

information.[3] The number of different titles available on the market is expanding rapidly. They are also increasingly the delivery medium for large software packages. Already in 1994, 25% of the personal computers sold in the United States had CD-ROM readers installed and this percentage is growing. Growth of CD-ROM sales in all OECD markets is expected to be strong, mainly driven by demand from households. In the longer term, improvements in the network bandwidth and falling prices are likely to lead to the replacement of CD-ROMs by on-line networks.

▪▪

Governments are responsible for putting in place the regulatory aspects of the global information infrastructure. Yet they are hard-pressed to keep up with the pace of developments in IT. Technical standards must be harmonised internationally to allow the free flow of information, and rules must be established for 'fair' conditions of access to the information highway. Furthermore, the absence of privacy for data and information, of protection for intellectual property and of security of information systems could constitute stumbling blocks capable, if not dealt with appropriately, of slowing the exploitation of the global information infrastructure.

Several OECD countries have outlined policy principles to guide their strategies and objectives for developing national information infrastructures. These principles focus on promoting dynamic competition, encouraging private investment, defining an adaptable regulatory framework and providing open access to networks. They also recognise the critical importance of ensuring that provision of and access to services is universal and at affordable prices, of promoting equality of opportunity to citizens as well as diversity of content, and of worldwide co-operation. They have evolved into a basis for agreement and collaboration between the G7 countries with the goal of realising a common vision of the global information society. ▪

3. Jeremy Beale, 'The Information Explosion', **The OECD Observer**, No. 196, October/November 1995.

OECD Bibliography

- Nicola De Michelis, 'Cities on the Information Highway', **The OECD Observer**, No. 197, December 1995/January 1996
- **Information Technology Outlook**, 1995
- Jeremy Beale, 'The Information Explosion', **The OECD Observer**, No. 196, October/November 1995
- Deborah Hurley, 'Property and Privacy in Cyberspace', **The OECD Observer**, No. 196, October/November 1995
- **The Economic Dimension of Electronic Data Interchange**, 1995
- Georges Ferné and Richard Hawkins, 'A New Electronic Tool for Business', **The OECD Observer**, No. 196, October/November 1995.

The Technology Challenge in Turkey

Giovanni Rufo

Turkey has a dedicated and entrepreneurial workforce – but not enough of them work in R&D.

Turkey is emerging from a period of economic difficulty and is facing the prospect of a closer relationship with Europe. But rapid population growth and industrialisation are presenting problems of unemployment and pollution. Science and technology may hold one of the keys for crossing this period of transition.[1]

Turkey has a long-established tradition of science and technology, furthered in the reign of Mustafa Kemal Atatürk (1919–38), the founder of the modern Turkish Republic. The country's innovative capacity is nonetheless undeveloped. And as it moves from a planned economy to a more open one, Turkey must ensure it is not left behind by the gathering pace of technological development elsewhere in the world.

Turkey specialises in lower-technology manufacturing, predominantly food products, textiles and clothing, minerals and basic metals. Industrial production is geographically concentrated around Istanbul, Izmir and Ankara – which is taking a toll on infrastructure and the environment. And despite economic hardships – in the last few years, Turkey has suffered from a persistent recession accompanied by high inflation, and it is the only OECD country where in 1994 output fell in almost all manufacturing sectors[2] – Turkey's small share of OECD exports has increased recently with growth in exports of food and textile products.

The amount of R&D performed in Turkey (Table 1) is low (0.5% of GDP) relative to other OECD countries (2.3% of GDP), which is characteristic of countries centred on low-technology sectors with a large number of small- and medium-sized enterprises (SMEs). Small firms rarely have the financial, technical or human resources to mount protracted research activities. And Turkey's business sector is composed primarily of SMEs, 97% of which have less than ten employees. It is estimated that less than 2% of Turkey's companies currently have research programmes, which limits the country's ability to create the new technologies that underpin economic growth and competitiveness. The government has currently set the goal of increasing R&D spending to 1% of GDP.

Too much of Turkey's research is being carried out in universities (68%) and too little in industry (24%); the OECD average is 16% and 69% respectively. Moreover, the government itself funds two-thirds of Turkish R&D, compared to only one-third on average for the OECD as a whole. Like many other small OECD economies, higher education is the recipient of most (88%) of these government research expenditures (Figure 1).

Turkey is now taking steps to increase R&D spending by business. New tax incentives for research have been introduced. The government is directing more of its own budget to stimulating R&D in the private sector. The Technology Development Foundation of Turkey (TTGU)

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1. ***Review of Science and Technology Policy: Turkey***, *OECD Publications, Paris, 1995.*

2. ***Industry and Technology Scoreboard of Indicators***, *OECD Publications, Paris, 1995.*

Technology Policy in Turkey

Table 1
Total Resources Devoted to R&D, 1983–92

	R&D expenditures			R&D personnel		Full-time equivalent R&D personnel per 10,000 labour force
	PPP[1] ($ million)	By 1994 constant prices billion Turkish Lira	GERD[2] % of GDP	Number	Number (full-time equivalent)	
1983	240.9	261,750	0.20	29,908	12,004	4.0
1990	855.6	31,602	0.33	36,376	13,951	6.7
1992	1,514.5	18,929	0.50	39,817	15,701	7.5

1. Purchasing power parities.
2. Gross Domestic Expenditures on R&D.

Source: OECD

provides grants for industrial R&D activities, mostly in electronics and telecommunications. Attention is being turned to funding development of the environmental technologies required to combat Turkey's industrial pollution problems.[3] Among other goals are an increase in the availability of venture capital for the creation of small, high-technology firms and the implementation of new provisions to give more effective protection to intellectual property. A Patent Institute was established in 1994 to step up patenting and innovative activity.

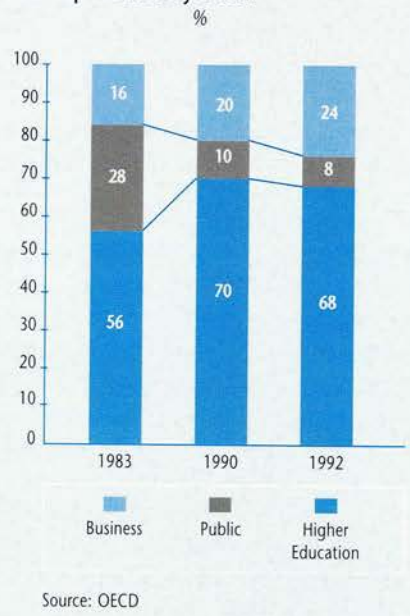
A current emphasis in research is on high value-added agriculture and food-processing industries. But in a country where the agricultural sector supports some 45% of the population, the resources devoted to agricultural R&D have to be increased to help slow down rural depopulation as people migrate to the already overcrowded cities. Farming units are small, on average less than one acre, and technology could contribute to productivity increases.

Stimulating Innovation

Turkey obtains much of its technology, particularly process technology for its food, metals and textiles sectors, from abroad. About 15% of industrial output comes from enterprises with some foreign participation. Turkey's large multinationals are potential vehicles for developing technological strength. The larger Turkish textiles, food and metal companies have up-to-date equipment and are well-integrated in world markets, and NETAS, a joint venture of the Turkish post and telecommunications company and the Canadian company Northern Telecom, is a world-class telecoms firm. Substantial improvements have been made to Turkey's information infrastructure, particularly its telecommunications networks. But spending on computer hardware, software and services is well below the OECD average.[4]

Technology is less well diffused among smaller firms and those oriented to the domestic market. The SME sector receives technological assistance through the Small and Medium Industry Development Organisation (KOSGEB) and the Union of Chambers of Commerce (UCCET). These organisations are diffusing new technologies among their member enterprises through consulting, training and research advice.

Figure 1
R&D Expenditure by Sector



Source: OECD

KOSGEB also provides support for the development and diffusion of technology through credit guarantees, leasing services and a risk-capital fund. It has established two SME Technology Development Centres in Istanbul and Ankara.

Table 2
Researchers in Higher Education by Scientific Activity, 1992

	Number	%
Basic sciences	3,074	10
Engineering	6,025	20
Health sciences	10,154	34
Agriculture	2,056	7
Social sciences and humanities	8,863	29
Total	30,172	100

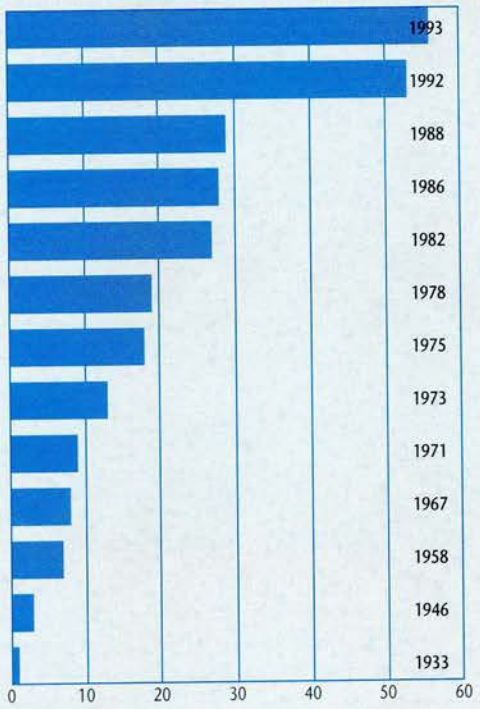
Source: OECD

Part of Turkey's innovation problem is the concentration of research in universities, which have few ties with industry. Although basic research is essential, product and process innovations require a market stimulus. Most universities are public, and bureaucracy tends to slow the delivery of research results and impede interaction with industry. More collaboration on R&D between industry and universities would benefit both parties. Joint research could spur innovation in Turkey's petroleum, cement, glass, textiles and iron and steel industries. And the internationally competitive construction industry would benefit from research support on new materials and building methods.

Improving S&T Infrastructure

Turkey is now working on a general technology strategy and improved institutional co-ordination to establish a stronger S&T infrastructure. The Supreme Council for Science and Technology (SCST), Turkey's S&T policy-making body, and its practical arm, the Scientific and Research Council of Turkey (TUBITAK), set R&D targets for priority activities. Currently, these are information technology, advanced materials, biotechnology, space technology and

Figure 2
Founding of Universities, 1933–93
number



Source: OECD

nuclear technology. A comprehensive national research programme and budget are now required to promote more efficient use of resources and integrate S&T and innovation into economic policy. Turkey's seventh five-year plan, starting in 1996, offers a framework. To initiate such planning, TUBITAK recently established an S&T policy unit.

Turkey has a large number of small public research establishments operating under the aegis of different ministries. The interaction between these units should be enhanced, and larger research centres with economies of scale in technology development could focus on new activities such as biotechnology and remote sensing for satellite coverage of environmental and geological attributes. Other than TUBITAK's Research Centre in Marmara, there are no large, multi-disciplinary laboratories working in commercial activities such as plastics or textiles. An applied research institute focusing on the S&T problems of the less-developed central and eastern areas of Turkey would aid regional development.

Turkey's new Technopark Programme has been a successful building block in the S&T infrastructure. There are now five 'technopoles' in Istanbul, Ankara, Marmara, Izmir and Anadolu, bringing together government, academic and private research facilities and attracting high-technology firms. Most are in computers and electronics and, more recently, biotechnology and advanced materials.

Upgrading Human Resources

The number of researchers in Turkey is inadequate – an estimated 8 per 10,000 of the labour force, compared to an average of nearly 60 for the OECD as a whole. Almost three-quarters of these researchers are in universities (Table 2). The lack of well-trained technicians is a handicap for many Turkish companies, particularly SMEs. One of Turkey's strengths is its human capital, as seen in a dedicated and entrepreneurial workforce, but at present much of its intellectual R&D capacity remains undeveloped or underused. The current goal is to increase R&D personnel to 15 per 10,000 of labour force.

That will depend on improving the standards of basic education and increasing the number of graduates from secondary education. Enrolment and output figures in technical and vocational schools should be raised while maintaining necessary controls on quality. Apprenticeship schools are now being established throughout the country to provide skilled labour for industry. But accreditation procedures for schools and universities have to be standardised. At the same time, increasing their autonomy would allow a more productive integration of old and new institutions, state and private schools, academia and industry. Equipment and libraries should be upgraded, and teaching loads reduced to allow faculty members to do more research.

Turkey has 56 universities, 29 of which have recently been founded in provincial towns (Figure 2), where they are threatened with becoming second-rate institutions, since most of Turkey's R&D is performed by a few of the older establishments in the big cities. The new universities are starting to strengthen their ties with the longer-standing institutions through distance learning, joint faculty appointments and collaborative research. In view of their limited resources, they could concentrate on a few areas of scientific strength such as agriculture-related research and engage in demonstration activities and technology diffusion which could aid employment in rural communities. Turkey now has a few private universities, which are putting long-awaited competitive pressure on public bodies.

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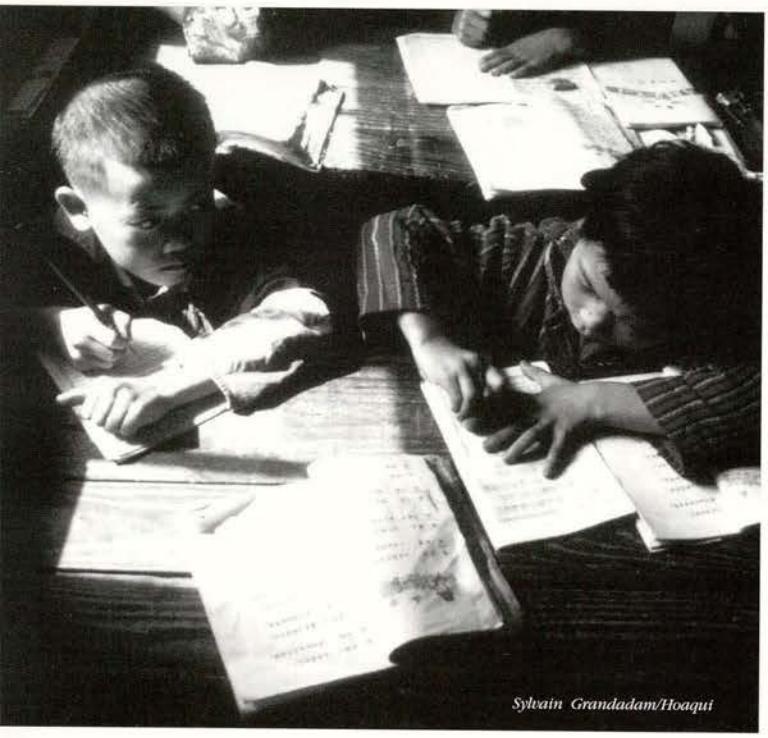
Turkey is now building on its science and technology tradition to catch up with its more technologically advanced OECD partners. Increasing industrial R&D is crucial, and the new tax credit for R&D should help. Privatisation and restructuring of industry, upgrading technical and scientific training, improving the links between university and industry and R&D support to agriculture should also aid Turkey in coping with the advances the 21st century will bring. ▪

3. Ferenc Juhasz, 'Environmental Policies in Turkey', ***The OECD Observer***, No. 177, August/September 1992.

4. ***Information Technology Outlook***, OECD Publications, Paris, 1995; see also pp. 37–40.

OECD Bibliography

- Review of Science and Technology Policy: Turkey, 1995
- Industry and Technology Scoreboard of Indicators, 1995
- Information Technology Outlook, 1995
- Environment Policies in Turkey, 1992
- Ferenc Juhasz, 'Environmental Policies in Turkey', The OECD Observer, No. 177, August/September 1992.


Sylvain Grandadam/Hoaqui

Partnerships

James H. Michel

Bilateral and multilateral aid budgets have become political battlegrounds. The principal donors are nonetheless united in supporting an integrated, people-centred and participatory approach to development. This common strategy is hinged on the encouragement of real partnerships with developing countries. Development co-operation is changing as surely as the global context in which it operates. So predictions of its early demise seem distinctly premature.[1]

The international debate on development and development assistance is both heated and confused. The striking successes of many developing countries in achieving increased stability and prosperity for their people are often ignored. And the extent to which development assistance has contributed to these successes is sharply contested. An 'end of history' for development co-operation is often predicted, explained by a diagnosis of incurable 'aid fatigue' caused by slow progress, the distractions of domestic priorities and the loss of competitive Cold-War incentives.

There are always some critics who will argue that poor countries would be better off without aid. Others claim that the shared interests between industrialised and developing countries are not strong enough to warrant international support. Still others assert that the demise of aid would lead to poverty, conflict, epidemics, migration and generalised human misery as over-population and environmental devastation rendered the planet progressively less habitable. There is also support for redoubled efforts by donors to attain the United Nations target of committing 0.7% of their GNP to development assistance. (The current average is 0.3% among the major donors.)

Amid these swirling currents of opinion, the member countries of the OECD Development Assistance Committee (DAC)[2] have been assessing the changing circumstances and agreeing on policies to carry forward their common efforts. They share a conviction that the plight of the hundreds of millions who still live in extreme poverty demands an effective response from the industrialised nations on the same grounds of responsibility and shared interests that lay at the origin of the OECD. They recognise the remarkable progress of recent decades, during which incomes have doubled, life-spans have increased by about ten years, infant mortality has declined dramatically and literacy rates have improved. They share a clear vision of sustainable economic and social development that will enhance the security and well-being of people across the globe.

The context for development co-operation has changed in many ways from the traditional image of rich countries transferring capital to poor countries, primarily on a government-to-government basis. The late 1990s present a far more complex picture.

Diverse Destinations

Among the complexities is the sheer diversity of 'developing' countries. Some of the poor countries have been successful in achieving sustainable growth and reducing poverty. They are now attracting flows of private resources. Some are even reaching out to support the efforts of their neighbours, often in three-way partnerships with industrialised countries. Yet many of these more successful countries still require assistance to support programmes to alleviate poverty and promote the social progress essential to the sustainability of their economic and political reforms. When domestic resources and private flows are not yet sufficient to these ends, continued concessional flows from donors are still necessary. Others have lost ground. Some countries have become poorer. In the poorest countries that have not yet begun to achieve economic growth, improve social conditions or

James H. Michel chairs the OECD Development Assistance Committee.

1. ***Development Co-operation: Efforts and Policies of the Members of the Development Assistance Committee, 1995 Report***, *OECD Publications, Paris, 1996.*

2. *The Members of the Development Assistance Committee are the 21 OECD countries who are the principal aid donors, plus the Commission of the European Communities. Four other OECD countries, Greece, Iceland, Mexico and Turkey, are not DAC members, but participate in DAC deliberations of interest to them. The International Monetary Fund, the United Nations Development Programme and the World Bank are permanent observers.*

in Development

attract flows of private capital, there is no alternative to assistance.

Another complexity is the broad diversity in the sources of capital flows to developing countries (Figure). In the mid-1980s official development finance constituted the major part of resource flows, about double the amount of private flows; in the mid-1990s private flows, at $110 billion, far exceed total official flows of about $70 billion (including close to $60 billion in official development assistance (ODA) from OECD taxpayers). But the growing volume of private flows remains highly concentrated in the more dynamic economies. The smaller and least-developed countries see little of this potential source of development finance.

A third complexity is the expanding notion of the goals of development – economic advance, avoidance of conflict, environmental stability, just and democratic governance – and the growing range of instruments used in support of them. International co-operation towards these ends falls beyond the remit of the managers of aid programmes, since it also depends on policies in trade, investment, environment, arms sales, agriculture and other areas. That requires a coherent cross-sector policy framework.

Two particularly important changes in the policy framework are an increased emphasis on the human dimension of development and the evolution toward a single, global economic system.

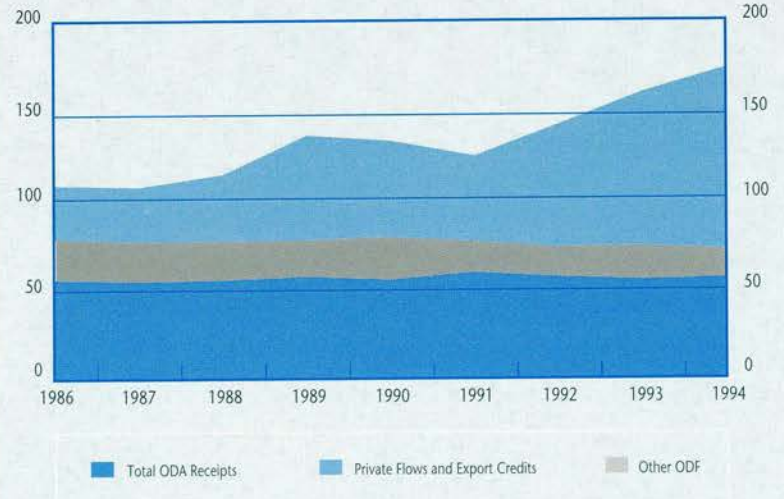
Human and Social Factors

Economic thinking is increasingly taking account of human and social capital – the capacities of individuals, groups and whole societies to learn, to adapt and to co-operate with one another. Human capital has been recognised more clearly in recent decades as a fundamental part of the production function and a central determinant of productivity. This recognition was spurred by the work of the American economist Theodore Schultz in the early 1960s, showing that peasant farmers respond to market opportunities and technological change. These insights, which today seem hardly surprising, helped to replace state-based, top-down models for development with more participatory approaches and more emphasis on market-based policies, the reduction of poverty and investment in basic health and education.

The notion of social capital is now yielding further, and equally profound, insights. This concept suggests that development performance depends on a whole web of norms and networks of civil engagement. Where 'human capital' focuses on the capacity of an individual to make competent decisions, 'social capital' refers to that capacity in a group. It has grown from the structure of relations between and among people and their organisations.

The broad concept of 'capacity development' embraces both human and social capital in what is called the new institutional economics – the study of the macro-economic impact of constitutional rules and norms, and the behaviour and performance of individual institutions and the interaction among them.

Figure
Net Resource Flows to Developing Countries
$ billion[1]



1. At 1993 prices and exchange rates
Source: OECD

Local Ownership and Participation

The member countries of the DAC, in recognition of the extent to which development in any country depends on its human and social resources, have increasingly emphasised the importance of local control of policies and programmes. The developing countries have the ultimate responsibility for their own evolution, and the effectiveness of their policies and institutions is central to their successes. Concomitantly, it is now admitted that the supporting role of external partners should concentrate on helping to strengthen the capacities of poorer countries to meet the requirements for sustainable development.

This growing emphasis on local control and putting people at the centre of policy reflects a broader, more comprehensive way of thinking. Successful projects are more likely in a sound policy environment; the quality of policies in a developing country is influenced by the political processes by which decisions are made; and the decision-making process, in turn, is influenced by the capacity of people and institutions not only to formulate decisions but also to carry them out on a sustained basis.

The emerging framework for development co-operation is that partners should try to help countries improve their capacity to participate in the global economy, and people to overcome poverty and be able to play their full role in society. In this context, capacity means

Partnerships in Development

M. Huet/Hoaqui

Respect for local institutions has replaced earlier state-based, top-down models.

more than technical competence. It means the ability to sustain dynamic and productive co-operation among political leaders, the institutions of governance and civil society.

The Partnership Model

The 1995 DAC policy statement, 'Development Partnerships in the Changing Global Context', identifies integrated elements necessary for a successful development strategy, including:

- a sound policy framework encouraging stable, growing economies with full scope for a vigorous private sector and an adequate fiscal base
- investment in social development, especially education, primary health care, and population activities
- enhanced participation of all people, particularly women, in economic and political life, and the reduction of social inequalities
- good governance and public management, democratic accountability, the protection of human rights and the rule of law
- sustainable environmental practices
- addressing the root-causes of potential conflict, limiting military expenditure, and targeting reconstruction and peace-building efforts toward longer-term reconciliation and development.

The formulation and implementation of these strategies is principally the responsibility of local government and civil society. The role of the external partners is to support the strengthening of local capacities to carry out that responsibility. This is an important clarification of roles in development co-operation. If donors believe in local ownership and participation, they must use channels and methods of co-operation that do not undermine those values.

In a partnership, development co-operation cannot be seen as something that rich countries do for poor countries and poor people. Instead, it must be recognised as a collaborative undertaking by parties who share an interest in sustainable development. That is a very different kind of relationship from one of sponsor and client or patron and beneficiary. It implies a contractual arrangement in which the partners come to a meeting of the minds on their shared objectives and on their respective contributions and expectations of each other in support of those objectives. Since one of the objectives is participatory development, it follows that national governments are not the only players involved. Participatory development requires, by definition, participation: by national, regional and municipal government; by the institutions of civil society, including non-governmental organisations, civic groups, business and labour associations, and a free press; and by individuals.

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This is a time of unprecedented opportunity for achieving substantial reductions in poverty, increased participation in political and economic decisions and processes, and the integration of many more countries into the global economic system. The stakes for OECD countries and all others in a sustainable world order of shared interests and values are obvious. Within the framework of policies promoting participatory development, international co-operation can make an important difference. Ultimately, the future of development assistance is one of political vision and will. The stakes are enormously high, but so is the potential for progress. It is a critical test of vision in OECD countries whether adequate and effective support will now continue for efforts to help developing countries and their people to gain the capacity to help themselves, and thereby contribute to a more secure and prosperous future for everyone. ■

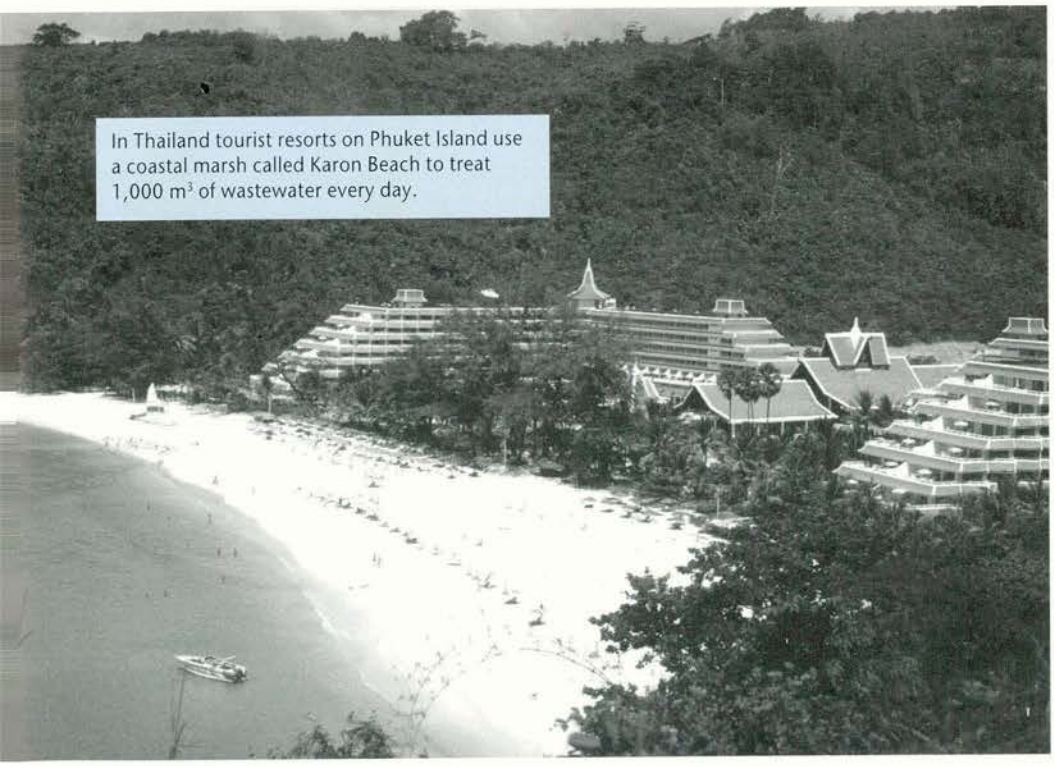
OECD Bibliography

Development Co-operation: Efforts and Policies of the Members of Development Assistance Committee, 1995 Report, 1996.

Revaluing Wetlands

Bettina Söderbaum

Wetlands are among the richest and most productive ecosystems on the planet, yet they are also one of the most fragile and threatened. Traditional approaches to economic progress have not treated them well or wisely, especially in the northern hemisphere. Around a half of the world's wetlands systems has been lost forever – the victim, mostly, of misguided economic and sociological thinking. New ways are now emerging of valuing such ecosystems. The results show why wetlands conservation should be at the top of the social, economic and political agenda.[1]



In Thailand tourist resorts on Phuket Island use a coastal marsh called Karon Beach to treat 1,000 m^3 of wastewater every day.

A. Dinnaty/Explorer

About one-twelfth of the world's land surface can be classified as 'wetland' – that is, where dry land meet sor mingles with water. Most wetlands lie in the tropical and sub-tropical regions, between 30° north of the Equator (a line passing through Shanghai, Cairo and New Orleans), and 30° south (a line linking Brisbane, Durban and São Paulo). Between these latitudes are much of Asia and the Pacific, most of Africa, and South and Central America. A large number of the world's developing countries lie within these regions, making wetlands issues very closely linked with development issues.

Many different kinds of waterscape qualify as wetlands. The internationally accepted definition is deliberately broad: 'areas of marsh, fen, peatland or water, whether natural or artificial, permanent or temporary, with water that is static or flowing, fresh, brackish or salt, including areas of marine water the depth of which at low tide does not exceed six metres'.[2] Open coasts, lakes, rivers and shallow coral reefs fall within this definition, as do estuaries, tidal flats, mangrove forests, floodplains, swamps and bogs. Man-made bodies of water also qualify, not least reservoirs, aquaculture ponds, sewage treatment ponds and even rice fields. Because of this variety, deciding on the wisest use of wetlands is a very complex subject indeed.

Wetlands are havens of biodiversity, the biological supermarkets of the Earth. They fulfil a huge range of useful functions which people often take for granted. Sometimes these values have only come to be appreciated when the wetlands have been removed. Most wetlands are

1. Guidelines for Aid Agencies for Improved Conservation *and* Sustainable Use of Tropical and Sub-tropical Wetlands and Guidelines on Aid and Environment, *OECD, Paris, forthcoming 1996; both available free of charge from the Economics and Environment Division of the OECD Development Co-operation Directorate.*

2. The Ramsar Convention on Wetlands of International Importance, *adopted in 1971, this inter-governmental treaty with 90 signatory countries provides the framework for international co-operation for the conservation of wetland habitats.*

Bettina Söderbaum works in the Economics and Environment Division of the OECD Development Co-operation Directorate.

Revaluing Wetlands

home to dense and diverse populations of plants, animals, aquatic life and waterfowl. They also serve as breeding and nursery grounds for most of the fish populations of rivers, lakes and the open sea.

Wetlands perform vital services in the water cycle. They filter and purify water and return it in a cleansed state to the groundwater table or to the sea. On Phuket Island in Thailand, a coastal marsh known as Karon Beach is used in this way by nearby tourist resorts to treat up to 1,000m^3 of wastewater per day, cleanly, efficiently and cheaply. Wetlands may, in reverse, act as fountainheads for underground water reserves. In Tunisia, on the Plain of Kairouan, a shallow inland freshwater wetland recharges the groundwater of Tunisia's arid coastal plains, providing well-water for many agricultural enterprises. In Malaysia, the natural water discharge of peat-swamp forests provides a reliable and inexpensive supply of water which can be used for rice-growing.

Wetlands also play a major role in flood control, by receiving and storing excess water in times of peak river flows or high rainfall. The Pantanal floodplain in South America (box, right) has the capacity to absorb five times its normal volume of water during the rainy season, and then slowly release it into the downstream river system. Many lives and livelihoods are safeguarded by this valuable natural flood-control service. Other wetlands benefits include shoreline stabilisation, erosion control, protection against storms and stabilisation of the local climate.

Surrounding human communities can make use of wetlands as cheap transport systems, reserves of clean water and sources of food, fuel and building materials. Products which can be 'harvested' from wetlands include timber, fuelwood, tan-bark, resins, medicines, honey, animal forage, and grasses and reeds to build shelter. Since many wetlands are cyclical in nature and dry up for some periods of the year, they can even during these times be used for agriculture while still preserving their other functions. Many wetlands also, because of their wilderness and abundant wildlife, attract visitors and tourists as recreational grounds for game viewing, hunting and fishing, or simply for their scenic beauty.

Growing Pressure

In the course of this century, many factors have placed tremendous pressure on the world's wetland ecosystems. For a long time, in OECD countries, the term 'wetlands' was thought of as synonymous with 'wastelands'. Indeed, history has shown that in the continents of Europe and North America, as burgeoning populations spilled over into wetland areas, human wellbeing suffered. Wetlands were traditionally regarded as unusable, often dangerous zones. People saw them as marginal land areas riddled with the agents of death or debilitating disease, offering a poor quality of life. Community leaders encouraged the draining and filling of wetlands as a first priority in any civic progress scheme, actions generally applauded as public-spirited.

Other factors contributing to the demise of wetlands include rapid global population growth, a worldwide drive for increased landholdings and modern patterns of industrial and agricultural development. Industrial waste and domestic sewage contaminate wetlands, as does the run-off of agricultural pesticides, herbicides and fertilisers. Construction, erosion or deforestation upstream can increase sedimentataion, which destroys the breeding areas of fish and blocks the natural filtration effects of the porous bottom layers of the wetland. Large-scale plundering of wetlands products can also cause major degradation by altering the fragile balance of the ecosystem. The logging of timber, mining and clearance of vegetation can all cause damage, as can overfishing and over-extraction of water reserves.

As a consequence of these pressures, as much as 50% of the worldwide total of wetlands have now been lost, probably forever. Not surprisingly, most of this loss has occurred in the northern hemisphere. By 1991 the United States had lost half of all the wetlands that were present in its colonial days.[3] And by 1960 France had already lost 40% of the wetlands along its Brittany coastline and 80% of those in the Landes region in the south-west. The Netherlands has converted wetlands on a massive scale over the past century, to which action it owes much of its modern-day prosperity. Many other OECD countries have founded economic growth on the reclamation of wetlands, by turning them over to agricultural, industrial or urban development. This has frequently been encouraged with generous support from public funds, in the form of agricultural or industrial subsidies, and even direct subsidies for wetlands conversion.

But wetlands loss in Europe and North America has often been at a price. Very often public funds have had to be drawn on afterwards to mitigate the long-term environmental impacts. In the Netherlands, for example, there is growing concern at the investment which will be required to protect coastal infrastructure and reclaimed land from rising sea levels. Elsewhere in Europe and in North America – in the Everglades in Florida and the Mississippi Delta in the United States, the Ouse Washes, Loch Leven and the Dee Estuary in the United Kingdom, the Western Algarve in Portugal and South Baden in Germany, to cite only a few such places – there have been losses such as decline in fisheries productivity, a growing frequency of flooding and irreversible loss of biological and landscape diversity. In Europe 32 species of living creature have been documented as extinct between 1600 and 1994, and 264 in North and Central America.[4] Indeed, of 209 North American species listed in 1986 as being endangered and threatened, 54% of the animals and 26% of the plants are dependent on wetlands at some time in their life-cycle. One specific example of a species driven to near-extinction by the eradication of wetlands in Europe is the fen-raft spider, found now in only two places in England following progressive drainage of the fens.

A Poor Model for Developing Countries

The danger for developing countries is that as they largely follow models of development

learned from their more prosperous partners, there is a real risk of the same effects being reproduced on their wetlands as well. There are potentially even more drastic impacts for their inhabitants, since they are more likely to be subsistence dwellers whose livelihoods depend on being able to use the natural bounty of their wetlands areas. Very few developing countries are wealthy enough to pay for the consequences of the loss of benefits their wetlands once provided for free. Fortunately, in developing countries, wetlands losses have so far been on a lesser scale, but they have nonetheless been substantial. By 1985 Asia had lost about 27% of its wetlands, South America about 6%, and Africa about 2%. Predictions are that the threats will intensify in these regions.

One of the main pressures, as in the north, comes from drainage to provide land for agricultural production. In countries where populations are growing and fertile land is scarce, large areas of wetlands have already been destroyed or are under threat. In Malaysia, wetlands have been drained to make way for oil-palm cultivation, which in turn has produced effluents that have further polluted the country's water systems. In eastern China, 3.1 million hectares of coastal marshes and mudflats are under pressure from large-scale conversion for the production of grain, cotton and sugarcane. Although to date only a relatively small area has been converted (some 40,000 hectares), official attitudes towards wetlands in China mirror those which prevailed in 19th-century Europe. Unless these views change, there will be losses on a much larger scale as pressure to convert grows.[5]

Many wetlands areas, mangrove forests in particular, are under threat in developing countries from demand for coastal areas to turn over to shrimp-farming or other aquaculture industries. This lucrative business is encouraged by a world-wide demand for high-priced shrimp as well as a general depletion in natural fish stocks. In a vicious circle of effects, the fish stocks are then further depleted by the destruction of the breeding grounds once provided by the mangrove swamps. As well, silt and sediment previously trapped by the mangroves washes out to sea, which causes the deterioration of offshore coral reefs, and additional losses of species of reef fish.

Another cause of wetlands loss is large-scale diversion of water for irrigation, the most spectacular example of which has emptied the Aral Sea in Central Asia. This formerly mighty lake, once ranked fourth-largest in the world, has had so much water diverted for cotton-growing from its feeder water systems that it has shrunk to two-thirds of its former size. The result has been a loss of fisheries, extensive pollution and salt and dust storms, with serious consequences for human health in the surrounding areas.[6] The construction of dams can also spell disaster for wetlands for similar reasons, by reducing the volume and rate of flow of water, leading among other things to heavy siltation, upstream flooding and loss of fertile floodplains downstream.

3. J. Tolman, 'Achieving No Net Loss', National Wetlands Newsletter (Environmental Law Institute), Vol. 17, No. 3, May/June 1995.

4. Ronald Barley (ed.), The True State of the Planet, The Free Press, Washington DC, 1995.

5. World Resources 1994–95: A Guide to the Global Environment, Oxford University Press, Oxford, 1994.

FOCUS

The Pantanal: A Wetland Area under Threat

The Pantanal is the world's largest wetland. Covering between 140,000 and 200,000 square kilometres in south-western Brazil, it is a breathtakingly beautiful expanse of swampy grass-lands, shallow lakes and forests bordering the meandering Paraguay River. The Pantanal is one of the world's biodiversity hotspots. It provides a natural habitat for 658 species of bird, some 1,132 species of butterfly, and over 400 species of fish. Numerous threatened species of mammals live here as well – the jaguar, the marsh deer, the maned wolf, the giant anteater and the giant otter. The Pantanal is also homeland to 19 indigenous peoples.

At present, only 135,000 hectares of the Pantanal ecosytem are protected by legislation as national park land. Environmental pressures on it are growing. The most serious threat of all is posed by plans at present under consideration for a project to straighten the Paraguay River. Straightening the river's shifting and sometimes obstructed channels would make it more suitable for commercial transportation of agricultural products and minerals from the interior of the continent to deep-sea Atlantic ports in Uruguay and Argentina. Ironically, river transport would do far less damage to the regional environment than road and rail systems.

But for the Pantanal the consequences could be serious if the project goes ahead: birds, fish and mammals living along the shore would be directly affected by dredging, erosion, and, eventually, by the increase in river traffic. Perhaps the worst impact would come from the hydraulic effects of dredging and straightening the river bed. The speed and rate of discharge of the Paraguay would be dramatically increased, raising the likelihood of seasonal and catastrophic floods downstream. And the loss of the Pantanal's function as a 'sponge' would increase siltation in the river delta and estuary, requiring more frequent and more costly dredging in an area that is critical to coastal navigation.

Much depends on the development approach and mitigation measures adopted for this planned project by the decision-makers responsible. The countries of the region are well aware of how much is at stake, and to make sure that their decisions take into account all available environmental as well as economic data, a series of studies analysing the options is currently being financed at their request by the Inter-American Development Bank. Many options are still open, allowing the choice of the best approach to preserve the region's rich natural resources. The decisions they take over the next decade will be critical to the fate of the Pantanal and the many living creatures, including human beings, which depend on this wetland for survival.[1]

1. M. Ehrlich, 'Waterway Plan Gets a Careful Look', *IDB – Journal of the Inter-American Development Bank*, June 1994.

Revaluing Wetlands

S. Sherbell/Sahat-REA

Once the world's fourth-largest lake, Lake Aral has lost a third of its surface area because its feeder rivers have been diverted for irrigation.

Straightening or dredging rivers to make navigation easier, as in the proposed project affecting the Pantanal wetland, can also cause problems. Many other things, such as institutional weaknesses and policy inconsistencies, can indirectly place wetlands under enormous stress, resulting in loss or degradation and a loss of benefits.

Unthinking Development?

Development co-operation has often contributed to wetlands loss or degradation in the past, either directly by funding projects which have damaged wetlands, such as hydro-electric dams and irrigation projects, or indirectly, by not taking wetlands into account during project design and implementation. The reason is most often a lack of awareness throughout society of the importance of wetlands, not least amongst decision-makers and project managers. Lack of cohesion between different sectorial areas can often be a problem. Aid agencies may simultaneously support programmes for coastal-zone management, yet at the same time sponsor training courses in aquaculture techniques which encourage the loss of vital mangrove ecosystems.[7] Policies in many different sectors – for example, in food and agriculture, energy, forestry, transport, ports and shipping, water resources and flood control – may all have a bearing on the fate of a particular wetland.

It is now increasingly being recognised that there are serious flaws in the methods of calculation that have hitherto been used to rate the comparative benefits of keeping or replacing wetlands. Until recently, short-term considerations like the importance of ready income and employment have driven decisions, and environmental information has often been ignored. Where assessments have been done of the likely impacts of projects which will affect wetlands, traditional economic methods have tended not to allow for quantifying the true values of wetlands.

Various methods are now being devised which try to incorporate environmental economic values into decision-making. That is not always easy, because not all wetlands benefits can be quantified in economic terms – erosion control and storm protection, for example, do not have direct markets. But such benefits can be used as criteria for judging development alternatives in deciding the fate of a wetland. It is important, therefore, in taking decisions that might affect wetlands that the monetary values of economic equations are tempered with 'non-market' values to gain a true picture of a wetland's worth.[8]

The solutions to extensive loss or damage to wetlands thus lie in better-informed opinions of their value, and wider understanding of the actions which can destroy them. Governments should develop sound national wetlands policies and make sure that their sectorial and economic policies do not have an adverse impact on wetlands. Legislative protection should be introduced where necessary, and monitored to ensure that it can be suitably enforced. It can, of course, happen that, even so, the decision regarding a particular wetland will still be to convert it to other uses. Where this happens, every effort should be made to compensate by restoring or improving another wetland of around the same size elsewhere in the country. Development co-operation can also make an important contribution by discouraging support of aid activities which are likely to damage wetlands[9] or by making sure that, where wetlands will be unavoidably affected, adequate measures are taken to mitigate the damage.

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Above all, there must be widespread recognition of the value of wetlands, and acknowledgement of the chain of effects their loss or degradation may cause. There must be commitment throughout all societies to support the wise use of wetlands wherever possible, so that both present and future generations may continue to benefit from the unique contribution they offer to the delicate balance between humankind and nature. ▪

6. Mainstreaming the Environment: The World Bank Group and the Environment since the Rio Earth Summit, *World Bank, Washington DC, 1995.*

7. *P. J. Dugan (ed.),* Wetland Conservation: A Review of Current Issues and Required Action, *IUCN, Gland, 1990.*

8. Good Practices for Environmental Impact Assessment of Development Projects, *OECD, Paris, 1992; available free of charge from the Economics and Environment Division of the OECD Development Co-operation Directorate.*

9. Guidelines for Aid Agencies on Pest and Pesticide Management, *OECD, Paris, 1995; available free of charge from the Economics and Environment Division of the OECD Development Co-operation Directorate.*

OECD Bibliography

- Planning for Sustainable Development: Country Experiences, 1995
- Developing Environmental Capacity: A Framework for Donor Involvement, 1995.

Helping Small Business in Eastern Europe

Martin Forst

Since the collapse of the Communist bloc, and despite four decades in which entrepreneurship was rigorously suppressed, private enterprise has flourished rapidly in Hungary, Poland and the Czech and Slovak Republics. Central planning and the prohibition of private property seem to have been unable to destroy the entrepreneurial spirit that had existed there before the Second World War. Several lessons can be drawn from the experience of the first five years of transition.[1]

Small and medium-sized enterprises (SMEs) have a central role to play in the transition to a market economy. The creation of entrepreneurs is fundamental to the entire process of transition. If market principles are to be anchored in the attitudes of ordinary people, entrepreneurs are role models who give practical meaning to otherwise abstract concepts. In addition, SMEs step up competition in markets, thus keeping pressure on prices and ensuring regular supply. They have considerable innovative potential which will have to be harnessed if the transition economies are to emerge from this period of restructuring and become fully competitive in world markets. Finally, the growth of SMEs helps absorb the labour shed by the shrinking public sector.

The starting conditions in 1989 in each of the four 'Visegrad' countries – Hungary, Poland and the Czech and Slovak Republics – had a powerful influence on the first five years of transition and on the success of policies intended to stimulate entrepreneurship. All four had a broad spectrum of activity in the black economy, ranging from the partially legal and officially tolerated to the completely illegal and covert. Hungary and Poland already had some legal private-sector activity, as a result of reforms introduced by the Communists (Table 1). In the Czech and Slovak Republics, by contrast, private enterprise held only a marginal position at the start of transition.

More importantly, these countries had a tradition of entrepreneurship dating from before the Communist period. Unlike the experience of the former Soviet Union, where the state had been directing the economy for seventy years, the history of private enterprise in the Visegrad countries was a thing of living memory, maintained by cultural and economic links with western Europe.

The number of small businesses started since 1989 has been high, but many of them fold rapidly or move out of the market again. This is not surprising: many entrepreneurs are not well versed in business management, and market conditions are often far from transparent, making it difficult to estimate demand, for example, or to obtain an overview of current and likely competition. The sectorial distribution of start-ups reflects the capacity of new entrepreneurs to overcome barriers to entry, not least the extent to which high initial investment is required. The largest proportion of start-ups (between 35% and 48% of the total) is commercial, often small retail kiosks, or services (between 20% and 25%), such as restaurants, reflecting relative ease of entry. Activities demanding higher start-up capital, such as manufacturing (between 17% and 20%) and construction (between 9% and 17%), account for much smaller shares. There is nonetheless an increasing number of SMEs in manufacturing, perhaps indicating that these countries are entering a new phase of transition: the initial over-representation of commercial activities among SMEs would seem to be an unavoidable and temporary phenomenon of transition.

Policy Tools

How should policies encourage the growth of SMEs? There are two areas for action. The first concerns the 'framework conditions' for entrepreneurship: stable macro-economic conditions of growth, with low inflation; a clear and enforceable legal framework; the privatisation of state enterprises; minimum bureaucracy; little corruption; competitive market conditions; no subsidies for large public enterprises; well-balanced social and fiscal laws; good infrastructure; and the availability of appropriate human resources.

The second area for policy involves more direct instruments to promote SMEs: loan and guarantee programmes; interest-rate subsidies;

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1. Small Business in Transition Economies, *OECD, Paris, 1996; available free of charge from the CCET section of the OECD Territorial Development Service.*

Helping Small Business in Eastern Europe

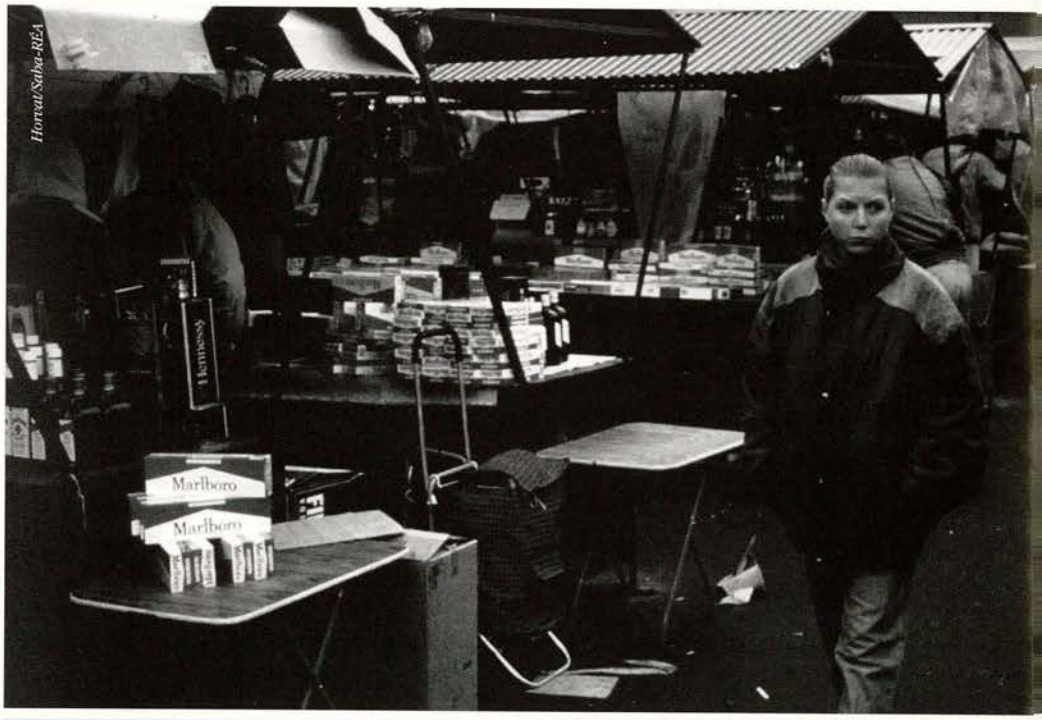
FOCUS

Regional Aspects

Statistics show clearly that geographical factors play an important role in the development of the private sector in all four Visegrad countries. Substantial disparities in development that exist for historical reasons are already reinforced, with new ones added as a result of the economic transition. Monostructured industrial regions (those based on mining or steel, for example) and remote rural areas are suffering particularly, fewer new enterprises are set up and unemployment is far above the national average. Conversely, urban centres and their narrow catchment areas benefit from the economic transition with thriving private-sector development assisted by a range of business-support services available only there.

Policies for SMEs therefore have to vary from region to region. Foreign donors have been particularly helpful here. But regional support arranged in networks is still wanting, particularly in the Czech and Slovak Republics, mainly because of lack of resources and administrative problems in establishing regional support centres. Another serious obstacle lies in the difficulty of integrating vertical and horizontal support measures into coherent regional and economic strategies.

The importance of co-ordination can be demonstrated by the fact that, particularly in Slovakia but also in Hungary, many of these programmes are concentrated in regions which are already well provided for, as around Bratislava, for example.



Even under communism Hungary and Poland had both tolerated – at least to some extent – black-market and legal private-sector activity.

employment subsidies; tax relief; equity programmes and grants; training, advice and consulting; information offices; industrial parks and business incubators; and regional-development agencies.

It is clear that these direct tools are interdependent and their impact closely linked to the framework conditions. Efficient SME policy has, therefore, to take all these factors into account. So how have the two categories of policy been implemented? As a first step, in all the Visegrad countries attempts have been made to give an institutional base to entrepreneurship policy and political responsibility for SME development. Departments have been created in ministries of economy and of industry and trade to draft legislation for SME promotion, co-ordinate with other ministries on relevant policies, and to establish an infrastructure for entrepreneurial development.

But these departments mostly come low in the ministerial hierarchy and face fundamental difficulties in co-ordinating activities in other ministries, a situation exacerbated in the past by frequent changes of staff and of ministerial responsibility. Nevertheless, there are now signs of improvement as departments become more stable.

Framework Conditions

The framework conditions for successful entrepreneurship have often been overlooked in national strategies to promote SMEs because of problems of co-ordination both inside government and with the private sector. Those responsible for SME development now understand this link better and see their role as that of an agent of change, convincing and co-ordinating other players, such as ministers of finance, regional governments and so on.

But there are still a number of aspects which retard SME development. Contract and bankruptcy laws have been designed, yet it is still difficult for SMEs to collect their dues through state enforcement mechanisms. Taxes and social-security contributions are other areas for possible improvement, although constraints on public budgets have to be taken into account. The banking system remains far from being the financial intermediary necessary for comprehensive SME development and the micro-adjustment of this sector still requires considerable time and effort. And two other elements are essential: self-help organisations for private business and SME-related vocational training.

Table 1
Self-employment in Central Europe, 1989–94[1]
thousands

	Poland	Hungary	Czech Republic	Slovak Republic
1989	682	315	8	2
1990	837	355	45	15
1991	1,044	401	245	75
1992	1,197	430	323	104
1993	1,309	472	415	120
1994	1,440	562	460	128

1. Other than agriculture.
Source: OECD

Chambers of commerce and self-help business associations assume an important role in the transition from a planned to a market economy. Ideally, they serve as a source of information and services and fulfil an important lobbying function by giving SMEs collective weight with which to protect their interests against government and large industry. But in spite of wide agreement on their desirability, none of the four countries yet has a comprehensive network of self-help organisations strong enough to make a direct impact on SME development.

Funding and credibility are central problems in setting up such organisations. Many of the organisations are successors to former Communist chambers of commerce and find it difficult to win the confidence of private entrepreneurs. Moreover, the abolition of compulsory membership of the bodies that do exist in the Czech Republic, Hungary and Poland has limited the services that chambers can offer and they are thus less attractive to entrepreneurs. Business associations – where membership is generally voluntary – face the problem of fragmentation, with a large number of small and often competing associations, most of which lack the political clout to influence government decisions.

Education, vocational and entrepreneurial training tend to be neglected in SME policy since most of the benefits are long-term and because SME issues are still of little interest to ministries of education. The Communist education system was characterised by values largely incompatible with the requirements of SMEs in a market economy. And it seems still that the public education and vocational-training system has not taken into account the new requirements of the market economy, particularly those of SMEs. Public vocational training is not yet directly linked to the enterprise culture and it is facing considerable funding problems, with the result that teachers are badly paid, learning materials are obsolete and machinery defective. Increasingly, qualifications for entrepreneurs and managers are offered by private suppliers. Here one can observe an enormous diversity in quality which the users find difficult to assess. Unfortunately, the market for private entrepreneurial training is still in its infant stages, indicating that low-standard institutions of further education are not yet being driven out of the market. Unfortunately, the self-help organisations, those best placed to take over some kind of quality-control for such services, are not yet able to do so.

Direct Instruments

There have been numerous initiatives, both public and private, to set up non-financial services for new businesses and existing SMEs, frequently offering advice, counselling and training for would-be entrepreneurs on such topics as finance, marketing and managing human resources. Many of these services focus on helping entrepreneurs apply for financial assistance (for example, by drawing-up business plans, cash-flow analyses and credit requests). An overview of assistance programmes and the services of newly created business parks or incubators is also often made available.

These organisations frequently receive considerable foreign help, in the form of both cash and expertise, from bilateral donors and multilateral institutions. But in many cases the organisations took two or three years to become operational and to meet the requirements of local entrepreneurs.

From little acorns? Many small businesses have sprung up since 1989, often in sectors with low barriers to entry, such as retail kiosks.

Serge Attal

Helping Small Business in Eastern Europe

The extensive use of foreign expertise was probably necessary to launch SME-related services. But, too often, western concepts – business incubators, for example – were simply copied without adaptation to local social and institutional conditions, let alone awareness of what entrepreneurs were really lacking. Western consultants often spend fairly brief periods in the countries in transition before making their pronouncements. Co-operation and the transfer of experience between western and local consultants has not been sufficiently promoted, an oversight that is now becoming increasingly apparent.

Preferential loans and credit guarantees have been used in the design of many SME programmes, since most private banks in the countries in transition require 200—300% collateral from SMEs applying for credit. But even with a range of programmes offering advantageous credit terms, the number of SMEs receiving support is still low (Table 2). Figures for start-ups from scratch are even lower (at around 2%), since most of the support reaches the longer-established medium-sized enterprises, those created through privatisation. Major international funding organisations tend to invest in medium-sized companies or infrastructure projects, rather than to lend money to small business. Moreover, applications for financial support from local programmes are often bureaucratic and protracted, preventing credit reaching the very entrepreneurs who could use it most effectively; those who can afford the delays and cope with the red tape are probably able to find funding elsewhere.

Table 2
SMEs Receiving Support
%

Advice through public agency	6.1
Preferential credit	3.8
Credit guarantee	4.6
Financial information from banks	11.5
Investment grants	2.8
Tax relief	11.9

Source: Rheinisch-Westfälisches Institut für Wirtschaftsforschung, 1994

SMEs can step up competition in markets, keeping prices down and ensuring regular supply.

Some types of tax relief can also be seen as a financial tool that directly supports SMEs. In the four Visegrad countries, the most generous tax-breaks have been allowed to boost exports, for SMEs in less-developed regions and to stimulate job-creation. But there are no general tax-breaks for SMEs. The importance of fiscal stabilisation may counsel against comprehensive tax breaks; yet the extensive black market suggests that the present heavy burden of corporate, income and payroll tax is a disincentive to entering the official economy.[2]

■■

There are clear lessons from the first five years of transition in the four Visegrad countries. Higher priority in national strategies should be given to SME promotion if it is to make a real impact on their development. Political instability and changing responsibilities hinder the national implementation of coherent SME policy. Regional aspects of SME development and related policies are critical for successful development as a whole. More coherence is necessary, not only nationally, regionally and locally but also between the ministries and agencies concerned with entrepreneurship promotion.

SME development is still impeded by a number of adverse framework conditions, not least in fiscal policy, education and training policy, subsidies for large enterprises and competition policy. Lastly, increased monitoring and evaluation are required. Programmes are often designed, and redesigned, without sufficient knowledge of what would really help entrepreneurs. ■

*2. David Holland and Jeffrey Owens, 'Tax, Transition and Investment', **The OECD Observer**, No. 193, April/May 1995.*

OECD Bibliography

- **Taxation and Foreign Direct Investment: The Experience of the Economies in Transition**, OECD/CCET, 1995
- David Holland and Jeffrey Owens, 'Tax, Transition and Investment', **The OECD Observer**, No. 193, April/May 1995.

The Labour Market in Slovakia

Tito Boeri and Douglas Lippoldt

Since 1994 the Slovak Republic has experienced a marked improvement in its macro-economic performance, following four years of uninterrupted and pronounced declines in output, accompanied by high rates of inflation. Fostered by an export boom, GDP is currently growing at an annual rate of 5%. Inflation is decreasing and is projected to decline to single digits in 1996. Substantial improvements are being registered in the balance of payments. The budget deficit is decreasing in line with government targets. Nevertheless, conditions in the labour market remain difficult, underlining the importance of further enhancing labour-market and social policies.[1]

The recovery in output in the Slovak Republic has not yet translated fully into employment gains. Although Slovakia has not experienced the steady growth of unemployment seen in other central and eastern European countries since the start of transition, unemployment still rose to hit 14.4% of the labour force in the first quarter of 1995. And in 1995, for the first time since transition began, long-term unemployment (12 months or more) grew to account for more than half of unemployment (51.4%). In comparison, long-term unemployment comprises 27.1% of total unemployment in the Czech Republic, 44.3% in Hungary and 41.7% in Poland. Major re-allocations of labour are occurring across industries, as witnessed by increasingly diversified employment dynamics in the various sectors; for example, there have been substantial falls in employment in mining and quarrying, construction and agriculture, and considerable growth in employment in financial services. Deepening structural change helps long-term prospects of economic growth, but it is likely to put further short-run pressure on employment.

The persistence of high unemployment and the relatively poor employment performance of those sectors that are experiencing the strongest growth in output (chemicals and machinery, for example) have raised concerns about further losses of employment as privatisation progresses. As a result, the voucher system adopted during the first wave of privatisation by the former Czech and Slovak Federated Republic was abandoned in 1994 in favour of a new approach that involves direct sales of state firms to the public but constrains the new owners to maintain targeted volumes of employment. This requirement can be enforced by sanctions on firms which fail to respect the employment thresholds established at the time of the change in ownership.

The choice between the two alternative methods of privatisation hinged on an apparent trade-off between short-term protection of employment and long-term capacity to generate new jobs. But the outcome of the change in approach is not certain. Indeed, in many instances the voucher scheme led to a rather dispersed structure of ownership with little shareholder control over management, a situation which may even have slowed the shedding of labour. Direct sales may encourage labour-shedding as firms are restructured to improve their marketability. Moreover, uncertainty as to the future owners of a firm is likely to affect investment adversely and prevent long-term planning, thereby reducing the capacity of firms to generate new jobs for the time being.

After an initial rapid rise in unemployment at the start of the economic transition, fostered by mass flows onto the labour market of displaced workers and school-leavers, unemployment declined substantially in 1992 before rising again after the split with the Czech Republic. An important factor behind the decline in unemployment in 1992 was a strong rise in the take-up of jobs, partly reflecting a rapid expansion of active labour-market programmes (through, for example, increased use of employment subsidies paid to private-sector employers). Unfortunately, the recent decline in the rate at which people become unemployed has been accompanied by a smaller percentage of unemployed finding jobs. As a result, the average duration of unemployment has increased.

Most of the long-term unemployed have limited formal education (primary or lower). These individuals not only face a relatively high risk of becoming unemployed; they also find it particularly hard to re-integrate themselves into work after a spell of joblessness. In addition, a high incidence of long-term unemployment is observed

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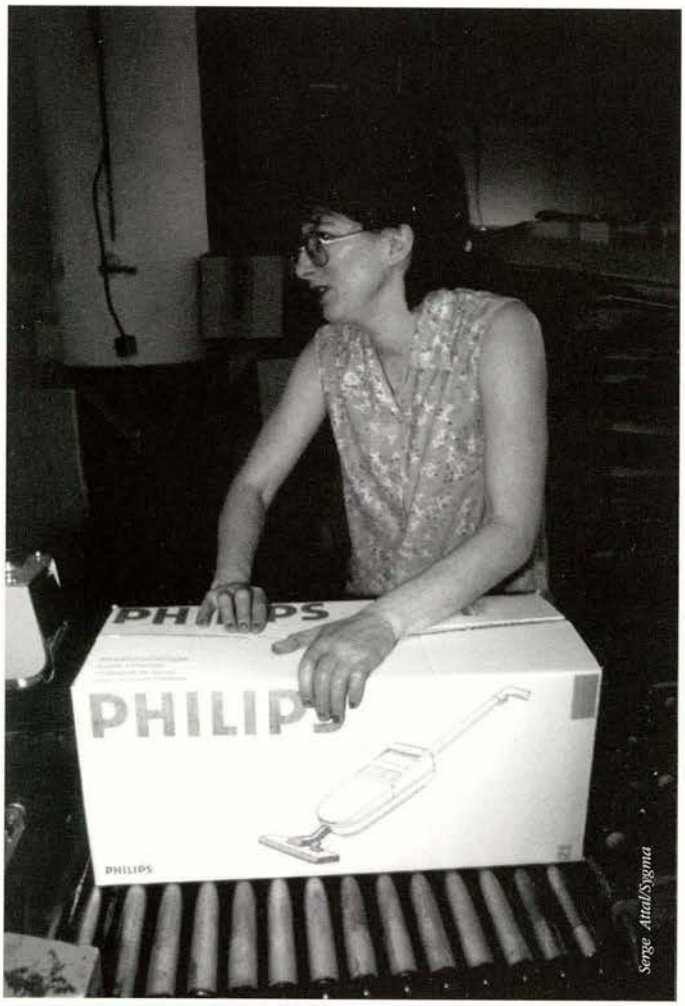
1. ***Review of the Labour Market in the Slovak Republic***, *OECD Publications, Paris, forthcoming 1996, as part of the programme of the OECD's Centre for Co-operation with the Economies in Transition.*

The Labour Market in Slovakia

also among prime-age workers (especially in the 30–39 age-group), who generally have previous work experience.

Unemployment rates among the young are around 30%, close to those experienced by Spain, Italy, Finland and Ireland. Although youth unemployment is mainly the by-product of large inflows, the duration of unemployment for new entrants to the labour market is also much longer than those typically observed in OECD countries for the 15–24 age-group. It appears that, among other factors, inadequacies in the education system (not least rigidity in course structures and a narrow base in the vocational education curriculum) have left many young people very vulnerable to unemployment. Although labour-force participation rates among young people have not fallen as markedly as in other transition countries (in the Czech Republic, youth participation has actually increased), the spread of long-term unemployment among the young may lead to declines in the supply of labour, jeopardising the potential of the Slovak economy for growth.

The high and increasing incidence of long-term unemployment, particularly among those in the most productive age-groups, suggests that there are high risks of marginalisation of a large component of the labour force from the world of work. In addition to increasing social hardship, this situation could result in large losses of human capital either from the depreciation of skills or loss of self-confidence and attachment to the world of work. A growing mismatch between the relatively high skill-profile of the demand for labour that is now emerging, especially in rapidly expanding service sectors like finance, and low educational attainments of workers who have lost their jobs in the course of the transition period (in, for example, mining and construction, where the share of low-educated people is as high as 75%) seem to have played a major role in the spread of long-term unemployment. Another important factor is the relatively low mobility of labour from region to region inside the Slovak Republic; there are persistent marked differentials in the incidence of unemployment, especially long-term, across regions.



New owners of Slovak firms are being constrained to meet targeted volumes of employment.

A New Policy Framework

As part of the economic transition, the Slovak authorities have worked to introduce a new set of labour-market policies appropriate to the emerging market economy. As in most OECD countries, this framework has included a combination of passive and active measures (unemployment benefits and job-placement services, respectively). Over a short period, considerable progress has been made in developing from scratch a relatively effective mechanism for delivering these policies, with the public employment service, established in 1990, the primary vehicle for their implementation. Although the relative emphasis given to the two types of policies in the Slovak Republic has shifted over time, the authorities have generally sought to mitigate the social costs of the transition while promoting the placement of job-seekers into employment. But high and persistent unemployment continues to put pressure on policy-makers to improve policy design and implementation yet further.

The Slovak system of unemployment benefits has accomplished its main task of cushioning the social costs of transition. But the large and increasing pool of registered unemployed and the spread of long-term unemployment indicates that an adjustment in the system may be required. In particular, the persistence of unemployment has highlighted the importance of re-assessing the incentive and disincentive effects of the system. The unemployment-benefit system has undergone several changes in its short life. In 1992, the maximum duration of benefits was halved (from 12 to six months) and eligibility criteria were tightened. In 1994, the system was adjusted to link the length of entitlement to the age of each claimant of unemployment benefits (for instance, granting up to nine months' duration to people aged over 45 compared with six months for those under 30). These changes appear to have had quite an impact on the size

2. See pp. 51–54.

and characteristics of the clientele of the public employment service: the reduction in benefit duration at the beginning of 1992, for instance, was followed by a sizable reduction in the number of people on the register for six to 12 months.

The links between the length of the entitlement period and the age of applicant established in 1994 may make the unemployment-benefit system seem unfair to the young; they might also be questioned on incentive grounds. Although easier to administer than regulations linking the duration of entitlement to the length of the previous job, they tend to penalise prime-aged workers who started working early in their life, by failing to give credit for their longer work experience, and who are particularly at risk of becoming long-term unemployed.

The most serious disincentives to work seem to arise from the open-ended entitlement to social assistance and from low wages for those who do have jobs. A more effective integration of unemployment benefits and social-assistance systems (in enforcing job-search requirements and providing job-counselling to the beneficiaries of social assistance), for example, would probably help cut the number of people who choose to depend on social transfers rather than taking badly paid employment. Another measure which seems to have reduced incentives to seek low-paid jobs is the exemption, granted in 1993, of the registered unemployed from the obligation to pay social-insurance contributions.

Improving Active Measures

The public employment service has also made enormous strides in implementing active labour-market policies. Nevertheless, in view of the current position, there is a number of ways in which the agency's effectiveness could be improved, including an expansion in the range of programmes offered, the development of specially targeted assistance, improvements in certain operational aspects and outreach to employers.

After peaking in 1992 at 0.36% of GDP, resources for active policies shrank to about 0.25% in 1994. Before the split with the Czech Republic, Slovakia was receiving proportionally more than its contribution to labour-market policies. In addition, spending on active policies was crowded out by increasing unemployment, which entailed sharply rising 'passive' payments. The situation was improved in 1994 through the creation of an extra-budgetary fund (the Employment Fund) which administers all revenues from payroll taxes earmarked for labour policies. The two main active programmes implemented by the public employment service are wage subsidies provided mainly to the private sector (70% of total in 1994) and public-works programmes (15%).

Training programmes in the Slovak Republic, largely for unemployed adults, are given much less emphasis than in OECD countries and some other transitional economies, such as Hungary. Experience shows that building an institutional framework for adult training and an adequate network of suppliers is a lengthy and costly process.[2] But well-designed training programmes could be an effective tool in combating the high incidence of long-term unemployment among prime-age workers.

Programmes specifically targeting the long-term unemployed and the most vulnerable groups are also underdeveloped. Research in OECD countries suggests that narrowly targeted schemes have the highest probability of success, especially for people who are finding it difficult to be placed in a job. Broadly based measures like employment subsidies may also have substantial dead-weight costs (through subsidising jobs that would have been created anyway) and substitution effects (by displacing other non-subsidised workers).

The development of a nation-wide computerised register of vacancies would provide an enormous service to the staff and clients of the public employment service. Such a system would much expand the range of options available to any individual job-seeker and would therefore increase the chances of matching people with jobs that would attract them. It might also stimulate geographical mobility in response to the regional variations in the demand for labour.

Perhaps the most important area for enhancement of placement activities concerns improved contacts with employers. The number of vacancies notified to the public employment service could increase considerably. Some private employers appear reluctant to contact the labour offices to recruit new workers, preferring to recruit through other channels. And visits of staff from the public employment service to local enterprises do not appear to be frequent or systematic. That may be a natural result of understaffing in the labour offices and the heavy workload from benefit administration, but even small efforts made to gain the confidence of employers could have lasting effects on job placement, and could reduce the workload of the public employment service over time.

■■

The nascent recovery in output in the Slovak Republic has not so far brought noteworthy improvement in job prospects. Moreover, impediments to economic restructuring and a slowdown of the privatisation process risk not only retarding the emergence of new employment opportunities but also endangering existing jobs. Furthermore, the perverse incentives in labour-market or social programmes strain the social safety net and may inhibit the movement of workers to regions (or other sectors) where jobs can be found. Improvements in labour-market policies, coupled with continued economic reform and well designed social policies, offer the best possibility of lowering unemployment on a durable basis and reconciling short-term and long-term objectives. ■

OECD Bibliography

- Review of the Labour Market in the Slovak Republic, OECD/CCET, forthcoming 1996
- Review of the Labour Market in the Czech Republic, OECD/CCET, 1995
- Social and Labour Market Policies in Hungary, OECD/CCET, 1995
- The Labour Market in Poland, OECD/CCET, 1993.

Italy
Reforming the Tax System

Axel Mittelstadt

The rise in 'tax take' in Italy – from 29% of GDP in 1970 to 45% (the EU average) in 1994 – was by far the most rapid among the major OECD countries. The main reasons for this growth were prolonged inflation-induced fiscal drag and repeated hikes in nominal tax rates on income and consumption. In the process, yields from direct taxation surged to 36% of government revenues in 1994, 16 points above its 1970 figure and far above the EU average. Yet during this period the general government borrowing requirement widened from an average of 3.1% of GDP over 1960–73 to 11% in the 1980s, and public debt spiralled upward, reaching a peak of 125% of GDP in 1994 – more than twice as high as in 1980.[1]

The conjunction of high tax rates, low yields and large deficits has focused attention on the importance of improving the efficiency of tax assessment and collection and for a less complicated tax structure, concentrating more on expenditure than on income as a base. It has also suggested closer scrutiny of revenue resources and spending responsibilities of the different layers of government. In December 1994, the Minister of Finance issued proposals for tax reform, part of which have been incorporated into the new three-year medium-term stabilisation programme of June 1995.

Italy has a large number of self-employed people (6 million) and firms, estimated at 4 million in 1994. It also has, out of a population of 57 million, the highest absolute number of unlisted corporations in the EU and the lowest number of listed ones. Income from self-employment, often under-reported, traditionally accounts for a much higher share of national income than in most other EU countries, and many self-employed persons have typically found it easy to evade and avoid both direct and indirect taxes. Large-scale tax evasion has thus become deeply embedded in the Italian economy. Estimates of annual revenue losses range from 4 to 9% of GDP. Unlike the self-employed, employees subject to the withholding of income tax on their salaries have little scope for evading taxes, which places a disproportionate tax burden upon them. Not surprisingly, yields from direct personal taxation represent by far the most important source of revenue gains over the past 25 years, producing growing trade-union resentment of tax evasion.

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Fiscal Federalism

The Italian tax system suffers from excessive centralisation; the gap between the capacity of local authorities to spend and their revenue-raising power is unusually large. The regions, provinces and municipalities enjoy only a small degree of financial independence; in 1993, for instance, they could call on tax revenues amounting to less than 4% of total government receipts, much lower than in other OECD countries. Nonetheless, total spending by local government (excluding intra-government transfers) accounted for around a quarter of general government expenditure. Local authorities are responsible for the provision of a wide range of services, often subject to national standards, including the operation of the National Health Service. In addition, they carry out a substantial share (nearly two-thirds) of public investment. The gap between the public spending of local governments and the resources they control thus approached 10% of GDP in 1993, higher than in any other large OECD economy.

To improve the autonomy of local government in raising revenue, a municipal property tax was introduced in 1993, pushing the average ratio of taxes raised by municipalities to their overall revenue to an estimated 50% in 1994. More importantly, from 1993, revenues from taxes on cars and health contributions accrue entirely to regional governments, which are free to alter tax and contribution rates. The role of the National Health Fund has decreased correspondingly. Regional revenues from health contributions in 1993 amounted to L40.5 trillion ($25 billion), about a half of regional health spending.

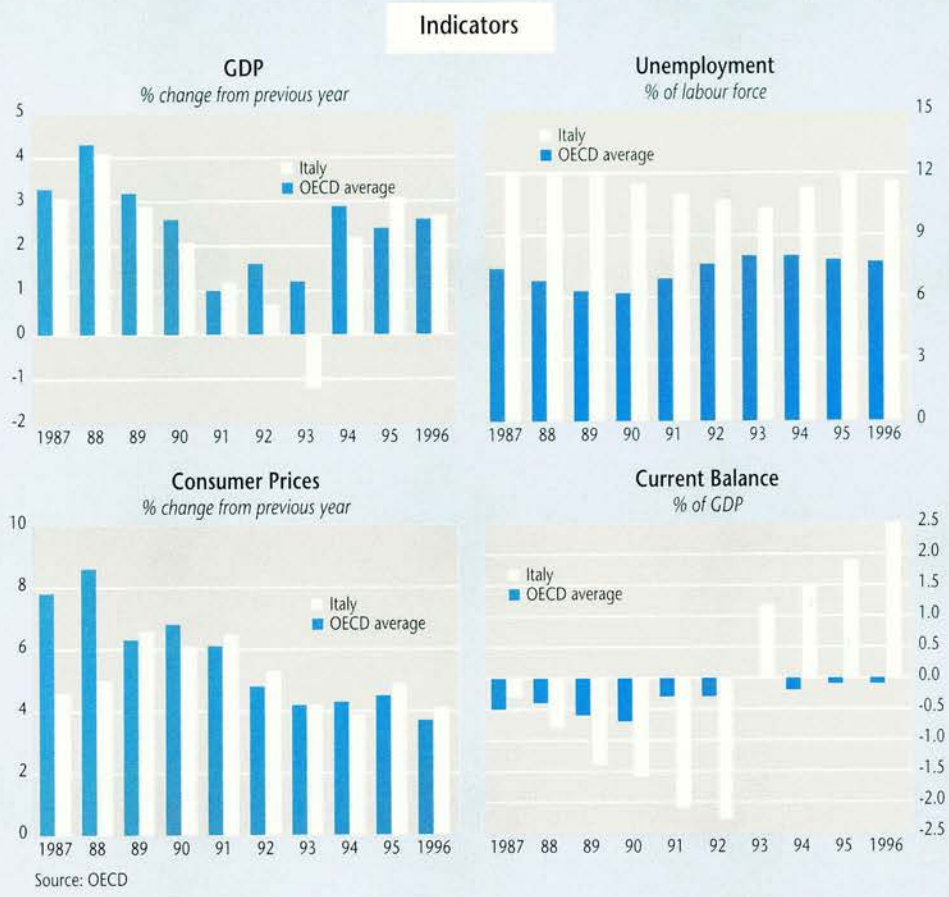
Local authorities have also been granted the right to levy new taxes. Correspondingly, state transfers to local governments were pruned in 1994 to force regions either into increasing taxes and health contributions and/or into curbing their spending. In this way, the link between local spending and local revenues was strengthened, reducing prospects of deficit overruns by the central government. As in other countries, the aim of decentralisation may thus be seen as helping to finance expenditure more efficiently and responsibly.

Towards Tax Efficiency

The Italian tax system is complex: there are more than 120 taxes (some levied at varying rates) and 50 different fees and duties. The inefficiencies of the tax administration are so serious that

1. ***OECD Economic Surveys: Italy***, *OECD Publications, Paris, 1996.*

2. ***The Tax/Benefit Position of Production Workers, 1991–1994***, *OECD Publications, Paris, 1995.*



the government regards them as the main obstacle to making inroads into tax evasion. Rolling back evasion is generally deemed to be a necessary condition for reaching targets on fiscal convergence, that is, raising the primary budget surplus (net of interest payments), and for reducing rates of direct taxation at a later stage. Such efforts have to be backed up by agreements with other countries to combat tax evasion.

There are several activities where enforcement could be improved, ranging from establishing taxpayers' true liabilities to detecting those who do not file tax-returns, who are in arrears and who do not comply with basic requirements (such as issuing VAT invoices). In Italy, these responsibilities are split by type of tax and, in addition, by stage and method of enforcement. Delays in processing tax-returns are long, and until recently the tax administration, with no authority to resolve differences with taxpayers directly, had to resort to tax courts, which have been flooded by the rising number of outstanding cases. The back-log of tax cases reached 3.5 million in mid-1995, up from 2.3 million in January 1987, and it is still rising. Resolution of cases is often delayed more than a decade, and such penalties as exist in the law are seldom applied with full force. About 85–90% of tax-court rulings acquit taxpayers, and the others frequently escape sanctions with the help of periodic tax amnesties (five in the past thirteen years). Hardly surprisingly, the preference for litigation has been strong.

A reform of the tax administration to tackle these problems was begun in 1991 and has yet to be completed. In July 1995, the government presented a special tax-simplification law, reducing the plethora of registration fees, stamp taxes and special charges, freeing an estimated 910,000 people with a monthly income of under L360,000 ($230) from the requirement to submit a tax form, allowing small firms to 'sell' their claims on tax refunds to banks, and facilitating payment (accepting credit cards and allowing VAT payments through banks). The current government also plans to:

- change the composition of tax courts
- create within the Ministry of Finance a special service of internal control, responsible for conducting annual reviews of the efficiency of tax administration
- establish integrated tax offices (covering direct taxes, VAT and other taxes) in 1996 – a step announced in 1992 and long overdue; about 15,000 people would have to be trained to perform upgraded duties in the new structure
- ease regional and functional understaffing of tax offices by redeploying tax officers and increasing the number of persons responsible for tax assessment.

From Income to Consumption

The tax burden falling on the average production worker – social-security contributions, personal income taxes and consumption taxes as a percentage of earnings[2] – has increased markedly, from 55.7% in 1978 to 62% in 1991. Taking the EU revenue structure as a point of reference, Italy's total tax wedge is concentrated heavily on direct taxes and employers' social-security contributions. Over the past 25 years tax rates on personal and corporate incomes have been pushed to high rates. As a result, wage- and salary-earners have responded to increases in personal income tax and social-security contributions by raising wage claims, contributing to tax-push wage inflation. In view of the volume of public debt, a restructuring of personal and corporate income tax will have to await progress in rolling back tax evasion (and corruption). Potential effects of tax reform on employment are quite powerful: labour costs respond strongly to changes in tax rates, and employment reacts strongly to changes in real wages. Empirical estimates for Italy suggest that the job-creating potential of a switch from direct to indirect taxation is substantial. ■

OECD Bibliography

OECD Economic Surveys: Italy, 1996
The Tax/Benefit Position of Production Workers, 1991–1994, 1995.

Indicators

Australia

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q3 95	1.4	2.6
Leading Indicator	Sep. 95	0.4	-4.7
Consumer Price Index	Q3 95	1.2	5.1
		current period	same period last year
Current Balance	Sep. 95	-1.37	-1.95
Unemployment Rate	Oct. 95	8.7	9.1
Interest Rate	Oct. 95	7.50	6.55

Definitions and Notes

Gross Domestic Product *Seasonally adjusted volume series except for Portugal*

Leading Indicator *A composite indicator, based on other indicators of economic activity (employment, sales, income, etc.), which signals cyclical movements in industrial production from six to nine months in advance*

Consumer Price Index *Measures changes in average retail prices of a fixed basket of goods and services*

Current Balance *$ billion; not seasonally adjusted except for the United States*

Unemployment Rate *% of total labour force – ILO standardised unemployment rate; national definitions for Austria, Denmark, Iceland, Mexico, Switzerland and Turkey; seasonally adjusted apart from Turkey*

Interest Rate *Three months, except for Greece (twelve months)*

Source: **Main Economic Indicators**, *OECD Publications, Paris, December 1995.*

Austria

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q2 95	0.3	2.5
Leading Indicator	Oct. 95	-0.3	-2.4
Consumer Price Index	Oct. 95	-0.3	1.9
		current period	same period last year
Current Balance	Sep. 95	-0.44	-0.29
Unemployment Rate	Oct. 95	6.6	6.5
Interest Rate	Nov. 95	4.29	5.05

Belgium

	period	% change from previous period	% change from previous year
Gross Domestic Product	1994		2.2
Leading Indicator	Oct. 95	0.3	-6.4
Consumer Price Index	Nov. 95	0.2	1.5
		current period	same period last year
Current Balance	Q4 94	3.87	4.07
Unemployment Rate	Oct. 95	10.1	9.8
Interest Rate	Nov. 95	3.90	5.14

Canada

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q3 95	0.5	1.9
Leading Indicator	Oct. 95	0.2	-3.0
Consumer Price Index	Oct. 95	-0.1	2.4
		current period	same period last year
Current Balance	Q3 95	-1.30	-2.74
Unemployment Rate	Oct. 95	9.4	9.9
Interest Rate	Nov. 95	6.01	5.74

Denmark

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q2 95	-0.5	2.6
Leading Indicator	Sep. 95	-0.7	-2.9
Consumer Price Index	Oct. 95	0.1	1.9
		current period	same period last year
Current Balance	Q2 95	0.45	0.45
Unemployment Rate	Sep. 95	9.8	11.7
Interest Rate	Nov. 95	5.10	6.00

Finland

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q2 95	0.0	4.2
Leading Indicator	Jul. 95	-0.2	-2.0
Consumer Price Index	Oct. 95	0.0	0.3
		current period	same period last year
Current Balance	Oct. 95	-0.17	0.20
Unemployment Rate	Oct. 95	16.4	17.4
Interest Rate	Nov. 95	4.93	5.43

France

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q3 95	0.2	2.1
Leading Indicator	Oct. 95	-1.4	-6.7
Consumer Price Index	Oct. 95	0.1	1.8
		current period	same period last year
Current Balance	Q2 95	4.92	1.05
Unemployment Rate	Oct. 95	11.5	12.1
Interest Rate	Nov. 95	5.89	5.61

Germany

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q2 95	1.1	2.5
Leading Indicator	Oct. 95	0.1	-2.1
Consumer Price Index	Oct. 95	-0.1	1.8
		current period	same period last year
Current Balance	Aug. 95	-3.27	-3.57
Unemployment Rate	Oct. 95	8.3	8.1
Interest Rate	Nov. 95	4.01	5.21

Greece

	period	% change from previous period	% change from previous year
Gross Domestic Product	1993		0.6
Leading Indicator	Sep. 95	0.6	3.8
Consumer Price Index	Oct. 95	1.1	8.3
		current period	same period last year
Current Balance	Aug. 95	0.07	0.75
Unemployment Rate		..	..
Interest Rate	Nov. 95	13.90	18.25

Iceland

	period	% change from previous period	% change from previous year
Gross Domestic Product	1994		2.8
Leading Indicator		..	..
Consumer Price Index	Nov. 95	-0.3	2.1
		current period	same period last year
Current Balance	Q3 95	0.06	0.07
Unemployment Rate	Oct. 95	5.3	4.6
Interest Rate	Oct. 95	7.00	5.10

Ireland

	period	% change from previous period	% change from previous year
Gross Domestic Product	1993		4.0
Leading Indicator	Oct. 95	-0.8	5.6
Consconsumer Price Index	Q3 95	0.4	2.4
		current period	same period last year
Current Balance	Q2 95	1.51	0.42
Unemployment Rate	Oct. 95	12.9	13.8
Interest Rate	Oct. 95	5.58	5.50

Italy

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q2 95	-0.4	2.9
Leading Indicator	Oct. 95	-1.7	-2.5
Consumer Price Index	Nov. 95	0.6	6.0
		current period	same period last year
Current Balance	Sep. 95	-2.36	0.89
Unemployment Rate	Q3 95	12.1	10.9
Interest Rate	Nov. 95	10.68	8.76

Japan

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q2 95	0.8	0.6
Leading Indicator	Oct. 95	0.4	4.6
Consumer Price Index	Oct. 95	-0.3	-0.6
		current period	same period last year
Current Balance	Sep. 95	10.60	11.83
Unemployment Rate	Oct. 95	3.2	3.0
Interest Rate	Nov. 95	0.55	2.36

Luxembourg

	period	% change from previous period	% change from previous year
Gross Domestic Product	1993		0.3
Leading Indicator	Oct. 95	0.4	-6.1
Consumer Price Index	Oct. 95	0.2	1.6
		current period	same period last year
Current Balance		..	..
Unemployment Rate		..	..
Interest Rate		..	..

Mexico

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q3 95	1.3	-9.6
Leading Indicator		..	..
Consumer Price Index	Oct. 95	2.1	45.7
		current period	same period last year
Current Balance	Q2 95	0.46	-7.12
Unemployment Rate	Sep. 95	6.8	3.5
Interest Rate	Nov. 95	54.19	14.54

Netherlands

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q2 95	0.3	2.4
Leading Indicator	Oct. 95	0.0	-0.8
Consumer Price Index	Oct. 95	-0.1	1.3
		current period	same period last year
Current Balance	Q2 95	3.67	3.57
Unemployment Rate	Sep. 95	6.3	6.8
Interest Rate	Nov. 95	3.82	5.23

New Zealand

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q2 95	0.0	2.3
Leading Indicator		..	..
Consumer Price Index	Q3 95	0.2	3.5
		current period	same period last year
Current Balance	Q2 95	-0.57	-0.09
Unemployment Rate	Q3 95	6.1	7.8
Interest Rate	Oct. 95	8.68	7.96

Norway

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q2 95	0.5	3.5
Leading Indicator	Jul. 95	-0.8	-1.5
Consumer Price Index	Oct. 95	0.0	2.3
		current period	same period last year
Current Balance	May 95	-0.08	0.33
Unemployment Rate	Q3 95	4.6	5.2
Interest Rate	Nov. 95	5.22	7.27

Portugal

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q4 94	1.0	0.1
Leading Indicator	Aug. 95	1.1	-4.0
Consumer Price Index	Oct. 95	0.4	4.0
		current period	same period last year
Current Balance	Q4 94	-0.94	0.02
Unemployment Rate	Q3 95	7.0	6.8
Interest Rate	Nov. 95	8.92	9.89

Spain

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q2 95	0.7	3.2
Leading Indicator	Sep. 95	-1.6	-2.4
Consumer Price Index	Oct. 95	0.2	4.4
		current period	same period last year
Current Balance	Sep. 95	1.01	-0.85
Unemployment Rate	Q3 95	22.8	23.9
Interest Rate	Nov. 95	9.48	7.86

Sweden

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q2 95	1.2	4.6
Leading Indicator	Oct. 95	1.1	0.4
Consumer Price Index	Oct. 95	0.3	2.4
		current period	same period last year
Current Balance	Sep. 95	0.35	-0.03
Unemployment Rate	Oct. 95	9.2	9.4
Interest Rate	Nov. 95	8.84	8.11

Switzerland

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q2 95	0.3	1.4
Leading Indicator	Oct. 95	0.4	2.6
Consumer Price Index	Oct. 95	-0.2	1.9
		current period	same period last year
Current Balance	Q1 95	5.83	6.13
Unemployment Rate	Oct. 95	4.2	4.5
Interest Rate	Nov. 95	1.97	3.86

Turkey

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q2 95	1.9	13.4
Leading Indicator		..	..
Consumer Price Index	Oct. 95	7.8	88.3
		current period	same period last year
Current Balance	Q2 95	-0.42	1.41
Unemployment Rate	Q4 94	7.9	7.9
Interest Rate	Nov. 95	97.99	94.08

United Kingdom

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q3 95	0.4	2.2
Leading Indicator	Oct. 95	-0.2	0.1
Consumer Price Index	Oct. 95	-0.5	3.2
		current period	same period last year
Current Balance	Q2 95	-7.06	-3.49
Unemployment Rate	Oct. 95	8.6	9.1
Interest Rate	Nov. 95	6.73	6.06

United States

	period	% change from previous period	% change from previous year
Gross Domestic Product	Q3 95	1.0	3.3
Leading Indicator	Oct. 95	-0.1	-0.1
Consumer Price Index	Oct. 95	0.3	2.8
		current period	same period last year
Current Balance	Q2 95	-43.62	-37.99
Unemployment Rate	Oct. 95	5.4	5.6
Interest Rate	Nov. 95	5.74	5.79

The OECD Economic Outlook

Highlights

The pace of economic expansion in the OECD area slowed somewhat in 1995 compared both with last year and with projections made some six months ago.[1] Underlying economic fundamentals nonetheless remain generally good: inflation is low and contained in almost all countries (Table 1); interest rates have fallen in most countries; and key currency relationships have been brought closer into line with fundamentals. Provided that these favourable conditions are maintained, they should revive business and consumer confidence, which have weakened in a number of countries in recent months. Output growth should accordingly pick up again in 1996 (Table 2), although it is unlikely to be robust enough to make more than small further inroads into unemployment in most countries (Table 3).

Planned or already implemented programmes of fiscal consolidation have already helped to lower real interest rates and ease pressures on currency markets, and further beneficial effects are expected in the years ahead. Countries are also putting in place structural reforms that should, over time, increase flexibility in labour- and product-markets, enhancing medium-term prospects of growth and employment. Ensuring a continuation of the economic expansion while keeping inflation low – essential conditions for higher employment on a durable basis beyond the projection period – will require a strengthened programme of macro-economic and structural policies to address a number of long-standing problems while allowing OECD economies to adapt to changing circumstances in the years ahead.

In the United States, recovery from the mild recession of the early 1990s has been complete for some time now. The economy is close to full capacity and inflation rates are well below those at comparable points in previous business cycles. The authorities should continue to pursue a monetary policy which maintains sustainable growth and the trend towards price stability. It is still necessary to reduce the budget deficit further in the coming years, despite the significant progress over the past two years. Implementation of the consensus reached in the course of 1995 to balance the federal budget over the next several years would therefore be welcome. Although agreement had not been achieved at the time of writing, it appears that budgetary plans will be more concrete than had been the case in some earlier efforts, which should enhance credibility. A significant front-loading of the package would also reinforce credibility, as well as increase the scope for early reductions in real interest rates and reduce the risk that the deficit-reduction programme might be knocked off course in the years ahead, should economic and technical assumptions not be realised.

In Europe, there are signs that the pace of expansion is slowing. Although employment has expanded somewhat with the recovery in activity, unemployment remains very high in most countries. A durable reduction of unemployment will require action over a broad front, with an essential ingredient being monetary and fiscal policies that promote sustainable growth and financial stability. The Maastricht fiscal criteria for European monetary union are now beginning to constrain the fiscal options of most EU member countries because decisions about which countries will qualify will be made in part on the basis of 1997 fiscal outcomes. The projections for 1997 – which are based on specific budgetary measures announced or in place at the time of writing – imply that some countries have to take further budgetary actions to ensure that they would meet the criteria for monetary union. Irrespective of the Maastricht process, deficit reduction is urgently needed in several European countries to reduce risk premia on interest rates vis-à-vis Germany and to help to reduce interest rates across Europe, thereby promoting investment and growth. Indeed, in this broader perspective, the

1. ***OECD Economic Outlook***, No. 58, OECD Publications, Paris, December 1995; ***OECD Economic Outlook***, No. 57, OECD Publications, Paris, June 1995.

Maastricht general government deficit ceiling of 3% is not sufficiently ambitious.

For those countries participating in European monetary union, monetary policy will be geared to macro-economic policy requirements in the area as a whole, rather than to country-specific requirements. This consideration underscores the importance of implementing structural reforms to ensure that labour- and product-markets are flexible enough to respond smoothly to country-specific shocks. In these countries, as well as in the rest of Europe, reforms that increase incentives to create employment, to adopt new methods of production and to acquire necessary skills to reduce structural unemployment and increase prosperity.

In Japan, the immediate policy requirement remains the achievement of a solid and sustained recovery based on the growth of domestic demand. The recovery package announced in September should be helpful in this regard. A continuation of the orderly reversal of the yen from its highs earlier in 1995 would mitigate deflationary pressures and raise the profitability of Japanese firms, paving the way for a faster recovery. Should the economy be weaker than projected, however, priority should be given to the use of the remaining, though small, room for further monetary policy easing. Difficulties in the financial sector, including the recent failure of a few small institutions and the substantial stock of loans that are non-performing or that may have to be restructured, should be resolved as quickly as possible. Doing this is likely to involve government financial resources, and should therefore be undertaken in a way that avoids the moral hazard problems that can arise in such a situation.

Once an economic recovery is underway, Japan's fiscal position will have to be much strengthened in order to arrest and reverse the rise in the ratio of public debt to GDP. This requirement is particularly urgent in view of the expenditure pressures that will soon appear due to the aging of the population. The other key medium-term requirement is the deregulation and liberalisation of markets in Japan, notably in the service sector. Although it may involve some dislocation as firms and workers adjust, liberalisation will increase efficiency and flexibility throughout the economy, thereby raising living standards.

Progress on budget-deficit reduction is a recurring theme for almost all OECD countries. Much of the increase in public expenditures in most OECD countries can be traced to the growth of transfer programmes, both to the working-age and to the old-age population. Given current programmes and in the absence of large declines in unemployment, there is little prospect that transfers to the working-age population will decline substantially. It is necessary, therefore, that transfer programmes be reformed in ways that improve market incentives and that take an integrated view of the overall tax and transfer system. Moreover, outlays on pensions and, in some countries, public medical care are set to rise rapidly in the next few decades as populations age. Transfer programmes were put in place to meet genuine social needs and goals, and the challenge will be to reform them in order to continue to meet those needs while mobilising the available labour supply to the maximum and avoiding excessive and possibly unsustainable budgetary pressures.

Apart from the generally positive domestic economic effects, budget-deficit reduction in the OECD area may also have important international spill-overs. It will help to lower real interest rates worldwide, providing room for private-sector investment and increases in living standards. With this policy being implemented over the next few years in all major OECD economies, however, the

Table 1
Private Consumption Deflators in the OECD Area
%

	Change from previous year			
	1994	1995	1996	1997
United States	2.1	2.2	*2.1*	*2.4*
Japan	0.3	-0.6	*-0.3*	*0.7*
Germany	2.8	2.0	*2.0*	*2.2*
France	1.8	2.0	*2.1*	*1.7*
Italy	4.7	4.9	*4.1*	*3.6*
United Kingdom	2.5	2.9	*3.1*	*2.8*
Canada	0.7	1.8	*2.0*	*1.6*
Average of above 7 countries	2.0	1.9	*1.9*	*2.1*
Australia	1.4	2.7	*3.5*	*3.2*
Austria	3.3	2.3	*2.2*	*2.2*
Belgium	3.0	1.5	*2.2*	*2.1*
Denmark	1.7	2.0	*2.5*	*3.0*
Finland	1.3	1.2	*2.1*	*2.2*
Greece	10.8	9.2	*7.3*	*6.2*
Iceland	1.7	1.7	*2.5*	*2.3*
Ireland	2.7	2.3	*2.5*	*2.7*
Luxembourg	1.8	1.8	*1.8*	*2.0*
Mexico	6.6	35.0	*28.0*	*17.0*
Netherlands	2.4	1.5	*1.7*	*2.0*
New Zealand	0.5	2.5	*1.6*	*2.0*
Norway	1.3	2.5	*2.5*	*2.7*
Portugal	4.8	4.1	*3.3*	*3.1*
Spain	5.1	4.8	*3.5*	*3.0*
Sweden	3.0	2.8	*2.4*	*3.0*
Switzerland	1.0	1.8	*1.4*	*1.7*
Turkey	104.1	90.0	*55.0*	*50.0*
Average of above 18 countries	13.4	16.3	*11.7*	*9.5*
Average OECD	4.1	4.5	*3.7*	*3.5*
Average OECD *less* Turkey	2.3	3.0	*2.8*	*2.6*
North America	2.3	4.3	*3.8*	*3.3*
OECD Europe	7.5	6.7	*5.0*	*4.6*
OECD Europe *less* Turkey	3.2	2.9	*2.8*	*2.6*
EU	3.2	3.0	*2.8*	*2.6*
Average OECD *less* United States	5.2	5.8	*4.6*	*4.0*

Figures in *italics* are provisional.

Table 2
Growth of Real GDP in the OECD Area
%

	Share in total OECD	Change from previous year			
	1991	1994	1995	1996	1997
United States	36.35	4.1	3.3	*2.7*	*2.8*
Japan	14.90	0.5	0.3	*2.0*	*2.7*
Germany	8.63	2.9	2.1	*2.4*	*2.7*
France	6.59	2.9	2.7	*2.2*	*2.7*
Italy	6.18	2.2	3.1	*2.7*	*2.5*
United Kingdom	5.73	3.8	2.7	*2.4*	*2.7*
Canada	3.33	4.6	2.4	*3.0*	*4.0*
Total/average of above 7 countries	81.70	3.1	2.5	*2.5*	*2.8*
Australia	1.76	5.0	3.3	*3.3*	*3.0*
Austria	0.86	2.7	2.3	*2.0*	*2.3*
Belgium	1.09	2.2	2.1	*2.2*	*2.6*
Denmark	0.57	4.5	3.3	*3.0*	*2.4*
Finland	0.49	4.0	4.8	*3.3*	*3.0*
Greece	0.62	1.5	1.9	*2.3*	*2.5*
Iceland	0.03	2.8	2.9	*2.5*	*2.5*
Ireland	0.27	6.7	6.5	*5.5*	*5.0*
Luxembourg	0.05	3.3	3.2	*3.1*	*3.2*
Mexico	2.79	3.5	-6.0	*3.0*	*3.5*
Netherlands	1.57	2.7	3.0	*2.5*	*2.9*
New Zealand	0.29	4.2	2.7	*3.3*	*4.4*
Norway	0.50	5.7	4.5	*4.0*	*2.4*
Portugal	0.64	0.9	2.6	*3.2*	*3.0*
Spain	3.15	2.0	3.2	*2.9*	*3.1*
Sweden	0.92	3.2	3.5	*2.5*	*2.0*
Switzerland	0.94	1.2	1.2	*1.5*	*1.8*
Turkey	1.75	-6.5	6.8	*4.9*	*4.5*
Total/average of above 18 countries	18.30	2.1	2.0	*3.0*	*3.1*
Total OECD	100.00	2.9	2.4	*2.6*	*2.8*
North America	42.47	4.1	2.6	*2.7*	*2.9*
OECD Europe	40.59	2.4	2.9	*2.6*	*2.7*
EU	37.37	2.8	2.7	*2.5*	*2.7*
Total/average OECD *less* the United States	63.65	2.2	1.9	*2.5*	*2.8*

Figures in *italics* are provisional.

Table 3
Unemployment in the OECD Area[1]

	Thousands	% of labour force			
	1992	1994	1995	1996	1997
United States[2]	9,390	6.1	5.6	*5.7*	*5.9*
Japan	1,417	2.9	3.1	*3.4*	*3.4*
Germany	2,979	9.6	9.3	*9.3*	*9.1*
France	2,600	12.2	11.5	*11.3*	*11.0*
Italy[3]	2,552	11.3	11.9	*11.6*	*11.2*
United Kingdom	2,801	9.2	8.4	*8.2*	*8.0*
Canada	1,638	10.4	9.6	*9.2*	*8.6*
Total/average of above 7 countries	23,376	7.1	6.9	*6.9*	*6.8*
Australia	922	9.7	8.6	*8.1*	*7.9*
Austria	132	4.4	4.5	*4.6*	*4.5*
Belgium	435	12.9	12.9	*12.8*	*12.5*
Denmark	318	12.1	10.1	*9.4*	*9.0*
Finland	328	18.4	17.2	*16.1*	*15.1*
Greece	350	9.6	9.8	*10.1*	*10.3*
Iceland	4	4.7	5.0	*4.6*	*4.5*
Ireland	213	14.2	12.8	*12.5*	*12.5*
Luxembourg	3	2.7	2.8	*2.7*	*2.7*
Mexico[4]	400	3.7	6.5	*7.0*	*6.5*
Netherlands	336	7.6	7.2	*6.9*	*6.5*
New Zealand	169	8.1	6.4	*6.4*	*5.9*
Norway	126	5.4	5.0	*4.6*	*4.3*
Portugal	186	6.9	7.2	*7.0*	*6.8*
Spain	2,789	24.2	22.7	*21.9*	*21.2*
Sweden	216	8.0	7.6	*7.3*	*7.1*
Switzerland	96	4.7	4.2	*3.9*	*3.6*
Turkey[5]	1,596	10.9	10.2	*10.0*	*9.9*
Total/average of above 18 countries	8,618	10.8	10.6	*10.4*	*10.0*
Total OECD	31,994	8.0	7.8	*7.7*	*7.6*
North America	11,428	6.3	6.1	*6.2*	*6.2*
OECD Europe	18,059	11.2	10.8	*10.5*	*10.3*
EU	16,237	11.5	11.1	*10.8*	*10.5*
Total/average OECD *less* United States	22,605	8.9	8.7	*8.6*	*8.4*

Figures in *italics* are provisional.

1. Commonly used definition.
2. Break in series from January 1994.
3. Break in series in 1991 and 1992.
4. Figures based on the national survey of urban employment (32 urban zones and around 12 million people).
5. Important revisions to data.

configuration of exchange rates and current accounts that will eventually emerge within the OECD area is at this point unclear. Deficit-reduction in the OECD area may lead to a stronger current-account position for the OECD as a whole vis-à-vis the rest of the world. This would be reflected in higher net capital flows to the non-OECD area, which would enhance its growth potential as well as provide OECD countries as a group with assets to help to cushion the effect of aging populations on living standards in the future.

Capital is already increasingly flowing to the so-called emerging markets of Asia, Latin America and central and eastern Europe. Further liberalisation of these flows will provide the benefits of fuller access to world capital markets, but sudden capital inflows or outflows can have disruptive economic and social effects. As is the case with industrialised countries, in the final analysis emerging-market countries have little option but to implement credible macro-economic policies that promote financial and economic stability. A high priority in many of these countries will therefore be to strengthen not only monetary and fiscal policy mechanisms but also financial markets and institutions.

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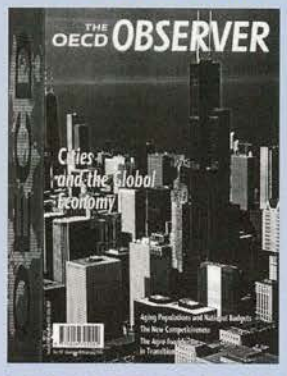

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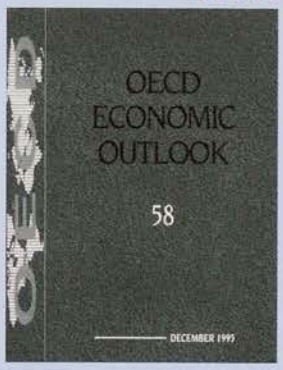

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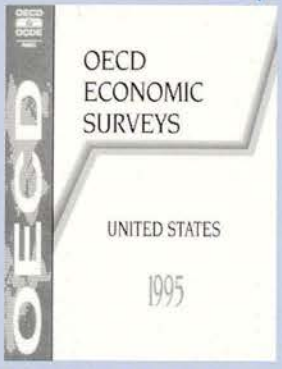

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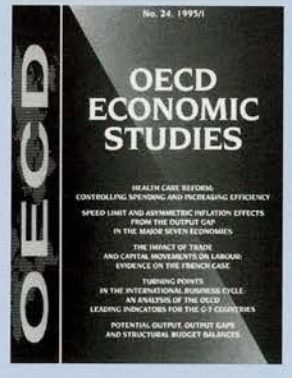

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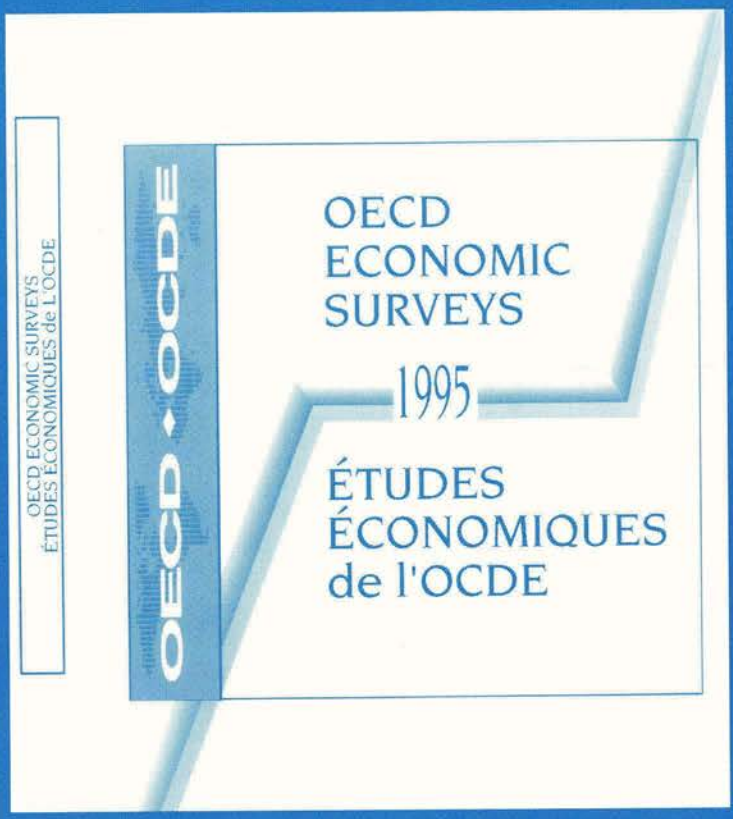

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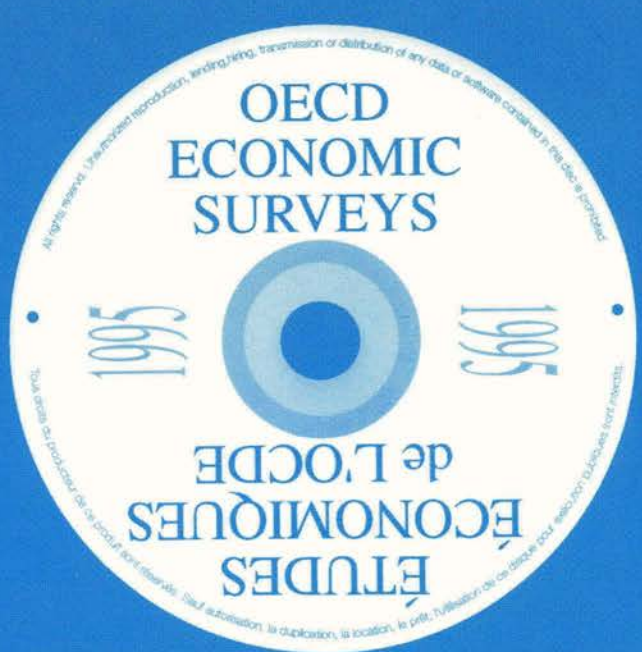

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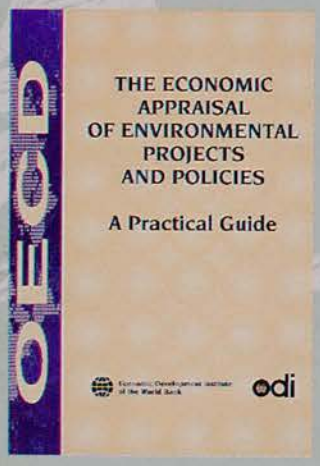

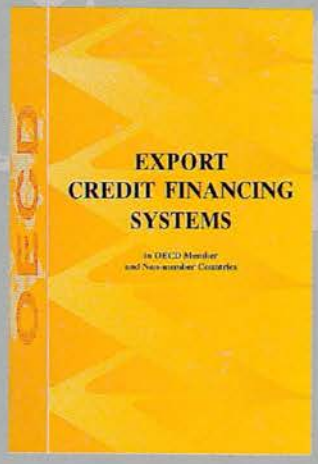

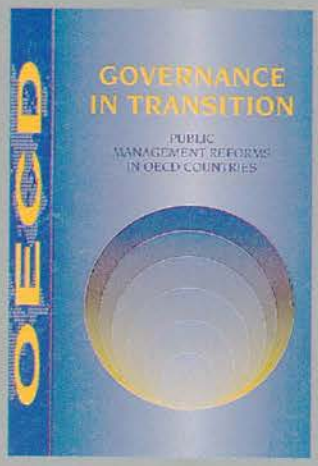

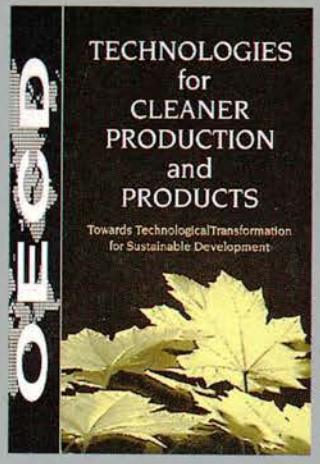

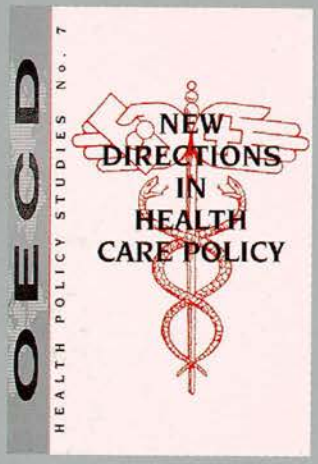

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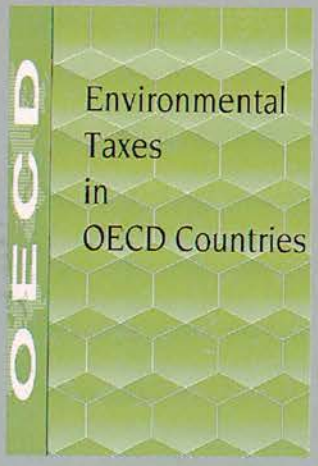

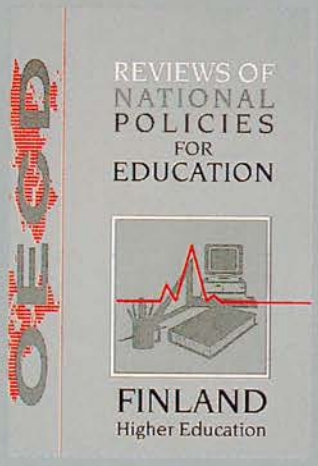

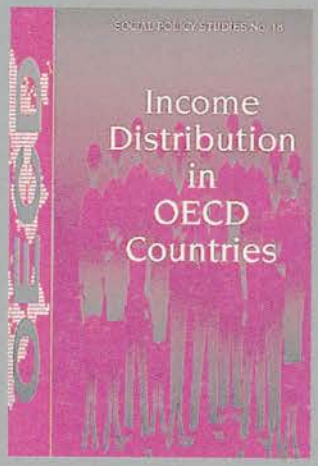

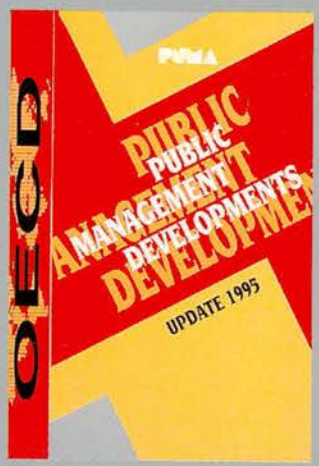

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