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CONCLUSIONS AND RECOMMENDATIONS*

Italy has a large economy and a population of 57 million, concentrated on a relatively small territory, with strong regional disparities. *High densities* lead to strong environmental pressures which, together with the diversity and sensitivity of Italy's natural patrimony and its important cultural heritage, have made environmental protection a matter of serious public concern.

Priority environmental issues include urban air pollution, soil and water management, waste management, nature and landscape conservation, climate change, transport management, and protection of coastal areas and the marine environment. Measures to cope with hydro-geological risks (flooding, landslides and earthquakes) imply large central budget outlays. With its strong regional disparities, and the largest share of population over 65 years among OECD countries, Italy must find ways to achieve nationally balanced economic, environmental and social development. As a member of the European Union, it must comply with the high standards set out in EU environmental legislation. As a G7 country, it must contribute to raising awareness of global environmental problems.

To meet this challenge, Italy will need to: i) improve its environmental infrastructure (e.g. for water supply, waste water treatment and waste treatment) and the efficiency of its environmental policies; ii) integrate further environmental concerns into economic and social decisions; and iii) reinforce its international environmental co-operation. This report examines progress made by Italy *since the previous OECD Environmental Performance Review* in 1994, and the extent to which Italy's *domestic objectives and international commitments* are being met. It also reviews the country's progress in the context of the OECD

* Conclusions and Recommendations reviewed and approved by the Working Party on Environmental Performance at its meeting in June 2002.

Environmental Strategy.* Some 64 recommendations are made that could help strengthen Italy's environmental performance in a context of sustainable development.

1. Environmental Management

Implementing more effective and efficient environmental policies

In the last ten years Italy has met or almost met a number of its domestic objectives and international commitments (e.g. SO₂, heavy metals and POPs emissions, separate waste collection, nature protection, agri-environmental progress). It has also considerably strengthened its *national environmental institutions*, issued new environmental legislation, and further devolved environmental responsibilities to regional and local authorities while keeping responsibility for strategic planning and legal co-ordination at the central level. The human and budgetary resources of the Ministry of the Environment and Land Protection (MATT) have been increased very significantly; new directorates deal with sustainable development and protection from flooding, landslides and other natural disasters. The National Environmental Protection Agency (ANPA), which provides MATT with scientific and technical support, has been growing. There has been important *progress on environmental legislation* (e.g. water, waste reforms), mainly prompted by EU environmental directives. The competence of regions and local authorities with respect to environmental and land management has been strengthened during the *devolution process* (1997 Bassanini Act). Regional Environmental Protection Agencies (ARPAs) are being established to perform inspection and enforcement on request from regions. Some regions have begun to introduce integrated permitting for existing plants. *Enforcement* of environmental policies benefits from the actions of the Unit for Environmental Protection of the Carabinieri, placed at the disposal of MATT; prosecution for violations of environmental legislation can rely on specialised judges and specific provisions in the criminal code (e.g. concerning water pollution, forest fires). *Environmental impact assessment* of projects, carried out at national level since 1989, has been an effective instrument. From 1996 all regions have been required to issue EIA laws, though today only half the regions have operational EIA procedures. The 1990s saw the development of *economic instruments* and *voluntary agreements*:

* The 2001 OECD Environmental Strategy's main objectives covered in the present Conclusions and Recommendations are: integrity of ecosystems (Section 1), decoupling environmental pressures from economic growth (Section 2), the social and environmental interface (Section 2), and global environmental interdependence (Section 3).

measures were adopted to curb air pollution; a carbon tax was introduced in January 1999; implementation of new, tailored tariffs for waste collection and disposal is in progress in many parts of the country; and reforms are being implemented to improve water management. Eco-auditing schemes and eco-labelling have also been developed.

However, the overall picture is mixed, as Italy has not met a number of its commitments or is not on the way to meet them (e.g. NO_x, NMVOCs, ammonia emissions, several water goals and targets, climate change, ODA). Transposition of EU legislation has often entailed significant delays. The IPPC Directive has not yet been transposed. Despite efforts made, the Italian legal framework remains too fragmented and complex. In many instances, taxes and charges have been set at a modest level and have had only modest environmental benefits. Cost recovery for water and waste services should be improved; progress needs to be made towards implementation of the *polluter pays and user pays principles*. There are important disparities in the environmental institutional

It is *recommended* to:

- raise the level of *investment in environmental infrastructure* by fully disbursing funds allocated to MATT and by seeking additional private funding; increase the rates of environmental charges, non-compliance fines and inspection fees and generalise their use;
- evaluate the *cost-effectiveness* of the mixes of policy instruments in place (economic, regulatory, voluntary, land use planning);
- set *charges* at levels that create incentives and are in accord with the user and polluter pays principles, and explore the potential for pollution trading mechanisms;
- streamline the *legal environmental framework* and facilitate its implementation through setting clear environmental policy targets and implementation deadlines;
- complete the *establishment of ARPAs* and strengthen their role as the main monitoring and inspection bodies;
- further strengthen national EIA procedures and develop *regional EIA procedures* and IPPC permitting;
- strengthen the implementation of, and introduce environmental requirements in, regional *physical planning*, city master planning and building permitting.

capacity and the effectiveness of *regional and local authorities*. Many urban areas in southern Italy do not have city master plans. Some 15 to 20% of buildings are constructed without permits. Regions and provinces make little use of territorial planning for environmental purposes and risk management. An integrated approach to coastal zone management is lacking. There has been a relatively *low level of investment in environmental infrastructure*, possibly linked to delayed decisions associated with the devolution process and low spending capacity in the case of allocated funds.

Air

Italy has made very *significant progress* in improving air quality over the last ten years. While data from the 1990s are far from complete, exceedances of air quality standards for most major pollutants (e.g. SO₂, NO₂, CO) have generally decreased. This progress reflects mainly: i) the great strides made in reducing *emissions from electric power generation*, with the use of cleaner power plants (fuelled by natural gas and, increasingly, by renewable energy resources) and highly efficient combined heat and power plants; and ii) the reduction of emissions of all common pollutants by *industry*, including SO_x, NO_x, CO₂, VOCs from solvents, dioxins and furans, and CO. Italy's progress also reflects significant, though insufficient, reductions in transport sector emissions of NO_x, CO, VOCs and lead, despite large increases in total vehicle-kilometres travelled. Italy has met most (but not all) of its international commitments regarding air pollution, including those for SO_x in the Helsinki and Oslo Protocols and for NO_x in the Sofia Protocol.

However, much remains to be done. Many areas (e.g. urban ones) continue to have poor air quality, particularly with respect to *ozone and fine particulate matter*. Italy's cultural heritage is suffering from the impacts of air pollution. With a strong percentage contribution of total air pollution, *transport* is the sector most in need of further efforts. Italian regions have, with notable exceptions, largely failed to develop air quality plans as required under the 1988 Presidential Decree. Despite significant expansion, the *air quality monitoring* network remains uneven across the country (with unsatisfactory situations, particularly in the South) and for some pollutants (e.g. PM₁₀). Concerning *toxics*, time series are being developed for emissions of some air pollutants such as benzene, dioxins and furans, heavy metals and PAHs; estimates for other air toxics are not available. Under the *Gothenburg Protocol* (to be ratified) and EU Directive 2000/81 on national emission ceilings (to be transposed by the end of 2002), Italy's primary challenge will be reaching the targets for NO_x and VOCs.

It is *recommended* to:

- take steps to reduce *ambient levels of particulate matter and ozone*, with emphasis on measures relating to transport;
- ensure implementation of existing legislation to measure and control *emissions of toxic air pollutants* from industrial sources, with a particular focus on those pollutants and sources that pose the greatest health risks;
- strengthen efforts to meet the targets of the Gothenburg protocols on reduction of emissions of *NO_x and VOCs*;
- complete and implement *regional air quality plans* to serve as primary evaluation and long-term planning tools; these plans should be explicitly and integrally linked to development of other regional and local plans (e.g. transport, energy, mobility);
- extend the use of *economic instruments*, such as emission trading schemes (especially for NO_x), and of *integrated pollution prevention and control* (e.g. plant-wide industrial permit limits);
- complete geographical coverage of the *air quality monitoring* network, extend monitoring of ozone and particulate matter, and improve quality assurance and control of monitoring techniques and data quality;
- accompany *liberalisation in the electricity and natural gas sectors* with strict implementation of energy savings objectives in these two sectors, as well as strict enforcement of the same air emission standards for new and existing power plants;
- promote further actions to develop the use of *renewable energy* in power plants.

Water

Legal provisions were made in the 1994 Galli Act for meeting the key objective of sustainable financing of water infrastructure development. Water legislation was consolidated in a 1999 Legislative Decree transposing key EU directives (e.g. urban waste water treatment, nitrates). *Optimal management areas* (ATOs) are being created within which different municipalities' *water and waste water services* will be consolidated, thereby improving efficiency. Consolidation of water services has begun with the creation of integrated water agencies, often involving direct concessions to companies owned by local governments. A *river basin* approach is applied to *flood and soil erosion*

management; basin authorities are being created, and hydro-geological basin-level plans are being prepared that delineate areas subject to flooding and landslides. In northern Italy, efforts have been made to conserve or replenish water resources, especially in the Po river basin. In southern Italy, innovative demand management measures have been implemented to discourage water use exceeding crop requirements, and collective water supply networks have been established to promote industrial development. Pollutant discharges by the chemical industry have decreased. Bathing water has remained of high microbiological quality.

However, if water reform principles have been adopted (e.g. the Galli Act), *only a start* has been made towards putting them into operation. There has been little progress in meeting the key objective of *acceptable quality of all water bodies* set for 2008, primarily due to very limited investment in urban waste water treatment infrastructure. Milan and several other major agglomerations still do not have sewage treatment plants. Inland water quality has deteriorated in major rivers and aquifers. Contamination by nitrates and pesticides remains of concern, though measures have recently been taken (delineation of vulnerable areas, introduction of a pesticide tax). Substantial *new funding* is required to cover the national deficit with respect to operating costs for water provision and waste water treatment, and to provide for much necessary investment. Specific provisions for such investments were included in the last financial law. Full cost recovery (of investment, operational and maintenance costs) would imply quite significant increases in water prices, which have remained very low by OECD standards. The public budget continues to subsidise collective irrigation schemes, including capital replacement. Low household water prices do not allow for necessary renewal of public water supply systems, and leakage is still high. There is a need to prepare economic analysis of how costs can be covered by tariff reform together with efficiency gains. *Intensity of water use* remains very high. There are still water shortages in the South, mainly resulting from both excessive groundwater abstraction for irrigation and high leakage in water networks. The right institutional framework is needed to address this problem; tradable water abstraction rights could be introduced as appropriate. *Watershed management plans* have not been approved. Regions should seek co-operation with river basin authorities on both water quantity and water quality planning, in line with the requirements of the new EU Water Framework Directive, yet to be transposed.

It is *recommended* to:

- implement legislation according to the new EU Water Framework Directive and strengthen the role of *river basin authorities*;
- mobilise public and private investments to upgrade *urban waste water collection and treatment infrastructure*, in the context of the framework programme agreements between the State and the regions;
- speed up implementation of the Galli Act (e.g. application of *user and polluter pays principles*, consolidation of municipal water and waste water services within optimal management areas);
- implement statutory *water quality objectives* introduced by Legislative Decree 152/1999;
- implement demand management measures for *water resource conservation*, including stricter control of abstraction permits, and increase the use of treated waste water in irrigation;
- prepare *watershed management plans*, including both water quantity and water quality planning, in close consultation with the various stakeholders;
- strengthen prevention and mitigation measures concerning *flood management*; complete *hydrogeological risk plans* for all river basins;
- complete delineation of *areas vulnerable* to nitrate and pesticide pollution from agriculture.

Waste

With the 1997 Ronchi Decree, Italy transposed the EU directives on waste, hazardous waste and packaging waste. A number of specific objectives were adopted regarding *recovery of waste materials* and restriction of landfilling to pre-treated waste only; a waste accounting system was developed at national level. The regions were given responsibility for defining waste management plans to integrate waste collection, treatment and disposal in optimal management areas (ATOs), so as to overcome inefficiencies due to over-fragmentation of waste services. Separate *collection of “urban waste”* and material recovery increased steadily over the decade; in 1999 it almost reached the 15% target set by the Ronchi Decree. Data on “*special waste*” also show increased material and energy recovery, coupled with a decrease in landfill disposal. A private “consortium” was established to co-ordinate and stimulate the recovery and *recycling of different packaging materials*, with positive results (recycling costs are lower than in many other OECD countries). Significant increases have been recorded in the production

of high quality compost from separately collected organic material. *Pricing* of urban waste collection and disposal services (intended to fully cover operating and investment costs on the basis of generated quantities) is being experimented with in a number of municipalities. Economic instruments are being used in the form of product charges levied on producers and importers of virgin materials, to assist in recovering packaging materials, waste oil and used batteries. Voluntary agreements have been launched (e.g. collection and recovery of single-use cameras, “computerised trading of waste” project). A national *inventory of contaminated sites* has been established and priorities have been identified.

While waste management reform has been adopted and its *implementation has begun*, much remains to be accomplished. Despite the stated primary objective of source reduction, per capita *generation of urban waste* has grown continuously since the early 1990s, reaching the OECD average of about 500 kg per capita in 2000. The volume of materials recovered through *separate collection* is still low, largely due to poor results in the central and southern regions; further efforts will be necessary to increase recycling of packaging materials. Large amounts of waste continue to be *landfilled* in small substandard facilities without pre-treatment. Uneven distribution of suitable treatment and disposal facilities is an obstacle to ensuring proper management of hazardous waste without transporting it over long distances. *Hazardous waste exports* were ten times greater in 1999 than in 1993,

It is *recommended* to:

- accelerate the adoption of *regional waste management plans*, including closing down small and unsatisfactory landfills and replacing them with disposal facilities that meet current technical norms and regulatory requirements;
- pursue efforts to increase *separate collection* of urban waste, including packaging materials, and adopt economic and regulatory measures to further develop the *recycling markets and industry*;
- develop the use of economic instruments and voluntary agreements aimed at reducing *waste generation*;
- improve the capacity and quality of *hazardous waste* disposal facilities and their national coverage;
- further improve *waste accounting and monitoring*, with special reference to generation and disposal of special and hazardous wastes;
- implement remediation measures in *contaminated sites* of national importance and speed up completion of regional inventories of contaminated sites.

reaching 6% of total generation. Despite the reorganisation of the Waste Register in 1998, improvements are needed in *waste accounting and monitoring*, particularly with respect to generation, treatment and disposal of special waste. Many regions have not yet prepared a plan for organising integrated *municipal waste management networks within ATOs*. Use of *economic incentives* and other instruments, such as voluntary agreements, to promote waste minimisation and encourage recycling need to be further developed.

Nature conservation and biodiversity

Italy vigorously expanded its *network of protected areas* in the 1990s: total protected land, which doubled over the decade, now covers 9.1% of the territory. During that period annual public expenditure on management of protected areas increased significantly and legislation was passed to further involve regions and local communities in the creation and management of protected areas. Regional protected areas and marine nature reserves are generally well managed; in particular, there is good public perception of and public involvement in management of regional protected areas. The proposed Natura 2000 network covers 16% of Italy's total land area. In 1998 the Inter-Ministerial Committee for Economic Planning (CIPE) decided to create a coherent national ecological network. To strengthen management of *fauna and flora species*, a comprehensive inventory of Italian fauna and an enhanced database on endangered flora species have been created. The 1992 Hunting Act introduced a number of innovations aimed at protecting and managing wildlife. Many animals are now protected under criminal law. Due to the increase in the extent of protected areas and vigorous reintroduction efforts, some large mammal species (including wolves and brown bears) made a strong comeback in the 1990s. The number of farmers participating in *agri-environmental schemes* has grown steadily, accounting for almost 20% of farmland; *organic farming* has developed rapidly and now takes place on 7% of total farmland. Forest management objectives have increasingly been oriented towards protection of ecological, social and aesthetic values. With EU support for forestry plantations on abandoned farmland, forested areas increased by 1.3% during the 1990s. They now cover about 23% of the territory. Intensity of use of forest resources (i.e. harvest divided by annual growth) has remained low, at 27%. In 2000 a Framework Act on Forest Fire Prevention was enacted. Italy has prepared a National Action Programme to Combat Drought and *Desertification*. It has also promoted many initiatives to increase public awareness of desertification. Regions and river basin authorities have developed their own detailed action programmes. Italy gave its support to *landscape protection* at international level by hosting the European Landscape Convention in Florence.

Despite this real progress, much remains to be done in view of the *high pressures on natural assets from economic activities*. Many of Italy's 1 200 vertebrate and 5 600 vascular plant *species are threatened*. One-third of forest trees are moderately to seriously affected by defoliation. Some 5.5% of the territory is vulnerable to desertification. Italy should finalise its National Biodiversity Strategy to create a framework for managing fauna and flora species. Fully operationalising the management of national parks should be strengthened. It is necessary to complement designation of Natura 2000 sites to improve ecological coherence (e.g. ecological corridors, buffer zones). Recently created *marine nature reserves* represent only a small share of coastal areas, and pressure on coastal ecosystems from tourism infrastructure development is increasing. There is an urgent need to protect *coastal areas* that are still well preserved. There is also a need to increase *expenditure on nature conservation*, including to protect biodiversity in small islands and in protected areas, for instance through increased reliance on economic instruments (e.g. access fees). In the second half of the 1990s public expenditure on nature conservation was equivalent to one-quarter of agri-environmental payments to farmers, which in turn represented less than 3 to 4% of total EU budgetary support to Italian agriculture and rural development. Nearly 47% of the territory falls within the scope of the 1985 *Landscape Protection Act* (Galasso Act), but regional landscape plans consist only of broad recommendations. Provinces should introduce territorial planning to ensure better co-ordination between landscape planning by regions and green space planning by municipalities.

It is recommended to:

- complete the *National Biodiversity Strategy*;
- protect still *preserved coastal areas* and apply strict nature conservation measures in these areas;
- develop appropriate partnerships between the national administration and regions, municipalities and civil society, in order to *improve management of national and regional parks*;
- establish a coherent national ecological network, increase *expenditure on nature conservation*, including by increased reliance on economic instruments;
- evaluate the effects of *agri-environmental and farm forestry schemes* on nature conservation;
- fully implement and enforce *landscape protection acts and regulations*;
- strictly enforce *physical planning and environmental regulations* for new buildings and construction projects.

2. Towards Sustainable Development

Integration of environmental concerns in economic decisions

Italy has continued to make good progress in *decoupling* environmental pressures from economic growth, through low energy intensity and reduction of SO_x and NO_x emissions as well as through reduction of phosphate fertiliser and pesticide use. *Institutional integration* has improved. Progress in environmental planning is being achieved through preparation of the Environmental Strategy for Sustainable Development. Strategic Environmental Assessment has been developed as a tool to promote sustainable development (e.g. General Transport Plan). *Market-based integration* continues to rely on high energy prices (due to taxes and historically high pre-tax energy utility prices), which have yielded environmental benefits; Italy's *energy intensity is lower than that of any other OECD economy*. Italy also relies increasingly on environmentally related taxes and environmental charges: a carbon tax on mineral/fossil fuels and a pesticide

It is *recommended* to:

- further integrate environmental concerns within *agriculture, energy and transport policies*, as well as health and tourism policies;
- expand the use of *strategic environmental assessment*;
- finalise adoption of the *Environmental Strategy for Sustainable Development*, with quantitative targets and time limits, based on full consultation with various stakeholders;
- review the economic efficiency and environmental effectiveness of *incentive schemes* granted in terms of subsidies, tax rebates or exemptions to various economic sectors;
- review existing *environmentally related taxes* (e.g. transport taxes, taxes on energy products) with a view to restructuring them in the light of a green tax reform;
- foster implementation of *cost recovery schemes* in waste management and extend such schemes to water management;
- make more systematic use of *integrated economic and environmental analyses* (e.g. cost-benefit analysis, data on public and private environmental expenditure) in environmental policy-making, with the aim of achieving sustainable development objectives more cost-effectively;
- mainstream *sustainable development* policy into institutional arrangements and decision-making at all levels (central, regional and local).

tax have been phased in; vehicle taxation has shifted to take greater account of environmental impacts (e.g. through being calculated on engine size); water and waste charges increased significantly in the latter part of the 1990s.

Nonetheless, further efforts are needed to *decouple* municipal waste generation from economic growth. *Co-ordination* among different administrations is not very well established, particularly at the technical level. Involvement of the Inter-Ministerial Committee for Economic Planning (CIPE) in environmental and sustainable development issues is to be encouraged. *Economic analyses* (e.g. cost-benefit analysis) carried out are insufficient to ensure cost-effective achievement of environmental objectives. *Taxes and charges* are not well targeted with respect to emission impacts, and there are many exemptions. Environmentally related taxes have had a low incidence. Some environmental charges are difficult to enforce, while some (e.g. a plastic bag fee) have been abandoned. Water prices are still low; they fall well short of overall operating costs, let alone providing financing for urgently needed capital expenditure. Water for agricultural use is priced extremely low, and groundwater resources are often abstracted illegally.

Integration of environmental and social concerns

Italy has made progress on *environmental information*, access to this information and public participation. Environmental reporting is well established at the national level (e.g. state of the environment *reports*, environmental *statistics*) and a *National Environmental Information and Monitoring System* (SINAnet) has been established. Italy proceeded with early ratification of the *Aarhus Convention*. The right of access to environmental information is laid down by law and is enforceable in the courts. Financial and technical support by MATT has had positive effects on *Local Agenda 21* implementation: over 500 local bodies are now involved, enhancing public participation. Capacity building of regional environmental administration has received support from EU Structural Funds, especially in the South (e.g. task-force of 150 experts to support regional environmental authorities and ARPAs). *Environmental education* has benefited from devolution of powers to the regions, as well as from technical and financial support provided by the national government (INFEA) and EU Structural Funds, especially in the South. Following several *natural disasters*, efforts have been made to assess the risk of such events (e.g. flooding, landslides, seismic and volcanic activity) occurring throughout Italy. *Urban revival* programmes have been implemented (Urban-Italy and national initiatives), leading to better quality of life in the urban environment. Rural development, including organic farming and farm tourism, provides a range of social and environmental benefits. Public

awareness of the potential health effects of *electromagnetic radiation* (e.g. from powerful radio transmissions and high-voltage electric transmission lines) has attracted increased attention from scientists and other decision-makers; precautionary measures (e.g. more stringent standards) have been introduced.

Strong disparities still exist, however, especially between the North and South, in terms of access to environmental services (especially water). Despite successful urban revival programmes, the capacity to draw up, carry out and account for development programmes at the regional and local levels has generally been limited, especially in the South. Concerning *environmental information*, monitoring systems should be reviewed for relevance and consistency: availability of environmentally relevant economic information is weak; integration of regional data at national level suffers from insufficient harmonisation and problems with data flows; citizens are often unaware of their *right to environmental information*. Efforts to develop environmental awareness and public participation are uneven across the country. These efforts are particularly limited in less developed regions. Too little has been done to explore local creation of *environmentally related jobs*.

It is *recommended* to:

- reinforce efforts to reduce *regional disparities in access to environmental services* through development programmes (e.g. environmental infrastructure) in the South;
- further promote *capacity building* (e.g. EU Structural Funds task-force) in project and financial management, and in implementation of the Environmental Strategy for Sustainable Development, at both regional and local levels;
- promote the creation of *environmentally related jobs* (e.g. at local level, in organic farming, in small enterprises);
- review the lessons to be learned from *urban development programmes* carried out so far, and build on positive experiences in future urban revival and Local Agenda 21 projects;
- improve land use planning and building permitting through full use of information concerning exposure to *natural disasters and industrial risks*;
- strengthen *environmental information systems* through extended and improved monitoring, economic coverage (e.g. concerning environmental expenditure) and integration of information from various sources;
- further inform the public about its rights to environmental information, facilitate public *access to environmental information*, and encourage *public participation in decision-making*.

Integration of environmental concerns in transport decisions

Italy has made significant progress in integrating environmental concerns in transport policies and practices. The new General Transport Plan (PGT) has benefited from close co-operation between MATT and the Ministry of Infrastructure and Transport, as well as from strategic environmental assessment. Its objectives aim at *environmentally sustainable transport* and achieving international environmental commitments. Steps have been taken to promote coastal shipping and combined sea-land transport, and more recently to develop transport infrastructure and reform the transport sector. Concerning transport *infrastructure*, environmental impact assessments have often helped mitigate negative impacts on habitats and landscapes. Concerning the *economic and regulatory context*, financial assistance has been made available to promote clean public transport and sustainable mobility in urban areas; economic and fiscal incentives have encouraged use of environmentally friendly fuels and vehicles; road fuel taxes and prices are among the highest among OECD countries. Concerning *traffic*, many cities are innovative, increasingly including reduction of air pollution in comprehensive mobility plans along with public transport measures. Italy has long used road pricing on its motorway network. Concerning *vehicles*, improvements in technology and fuel quality, incentives promoting alternative fuels, low emission vehicles, vehicle scrapping schemes and exhaust emission controls have had environmentally positive effects. Despite increased traffic volumes, most air emissions from road transport have not increased.

Nevertheless, Italy's rate of motorisation is among the highest in OECD countries. Road transport (both passenger and freight) has continued to grow and dominates the modal split; alternative modes tend to lack competitiveness (e.g. public transport, combined road-rail freight transport). The transport sector remains by far the largest contributor to air emissions of NO_x and NMVOCs; transport related CO₂ emissions continue to grow, as do emissions from two-wheeled *vehicles*. There is widespread *urban traffic* congestion, leading to continuing exceedance of air quality standards in many cities. Progress in developing and implementing regional and urban air quality plans has been slow. The effectiveness of EIA procedures should be further improved. The benefits of renewing the private vehicle fleet with less polluting vehicles have been offset by increased and high ownership (of four-wheeled and two-wheeled vehicles) and larger average engine size; the share of old vehicles remains high in the case of *trucks, buses and two-wheeled vehicles*. Taxes and charges are not fully in accordance with the polluter pays principle or the user pays principle; in particular, *exemptions* are granted to commercial and road freight transport. Many of the recommendations of

the 1994 OECD Environmental Performance Review remain valid. Further *co-ordination* is needed among national administrations, among administrative levels (state, regions, provinces and municipalities), and with neighbouring countries. Further *sharing of positive experiences* at local level, greater use of *demand side management* tools, reform of transport related *taxes and subsidies*, and effective application of *EIA and SEA* procedures are also necessary.

It is *recommended* to:

- improve co-ordination of economic and environmental *planning of transport* among the state, regions, provinces and municipalities, and among national administrations;
- further develop *market-based integration* through implementing a mix of supply and demand measures (concerning infrastructure, vehicles, fuels and traffic, transport market reform, taxes and charges);
- strengthen *exhaust emission controls* and vehicle inspection, particularly for trucks and two-wheeled vehicles;
- further develop and implement a long term strategy and medium term action plan to create *alternatives to road transport* in long distance freight movements and in urban mobility, and to ensure an appropriate focus on transport infrastructure development;
- review and revise *transport taxes and charges*, so as to better internalise environmental externalities and eliminate distortions among transport modes (e.g. progressively reducing exemptions and/or incentives to road freight transport);
- ensure the effectiveness of *environmental impact assessment* (e.g. public participation, large infrastructure projects) and further implement strategic environmental assessment, in line with EU legislation;
- further strengthen international co-operation to reduce the share of road transport in *cross-Alpine freight movements*, with a view to minimising negative environmental impacts.

3. International Co-operation

As a G7 member, a founder of the EU and a Mediterranean country, Italy has continued to support international environmental co-operation very actively, ratifying most agreements and enacting most EU directives, including for *climate change and air pollution* commitments. It is to be commended for its *low*

energy intensity, its clear GHG emission reduction *targets*, and its precise estimates of the environmental impacts of the national climate programme. In the 1990s Italy's performance in meeting international commitments to reduce *air emissions* was most satisfactory, with major reductions of SO_x and certain heavy metals as well as dioxins and furans. This progress will serve as encouragement in view of the further ambitious commitments being made (e.g. under the Gothenburg Protocol, to be ratified). With respect to *marine issues*, developments in the late 1990s have been positive for oil spill prevention, emergency response and ship safety, with quite significant equipment improvements, enforcement and commitments. Environmental co-operation with neighbouring countries has developed: Italy, France and Monaco have created a 100 000 km² *sanctuary* for protection of marine mammals, especially cetaceans, whose international status should be strengthened by UN recognition. Italy has also been very active in promoting international co-operation, particularly in the area of drought and *desertification*. It has ratified all relevant international conventions concerning nature protection and biodiversity.

Under a business as usual scenario, GHG emissions in 2010 would reach a level 13% above the Kyoto target. Italy would therefore have difficulty achieving its *Kyoto target* (i.e. reducing GHG emissions by 6.5% relative to 1990) without fully implementing its recent national GHG emissions reduction programme (set out in the national Kyoto Protocol ratification law passed in May 2002). According to recent projections, strongly reinforced policies and measures as well as improved monitoring and enforcement are needed, along with appropriate public and private sector involvement. Concerning protection of the Mediterranean from *land-based pollution*, most importantly from agriculture, industry and untreated municipal effluents, too little progress has been made and much remains to be done; monitoring and reporting on the state of the surrounding seas should be reinforced. There is concern about the effect of *overfishing* on some fish stocks, which translates into significant reductions in Italian catches and consequent difficulty adjusting Italian fishing capacities to new circumstances. Italy's *official development assistance* has fallen to a very modest 0.13% of GNP. This ODA level does not seem commensurate with Italy's international role or with the size of its economy. However, the Italian government, which is committed to the EU goal of 0.33% of GNP by 2006, has indicated its intention to further increase its ODA to 1.0% of GNP at a later date.

It is *recommended* to:

- increase the amount of *official development assistance* towards the Rio commitment of 0.7% of GNP;
- increase bilateral environmental ODA, as well as *environmental co-operation* with south-eastern European and other Mediterranean countries (e.g. Mediterranean Action Programme hotspots);
- implement, monitor and develop the national programme of *greenhouse gas emissions reductions* to meet the Kyoto target;
- continue effective implementation of the Montreal protocol and relevant EU regulations on *ozone depleting substances*; in particular, continue to enforce the ban on trade of CFCs;
- strengthen protection of the marine environment from *land-based pollution* (from agriculture, industry, traffic and municipal waste water);
- ratify and implement the few remaining recent *international environmental agreements* awaiting ratification (Annex II).