OECD
BETTER POLICIES FOR BETTER LIVES

Environmental Performance Reviews

MEXICO 2013 highlights

MEXICO HAS TAKEN IMPORTANT STEPS TO ADDRESS GROWING ENVIRONMENTAL PRESSURES…

Mexico has taken important steps to address growing environmental pressures...

… but further efforts are needed to strengthen environmental institutions and policy implementation.

Extending the use of environmentally related taxes and reforming environmentally harmful subsidies…

… could promote the transition to a more socially inclusive pattern of green growth.

Mexico has consolidated progress on climate change in a new law…

… but additional policy measures are needed to achieve policy goals...

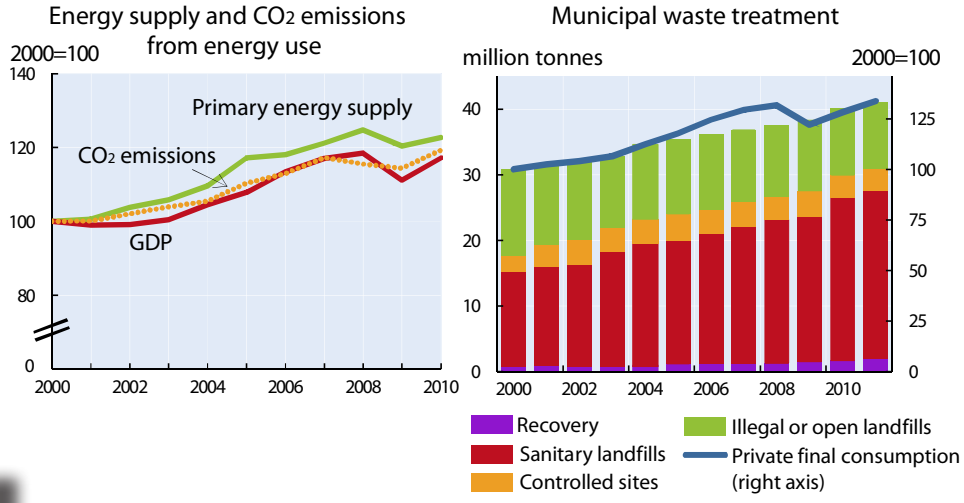
… particularly in the transport sector.

Mexico has strengthened the protection of its rich forest and biodiversity resources…

… and pioneered the use of several economic instruments for this purpose.

Mexico is among the largest economies in the OECD. However, the gap in living standards with the rest of the OECD widened, mainly because of Mexico's relatively low productivity. Its rates of inequality and poverty are among the highest in the OECD. Mexico has a very rich natural asset base and production and consumption patterns are less energy- and material-intensive than in more developed economies, although this gap has narrowed in recent years. However, rapid urbanisation, population growth and rising income are generating a range of environmental pressures (Figure 1). The costs of environmental degradation and natural resource depletion were estimated at 7% of GDP in 2010, down from 10% in 2000.

Figure 1. **Decoupling environmental pressures from economic growth**



As an emerging economy, Mexico has to confront difficult trade-offs in pursuing its economic, social and environmental goals. Nevertheless, Mexico has strengthened its environmental policies and institutions and increased public investment in environmentally related infrastructure. Significant progress has been achieved in improving the environmental quality of life (Box 1). However, environmentally related policies have often involved indirect subsidies to help the poor - for example, lower prices for energy and water - rather than direct social transfers. This approach has not always been effective for achieving its main policy goals. Thus there is considerable scope to rebalance the policy mix and to promote the transition to a socially inclusive form of green growth in a more effective, efficient and equitable manner.

Box 1. **Key environmental trends, 2000-10**

1. Transition to a low–carbon, energy and resource-efficient economy

After falling in the 1990s, the carbon intensity of the economy increased between 2000 and 2010. Population and economic growth and the related increased demand for transport have been the main drivers of CO_2 emissions. Nevertheless, Mexico's carbon and energy intensities remain below the OECD average.

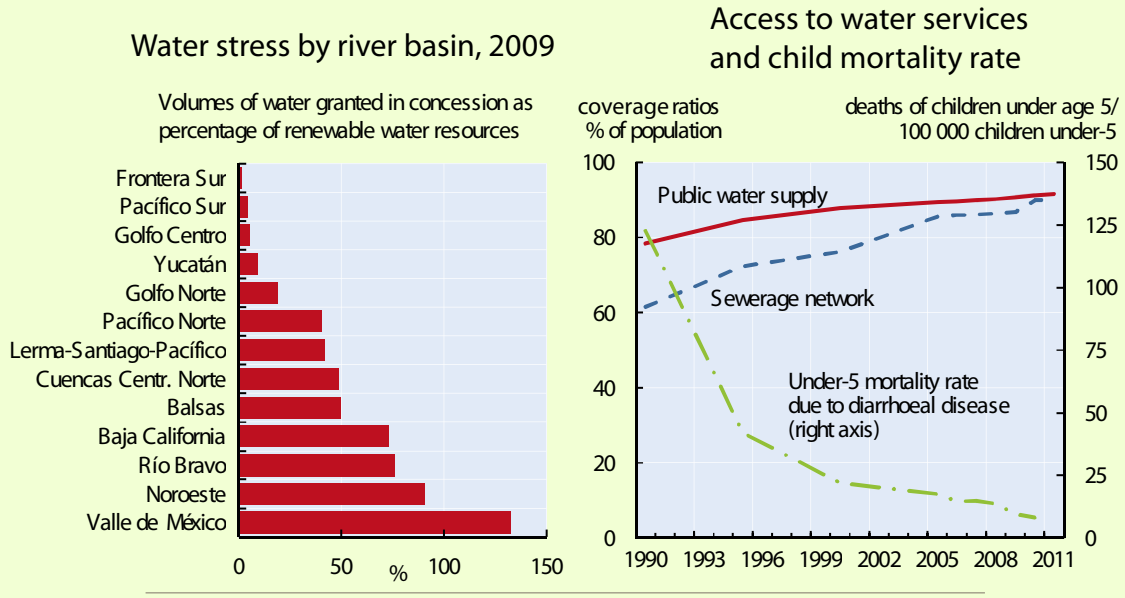
Oil accounts for 55% of the energy mix, but the proportion of natural gas grew from 20% in 2000 to 30% in 2010. The use of renewable energy only marginally increased during the period. Biomass is the most-used primary renewable fuel (48%), but hydro is the largest source of renewable electricity at 78%, followed by geothermal energy with 14%. Electricity generation from wind has risen sharply in recent years, although it accounted for only 2.6% of generation from renewables in 2010. Overall, the share of renewables in electricity production declined from 20% in 2000, to 18% in 2010.

Total material productivity only slightly improved over the period. Between 2000 and 2011, municipal waste generation increased by 34%, in line with private consumption and faster than economic growth. Landfilling continues to be the predominant type of municipal waste treatment, accounting for 95% of total treatment, the second highest rate among OECD countries. However, the share of controlled and sanitary landfills in total municipal waste treatment increased from 55% in 2000, to 71% in 2011.

2. Managing the natural asset base

Natural resource exploitation plays an important role in Mexico's development. Addressing the decline in oil production is a government priority as it provides for one-third of tax revenue and self-sufficiency is decreasing. Despite massive investment in the past decade, managing water resources is an ongoing challenge (Figure 2). About 15% of total abstractions are from non-sustainable sources and water use efficiency remains very low. The conversion of natural ecosystems to crop and livestock production continues to be the main driver of deforestation and land use change. Though the rate of deforestation has been significantly reduced over the last decade, Mexico recorded, on average, an annual net loss of 155 000 ha of forest over 2005-10. While 13% of the national territory is under federal protection, more than 2 600 species are listed under different categories of threat, and the share of mammal and bird species threatened is high compared to levels in other OECD countries.

Figure 2. **Challenges and progress in the water sector**



3. Improving the environmental quality of life

The quality of life associated with the environment has improved. The number of days exceeding air quality standards in major cities has decreased, helped by implementation of the ProAire programmes to improve air quality in urban areas. Mexico exceeded the Millennium Development Goals on improving access to water and sanitation services, and significant progress has been achieved in remediating sites posing serious risks to the human health. However, Mexico still has the lowest rate of connection to public wastewater treatment plants in the OECD. Air pollution is the major environmental concern of the population and imposes significant costs on the economy. Respiratory and intestinal diseases remain among the major causes of child mortality. Mexico is highly exposed to climate change risk. It is estimated that 15% of the territory, 68% of the population and 71% of GDP are highly exposed to direct adverse effects of climate change.

... BUT FURTHER EFFORTS ARE NEEDED TO STRENGTHEN ENVIRONMENTAL INSTITUTIONS AND POLICY IMPLEMENTATION.

Over the past decade, environmental sustainability has been given a higher profile in Mexico's policy agenda, and was one of five pillars in the 2007-12 National Development Plan. This higher priority was reflected in additional budgetary resources, the strengthening of environmental institutions and regulatory frameworks, and the establishment of inter-ministerial co-ordination mechanisms. Progress in areas such as climate change, water and forestry are particularly noteworthy. Despite these improvements, significant challenges remain. At the federal level, there is a need to more clearly distinguish the policy development and regulatory functions from the policy implementation functions of Mexico's main environmental institutions. Further efforts are needed to improve enforcement and compliance with environmental law, and public participation in environmental decision-making. The capacity of subnational environmental institutions remains weak, and there are significant institutional obstacles to efficiency and co-ordination.

EXTENDING THE USE OF ENVIRONMENTALLY RELATED TAXES AND REFORMING ENVIRONMENTALLY HARMFUL SUBSIDIES...

Integrating environmental costs into the price system is an essential prerequisite for tackling climate change and other environmental problems. Extending the use of environmentally related taxes, and reforming environmentally harmful subsidies, could contribute to achieving this objective. It would also help to rebalance Mexico's tax structure by raising taxes other than those related to oil production, and broadening the tax base. Important opportunities exist in the transport sector where prices of transport fuels are regulated via a price smoothing mechanism that results in an implicit subsidy at times of high world oil prices (Figure3). This subsidy represented net expenditure of 1.2% of GDP in 2011, despite the fact that the government progressively raised fuel prices in the late 2000s.

Overall, energy subsidies, including those for electricity consumption in the agricultural and residential sectors, averaged about 1.7% of GDP per year over 2005-09. This policy is costly and stimulates energy and water use (Figure 1, Box 1, Box 2). Similarly, the tax treatment of motor vehicles encourages vehicle ownership and use.

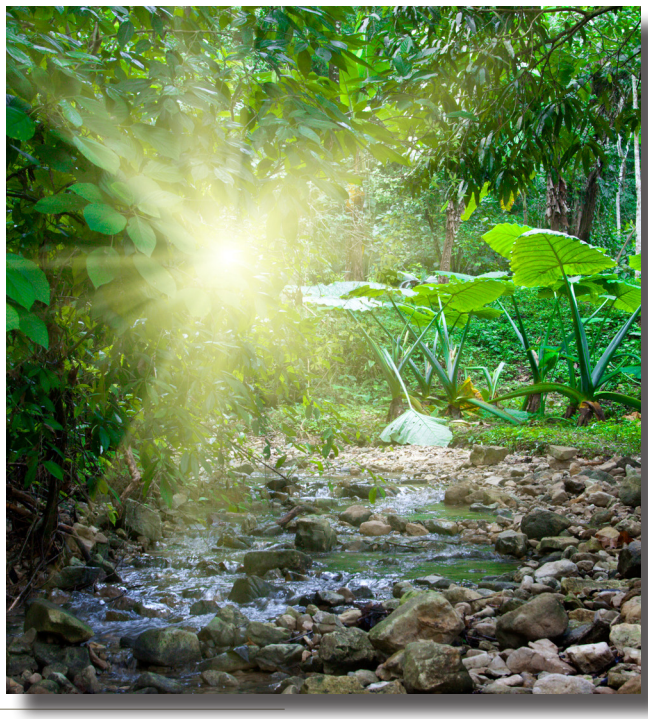
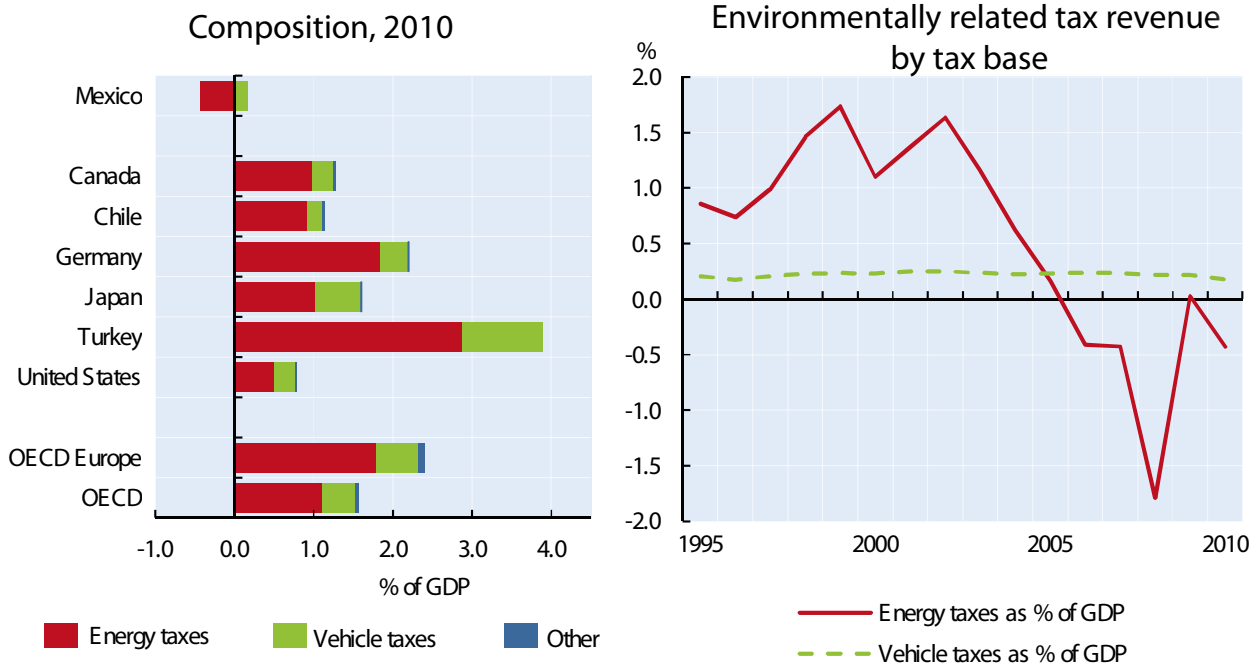


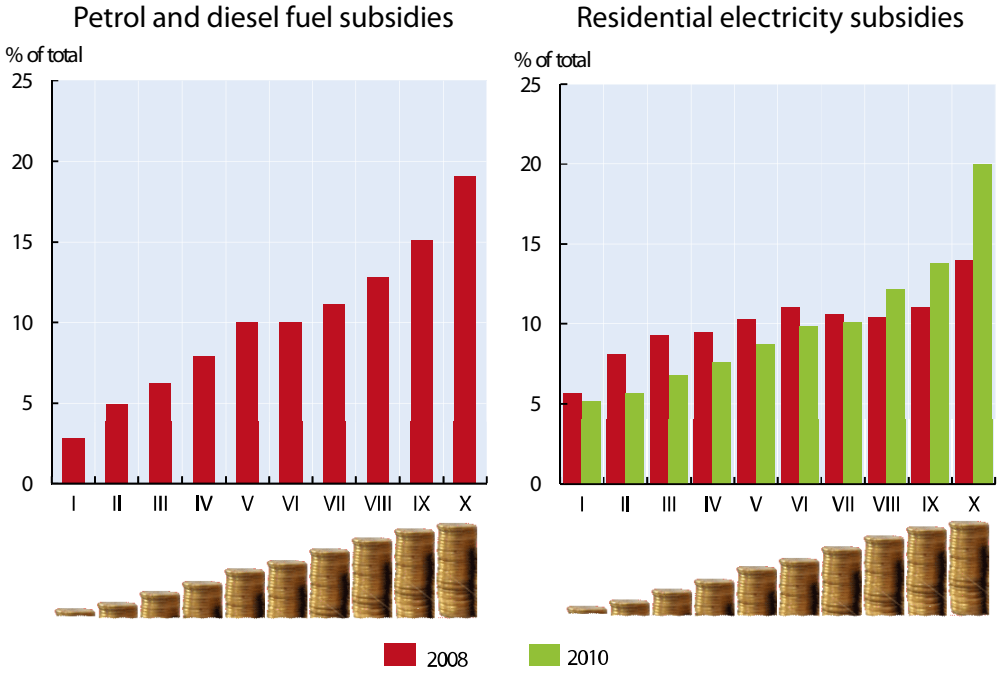
Figure 3. **Environmentally related tax**



… COULD PROMOTE THE TRANSITION TO A MORE SOCIALLY INCLUSIVE PATTERN OF GREEN GROWTH.

Many subsidies have long been in place to alleviate poverty. Mexico's poverty rate is the highest in the OECD, and is particularly high among indigenous people. However, most of these subsidies have benefitted the rich more than the poor. The poorest 20% of the population captures only 11% of residential electricity subsidies and less than 8% of transport fuel subsidies; similarly, 90% of agricultural price support and 80% of electricity subsidies for water pumping benefit the richest 10% of farmers (Figure 4). In 2008, energy subsidies cost more than twice the amount spent on anti-poverty programmes. These inefficient subsidies could be replaced by direct social spending with much greater benefits for the poor. Programmes such as the one to replace electricity subsidies for pumping irrigation water with direct cash transfers illustrate the way forward and should be scaled up (Box 2).

Figure 4. **Distribution of energy subsidies across income deciles, 2008 and 2010**



Box 2. **Electricity subsidies in the agricultural sector**

Water used in agriculture accounts for over three-quarters of Mexico's water abstraction. The agricultural electricity subsidy covers more than 60% of the cost of electricity for pumping irrigation water. By artificially lowering prices for pumping irrigation water, the subsidy has contributed to keeping the efficiency of water use low and the overexploitation of groundwater aquifers. The subsidy also discourages investment in more efficient irrigation technology. In addition, it has a very unequal distribution as it is mostly captured by owners of large irrigated farms. Farmers in the highest income decile receive 80% of electricity subsidies for water pumping.

Research shows that removing the subsidy would lead to a decrease in water abstraction by 15% in the short term. It would also encourage a shift to more water-efficient technology such as drip irrigation and sprinklers, resulting in a 19% reduction in water abstraction in the long term.

Based on these findings, in July 2011, the government launched a pilot programme to partly decouple the amount of the subsidy from electricity use. The programme involves 13 aquifers with more than 8 000 potential beneficiaries. Participating farmers pay a higher electricity price, although still partially subsidised and below the average cost of electricity generation. In exchange, they receive a cash transfer equivalent to the forgone electricity subsidy, calculated on the basis on their average consumption for the previous three years. The result is that farmers receive a less- distorted price signal yet do not incur a net income loss.

Source: INE; Muñoz Piña et al. (2006) "Agriculture Demand for Groundwater in Mexico: Impact of water right enforcement and electricity user-fee on Groundwater level and quality", Working Paper INEDGIPEA/0306.

MEXICO HAS CONSOLIDATED PROGRESS ON CLIMATE CHANGE IN A NEW LAW ...

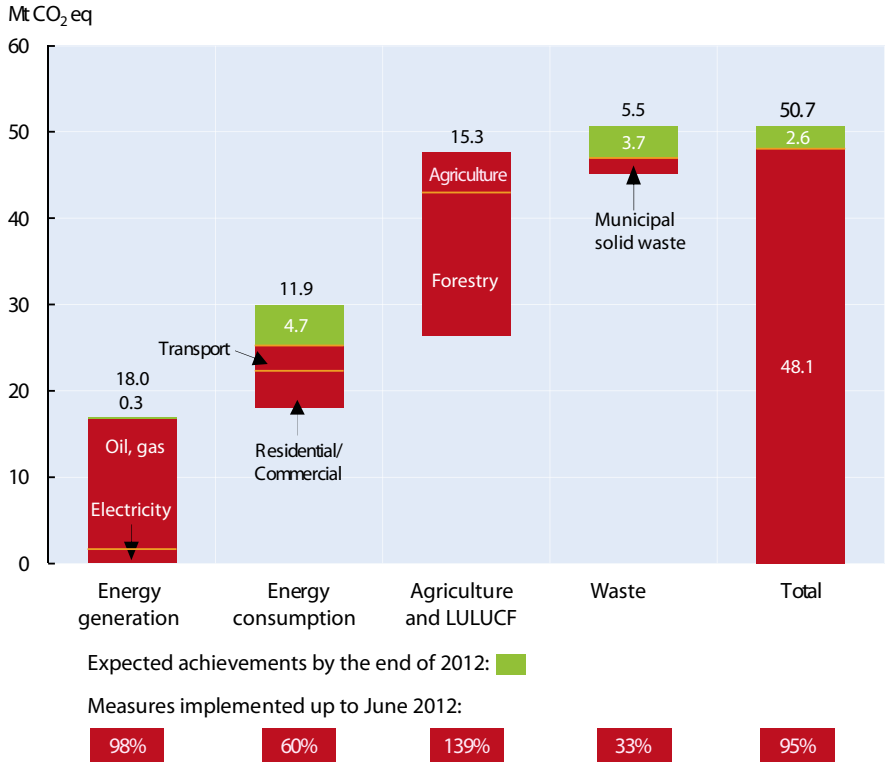
In 2008, Mexico had the world's 13th-highest greenhouse gas (GHG) emissions (excluding land use, land-use change and forestry). Since 2005, it has substantially strengthened the institutional framework, increased the resource allocation and promoted greater public awareness of climate change. The Inter-Ministerial Commission on Climate Change has been a key driver of policy development. It developed a National Strategy (2007) and a Special Programme on Climate Change (PECC) (2009) with specific objectives and measures on mitigation and adaptation. These efforts were consolidated by the adoption in June 2012 of the General Law on Climate Change. It confirmed Mexico's aspirational targets of reducing GHGs to 30% below a business-as-usual scenario by 2020, and 50% by 2050 from the 2000 level, conditional on international financial support.

Mexico has shown great leadership in, and a strong commitment to, supporting international efforts to address climate change. In 2010, it hosted the 16th Conference of the Parties to the UN climate change convention and was instrumental in brokering the adoption of the Cancun Agreements. As a non-Annex I country, Mexico does not have binding GHG reduction targets under the Kyoto Protocol but by adopting voluntary emission reduction targets for 2012, 2020 and 2050, it has provided an important example for developed and developing countries. It also served as a front-runner by submitting four National Communications under the Convention, the only non-Annex I country to do so.

... BUT ADDITIONAL POLICY MEASURES ARE NEEDED TO ACHIEVE POLICY GOALS...

Although Mexico was very close to achieving its 2012 GHG emissions reduction target in mid-2012 (Figure 5), reducing GHG emissions remains a major challenge. While Mexico has one of the lowest levels of CO_2 emissions per capita in the OECD, the energy and carbon intensities of its economy have been increasing over the last decade (Figure 1, Box 1). The 2009 scenario prepared within the PECC suggested that, without additional policy measures total GHG emissions could increase by 70% by 2050, compared to the 2000 level.

Figure 5. **Progress in meeting 2012 mitigation targets of the Special Programme on Climate Change**
(emission reductions compared to the business as usual scenario)



Various opportunities exist to improve energy efficiency at little or no cost, though they are weakened by the continued subsidy of energy. On the production side, there is significant potential for operational and energy-efficiency improvements in the energy industry. In end-use sectors, Mexico's Minimum Energy Performance Standards have been the country's most effective instrument for energy saving but more emphasis should be given to improving the energy efficiency of buildings.

Hydropower is the largest source of renewable electricity followed by geothermal energy. Since 2008, Mexico adopted a law and programmes to promote renewable energy sources which have resulted in a significant increase in wind power capacity. In 2010, it achieved the largest absolute increase in renewable energy investment in Latin America. However, much potential remains, and the share of renewables in electricity production declined from 20% in 2000 to 18% in 2010. Fostering deployment of renewables will require a better integration of environmental and social externalities in the cost of electricity; until recently this was impeded by a narrow interpretation of the constitutional requirement for the state-owned electricity company to purchase electricity at least cost, without any consideration of the environmental costs associated with electricity production. Addressing this issue, and developing a well-based support system for renewables, would help to reduce Mexico's high dependency on fossil fuels.

... PARTICULARLY IN THE TRANSPORT SECTOR.

The transport sector is the largest and the fastest growing energy consumer. Between 2000 and 2010, the rate of motorisation nearly doubled, driven by increases in income, a large supply of inexpensive used vehicles, the lack of fuel pricing incentives, urban sprawl and the lack of alternative transport modes. Programmes to promote sustainable urban transport have been successfully implemented in several big cities (Box 3). However, they would need to be significantly scaled-up to have an impact on car use. A package of measures should be adopted to reduce emissions from vehicle use, in conjunction with a gradual increase in fuel prices to reflect environmental costs. The government should address the social impact of rising fuel prices by introducing compensatory measures not linked to energy consumption.

Box 3. **Sustainable urban transport policies in Mexico**

Under the 2007-12 NDP, the federal government has implemented two main programmes for improving the efficiency of public transport and reducing GHG emissions: the Federal Support for Mass Transit Programme (PROTRAM) and the Urban Transport Transformation Programme (PTTU). PROTRAM provides financial support for planning studies and investments in projects like bus rapid transit (BRT) systems, trams, light rail and subways in cities with populations of more than 500 000. The National Infrastructure Fund, created as a trust in the state-owned development bank, Banobras, manages the programme. Since 2008, 40 mass transit projects in 30 cities have been registered.

The PTTU is a loan programme to complement and strengthen PROTRAM. It enables urban transport projects to have access to loans from the Clean Technology Fund and the International Bank for Reconstruction and Development. Eligible projects need to include: i) capacity building for developing local urban transport planning; ii) development of integrated mass transit corridors and ancillary investment to reduce CO_2 emissions; and iii) promotion of low-carbon bus technology and scrapping of old buses. To receive financial support, projects must follow procedures to minimise potential environmental and social impacts.

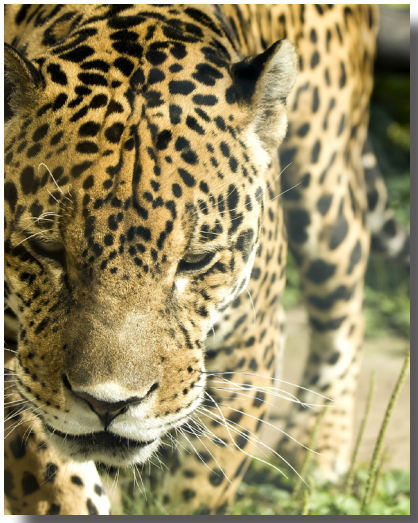
Even before these federal programmes were established, local governments promoted urban transport projects, partly with federal and international financial support. In particular, three major cities – León, Guadalajara and Mexico City – have reformed their mass transport systems in the last decade.

MEXICO HAS STRENGTHENED THE PROTECTION OF ITS RICH FOREST AND BIODIVERSITY RESOURCES...

Mexico is one of the most important countries globally in terms of biological diversity: It is home to 10-12% of the world's biodiversity. Forests cover one-third of the land area and provide a home for 11 million people living in extreme poverty. Between 1976 and 2007, the area covered by tropical forests declined by 10%, though the rate of deforestation has been significantly reduced over the last decade, particularly for primary forest. The conversion of natural ecosystems to crop and livestock production continues to be the main driver of deforestation and land use change. Around two-thirds of forests are fragmented, reducing quality and quantity of wildlife habitat.

Over the last decade, Mexico has developed a number of strategies and programmes that, together with a strong set of institutions, provide a good basis for conservation and sustainable use of forests and biodiversity.

Policy development and implementation have been supported by increased budget allocations and more comprehensive monitoring and reporting frameworks. The information base would be further strengthened by deepening the analysis of the economic aspects of biodiversity.



Mexico has a wide set of policy instruments to promote the conservation and sustainable use of biodiversity and forests. It is largely dominated by subsidies, many of which also aim to improve conditions of local and indigenous communities living in forests. Federal protected areas have increased significantly over the last decade and reached 12.9% of the territory in 2010. Further efforts will be needed to achieve the goal of 16% in 2020 and assure effective management of protected areas. The National Ecological Land Use Plan, adopted in 2012 is an important step for the conservation and sustainable use of ecosystems. This instrument establishes land use planning and zoning principles to promote development that simultaneously protects and conserves the environment.

... AND PIONEERED THE USE OF SEVERAL ECONOMIC INSTRUMENTS FOR THIS PURPOSE.

Mexico has pioneered several economic instruments for the conservation and sustainable use of biodiversity including: one of the largest programmes of payment for ecosystem services in the world covering 3.25 million ha of forests (Box 4); a form of biodiversity offsets for projects involving deforestation; reforestation programmes; controls on illegal hunting of wildlife; and fishery buybacks for more sustainable fisheries management. These instruments have delivered mixed results. Their design should be reviewed with the aim of enhancing their cost-effectiveness and achieving social and environmental objectives more efficiently.

Box 4. **The national programme of payment for ecosystem services (PES)**

The federal government established two PES programmes involving forest management: PSAH is aimed at protecting hydrological ecosystems and CABSA at carbon sequestration, biodiversity and agro-forestry systems. Payments are made annually. Verification of forest cover through satellite image analysis or ground visits is conducted annually on about half of all enrolled properties. Areas where deforestation is detected are removed from the programme and payments are reduced proportionally. PSAH is funded mainly by a national fee on water use. In contrast, the CABSA budget is negotiated every year in Congress and hence does not have stable, long-term funding. Ecosystem service providers in Mexico are predominantly *ejidos* (communal property).

Between 2003 and 2007, PSAH prevented an estimated area of 18 000 ha from being deforested, although 1.8 million had been enrolled in the programme. The low conservation impact of PSAH is related to the design of the programme which prioritises social and other criteria when allocating payments. If the PSAH is to meet its intended objective, substantially greater weight should be given to environmental criteria. To be effective, PES programmes should target areas with high biodiversity benefits, high risk of loss (to ensure additionality) and low opportunity costs. The PES programmes have been adjusted several times to better address the first two of these criteria.

A few voluntary approaches have also been put in place, such as green certification of coffee production; about 10% of all coffee producers in Mexico participate in this agreement. However, there is considerable scope to further develop such approaches; for example, while progress has been made in timber certification which can also help combat illegal logging, procedures should be strengthened to consolidate the national market for certified products; and efforts to promote sustainable tourism, including eco tourism certification should be enhanced to help reduce the environmental footprint of this large and growing sector. More generally, opportunities exist to further engage the private sector in conservation and sustainable use of forests and biodiversity.

Conservation and sustainable use of biodiversity also requires reform of policies in other sectors that exert significant pressures on ecosystems and biological resources, such as agriculture, tourism, fisheries and energy. For example, a variety of support programmes for farmers contributes to deforestation and the intensification of agricultural production. While agricultural subsidies have been reduced, a large share of agricultural support programmes is still made up of production-related measures, which are the most environmentally damaging. Further efforts should be made to increase the uptake of agri-environment payments to support more environment-friendly farming practices.

These Highlights present key facts, figures and policy recommendations of the 2013 OECD Environmental Performance Review of Mexico. The Review examines Mexico's progress since the previous OECD Environmental Performance Review in 2003.

The Highlights are based on the report prepared by the OECD Environment Directorate, with the contribution of reviewers from three examining countries: Canada, Chile and the United Kingdom. The OECD Working Party on Environmental Performance discussed the report at its meeting on 10 October 2012, and approved the Assessment and Recommendations.

The policy recommendations aim to provide further support to Mexico's initiatives on:

- greening growth
- implementing environmental policies
- climate change
- biodiversity and forests

This review is part of the OECD Environmental Performance Review Programme, which provides independent assessments of countries' progress in achieving their domestic and international environmental policy commitments, together with policy relevant recommendations. They are conducted to promote peer learning, to enhance countries' accountability to each other and to the public, and to improve governments' environmental performance, individually and collectively. The Reviews are supported by a broad range of economic and environmental data.

Each cycle of the Environmental Performance Reviews covers all OECD member countries and selected partner countries.

The most recent reviews include: Germany (2012), Slovenia (2012), Israel (2011), Slovak Republic (2011), Norway (2011) and Portugal (2011).

Further information:

OECD Environmental Performance Review of Mexico
www.oecd.org/env/country-reviews/mexico2013.htm

OECD Programme of Environmental Performance Reviews
www.oecd.org/env/countryreviews

Environmental Data and Indicators
www.oecd.org/env/indicators

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* All figures, tables and boxes are from the OECD publication, *OECD Environmental Performance Reviews: Mexico* 2013