GOBIERNO DE CHILE
National Commission
for the Environment

CHILE: Examples of Sustainable Development

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CHILE: EXAMPLES OF SUSTAINABLE DEVELOPMENT

INTRODUCTION

In Chile, as in other developing countries, environmental management has been institutionalized for little more than a decade. This coincides with our country's return to democracy in 1990. Since that time, successive administrations have advanced in the design and implementation of environmental policies. Perhaps the most significant step has been the establishment of modern environmental legislation and institutional structure.

The General Law of the Environment, which came into force in 1994, establishes the institutional and regulatory structure that directs the Chilean Government, the private sector and civil society in environmental matters.

The Chilean Government's environmental policies are based on a vision of sustainable development that seeks to combine economic growth with environmental protection. This vision can be defined as "the process of the sustained, equitable improvement of the quality of life of the Chilean people founded upon appropriate measures of environmental protection and conservation, that does not compromise the expectations of future generations".

In this context, environmental protection is not seen as a hindrance to development, but as an integral part of it. Thus, in Chile, we are continually working towards improving environmental protection in areas such as developing legislation; preventing and controlling air, water and soil pollution and promoting the protection of our natural heritage and the sustainable use of our natural resources. We are also introducing environmentally friendly practices into the productive sector, fostering public participation and generating new instruments for environmental management.

The establishment of a regulatory framework for environmental management has generated substantial advancements in recent years, which have translated into better commercial opportunities for the private sector and improvements in the quality of life of the Chilean people.

Thanks to the results achieved, Chile has become a leader in the region in the areas of urban air pollution control and domestic waste disposal.

The experience of the Chilean capital of Santiago has been fundamental in the World Bank's "Clean Air Initiative for Latin American Cities". The Clean Air Initiative has become a platform for promoting new strategies to combat urban air pollution, and will continue to be so as Chile carries out its role of Presidency of the Initiative for the current period, March 2002 to March 2004.

However, the environmental improvements of the last decade are not only due to the regulatory structure created by the Chilean government; we have also worked hand in hand with different stakeholders to generate effective conditions and incentives for the private sector to invest resources in the area of the environment.

This document presents some notable advances made in environmental matters in Chile in the last decade, along with their associated benefits, including improvements in the quality of life of Chilean citizens and the preservation of our environment in the context of economic growth.

Current state of environmental components

AIR

AIR

SITUATION IN 1990

By 1990 in Chile, air pollution problems had been accumulating for a number of decades. These problems were primarily associated with emissions from different sources: The main problems were experienced in the Chilean capital of Santiago (from industrial and transportation emissions), in the Central and North regions of the country (from mining activity) and in the towns and cities of the south (from the burning of wood for fuel).

In 1990 Santiago was the only city in Chile where air pollution was monitored. At this time, Santiago was registering 100 critical air pollution episodes (including alert, pre-emergency and emergency) per year. However, in the second half of the 1990s there was a significant decrease in pollution levels, produced in large part by changes in industrial fuels and the importation requirement for cars with catalytic converters.

Based primarily in the central and northern zones of the country, mining is one of the principal economic activities in Chile. One of the main environmental problems associated with mining is the air pollution caused by emissions from large smelters. The main pollutant is sulfur dioxide (SO2), with emission levels of 1.700.000 tons/year, which directly affects the(sacar) air quality in areas surrounding these megasources.

In addition, the domestic use of wood for fuel in the south of Chile is associated with high recorded levels of particulate matter, a cause of many respiratory tract illnesses.

MEASURES APPLIED

During the last decade, we have made great advancements in air pollution control in Santiago. Within the context of steady economic growth, Chile has developed important instruments of control, introduced cleaner technology in the areas of transportation and industry and produced norms and economic instruments in this area.

Since 1990, direct measures have been applied to control pollution,. In 1998, for example, the Plan for the Prevention and Control of Air Pollution in Santiago (PPDA) was instituted.

The PPDA controls emissions from the industrial sector and from public and private transportation. Contingency measures are applied on episode days, incentives are offered for the use of clean technologies and improvements in fuel quality have been achieved, among other gains. The PPDA is a long-range plan, with a term of 14 years, with reviews in the years 2000 and 2005.

Pollution control plans were also implemented with the aim of recovering air quality in areas surrounding the large mines in Chile. These plans established a timeline for emission reductions, and operational plans for protection of the nearby inhabitants at times of critical episodes.

In the South of Chile, monitoring has been established that will allow a detailed diagnosis of the concentrations and compositions of pollution in this zone. For prevention, a public awareness campaign has also been initiated to promote the use of cleaner burning wood. Work is also being done to improve stoves and heaters, to convert public buildings to natural gas and to establish a certification system for rating wood quality.

RESULTS OBTAINED

We may compare the more than 100 critical episodes recorded in 1989 to the 16 recorded in 2001, to show the great advances made in this area. In addition, it is worth noting that in 2001 there were no recorded episodes of environmental emergency.

As a result of the measures applied, levels of particulate matter (PM2.5) the most damaging pollutant for human health, were reduced 52% during the 1990s. This was achieved in the context of economic growth, with the GDP of the region showing a 100% increase for the same period (see figure 1).

Comparison of particulate matter (PM2.5)
Levels in Santiago and National GDP, 1989-2001

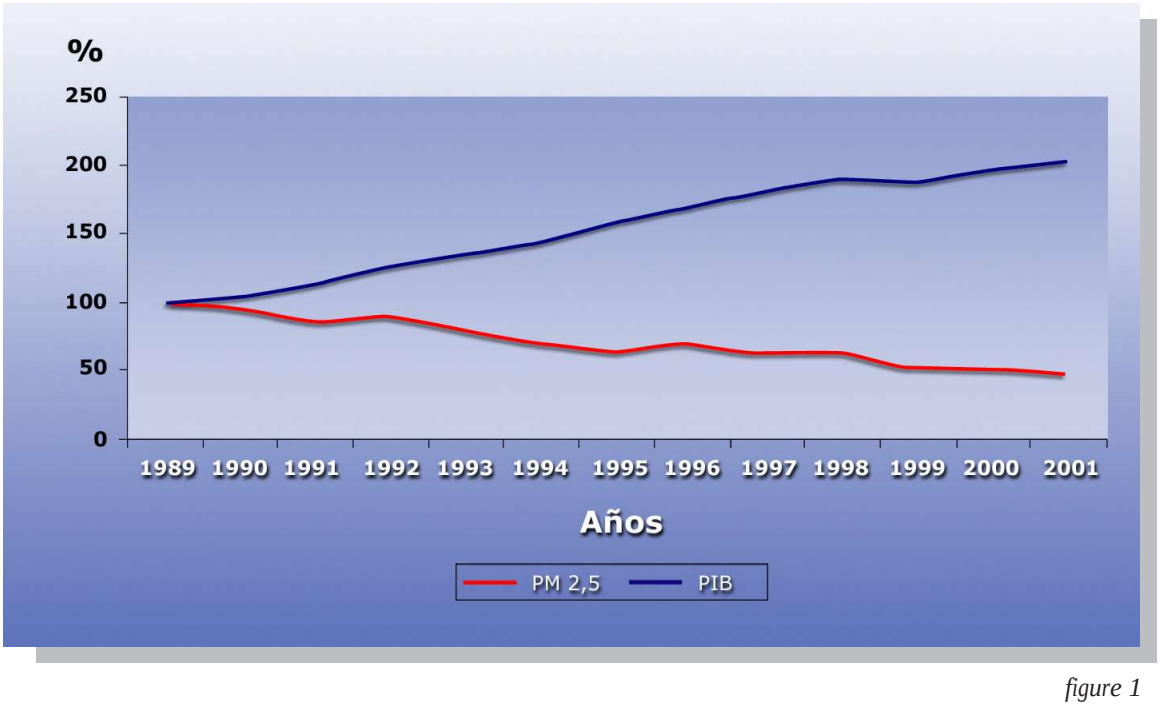

figure 1

AIR

In the mining sector, the application of pollution control plans has achieved an important (49%) reduction in sulfur dioxide (SO2) emissions in areas surrounding large smelters, with a consequent improvement in environmental quality. This has meant that more mines are now in compliance with the standard for SO2 emissions. The plans applied in this sector have allowed zones such as Paipote in the III Region of Chile, and Caletones in the VI Region, to comply with particulate matter standards.

Again, these gains have been in the context of economic growth of the industry. (see figure 2).

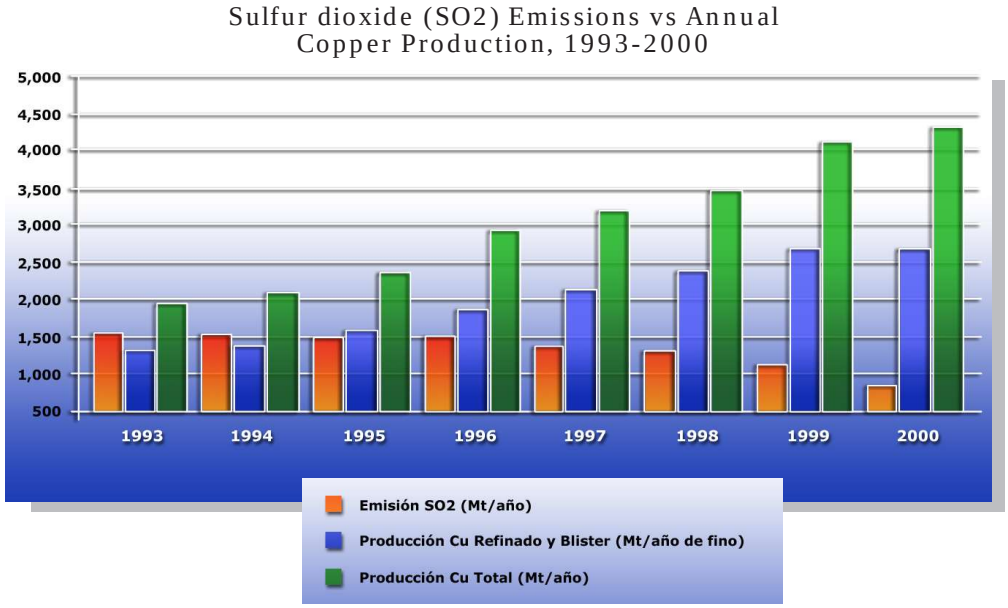

figure 2

FUTURE PROJECTIONS

While Chile continues to experience growth in different areas, we will strengthen measures for the control and prevention of air pollution, especially in Santiago. This will allow us to continue to address these critical issues without permitting new cities or zones to reach unacceptable levels of air pollution.

In order to achieve this, we will invest in better quality fuels, promote the replacement of older buses in Santiago through tenders for new routes in 2003, and strengthen economic instruments to control pollution.

AIR

This year, the Pollution Control Credit System Bill, which allows flexibility in options of compliance with environmental standards, will be presented to Congress. New pollution control projects, to be administered by the private sector, will also be initiated.

With the application of new measures under the PPDA, it is estimated that by the year 2005 we will no longer experience pre-emergency episodes in Santiago.

In the mining sector, we will build upon the reductions in emissions obtained by the existing Pollution Control Plans, to reach a 70% reduction in SO2 emissions in the areas surrounding most major smelters by the year 2003.

Water

WATER

SITUATION IN 1990

Investments made by the Government of Chile in the 1990s achieved 95% coverage for potable water in Chile, placing Chile in the forefront in this issue in Latin America. At the same time, treatment of wastewater in urban areas was only 5%, resulting in significant pollution of inland as well as coastal waters.

In regard to water pollution, for the first half of the decade (1990-1995), there were no existing environmental standards for water resources, including for industrial discharges.

MEASURES APPLIED

To increase the level of treatment of wastewater, the Government of Chile required waste management companies to present development plans, which established a timeline for these companies to open treatment plants, with the long-term goal of 100% treatment of wastewater by the year 2010.

To remediate pollution of lakes, rivers and coastal waters from industrial sources, a set of standards was defined to control emissions and to establish water quality for each water body or watercourse. New standards for the discharge of liquid waste into inland waters and sewer systems are obligatory for all new projects, and establish a timeline for compliance for preexisting installations. A modern system of control has also been implemented to verify compliance with these standards.

RESULTS OBTAINED

The steady construction of wastewater treatment plants is fostering the recovery of many of Chile's freshwater resources. This achievement is significant when one considers that domestic liquid waste is one of the main sources of water pollution in the country.

Compliance with the timeline established by the government has allowed Chile to reach the current level of 35% treatment of wastewater. Future investments pledged by waste management companies will allow us to reach the level of 95% treatment by the year 2010.(see figure 3)

WATER

The figures below illustrate wastewater treatment levels (in %) in urban areas, from 1990, projected to 2010.

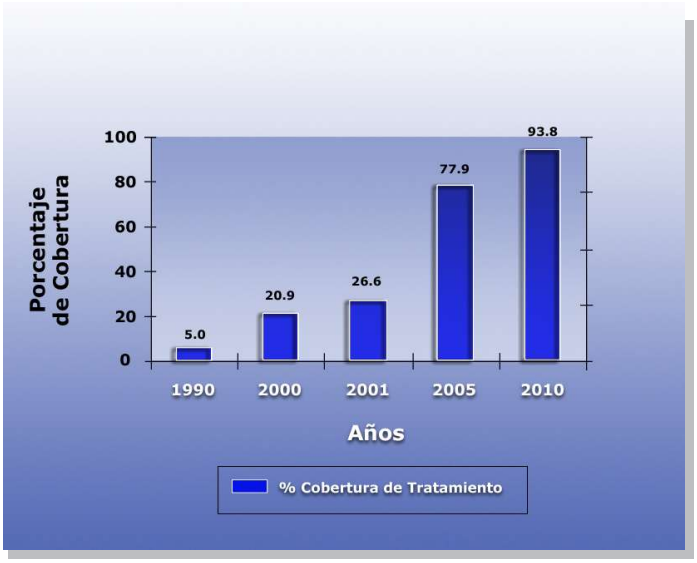

figure 3

Regarding marine waters, the improvement in coastal water quality in the V Region of Valparaiso is notable. For decades, this area suffered high levels of pollution from discharge of wastewater, however the construction of treatment and evacuation plants have brought this area and its adjacent beaches into compliance with water quality standards. (see figures 4 and 5)

Fecal Coliform levels in Valparaíso beaches (1996)

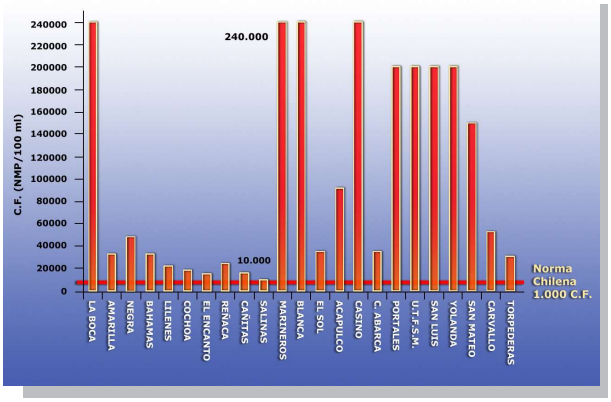

figure 4

Fecal Coliform levels in Valparaiso (2002)

figure 5

WATER

FUTURE PROJECTION

Currently, water quality is protected by different standards, such as those for discharge of liquid waste into sewer systems and watercourses. These standards will be complemented by new water quality standards that are presently in formulation for rivers, lakes and marine waters.

The implementation of secondary water quality standards for inland and marine waters will allow the development of water basin and coastal water management as well as of pollution control and prevention plans and additional instruments for the environmental management of this valuable resource.

WASTE

WASTE

SITUATION IN 1990

At the beginning of the 1990s, Chile had 98% coverage in collection of domestic waste in urban zones. However, final disposal of this waste was made into sites without environmental certification, and thus without treatment of any kind to mitigate the negative environmental effects.

MEASURES APPLIED

Since 1996, when new projects in Chile were first required to submit an Environmental Impact Study or Statement, treatment and disposal of solid waste in Chile has improved dramatically, largely due to the construction of sanitary landfills which are subject to stringent technical and environmental requirements.

RESULTS OBTAINED

In 1996, only 13% of waste generated in Chile was disposed of in sanitary landfills. Today, this figure is 50%. (see figure 6)

Disposal of waste in landfills with environmental certification (%), 1994 - 2006

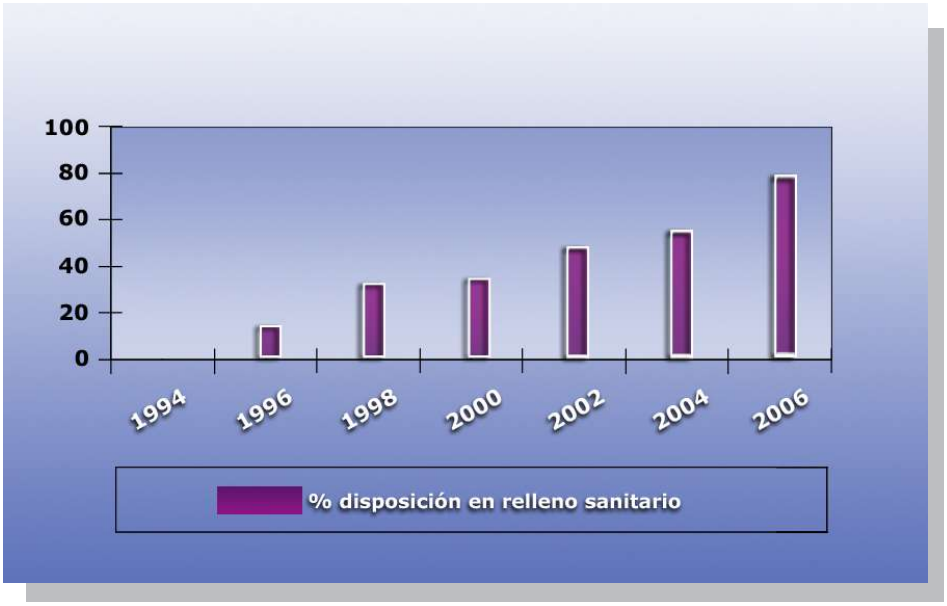

figura 6

WASTE

FUTURE PROJECTIONS

By 2005, 80% of household waste will be deposited in sanitary landfills that meet a series of stringent technical requirements such as waterproofing, treatment of percolated liquids and control of gases and odors.

Chile is committed to further improving waste management through strong programs of reduction and recycling of materials. Currently, Chile recycles 10% of solid waste (paper, cardboard, glass, aluminum cans, and plastic) and a national recycling program is underway, that is expected to increase this figure to 20% by 2005.

In addition, we are currently formulating standards for hazardous waste management, including medical and mining waste, as well as industrial sludge.

Conclusion

CONCLUSION

The environmental advancements recorded in Chile in recent years, both in institutional structure and concrete actions of protection and pollution control, show that it is possible to attain sustainable development in our country. In contrast to the vicious circle of unregulated practices and environmental degradation, these advancements generate a virtuous circle, in which increased economic growth fosters increased protection of the environment.

For these reasons, Chile has become a leader in environmental matters in the Region, as well as among countries at similar stages of economic development.

We believe that economic growth that is based on clean production processes –reflected in compliance with standards, environmental impact assessment of projects and protection and rehabilitation of the environment –provides us with opportunities for development.

We are aware that the condition of the environment depends greatly upon existing environmental regulations and the country's economic and legal infrastructure. Our achievements all of these areas in the last decade have allowed Chile to become a country where environmental rules are transparent and equitable for all stakeholders, permitting us to continue to attract investors while improving the quality of life of our citizens.