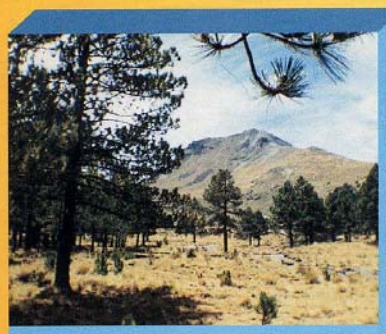
INSTITUTIONAL INDICATORS

ECONOMIC INDICATORS

SUSTAINABLE DEVELOPMENT INDICATORS OF MEXICO



ENVIRONMENTAL INDICATORS

SOCIAL INDICATORS

NATIONAL INSTITUTE OF ECOLOGY
NATIONAL INSTITUTE OF STATISTICS, GEOGRAPHY AND INFORMATION

Presentation

The National Institute of Statistics, Geography and Information (INEGI) and the National Institute of Ecology (INE)/SEMARNAP are proud to present the **Sustainable Development Indicators of Mexico**, whose objectives are, on the one hand, provide to the experts and general public a body of indicators that contribute to addressing the problem of sustainability as well as support the design of strategies and policies for sustainable development in our country and determine the methological foundations to continue the formation and update of such indicators.

This publication – the first of its kind in Mexico – contains the final report of joint efforts by these institutions between 1996 and 1999 as part of a global pilot project for the development of such indicators, as overseen by the Commision on Sustainable Development of the United Nations.

By publishing these sustainable development indicators, Mexico satisfactorly complies with this challenge and demonstrates before the international community its capacity in statistics and the committment to public access to information, as a fundamental tool in the sustainable natural resource and environmental management in the country.

With this, the INEGI continues providing to its users of the National Services of Statistics and Geographical Information an archive of information for making policy decisons, at the same time the INE demonstrates its committment to supporting the sustainable development in Mexico.

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Introduction

The development of the sustainable development indicators is an inter-institutional effort that has not only tested the capacity and experience of Mexico in the application of cutting-edge methodologies in the development of statistical information but as well proved the potential and availability of the information.

This project is part of the program of activities of the Technical Committee of Environmental Information, a recient initiative created by the INGEI and the Secretary of Environment, Natural Resources and Fisheries (SEMARNAP) in the framework of the Collaborative Agreement signed by both institutions in 1995. The Committee has the task of coordinating and sistematizing the production and compiliation of the environmental information among the various national institutions.

Considering the relevance of the results obtained from the pilot project – 80% of the indicators were developed according to the methodologies proposed by the United Nations –, the INEGI and the INE agreed to publish the project through one publication. As a result, modifications and updating of contents has been undertaken, as well as adjustments to the final editorial format, before the presentation to the United Nations Commission on Sustainable Development at the end of 1999.

Most of the information provided in the indicators is of public record, since these figures have been previously published in other official documents, except that information which was developed exclusively for this report. In the end, the information is exhibited in a direct and graphic fashion, needing little or no analysis of the trends presented by the reader.

Two aspects are pronounced here: on the one hand, it was required to perform a summarized translation of the manual and, on the other, the integration of the indicators implicated an intensive review process of the information and consensus by the various sources generating such information. In light of this, one must recognized the effort and interest of the institutions consulted to write this publication.

PART ONE
PROJECT DESCRIPTION

SECTION 1

Background

By accepting the «Action Program for Sustainable Development» or *Agenda 21*, as signed by the Chiefs of State and representatives of the various countries attendin the Earth Sumit (Rio de Janeiro, 1992), Mexico committed to adopt national and global measures in matters of sustainability and actions aimed at generating indicators which could be used to measure and evaluate the policies and strategies for sustainable development.

One point of the Agenda 21 declaration reflects the transcendence of the long term process assumed under the agreement (paragraph 40.4): «The sustainable development indicators must provide solid foundations for decisionmaking at all levels and contribute to selfregulation of sustainability in the integrated systems of the environment and development».These indicators, which express at a certain level and magnitud the interrelations between socio-economical development and ecological-environmental phenomena, constituting for the decisionmakers a reference point for the evaluation of welfare and sustainability of the country. Its value is magnified by contrasting or correlating with the goals that form part of the national policies.

In April 1995, the Commission for Sustainable Development (CDS) of the United Nations approved the Task Force for Sustainable develoment Indicators 1995-2000, to be instrumented in three, non-exclusive phases, that can be summarized as: a) information exchange, development of method sheets and training at the national and regional level (1995-1996); b) continue training and test the functionality of the method sheets among those countires which, voluntarily, wish to develop sustainable development indicators (1996-1997); and c) evaluation of the indicators in terms of their interrelation and evolution over time, and modifying them if necessary (1998-2000).

As one of the essential aspects of the first phase, and to facilitate the generation of sustainability indicators, the CDS, in colaboration with diverse agencies asociated with the United Nations, coordinated the development of various «method sheets», which provide a foundation and explain each one of the indicators proposed by the Agenda 21. These sheets went through a process of consultation and modification with experts from the appropriate countries until their publication by the United Nations in August 1996, under the title *Indicators of Sustainable Development: Framework and Methodologies* (and the later Spanish version: *Indicadores de Desarrollo Sostenible: Marco y Metodologías*), produced by the CDS.

Mexico began its informal participation since the initial invitations, but it was in March 1997, during the Third Workshop in Costa Rica, when Mexico finally formally joined the other 21 countries which had, voluntarily decided to participate in the global pilot program for the developmet of such indicators.

As for the secong phase, the CSD, with support of several governments, has organized four important workshops –with the fundamental purpose of analyzing the utitlity and viability of the application of method sheets–, in which Mexico was represented by the INEGI and the National Institute of Ecol-

ogy (INE): New York (United States, February 1995), where the method sheets were discussed among experts and country representatives; Ghent (Belgium, November 1996), where the method sheets were presented and the initial stages of testing the indicators with paired countries began; San Jose (Costa Rica, March 1997), where the possibilities of development and use of the indicators were explored among the countries of the region; and Prague (Czech Republic, January 1998), when all 21 participating countries promoted the exchange of experiences and recommendations, accelerate the process of testing to obtain highest results from developing the indicators.

After the last workshop, the number of participating countires reached the following 22:

Africa: Ghana, Kenya, South Africa, Moroco, Tunisia.

Asia and the Pacific Rim: China, Philipines, Maldivas Islands, Pakistan.

Europe: Germany, Austria, Belgium, Finland, France, United Kingdom, Czech Republic.

America: Barbados, Bolivia, Brazil, Costa Rica, Mexico, Venezuela.

In December 1998, in light of reports from 11 of the 22 participating countries sent to the CSD, the Departament of Economic and Social Affairs of the Division of Sustainable Development(DSD) developed and issued to the 22 countries a provisional report «Testing the CSD Indicators of Sustainable Development – Testing Process, Indicators and Methodology Sheets», which required comments on the applicability and utility of such indicators. The exchange of ideas solicited from the countries served to instrument, during 1999, the third phase of the revision and completion of the CSD Task Force.

As part of the second phase of this program, in September 1999, Mexico sent to the DSD a report on the joint project between the INEGI and INE, which stated thtat initially 104 indicators of sustainability had been developed (from a total of 134) and considered an increase of this figure for the next report.

In December 1999, in the context of Phase III of the CSD Instrumentation Plan, a workshop was held in Barbados concerning the sustainable development indicators, whose objective was to evaluate the results from the the 22 participating countries in the pilot project. This permitted the Commision, at the next phase, improve the conceptual framework for indicator development. The final report “Informe final de resultados de México”, was sent to the United Nations on November 1999, at that time the report enclosed a total of 113 development indicators. At the metting it was evident that Mexico was one of the few participants that achived a high number of indicators. The present publication is based on that report.

SECTION 2

Concept of Sustainable Development

To contextualize the exercise and trascendence involved in the development of the sustainable development indicators in Mexico, a brief introduction of the subject is necesary, considering that this is one of the primary topics still under discussion on the working national and international agenda, as well as becoming the model of development to follow into the next century.

For some tiem, experts and scientists from various schools of economic and social thought, considering the finite character of resources, believed that limiting growth was a way to improve social welfare. In 1798 Thomas R. Malthus postulated that the population and its constant growth exercised an impact so great over natural resources that these could not reproduce or reconsitute themselves at the same rate as population growth, thereby resulting in a disequilibrium between man and nature.

Since then other theories have proliferated about development and welfare, as well as human and ecological equilibrium, emphasizing the necessity of placing limits on economic and/or demogracphic growth in order to promote the best possible use of natural resources and a higher quality of life. However, the first global initiative with major implications until now is the Stockholm Declaration adopted by both developed and underdeveloped countries.

In effect, during the World Conference of the United Nations on the Human Environment, which took place in Stockholm (Sweden) from June 5-16 in 1972, for the first time, the concerns of the international community towards the problems of environment and development were manifested. In a paragraph of the proclamation, it says the following: «The two aspects of the human environment, the natural and artificial, are esential for the welfare of man and his/her fullfillment of their inherent and fundamental rights, including the right to life itself.» This forum established June 5th as «Earth Day.»

In 1976, as a result of the World Conference of the United Nations on Human Housing, known as *Hábitat* (Vancouver, Canadá), the necessity to improve the quality of life through adequate housing and shelter for the population and sustainable development for human housing was established. Additionally, a series of global and regional events have followed to promote the discussion of solutions for environmental problems and human sustainability.

It has been confirmed wtih greater frequency that, with the great technological and scientific advancements of humankind, certain patterns of production, consumption and urban development have caused a degradation and/or depletion of the environment (air/climate, water, land/soils) and the biota in various regions of hte planet. This situation is forcing countries to propose solutions not only only nationally, but as well, regionally and globally to preserve the natural resources and stop the progressive environmental deterioration.

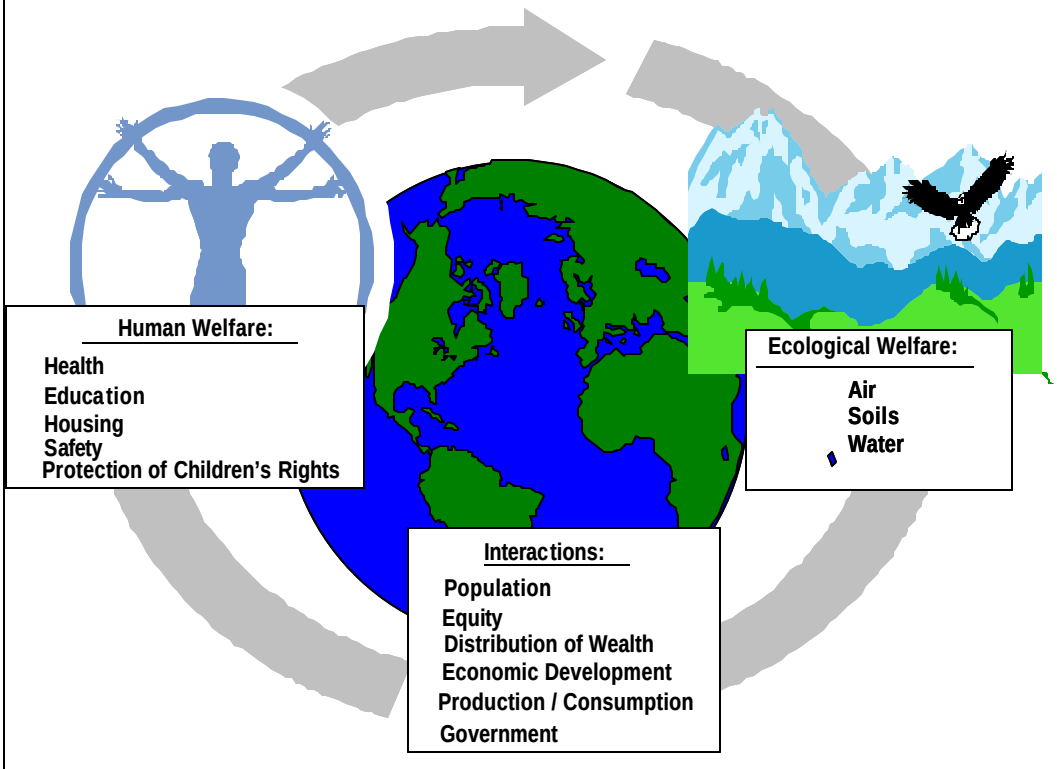
In this context, in 1987, the Global Commission of the United Nations for the Envi-

ronment and Development adopted by unanimity the document *Our Common Future* or the Brundtland Report, which constitutes the most ample agreement by scientists and policymakers of the planet and synthisizes the global challenges for the environment in the conceptual framework of sustainable development. This doucment defined such a concept as «that which satisfies the essential necessities of the present generation with compromising the capacity of satisfying the basic necesities of future generations.»[1] To illustrate the presence of the components of sustainability in a conceptual framework, three themes were associated with the concept: human welfare, ecological welfare and the interaction between the two (see Figure 1).

In other words, the concept focuses on the integral economic and environmental management, making up the *area of feasability*, where economic growth must be sufficient to resolve the problem of poverty as paralel to sustentablity in order to avoid evironmental deterioration, considering in addition the equity of rigthts among present and future generations.

In June 1992, during the *Earth Summit* (Rio de Janeiro), the heads of state ratified the Brundtland Report and approved the Action Program for Sustainable Development, known as *Agenda 21*, wherby the countries committed to instrument, by generating

Principal Areas of Sustainability Figure 1



Source: World Commission on Environment and Development, **Our common Future**, Oxford University Press, New York 1987.

indicators, a gama of topics and subjects implicit to the notion of sustainable development.

Diverse oppinions against concerning the feasability and projections of the concept, taking into account that the rate of population growth is still far from being controlled and/or the economic growth, in reference to nature and magnitude, has not changed radically and continues to exclude large sectors of the population.

Among the various countries, the industrialized nations – predominant consumers of global energy and responsible in consecuence for most of the carbon dioxide emissions, thereby causing global climate change – have not completely committed to the reduction of these emissions; whereas in the many of the countires in development the phenomena of inequality and poverty grows, with severe impacts such as soil degradation and loss of ecosystems, and therby increasing rural-urban or transborder migrations.

In 1997, five years after the Rio Declaration, the result of achieved progress in the solution of global problems – climate change, biological diversity, desertification, hazardous waste control, ozone depleting susbstances, among others – were not encouraging[2], a situation which provoked a new call by the participating countries and mankind to double all initiatives and actions at the global and regional levels to achieve the transition towards an environmental sustainable economy.

On the same level of this concern, the sustainability debate has been extended and in multiple directions. As critical voices describing the deficiencies and errors of the notion of sustainability have been heard, so to have new interpretations, conceptual and methodological frameworks, directed towards the design of tools for evaluation of the key questions facing sustainble development surfaced, as well as the formulation of adequate natural resource and environmental management policies.

The discussion and exploration of the topic has been a subject for debate in a number of global and regional meetings and also through the work and support of nations, institutions and experts. In this way, the original conception of sustainable development has been modified, through a healthy process of reflection and social participation, with the indicators becoming more focused geographically and statistically as specific priorities change.

A variant that enriches the original notion of sustainable development has three dimensions: social capital, economic capital y environmental capital, with the word «capital» understood in terms of existence as well as the quality of resources. Under this perspective, used by various countries and institutions, the emphasis is on the development of economic and social capital while a strong administration of environmental capital is included (see Figure 2).

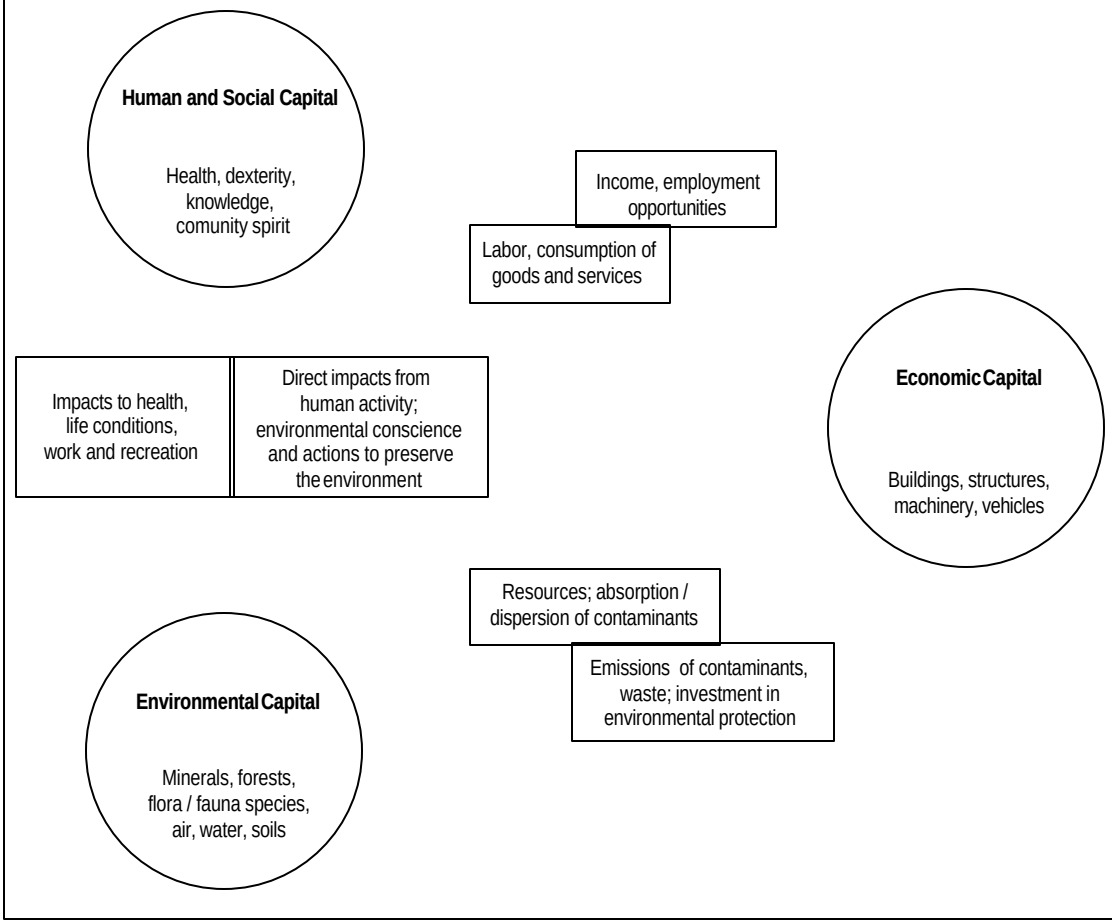
With respect to the discussion forums, the Conference on the Principles of Measurement of Sustainable Development (Bellagio, Italy, 1996) is noted, whose contribution is now known as the *Principiles of Bellagio* and constitute a framework of guidelines for the evaluation process of sustainable development, including the selection and design of the indicators, their interpretation and publication of resutls.

In addition the the initiatives of the Organization for Ecoonomic Development and Cooperation (OECD) must be noted, which since 1998 has been developing a series of workshops with experts to explore new methodolgies and indicators to measure progress of sustainable development.[3] During the workshop held in September 1999, the conceptual frameworks in specific subject matters and their corresponding interrelations with sustainble development information: National Accounting System, Intregrated Economical and Ecological Accounting Systems, Measurment of Poverty, Social Capital, Savings, Material Flow, Role of Technology, among others.

Independently of the definition that is adopted of the term and the implications for each region or area, be it urban or rural, the majority concedes that the concept of sustainable development should include a scheme of development that considers the human being as the center or apex of all strategy, where improvement of the quality of life is

Interaction Between Economic Capital, Capital Social Capital and Environmental Capital

Figure 2



Fuente: The Government Statistical Service, **Quality of life counts**, Reino Unido, 1999.

achieved with productive efficiency and in equilibrium with natural resources preservation. [4]

In order to measure and evaluate the concept, the CSD of the United Nations, with the support of interested experts and country representatives, developed a method scheme – a "method sheet" for each indicator– which focuses on sustentability in four aspects (with relation to the corresponding topics and indicators): social, economic, environmental and institutional.

By structuring the analysis of sustainability in these separated subsystems institutions attempt to identify not only the possible limits associated with cause-effect for each given environmental phenomena, but as well the factors or esential players who can dictate an action plan. The indicators designed as such try to reflect and measure the interrelations between socio-economic development and the ecological-environmental phenomena, and constitute a point of reference for the evaluation of welfare and sustainability of a nation.

The concern to achieve a better quality of life for the population promotes the focus of converting sustentability of the prototype of development to be achievec by each country, which will be evaluated by how each economy is able to achieve an environmentally sustainable development, that is, a more inclusive society and the benefits of economic prosperity be shared, with less ccontamination and reduced waste of natural resources.

In summary, some countries, basing themselves on the conceptual schemes and the indicators of the Sustainable Development Commission, as well as the pilot program developed among the 22 nations, have taken the initiative to design and develop their own tools for analysis and measurement, selecting a variety of key indicators to monitor policies, strategies and priorities of sustainble development. [5]

NOTES

[1] World Commission on Environment and Development, **Our Common Future**, University Press, New York, 1987.

[2] According to the report **Global Environment Outlook** (1997) of the United Nations Program for the Environment, «the global environment continues to deteriorate and the important ecological problems still persist in the current socio-economical system of nations, in all regions». This diagnosis was reaffirmed during the Summit 5 Meetings, also known as the *Earth Summit II*, held in New York in June 1997.

[3] Organization for Economic Development and Cooperation, **Frameworks to Measure Sustainable Development**, OECB, Paris, 2000. This document contains the results of the second Expert Workshop on Sustainable Development Indicators, held in Paris in September 1999 (the first, also in Paris, was held in October 1998). These and other events, were born out of the preperations for the OECD Conference «Towards Sustainable Development – Indicators to Measure Progress» (Rome, December 1999), which were part of the preparations for the Second Round of Evaluation of the Environmental Performance of the member nations and to prepare the report presented at the Ministerial Meeting on Environment of hte OECD, both to be held in 2001.

[4] The development of sustainable development indicators which are currently being developed in many countries is not limited to the development of macro indicators, and additionally is focused on measuring sustainability at the local level, in and by the various communities, addressing their problems and priorities. The scheme of macro indicators constitutes a useful tool towards this objective.

[5] Consult, for example: Department of the Environment, Transport and the Regions, **Quality of life counts**, The Governmental Statistical Service,

DETR, Londres, 1999; European Commi-ssion, **Indicators of Sustainable Development (A pilot study following the methodology of the United Nations Commission on Sustainable Development)**, Eurostat, Luxemburg, 1997; and U.S. Interagency Working Group on Sustainable Development Indicators, **Sustainable Development in the United States – An Experimental Set of Indicators**, Washington, 1998.

SECTION 3

International Design of Method Sheets

To define and gather the series of indicators suggested by Agenda 21, the CSD, in collaboration with various associated and/or independent agencies of the United Nations and several country representatives – Mexico, among others – participated in the activities of design and development of the respective method sheets to establish a framework fo reference for the indicators. The organizations participating in the construction of the method sheets and the corresponding indicators include:

- DESPA: Departament of Economic and Social Information and Policy Analysis, United Nations
- World Bank
- Convention Framework on Climate Change (Secretary)
- DPCSD: Departament of Policy Coordination and Sustainable Development, United Nations
- Eurostat: Office of Statistics of the European Community
- FAO: Food and Agriculture Organization of the United Nations
- UNESCO: United Nations Education, Science and Culture Organization
- World Nature Fund
- IIASA: International Institute of Analysis for Applied Systems
- IIDS: International Institute for Sustainable Development
- Institute on Climate, Environment and Energy, Wuppertal
- New Economics Foundation
- OECD: Organization for Economic Cooperation and Development
- IOEA: Internacional Organization on Atomic Energy
- IWO: International Workers Organization
- WMO: World Meteorological Organization
- WHO: World Health Organization
- UDOID: United Nations Organization for Industrial Development
- UNPD: United Nations Program for Development and its Office Against Desertification and Drought
- UNEP: United Nations Environment Program and the Secretariat of the Basil Convention
- NIPMEP: National Institute of Public Health and Environmental Protection, Netherlands
- SCOPE: Scientific Committee on Problems of the Environment
- UICN: International Union for the Conservation of Nature
- ITU: International Telecomunications Union
- UNCTAD: United Nations Conference on Trade and Development
- UNICEF: United Nations International Children's Educational Fund
- University of the United Nations for Human Housing (Habitat)
- Worldwatch Institute
- WRI: World Resources Institute

The proposed indicators by the CSD were designed and grouped according to:

a) topical criteria that covers each one of the 40 chapters of Agenda 21, distributed in four categories –social, economic, environmental and institutional – (Scheme 1) and b) by their nature within the PSR scheme, divided in the following manner: impact 43, status 54 and response 37, totaling 134 indicators[4] (Scheme 2).

Additionally, each method sheet contains, among other aspects: a brief definition of the indicator, unit of measurement, policy significance or relevance, methodological description, methods of measurement, and elements for the evaluation of availability of information and bibliographical sources.

Agenda 21: List of Chapters on Sustainable Development by Topic *Scheme 1*

Category and Chapter		Number of Indicators
Social Aspects		
3	Combating poverty	6
5	Demographic dynamics and sustainability	4
36	Promoting education, public awareness and training	11
6	Protecting and promoting human health	12
7	Promoting sustainable human settlement development	8
	Subtotal	41
Economic Aspects		
2	International cooperation to accelerate sustainable development in countries and related domestic policies	5
4	Changing consumption patterns	8
33	Financial resources and mechanisms	6
34	Technology transfer	4
	Subtotal	23
Environmental Aspects		
18	Freshwater Resources	7
17	Protection of oceans, seas and coastal areas	5
10	Integrated approach to the planning and management of land resources	3
12	Managing fragile ecosystems: combatting desertification and drought	4
13	Managing fragile ecosystems: sustainable mountain development	3
14	Promotiing sustiainable agriculture and rural development	7
11	Combating deforestation	4
15	Conservation of biological diversity	2
16	Environmentally sound management of biotechnology	2
9	Protection of the atmosphere	6
21	Environmentally sound management of solid wastes and sewage-related issues	5
19	Environmentally sound management of toxic chemicals	2
20	Environmentally sound management of hazardous waste	4
22	Safe and environmentally sound management of radioactive waste	1
	Subtotal	55
Institutional Aspects		
8	Integrating environment and development in decisionmaking	4
35	Science for sustainable development	3
39	International legal instruments and mechanisms	2
40	Information for decisionmaking	3
23-32	Strengthening the role of principal groups	3
	Subtotal	15
	Total	**134**

Source: United Nations, **Indicators of Sustainable Development: Framework and Methodologies**, August, New York, 1996.

List of Sustainable Development Indicators - Social Aspects *Scheme 2*

Chapter of Agenda 21	Impact Indicators	Status Indicators	Response Indicators
Chap. 3: Combating poverty	• Unemployment rate	• General poverty index • Poverty gap index • Squared poverty gap index • Gini index of income inequality • Ratio of average female to male wage	
Chap. 5: Demographic dynamics and sustainability	• Population growth rate • Net migration rate by place of residence • Total fertility rate	• Population density	
Chap. 36: Promoting education, public awareness and training	• Rate of change of school-age population • Gross primary school enrollment ratio • Net primary school enrollment ratio • Gross secondary school enrollment ratio • Net secondary school enrollment ratio • Adult literacy rate	• Children with fifth grade education • Expectation of Education • Difference among male and female school enrollments • Women in the workforce	• GDP spent on education
Chap. 6: Protecting and promoting human health		• Basic Sanitation: Percentage of population with adequate excreta disposal facilities • Access to potable water • Life expectancy at birth • Adequate birth weight • Infant mortality rate (IMR) • Maternal mortality rate (MMR) • Nutritional status of children	• Immunization against infectious childhood diseases • Contraceptive prevalence • Proportion of potentially hazardous monitored in food • National health expenditure devoted to local health care • Total national health expenditure related to GNP
Chap. 7: Promoting sustainable human settlement development	• Rate of growth of urban population • Per capita consumption of fossil fuel by motor vehicles • Human and economic loss due to natural disasters	• Percentage of population urban zones • Area and population of urban formal and informal settlements • Living area per person • Housing prices to income ration	• Infrastructure expenditure per capita
Total Indicators	13	21	7

List of Sustainable Development Indicators - Economic Aspects *Scheme 2*

Chapter of Agenda 21	Impact Indicators	Status Indicators	Response Indicators
Chap 2: International cooperation to accelerate sustainable development in countries and related domestic policies	• GDP per capita • Net investment share in GDP • Sum of exports and imports as a percent of GDP	• Environmentally adjusted Net Domestic Product • Share of manufactured goods in total merchandise exports	
Chap. 4: Changing consumption patterns	• Annual energy consumption • Share of natural-resource intensive industries in value-added manufacturing	• Proven mineral reserves • Proven fossil fuel energy reserves • Lifetime of proven energy reserves • Intensity of material use • Share of manufacturing value-added in GDP • Share of consumption of renewable energy resources	
Chap. 33: Financial resources and mechanisms	• Net resource transfer / GDP	• Total official assistance for development, given and received, as percentage of GDP • Debt / GDP • Debt service / exports	• Environmental protection expenditure as a percentage of GDP • Amount of new or additional financing for sustainable development
Chap. 34: Technology transfer	• Capital goods imports • Direct foreign investment	• Share of environmentally sound capital goods imports	• Technical cooperation assistance
Total of Indicators	8	12	3

List of Sustainable Development Indicators - Environmental Aspects *Scheme 2*

Chapter of Agenda 21	Impact Indicators	Status Indicators	Response Indicators
Chap. 18: Freshwater Resources	• Annual extraction of subterranean and surface water • Domestic consumption of water per capita	• Groundwater reserves • Concentration of fecal coliforms in freshwater • Biochemical Oxygen Demand (BOD) in water bodies	• Wastewater treatment • Density of hydrological networks
Chap. 17: Protection of oceans, and coastal areas	• Population growth in coastal areas • Discharges of oil into coastal waters • Discharges of nitrogen and phosphorus to coastal waters	• Maximum sustained yield for fisheries • Algae index	
Chap. 10: Integrated approach to the planning and management of land resources	• Land use changes	• Changes in land conditions	• Decentralized local natural resource management
Chap. 12: Management of fragile ecosystems: combating desertification and drought	• Population living inland below poverty line.	• National monthly rainfall index • Satellite derived vegetation index • Land affected by desertification	
Chap. 13: Management of fragile ecosystems: sustainable development in mountainous regions	• Population change in mountainous regions	• Sustainable use of natural resources in mountainous regions • Welfare of mountainous populations	
Chap. 14: Promoting sustainable rural agriculture	• Use of agricultural pesticides • Use of fertilizers • Irrigated cultivated lands • Energy use in agriculture	• Cultivated land per capita • Areas affected by salinization and flooding	• Agricultural education

Continues

List of Sustainable Development Indicators - Environmental Aspects *Scheme 2*

Chapter of Agenda 21	Impact Indicators	Status Indicators	Response Indicators
Chap. 11 Combating deforestation	• Logging production	• Deforestation	• Managed forest area ratio • Percentage of protected forests
Chap. 15: Conservation of biological diversity		• Threatened species as a percent of total native species	• Protected area as a percent of total area
Chap. 16: Environmentally sound management of biotechnology			• R&D expenditure in biotechnology • Existence of national biosafety regulations or guidelines
Chap. 9: Atmosphere protection	• Emissions of greenhouse gases • Emissions of sulfur oxides • Emissions of nitrogen oxides • Consumption of ozone depleting substances	• Atmospheric pollutant concentrations in urban areas	• Expenditure on air pollution abatement
Chap. 21: Environmentally sound management of solid waste and sewage-related issues	• Generation of industrial and municipal solid waste • Elimination of domestic waste per capita		• Expenditure on waste management • Waste recycling and reuse • Municipal waste disposal
Chap. 19: Environmentally sound management of toxic chemical substances		• Chemically induced acute intoxications	• Number of prohibited or severely restricted chemicals
Chap. 20: Environmentally sound management of hazardous waste	• Generation of hazardous waste • Imports and exports of hazardous wastes	• Area of land contaminated by hazardous waste	• Expenditure on hazardous waste treatment
Chap. 22: Environmentally sound management of radioactive waste	• Generation of radioactive waste		
Total of Indicators	22	18	15

List of Sustainable Development Indicators - Institutional Aspects *Scheme 2*

Chapter of Agenda 21	Impact Indicators	Status Indicators	Response Indicators
Chap. 8: Integrating environment and development in decisionmaking			• Sustainable development strategies • Integrated Economic and Environmental Accounting Program • Mandated environmental impact assessment • National councils for sustainable development
Chap. 35: Science for sustainable development		• Potential scientists and engineers per million population	• scientists and engineers engaged in R&D per million inhabitants • Expenditure on R&D as a percent of GDP
Chap. 39: International legal instruments and mechanisms			• Ratification of global agreements • Implementation of ratified global agreements
Chap. 40: Information for decisionmaking		• Number of telephone lines • Information access	• National program of environmental statistics
Chap. 23 -32: Strengthening the role of principal groups			• Representation of major groups in National Councils for Sustainable Development • Representatives of ethnic minorities and indigenous peoples in National Councils for Sustainable Development • Contribution of NGOs to sustainable development
Total of Indicators	0	3	12

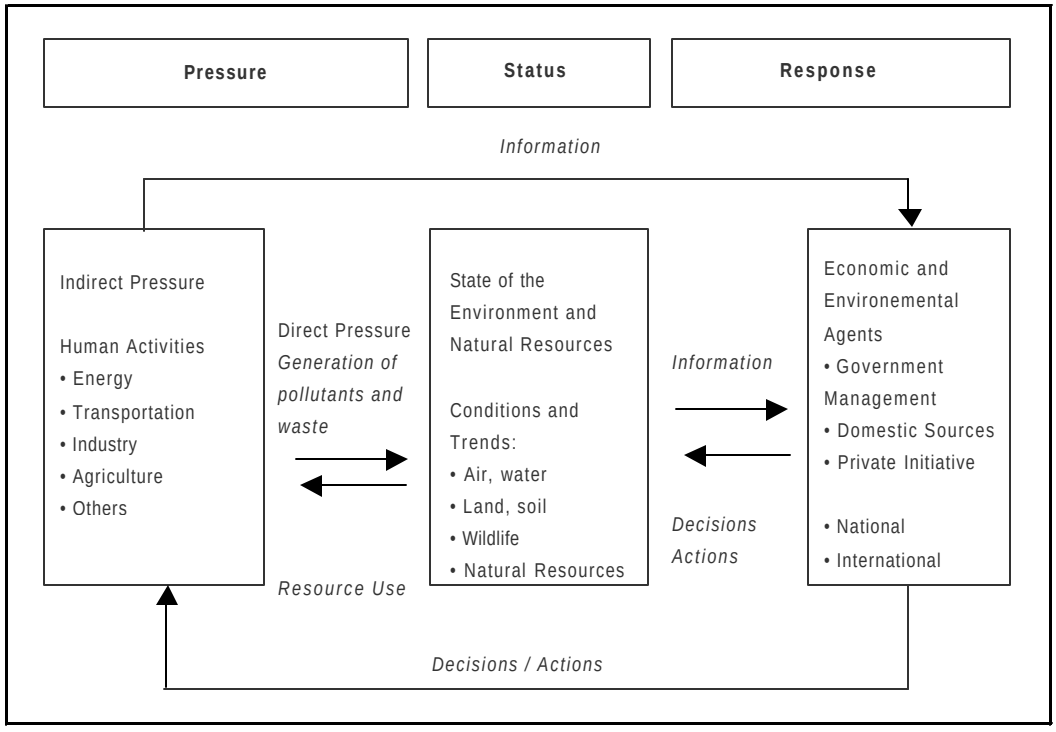
SECTION 4

Pressure-Status-Response Scheme

Designed by Statistics Canada in 1979, the conceptual framework of *Pressure-Status-Response* was adapted by the United Nations to develop four manuals on environmental statistics, which were to be integrated into the physical and economical accounting systems: one of general character, another on human settlements; a third for natural enviroment; and a fourth manual on integrated economical and environmental accounting. For many statistical offices, these manuals have been useful for organizing their environmental information systems.

At the same time, this framework was adopted and modified by the Organization for Economic Cooperation and Development (OECD), which in 1991 developed the Impact-Status-Response (PSR) framework and in 1993 defined a significant group of environmental indicators in topics selected for the evaluation of environmental performance. Currently, this model forms part of the national reports on the state of the environment and the performance evaluations developed periodically by the member countries. Additionally, other countries have adopted this model for their own environmental information systems.

Pressure - Status - Response Model *Scheme 1*



Source: OECD, **Towards Sustainable Development: Environmental Indicators** , OECD, Paris, 1998.

The PSR is only an analytical tool which categorizes and classifies the natural resource and environmental information in the context of their interrelations with the socio-demographic and economic activities. It is based on the following interrelations: human activities creating an Pressure (P) on the environment, modifying with this act the quantity and quality of the environment, in other words, the status (S) of natural resources; the society responds (R) with general and sectorial environmental and socio-economical policies, which in themselves are later included as part of the impacts from human activities.

Depending on the assigned purpose, the PSR model can be adjusted to focus on certain characteristics and specific details. An example is the model used by the CSD, which presents the indicadors within a scheme called «Driving force-State-Response», adapted amply to be known as the Pressure-Status-Response (PSR), where the category «impact» has replaced "driving force", since the latter trascends human activities, proceses and patterns which impact sustainable development and more adequately comprehend the role of social economic, environmental and institutional factors.

Another scheme, used primarily by the European Environmental Agency and the Environmental Protection Agency of United States, expands the model to five information categories, in an attempt to perform a much more complete study of the relationship between society and the environment: Pressure-Status-Impact / Effect-Response. In this way, the scheme becomes more complex, and requires parameters for measurement (during the short, mid and long-term) of the impacts and effects towards the environment, ecosystems, natural resources and the population. As a result, the use of both of these categories is performed using models which implement evidence and plausible trends about the relationships focusing on the problems, causes and solutions.

Although several models exist, Mexico used the orginal version of the model, independente of that fact that it is absolutely valid to include information on the categories for impacts and effects, a process which in itself also depends on the availability of information.

On the other hand, it is useful to present a definition of the indicator. According to the Global Urban Observatory at the United Nations Center for Human Settlement, an indicator is measurment which uses information from a particular topic which can illustrate certain problems; provides a reasonable response for the necesities and specific questions required for decisionmakers. The indicators show trends, provide quantitative and qualitative information, although these can sometimes be pieces of information if they are designed in response to clear policy objectives. The indicadores directed towards a specific policy helps prioritize and define public goals.

Following the definition of the OECD, an indicator can be defined as a specific parameter or value, derived from a more general parameter, that shows or provides information or describes the state of a given phenomena –in the environment or from a certain area – with a meaning that trascends the specific parameter value. This indicator is aggregated and designed for a specific purpose with a synthetic significance and has two basic functions: a) reduce the number of measurements and parameters that are normally

required to reflect a given situation and b) simplify the process of comunication with the user.

The indicators for the PSR scheme and in general for sustainable development have been conceptualized in accordance with certain criteria, which require:

a) ease of development and comprehension;

b) contribute to educate and reinforce public consciousness on the aspects of sustainability and promote participation at the local, regional or national level;

c) relevant to the measurement and evaluation of progress towards achieving sustainable development;

d) feasabile for development at the national level or other geographical scales, considering: the national capacity, the availablity of basic information, the time of development within national priorities;

e) based on conceptual frameworks to facilitate objective comparisons at the national and international levels;

f) Adaptable to future methodological and conceptual developments;

g) Help identify priorities or emergency measures, which also discover new areas of research;

h) Cover a majority of the topics under Agenda 21 and other aspects of sustainable development.

SECTION 5

Lessons Learned and Future Challenges

Independent of the difficulties of adequating concepts and metodolgies in the devlopment of the indicators, it is without a about that the method sheets provided by the CSD have been used as a fundamental instrument to establish the pilot project in Mexico.

The process of indicator development has permitted Mexico to prove that a large amount of information does exist and that the necessary infrastructure continues to grow so that Mexico can expand this process in the future. The impact of this process is noted primarily in the establishment of dialogue and exchange between the principal institutions generating such environmental information and as a result become more involved and stakeholders in developing future sustainability indicators.

A direct result of all this is seen in the planning process of the sustainable development which will eventually benefit from such efforts to some degree. In other words, this group of indicators will form the basis for national policy decisionmaking and assist in the monitoring of the environmental objectives and priorities in sustainable development.

The current and future efforts by Mexico should work towards perfecting the indicators which still lack definitions and proper units of measurment, as well as determine those areas and activities which still lack vital information in order to integrate the indicators. It is essential that a national program be adopted and a reference framework be established which involves a maximum number of participating institutions.

A crucial factor will be improving the comunication and interrelation between workgroups among the various participating informational institutions. In this context, the development of workshops to define concepts and methodologies for training and increased communication between producers and endusers of the generated information will be one of the greatest challenges to improve the development of the indicators. Additionally, evaluations of the importance and linking mechanisms between the indicators are also required in light of the national priorities, strategies and goals.

Development of the indicators has permitted the INEGI and the INE to collaborate closer with eachother and established new mechanisms for coordination and exchange between both institutions.

Finally, the INE along with INEGI, conscient of the positive results of this pilot program and the trascendence of the indicators in order to evaluate sustainable development, have committed to continue the development and/or improvement of such indicators, particularly for those which were identified as alternates and under development and those which still must be developed. In this next stage, Mexico hopes to recieve the participation of other institutions.

Equally important are the number of environmental and sustainability topics and

priorities for Mexico which were not considered in the method sheets and also under development nationwide could be area of future discussion in a program which implemented them in the mid and long-term. They are:

5.1 Topics of national concern not covered by the CSD´s indicators which can be monitored as new indicators

- *Environmental Information System*
  - · System of indicators for the evaluation of environmental performance
  - · Pollution release transfer register
  - · Design and execution of a statistical databse and environmental indicators
  - · Design and execution of a national electronic atlas for natural resources and the environment
  - · Expansion of coverage of environmental topics in censuses and national surveys
  - · Intensify development of wildlife studies in Mexico
  - · Evaluation of public and private environmental expenditure and investment
  - · Evaluation of environmental services

- Environmental Regulatory Framework
  - · One of the objectives from the Program of the Environment 1995-2000 is the modernization of environmental regualations, or the development and application of a «Sole Environmentla License», which will allow industry to report emissions to air, water and soil media in a single format. This new process intends to streamline pubilc administration and develop a more complete reporting mechanism. The indicator will be called «Number of states and municipalities applying the sole environmental license».

- *National Ecological Zoning*
  - · National ecological zoning is a fundamental tool for environmental policy planning and decisionmaking. One of the indicators for monitoring the progress of this strategy could be called: «Number of ecological zones demarcated relative to the number of priority areas or zones established by environmental authorities».

- *Environemntal Impact Evaluation*
  - · The environmental impact study is considered one of the most important mechanisms for the conservation of ecological equilibrium. As a result, Mexico has incorporated the concept of environmental impact in the *General law of Ecological Equilibrium and Environmental Protection* and the *Environmenntal Impact Regulation*. Although this strategy cannot be monitored appropriately with an indicator, it is relevant to analyze the content and scope within th law and regulation and how it relates to each project.

- *Self-regulation and Environmental Audit*
  - · Voluntary agreements of self-regulation
  - · Number of audits practiced

- *Economic instruments supporting sustainable development*

- Financial mechanisms for sustainable use of natural resources
- Federal tax collection mechanisms derived from enviornmental impact statements and other activities

- *Environmental Education*
  - Environmental training programs
  - Formal environmenal training programs.

5.2 Long-term Policy Priorities

For policies which favor environmental protection and sustainable development, it is imperative to increase efforts and/or adopt actions in the following areas of national interest:

- Industrial reconversion with low emission technology
- Minimization of hazardous waste
- Production of cleaner fuels
- Modernization of automobiles
- Efficient transportation systems
- Link sectorial policies with sustainable development

As for new environmental and sustainability indicators, the SEMARNAP, the INEGI and other institutions, can explore and develop indicators in the folllowing areas of nationa interest:

- *Health and social security*
- *Food and nutrition*
- *Science and technology*
- *Domestic life and families*
- *Urban and metropolitan development*
- *Public and Private Expenditure and Environmental Investment*

In conclusion, for Mexico, and particularly for the INEGI and the INE, the indicator pilot program has been a challenge which has tested the availability, capacity and potential of information sources and institutional training mechanisms.

With these results it can be shown that Mexico and the international community have achieved progress and that challenges still exist to perfect the statistical systems. However, one thing remains certain, the new paradigm, now part of Mexico, is called sustainable development. Each one of the indicators generated in this report is presented after the the annexes.

SECOND PART
STATISTICAL INDICATORS

Index of Indicators according to the chapters of Agenda 21

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SOCIAL INDICATORS

UNEMPLOYMENT RATE

Definition

The percentage of people unemployed with respect to the total labor force or economically active population.

Purpose

The rate of unemployment measures the part of the work force that, during the period of study, is not: i) working or temporaly absent from work (I.e. paying job or self-employed); ii) available to work; or iii) looking for work.

Unemployment Rate[1]: Percentage of People Unemployed in the Workforce or in the Economically Active Population, 1988-1998

Category	1988	1991	1993	1995	1996	1997	1998
Total	28 851 847	31 229 048	33 651 812	35 558 484	36 580 746	38 344 658	39 507 063
Population Unemployed	723 918	694 965	819 132	1 677 416	1 354 710	984 900	889 552
Rate of Unemployment	2.51	2.23	2.43	4.72	3.70	2.57	2.25
Men	19 816 978	21 630 013	23 243 466	24 127 000	24 627 936	25 340 173	26 176 026
Population Unemployed	393 603	373 100	495 429	1 100 244	860 749	544 687	512 953
Rate of Unemployment	1.98	1.72	2.13	4.56	3.50	2.15	1.96
Women	9 034 869	9 599 035	10 408 346	11 431 484	11 952 810	13 004 485	13 331 037
Population Unemployed	330 315	321 865	323 703	577 172	493 961	440 213	376 599
Rate of Unemployment	**3.65**	**3.35**	**3.11**	**5.05**	**4.13**	**3.39**	**2.82**

[1] Data covers till second quarter of each year.
Source: INEGI / Minstry of Labor and Social Welfare, National Employment Survey, (various years).

The fundamental characteristic of open unemployment considered here is the search effort during the period of established reference, in this case by the National Employment Survey (*Encuesta Nacional de Empleo -ENE),* which places open unemployment in the context of the labor market, creating a new phenomena and particular aspect of general unemployment. As of this survey, the INEGI has developed three significant groups of complementary indicators for open unemployment: 1) Indicators of underemployment or insufficient income; 2) Rates which can modify interpretations of open unemployment, thereby making it more flexible and 3) Pressure rates in the labor market. At the urban level the National Urban Employment Survey (*Encuesta Nacional de Empleo Urbano - ENEU*) provides monthly information for the 45 most important cities in Mexico about unemployment and other characteristics of the labor market.

GENERAL POVERTY INDEX

Definition

Percentage of population living below the poverty line.

Purpose

The most important objective when measuring poverty is the establish the necessary comparisons for a general evaluation concerning the progress of a country in combating poverty and/or the evaluation of policies or specific projects. An important tool used to detect levels of poverty is the profile, which shows the measure of aggregate poverty is reflected in diverse subgroups of the population, such as the place of residence, employment sector, education level, or ethnic group. A good profile of poverty can help reveal various aspects to identify the proper policies for its reduction, such as the target regions or sectors and therefore priorities for the public budget.

Poverty Index[1], 1984-1992

Year	Familes Under Extreme Poverty Line	%	Population Under Extreme Poverty Line	%
1984	1 600 000	11.4	11 000 000	15.4
1989	2 200 000	14.1	14 900 000	18.8
1992	2 100 000	11.8	13 600 000	16.1

[1] Families in extreme poverty: When total household income is less than the value of the economic equivalent for subsistence (i.e. "bread basket").
Source: INEGI-CEPAL, Magnitude and Evolution of Poverty in Mexico, 1984-1992, México, October 1993.

This indicator was developed using the poverty line method, which permits the distinction between extreme and intermediate levels of poverty. Studies which have used this methodology have established that it is possible to identify extreme poverty as those households with incomes less than the economic equivalent for subsistence, and therefore the households are undernourished in calories and proteins.

Until now, the statistics presented here are the officially published figures. Although similar estimates developed using other methodologies may exist, there are were not compared to this data.

GINI INDEX FOR THE INEQUALITY OF INCOME

Definition

Index describing how the current distribution of income, consumption expenses or other related variables differ with respect to a hypothetical distribution where each person has a similar income.

Purpose

The Gini Index measures the inequality of income or resources within a population group. It is the most frequently used measurement for estimated inequality of income.

Gini Index[1] for Inequality in Distribution of Income, 1984-1996

Year[2]	Current Total Income	Current Monetary Income	Current Non-Monetary Income
1984	0.4292	0.4562	0.5506
1989	0.4694	0.4889	0.5921
1992	0.4749	0.5086	0.5404
1994	0.4770	0.5137	0.5335
1996	0.4558	0.4889	0.5280

[1] This is measure of income concentration: Taking values between zero and one, where zero represents the inequality and one the maximum level of inequality.

[2] Data from third quarter of each year.

Source: INEGI, National Income and Household Expesnse Survey, 1984, 1989, 1992, 1994 and 1996, Mexico, Editions 1989, 1992, 1993, 1995 and 1998.

The Gini Index reflects the inequality in the distribution of income at the national level. To determine this index, the third quarter of the survey year was used from the National Income and Household Expense Survey (Encuesta de Ingreso y Gasto de los Hogares - ENIGH).

At the regional level, the National Survey mentioned above also provides the index for the most important city - The Metropolitan Area of Mexico City– for the years 1989 to 1996, as well as for the state of Jalisco (1996), State of Mexico (1994 y 1996) and Aguascalientes (1994). The origin and levels of income of the household members, and those occupations registered by the National Survey, constitute a source of information for the analysis of the distribution of income.

RELATION BETWEEN AVERAGE SALARIES FOR MEN AND WOMEN

Definition

Percentage of average salary paid to female workers with respect to average male worker salaries, in regular intervals, by time worked or completed work in specific occupations.

Purpose

Evaluation of female wages, with respect to male wages, to determine the level of participation of women in the economy.

Percentage of Average Female Salaries with Respect to Average Male Salaries, 1995-1997

Occupation	1995 Average Monthly Income[1]			1996 Average Monthly Income[1]			1997 Average Monthly Income[1]		
	(M)	(F)	% (F/M)	(M)	(F)	% (F/M)	(M)	(F)	% (F/M)
Total	**1 441.3**	**980.7**	**68.0**	**1 591.4**	**1 171.8**	**73.6**	**1 902.8**	**1 405.0**	**73.8**
Professionals	3 459.4	2 272.6	65.7	3 821.1	2 786.0	72.9	4 861.0	3 379.7	69.5
Technicians / Specialized Personnel	1 669.4	1 367.8	81.9	1 945.5	1 711.6	88.0	2 577.4	2 182.5	84.7
Teachers / Educational Personnel	1 977.42	1 615.8	81.7	2 506.6	2 016.5	80.4	3 183.0	2 591.4	81.4
Artists	2 402.7	2 460.6	102.4	2 003.2	2 603.7	130	3 066.7	2 325.1	75.8
Public Officials and Private Sector Managers									
Agro/Livestock Foreman	7 271.8	3 641.1	50.1	6 458.7	4 163.4	64.5	7 602.4	4 821.6	63.4
Agro/Livestock Administrators				5 134.5	1 932.4	37.6	5 224.5	861.5	16.5
Office Personnel	1 713.7	1 339.7	78.1	2 086.7	1 625.8	77.9	2 579.0	2 021.5	78.4
Salesmen and Assistants	2 176.3	758.7	34.9	1 777.8	966.9	54.4	2 072.4	1 116.9	53.9
Street Vendors	929.6	527.3	56.7	1 255.5	680.3	54.2	1 359.5	877.2	64.5
Service Employees	912.5	790.1	86.6	1 118.8	953.7	85.2	1 301.6	1 152.0	88.5
Domestic Workers	810.2	515.4	63.6	917.2	555.4	60.6	1 035.2	630.1	60.9
Transportation Operators	1 386.8	1 806.0	130.2	1 643.9	1 253.0	76.2	2 056.6	1 246.6	60.6
Security Personnel	1 136.4	1 199.8	105.6	1 350.1	1 398.8	103.6	1 783.8	1 915.6	107.4
Agro/Livestock Foreman				1 777.2	1 845.3	103.8	2 679.6	1 261.7	47.1
Farmers	704.4	408.9	58	970.7	513.4	52.9	1 009.8	630.4	62.4
Agro/Livestock Machine Operators				1 281.7	-	-	1 519.8	-	-
Industrial Supervisors and Foreman	2 541.7	1 079.6	42.5	2 790.8	1 494.6	53.6	3 356.4	1 681.1	50.1
Artisans and Workers	1 143.3	669.6	58.6	1 297.2	748.0	57.7	1 534.2	860.1	56.1
Laborer Assistants	809.3	717.5	88.7	843.8	803.6	95.2	973.8	1 033.5	106.1

[1] Population not receiving income and which did not specify income and the number of hours worked is excluded.
M: Male.
F: Female.
Source: INEGI, Gender Employment Statistics, Mexico 1998,1999 and 2000.

Continues

RELATION BETWEEN AVERAGE SALARIES FOR MEN AND WOMEN

Indicators selected by gender for the working population by principal occupation, 1997

Principal Occupational Group	Female Index [1]	Average Age [2]		Average Education [3]		Average Hours Worked [4]		Average Hours dedicated to domestic tasks [5]	
		M	F	M	F	M	F	M	F
Total	**50.7**	**35.6**	**34.1**	**7.6**	**8.2**	**46.5**	**36.9**	**10.7**	**25.8**
Professionals	51.8	38.4	32.5	16.3	16.2	45.9	38.4	10.0	20.8
Technicians / Specialized Personnel	79.5	33.7	33.4	11.2	11.3	43.1	37.5	11.9	22.5
Teachers and Educators	158.5	38.3	34.5	14.7	14.0	31.8	26.6	11.4	25.8
Artisans	22.6	35.3	29.9	10.8	12.9	35.2	35.9	10.2	22.2
Public Officials / Private Sector Mangers	26.3	42.8	39.5	13.5	13.0	50.5	43.0	9.5	22.9
Agro/Livestock Administradors	15.9	47.2	51.7	10.7	1.5	49.5	42.3	10.8	32.1
Office Workers	111.0	33.9	31.4	11.1	11.4	45.6	40.4	10.1	21.8
Salesmen and Dependents	110.4	35.0	35.1	8.7	7.5	51.0	41.3	10.9	28.4
Street Salesman	84.3	36.1	39.8	6.4	5.7	40.7	28.0	11.2	32.7
Service Employers	69.5	32.1	33.9	6.9	7.1	43.3	38.4	10.7	26.6
Domestic Workers	847.2	38.1	33.4	5.3	4.8	45.8	35.5	11.6	25.9
Transportation Operators	0.2	36.4	34.1	7.8	8.7	55.8	23.0	10.3	36.5
Security Services	6.2	36.8	29.5	8.0	9.8	63.1	61.6	10.6	24.7
Agro/Livestock Foreman	5.6	41.0	21.5	6.1	6.4	59.0	39.3	10.0	11.6
Agricultores	21.2	37.6	35.1	3.9	3.6	44.6	31.5	11.0	24.6
Agricultural Machine Operators	-	35.5	-	4.8	-	53.3	-	10.4	-
Industrial Supervisors	25.8	36.7	28.7	10.9	9.3	49.8	47.9	11.4	19.1
Artisans and Workers	36.4	35.7	34.8	6.8	5.9	46.5	36.1	10.6	28.0
Worker Assitants	18.8	25.9	28.1	6.7	6.7	44.0	40.5	10.1	22.5

M: Male.
F: Female.
[1] Sum from dividing number of women by men in each principal occupational group, multiplied by 100.
[2] Excludes population without specific age group.
[3] Excludes population without income and without specified numbers of hours worked and level of education.
[4] Population specifying number of hours worked was considered.
[5] Population specifying the number of hours dedicated to domestic tasks was considered.
Source: INEGI, Employment Statistics by Gender, Mexico, 2000.

The gender statistics, developed with information from the National Employment Survey (ENE), provides complementary information about the labor market conditions by which it is possible to develop other indicators showing similar inequalities among genders, such as average values of: age, education, hours dedicated to domestic tasks by principal occupational group. Currently, these indicators are being updated since the ENE is an annual publication.

POPULATION GROWTH RATE

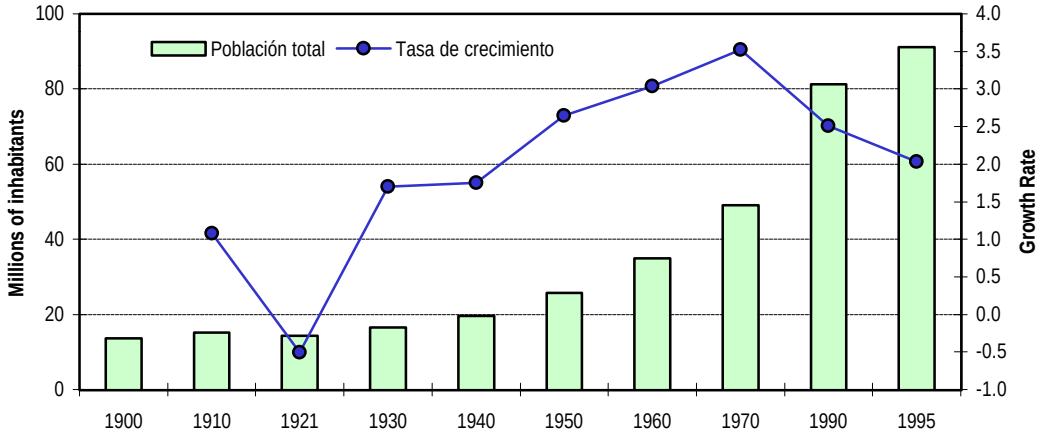
Definition

The average annual growith rate of population in a determined period.

Purpose

Measures the velocity of fluctuations in popluation size.

Evolution of Population in Mexico, 1900-1995



Source: INEGI, Population Census, various years.

National and regional demographic growth constitutes a fundamental indicator for decisionmaking; its importance should be linked to other factors that affect sustainability. In addition to the census information included here, the National Demographic Survey for 1992 and 1997 offers demograhic data at the national, state and local rural and urban levels.

NET MIGRATION RATE BY PLACE OF RESIDENCE

Definition

Difference between the number of immigrants and emigrants in a determined area, during a specific period, with respect to the average population size in this area during the same period.

Purpose

The net migration rate measures the geographical mobility of the population. Migration is one of the basic demographic factors (the others are birth and mortality rates) that influence directly in the size of the population of a region.

Internal Population Migration, 5 plus years by State, 1990 y 1995, According to Residence in 1985 y 1990 (Percentage)

State	1990			1995		
	Immigrants[1]	Emigrants[1]	Net Total[2]	Immigrants[1]	Emigrants[1]	Net Total[2]
Mexico (National)	5.0	5.0	0.0	5.5	5.0	0.5
Aguascalientes	7.2	2.8	4.3	7.6	2.6	5.0
Baja California	15.8	2.9	12.9	12.4	5.7	6.7
Baja California Sur	10.8	4.3	6.5	7.4	6.6	0.8
Campeche	7.6	5.5	2.2	6.8	3.4	3.4
Coahuila	4.0	4.7	-0.7	4.4	4.3	0.1
Colima	8.4	5.0	3.5	8.5	3.6	4.9
Chiapas	1.6	2.6	-1.0	1.5	2.7	-1.2
Chihuahua	5.6	1.9	3.7	4.7	2.1	2.6
Mexico City (DF)	4.1	14.2	-10.1	7.0	13.9	-6.9
Durango	3.5	7.1	-3.6	5.1	7.0	-1.9
Guanajuato	2.9	2.8	0.1	3.5	2.5	1.0
Guerrero	2.1	5.4	-3.3	3.7	4.4	-0.7
Hidalgo	4.1	5.3	-1.2	5.2	4.9	0.3
Jalisco	3.9	3.0	0.9	4.3	3.3	1.0
State of Mexico	9.2	3.2	6.1	10.2	4.6	5.6
Michoacán	3.5	4.0	-0.5	4.4	4.1	0.3
Morelos	8.8	3.8	5.0	8.0	3.0	5.0
Nayarit	5.1	5.5	-0.4	6.0	6.1	-0.1
Nuevo Leon	4.2	2.4	1.7	4.1	2.6	1.5
Oaxaca	2.9	5.4	-2.5	3.4	5.2	-1.8
Puebla	3.5	3.9	-0.4	4.0	4.2	-0.2
Queretaro	7.6	3.3	4.3	6.6	2.5	4.1
Quintana Roo	22.8	4.7	18.1	14.5	6.4	8.1
San Luis Potosi	3.8	4.5	-0.8	4.3	4.4	-0.1
Sinaloa	4.3	5.5	-1.2	3.4	6.5	-3.1
Sonora	4.6	3.4	1.2	4.4	3.6	0.8
Tabasco	3.7	4.3	-0.5	4.2	3.9	0.3
Tamaulipas	5.0	3.9	2.0	5.0	3.8	0.9
Tlaxcala	5.4	3.8	1.6	4.6	1.1	3.4
Veracruz	3.0	4.4	-1.3	2.7	5.3	-2.7
Yucatan	3.2	4.0	-0.8	3.8	2.6	0.8
Zacatecas	3.4	6.3	-3.0	5.8	5.3	0.5

[1] Percentage with respect to residents.
[2] Net Migratory Total: Represents the difference in percentage between emigrants and immigrants with respect to resident state population ,excluding those who did not specify their place of residence or live abroad.
Note: Excludes population living abroad in 1985, as well as the population whose residence was not specified in the same year.
Source: INEGI, Sociodemographic Profile, XI General Population and Housing Census, 1990; Population and Housing Registration, 1995, Definitive Results, Mexico, 1996

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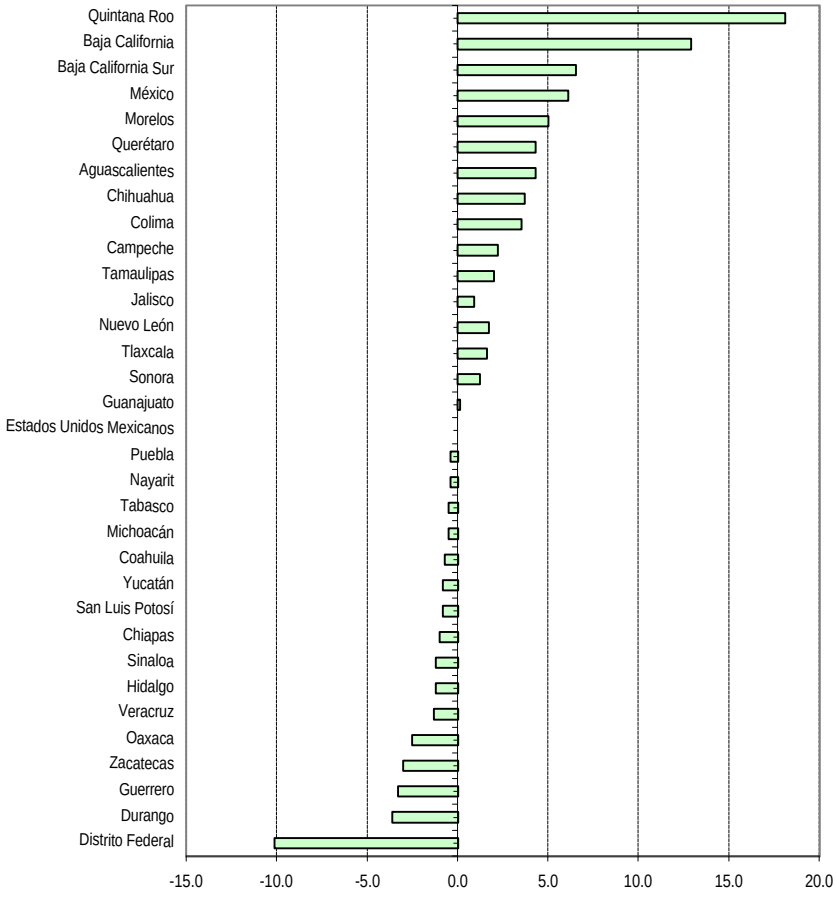
NET MIGRATION RATE BY PLACE OF RESIDENCE

Net Migration Rate1 by Place of Residence, 1990
(According to Residency in 1985)



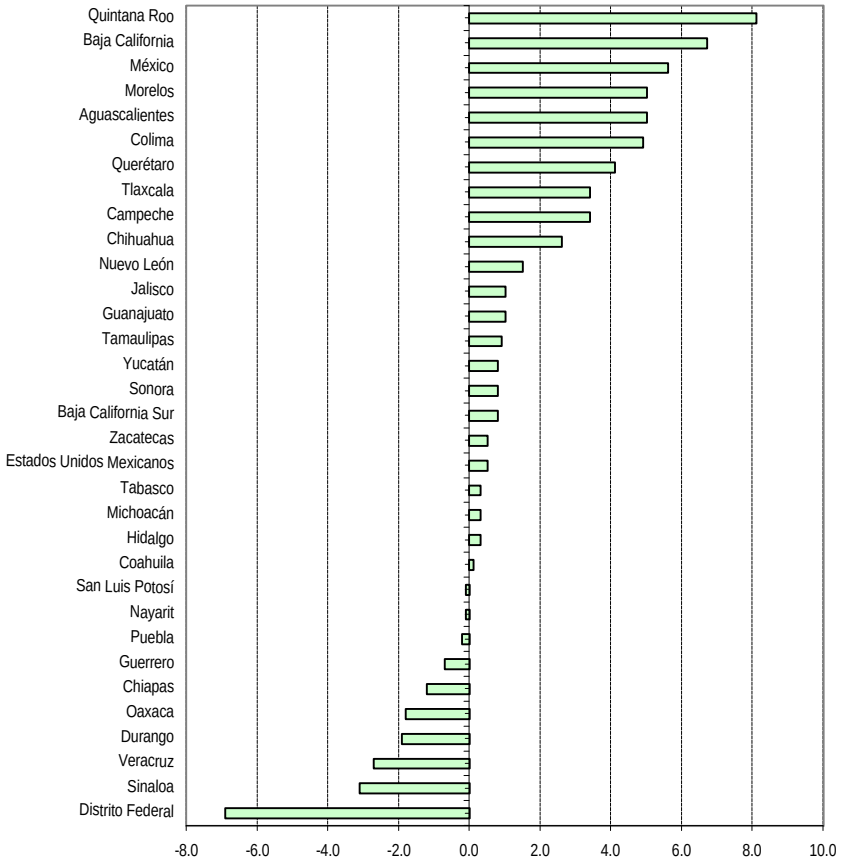
[1] Net migratory result: Represents the percentage between emigrants and inmigrants with respect to resident population by state, excluding who did not specify their place of resident abroad.

Source: INEGI, Housing and Population Census 1995, Mexico, 1996.

Continues

NET MIGRATION RATE BY PLACE OF RESIDENCE

Net Migration Rate1 by Place of Residence, 1995
(According to Residency 1990)



[1] Net migratory result: Represents the percentage between emigrants and inmigrants with respect to resident population by state, excluding who did not specify their place of resident abroad.
Source: INEGI, Housing and Population Census 1995, Mexico, 1996.

Migration by place of birth or final migration is a complementary indicator of recent migration: the first recognizes long-term territorial movements, while the second illustrates recent migration trends, particularly interregional movements, as well as migrations beyond five years and the temporality of such migrations (for those before 5 years before the census), as defined in the census.

Conclusion

TOTAL FERTILITY RATE

Definition

Also known as the Global Fertility Rate, this rate describes the average number of children born alive during the life of a woman (or group of women), if all years of reproduction occurred according to the fertility age rates in a certain year.

Purpose

This is one of the more precise indicators, and therefore the most widely utilized to describe fertility levels. An important characteristic of this indicator is that it is not affected by the distributions of the population's age and sex, although it could be due to the rapid changes in the interval of births.

Specific and Globral Fertility Rates, 1976, 1981, 1986, 1991 and 1996
(Rates per 1000 women)

Age Groups	EMF	END	ENFES	ENADID	
	1976	1981	1986	1991	1996
15-19	128	107	87	82	74
20-24	279	208	202	177	147
25-29	271	213	199	167	154
30-34	221	173	147	119	97
35-39	180	122	98	74	55
40-44	71	43	37	25	18
45-49	16	17	8	3	3
Global Fertility Rate	**5.8**	**4.4**	**3.9**	**3.2**	**2.7**

Note: The global rate of fertility is a summary of the specific rates by age.
Sources: EMF: Encuesta Mexicana de Fecundidad, 1976, SPP-UNAM.
END: Encuesta Nacional Demográfica, 1982, CONAPO.
ENFES: Encuesta Nacional de Fecundidad y Salud, 1987, SSA.
En: INEGI/IIS-UNAM, Carlos Welti Chanes, La fecundidad en México, Tomo V, 1995.
INEGI, Encuesta Nacional de la Dinámica Demográfica (ENADID), 1992 and 1997.

The population census is an alternative source used to estimate fertility rates from the number of live children born. However, the special surveys for fertility rates offer more precise information concerning this phenomena, a factor which justified the use of data from national fertility surveys that have been undertaken in this country to develop this indicator.

POPULATION DENSITY

Definition

Total population in a country or specific area, divided by territorial surface area.

Purpose

Measures the concentration of human population in relation to physical space. Population density can be used as a partial indicator for human necessities and activities in an area. More refined indicators – for example, number of people by unit in habitable or cultivable soil – can be more useful for analytical purposes. At the same time, the division of the indicator in categories of urban size is useful together with other human housing indicators.

Population Density, 1950-1995

Year	Population	Population Density[1] (inhabitant/km^2)
1950	25 791 017	13.2
1960	34 923 129	17.9
1970	48 225 238	24.7
1980	66 846 833	34.2
1990	81 249 645	41.6
1995	91 158 290	46.7
2000*	97 361 711	50

*Preliminary Data

[1] Calculation Basis: 1 959 248 km^2 using base in the National Framework updated in 1996 (topographical map scale 1:250 000) and Division of State Geostatistical Framework 1995.

Source: Ministry of Industry and Commerce, census 1950 to 1980; INEGI, XI General Population and Housing Census 1990, Population and Housing Registration, 1995, Mexico, 1996.

Population density is a measurement directly related to the level of concentration of the Mexican population nationwide. The scope of importance of this indicator is greater when: a) it is analyzed in comparison with other countries, b) it is developed from a regional of view within the country and c) the coverage focuses on smaller geographical regions such as cities. In this last case, the density indicator reflects with greater precision the demographic impact over natural, urban and territorial resources.

POPULATION FLUX RATE OF SCHOOL CHILDREN

Definition

Average flux population rate of school children during a specific period.

Purpose

Measure the velocity of change in school children populations.

Population Flux Rate of School Children 1970, 1980, 1990 and 1995 (Thousands of Children)

Population					Flux Rate (%)		
	1970	1980	1990	1995	1970-80	1980-90	1990-95
School Children Population (6 to 15 years)	13 532.9	18 930.7	20 859.1	21 441.0	3.24	0.99	0.49
Primary School (6 to 14 years)1	12 431.9	17 295.1	18 835.4	19 332.2	3.19	0.87	0.46
Secondary School (12 to 15 years)[1]	4 859.8	7 055.1	8 326.7	8 514.9	3.60	1.70	0.40

[1] Age determined by Ministry of Public Education. In: Formula of Educational Indicators, Mimeograph, March 1995.
Source: INEGI, IX General Population and Housing Census, 1970; Mexico, 1972; X General Population Housing and Census, 1980, Mexico 1986; XI General Population and Housing Census, 1990; . Mexico, 1992; Population and Housing Registration 1995, Mexico 1996.

In Mexico, educational policy includes basic education to preschool, primary and secondary levels, although the preschool levels are not obligatory to attend primary school. However, the school age population (or educational demand) considered here includes only ages 6 to 15, or what the Ministry of Public Education defines as primary and secondary levels.

GROSS RATE OF PRIMARY SCHOOL ENROLLMENT

Definition

Percentage of total school children enrollment with respect to primary school populations, considering the level of primary education in accordance with national standards.

Purpose

The gross enrollment rate is a general indicator of the level of participation in primary education. This indicator provides at the same time a measurement of availability and use of school services to satisfy the population's educational necessities.

Gross Rate of Primary School Enrollment, 1970, 1990 and 1995

Year	Primary School Population (6 a 14 años)[1] (Thousands of Children)	Total Enrolled Primary School Population[2] at Start of School Year (Thousands of Students)	Rate (%)
1970	12 431.8	9 248.2	74.4
1990	18 835.4	14 401.6	76.5
1995	19 332.2	14 976.7	77.5

[1] Age defined by Ministry of Education in: Formula of Educational Indicators, March 1995 (Mimeograph).
[2] Includes the school years 1970-71, 1990-91 and 1995-96.
Source: SEP, Basic Statistics of the National Educational System, beginnning courses, 1970-71, 1990-91 and 1995-96 and INEGI, IX General Population and 1972; XI General Population and Housing Census 1990, Mexico 1992; Population Housing Census, 1970, Mexico, and Housing Registration 1995, Mexico 1996.

Basic education is fundamental to promote sustainable development and helps a population work towards achieving it with the proper tools.

This indicator is useful to supervise the general situation and the trends of participation in primary school teaching and to evaluate the relationship between supply and demand of educational opportunities. Gross educational rates below 100% shows that a society must build more schools or school classrooms to respond the unmet need.

NET RATE OF PRIMARY SCHOOL ENROLLMENT

Definition

Percentage of population with official age to attend primary school, according to national regulation, and which has been enrolled at the primary level.

Purpose

The net rate of primary school enrollment is a real measurement used to determine the portion of the population able to attend primary education. By deduction, this rate can also be used to measure the size of the non-enrolled primary school population.

Net Enrollement Rate of Primary School Children, 1990 and 1995

Year	Primary School Population (6 a 14 años)[1] (Thousands of Children)	Total Enrolled Primary School Population[2] at Start of School Year (Thousands of Students)	Rate (%)
1990	18 835.4	11 086.8	59.0
1995	19 332.2	10 732.2	55.5

[1] Age defined by the Ministry of Public Education in: Formula of Educational Indicators, March 1995 (Mimeograph).

[2] Total registered enrollment during the school years 1990-91 and 1995-96, subtracting children ages 12, 13 and 14 that were registered in secondary education.

Source: SEP, Basic Statistics of the National Educational System, Start of School, 1970-71, 1990-91 and 1995-96 and INEGI, IX General Population and Housing Census, 1970, Mexico,1972; XI General Population and Housing Census 1990, Mexico 1992; Population and Housing Registration 1995, Mexico 1996.

The Ministry of Public Education of Mexico defines the primary school age group as between 6 and 14 years old. However, an important percentage of the population between 12 and 14 is already enrolled in secondary education, and therefore the ages 12, 13 and 14 were subtracted from the total primary school enrollment to develop the net rate.

GROSS RATE OF SECONDARY SCHOOL ENROLLMENT

Definition

Percentage of total school children enrollment with respect to secondary school populations, considering the level of primary education in accordance with national standards.

Purpose

The gross enrollment rate is a general indicator of the level of participation in secondary education. This indicator provides at the same time a measurement of availability and use of school services to satisfy the population's educational necessities.

Gross Rate of Secondary School Enrollment,1970, 1990 and 1995

Year	Seconday School Population (12 to 15 years)[1] (Thousands of Children)	Total Enrolled Secundary[2] School Population at Start of School Year (Thousands of Students)	Rate (%)
1970	4 859.8	1 102.2	22.7
1990	8 326.7	4 244.2	50.1
1995	8 514.9	4 750.1	55.9

[1] Age defined by Ministry of Education in: Formula of Educational Indicators, March 1995 (Mimeograph).
[2] Includes the school years 1970-71, 1990-91 and 1995-96.
Source: SEP, Basic Statistics of the National Educational System, beginnning courses, 1970-71, 1990-91 and 1995-96 and INEGI, IX General Population and Housing Census, 1970, Mexico, 1972; XI General Population and Housing Census 1990, Mexico 1992; Population and Housing Registration 1995, Mexico 1996.

In Mexico, secondary education is free and obligatory for all citizens. Together with preschool and primary levels, secondary education makes up the country's basic educational system. The gross rate can appear high with respect to the educational supply since the school population the age groups of 12, 13 and 14 are registered at the primary level.

NET RATE OF SECONDARY SCHOOL ENROLLMENT

Definition

Percentage of population with official age to attend secondary school, according to national regulation, and which has been enrolled at the secondary level.

Purpose

The net rate of secondary school enrollment is a real measurement used to determine the portion of the population able to attend secondary education. By deduction, this rate can also be used to measure the size of the non-enrolled secondary school population.

Net Enrollement Rate of Secondary School Children, 1990 and 1995

Year	Secondary School Population (12 to 15 years)[1] (Thousands of Children)	Total Enrolled Secondary School Population[2] at the Start of Year (Thousands of Students)	Rate (%)
1990	8 326.7	1 605.6	19.3
1995	8 514.9	2 190.3	25.7

[1] Age defined by the Ministry of Public Education in: Formula of Educational Indicators, March 1995 (Mimeograph).
[2] Total registered enrollment during the school years 1990-91 and 1995-96, subtracting children ages 12, 13 and 14 that were registered in secondary education.
Source: SEP, Basic Statistics of the National Educational System, Start of School, 1990-91 and 1995-96 and INEGI, XI General Population and Housing Census 1990, Mexico 1992; Population and Housing Registration 1995, Mexico 1996.

The Ministry of Public Education of Mexico the secondary school age group between 12 and 15 years old. Therefore, the ages 12, 13 and 14 were subtracted from the total primary school enrollment to develop the net rate.

ADULT LITERACY RATE

Definition

Percentage of adult population (15 years of age or more) which can read and write, with respect to the total population of this age group.

Purpose

This indicator measures the existence of literate people within an adult population. It reflects the accumulated accomplishments of the educational system with relation to literacy rates.

Adult Literacy Rates, 1970, 1990 and 1995
(Thousands of Adults)

Year	Population 15 years of age or more	Literate Population[1]	Rate (%)
1970	25 938.6	19 244.9	74.2
1990	49 610.9	43 354.1	87.4
1995	58 681.7	52 378.2	89.2

[1] The population 15 years of age or more who knows how to read and write.
Source: SIC, IX General Population and Housing Census 1970, Mexico 1972;
INEGI, XI General Population and Housing Census 1990, Mexico 1992;
Population and Housing Registration 1995, Mexico 1996.

The Dynamic Demographic Surveys of 1992 and 1997 are an alternative source of information for this indicator, given they provide information at the national, state and municipal levels. Additionally, the literacy rates by sex provide additional information about the educational opportunities between genders.

CHILDREN WITH FIFTH GRADE EDUCATION

Definition

Percentage of students that begin first grade and complete their fifth year of study.

Purpose

This indicator is an estimate of the percentage of children that begin primary school and achieve basic levels of literacy.

Children with Fifth Grade Education, 1991-1995

Year	Class Percentage Completing Fifth Grade Education
1991	84
1992	84
1993	NA
1994	84
1995	86

NA: Not Available.
Source: UNESCO, Statistical Yearbook, various years.

In Mexico, this indicator is called "terminal efficiency" and shows the percentage of graduates of given educational level and the number of students that enter first grade x number of years before. In the case of primary education, it is the percentage of students that finish this educational level with the time established (6 years).

EXPECTATION OF EDUCATION

Definition

Estimated average years student remains enrolled in an educational institution.

Purpose

Provides an estimate of the number of years of instruction expected for a child once enrolled in school. This indicator can be used to understand the general level of development and performance of the educational system, according to the duration of the participation of each enrolled child in the educational system.

Expectation of Education, 1988-1995

Year	Value
1988	11.1
1989	10.9
1990	10.8
1991	10.7
1992	NA
1993	10.9
1994	11.1
1995	11.3

NA : Not Available
Source: UNESCO, internet website 11/26/98.

Without the availability of specific enrollment information by student age groups for Mexico, general UNESCO data from various countries, including partial information for Mexico, was used. Therefore, this indicator will be subject to change with the use of more precise estimates in the future.

MALE AND FEMALE STUDENT ENROLLMENTS

Definition

Mathematical variance between enrollment figures for male and female students.

Purpose

Measures the difference between men and women with respect to achieved levels of education.

Basic Education Enrollments[1]
Male and Female Students, 1990-1997
(Thousands of Students)

School Year	Total Enrollment[1]	Male(M) Enrollment	%	Female(F) Enrollment	%	Difference (M-F)
1990-91	21 325.8	10 932.9	51.3	10 392.9	48.7	2.6
1991-92	21 349.2	10 943.5	51.3	10 405.7	48.7	2.6
1992-93	21 487.6	11 021.7	51.3	10 465.9	48.7	2.6
1993-94	21 791.4	11 199.0	51.4	10 592.4	48.6	2.8
1994-95	22 160.2	11 381.3	51.4	10 778.9	48.6	2.8
1995-96	22 480.7	11 556.8	51.4	10 923.9	48.6	2.8
1996-97	22 698.1	11 664.8	51.4	11 033.3	48.6	2.8

[1] Includes preschool, primary and secondary instruction enrollments at the start of classes.
Source: SEP, Basic Statistics of National Educational System, Beginning of Courses, 1990-1997.

Basic education, consisting of preschool, primary and secondary levels, was used to develop this indicator. Basic education is obligatory in Mexico according to the Ministry of Public Education.

WOMEN FOR EACH 100 MEN IN THE WORKFORCE

Definition

Percentage of women for each 100 men in the workforce.

Purpose

Measures the respective participation of men and women in the workforce. It is important to note that this indicator shouldn't be confused with net participation rate.

Women for Each 100 Men in the Workforce, 1988-1998

Year	Number of People Economically Active1	Men	Women	Women for each 100 Men
1988	28 816 978	19 816 978	9 034 869	45.6
1991	31 229 048	21 630 013	9 599 035	44.4
1993	33 651 812	23 243 466	10 408 346	44.8
1995	35 558 484	24 127 000	11 431 484	47.4
1996	36 580 746	24 627 936	11 952 810	48.5
1997	38 344 658	25 340 173	13 004 485	51.3
1998	39,507,063	26,176,026	13,331,037	50.9

[1] All people age 12 and older, who in the week of reference, undertook some economic activity or formed part of the open unemployed population.

Source: INEGI/Ministry of Labor and Social Welfare, National Employment Survey, years 1988, 1991, 1993, 1995, 1996 , 1997 and 1998; editions 1990, 1993, 1994, 1996, 1997, 1998 and 1999.

Population censuses are alternative sources of information used to develop this indicator. Particularly, specialized employment surveys, which focus more on household members, such as the National Employment Survey (Encuesta Nacional de Empleo - ENE) and the National Urban Employment Survey (Encuesta Nacional de Empleo Urbano - ENEU), provide more precise information. Additionally, the ENEU offers information concerning employment in the 44 most important cities of the country.

PERCENTAGE OF GROSS DOMESTIC PRODUCT (GDP) ALLOCATED TO EDUCATION

Definition

Expense for education expressed in terms of Gross Domestic Product (GDP).

Purpose

This indicator measures the financial resources spent on education and its percentage as part of the public budget. This indicator is one of the best evaluations for determining the distribution of financial resources towards education within the national economy.

Percentage of GDP Allocated to Education, 1990-1999

Year	GDP (Current millions of pesos)[1]	National Education Budget (Current millions de pesos)	National Education Budget/GDP (%)
1990	738 897.5	29 722.7	4.0
1991	949 147.6	40 644.2	4.3
1992	1 125 334.3	53 234.3	4.7
1993	1 256 196.0	66 256.9	5.3
1994	1 420 159.5	77 339.2	5.4
1995	1 837 019.1	90 546.8	4.9
1996	2 525 575.0	137184.6	5.4
1997	3 174 275.2	175 477.4	5.5
1998	3 844 917.4	221 153.2	5.8
1999[2]	4 622 778.8	257 572.9	5.6

[1] GDP at market prices.
[2] Quarterly GDP. Total annual data obtained using quarterly calculation can vary in relation to total annual calculations. For example, in agriculture, the annual calculations considered may vary since cultivation cycles, which vary from crop to crop, differ from the traditonal calendar year.
Source: INEGI, National Accounting System 1988-1998, Mexico, 2000, and Federal Executive Branch, Fifth Report 1999, Mexico, 1999.

The national expenditure in education considered here includes: government internal expenditures (federal, state and municipal); private sector expenses; public budget for the normal educational system federal extracurricular activities.

BASIC SANITATION: PERCENTAGE OF POPULATION WITH ADEQUATE SANITARY INSTALLATIONS

Definition

Percentage of population with access to proper sanitary installations in their own homes or neighborhood.

Purpose

Oversee progress of population access to sanitary installations.

Basic Sanitation: Percentage of Population with Adequate Sanitary Installations, 1970-1995

Year	Population with Individual Homes	Population with drainage[1]	Percentage of Population drainage
1970	48 225 238	19 872 716	41.21
1990	80 433 824	49 454 701	61.15
1995 [2]	90 728 652	65 689 143	72.40

[1] Includes connected drainage to public network, septic tanks, discharges to rivers, lakes, oceans cliffs.

[2] Total private housing does not include squatters, since their were not surveyed. Additionally, 28,634 households were excluded here and included in other tables and indicators.

Source: INEGI, IX and XI General Population and Housing Census, years 1970 and 1990, and Population and Housing Registration 1995, Mexico, 1996.

This indicator is also available at the regional level (states, municipalities and urban and rural cities). The National Survey of Household Income is a source of additional information at the national level, as well as in rural and urban areas.

SECURE ACCESS TO POTABLE WATER

Definition
Percentage of population with potable water in their household or nearby access.

Purpose
Oversee progress of population's accessibility to secure potable water.

Secure Access to Potable Water, 1970, 1990 and 1995

Year	Population in Individual Households	Population with access to potable water supply inside or outside of the home	
		Maximum	Percentage
1970	48 225 238	29 491 227	61.15
1990	80 433 824	63 055 542	78.21
1995 [1]	90 728 652	76 738 928	84.58

[1] Includes connected drainage to public network, septic tanks, discharges to rivers, lakes, oceans cliffs.
Total private housing does not include squatters, since their were not surveyed. Additionally, 28,634 households were excluded here and included in other tables and indicators.
Source: INEGI, IX and XI General Population and Housing Census, years 1970 and 1990, and Population and Housing Registration 1995, Mexico, 1996.

This indicator is also available at the regional level (states, municipalities and urban and rural cities). The National Survey of Household Income is a source of additional information at the national level, as well as in rural and urban areas.

LIFE EXPECTANCY OF NEWBORN CHILDREN

Definition

Average number of years of life expectancy for a newborn, which is subject to yearly mortality rates in a certain given period.

Purpose

Measures the years of life expectancy of newborn children, given actual risk factors of infant mortality rates. The birth expectancy is an indicator of the conditions of mortality relative to health conditions.

Life Expectancy of Newborns, 1950-1998

Year	Total	Male	Female
1950	49.7	48.0	51.0
1960	58.9	57.6	60.3
1970	60.8	60.0	63.9
1980	66.2	63.2	69.4
1990	69.6	66.4	73.0
1995	72.3	69.8	75.2
1996	73.3	70.1	76.4
1997	73.5	70.4	76.7
1998	73.8	70.7	77.0

Source: CONAPO, Report of Demographics of Mexico *1998,* Mexico, 1999; and State Demographics, December, 1996.

This indicator reflects the social, economic and environmental conditions of a country. It is also directly related to other demographic variables, in particular the population growth rate.

SUFFICIENT BIRTH WEIGHT

Definition

Sufficient birth weight of a newborn is equal or greater to 2,500 grams, taken at the first hours of birth, after there has been a significant loss of postnatal weight.

Purpose

Oversee the percentage of children born with sufficient weight in a community.

Sufficent Birth Weight, 1993-1997

Category	1993	1994	1995	1996	1997
Children born alive[1]	1 464 325	1 484 252	1 486 237	1 444 229	1 440 304
Children born with sufficient weight (2,500 grams or more)[1]	539 207	574 047	702 861	685 406	1 260 824
Rate (children with sufficent weight per 1000 live newborns)	368.2	386.8	472.9	474.6	875.4

[1] Does not include information from private sector.
Source: National Health System, Statistical Information Bulletin, Main Programs
Vol. lll, Numbers 13, 14, 15 and 17, Year: 1993, 1994, 1995, 1996 and 1997.

Newborn weighing process is standard protocol in the national health system, but only recently have statistics begun to be compiled. The private health sector also has begun gathering statistics and results are expected shortly. The National Dynamic Demographic Survey (Encuesta Nacional de la Dinámica Demográfica - ENADID) of 1992 and 1997also has collected information concerning newborn weights for the 32 states nationwide. This is potentially an alternative information source, although for this indicator information from the National Health System was used to maintain once source for comparison.

INFANT MORTALITY RATE (IMR)

Definition

Number of deaths of infants less than one year old for each 1000 newborn children during a given period.

Purpose

Estimate the percentage of newborns who die during the first year of life.

Triennial Infant Mortality Rates (IMR), 1985-1996

Triennial Births	Infant Mortality Rates (deaths/ 1000 live births)	Neonatal Rate	Postnatal Rate
1985-1987	40.07	22.05	18.02
1988-1990	34.33	19.87	14.46
1991-1993	29.87	18.49	11.38
1994-1996	27.90	16.94	10.96

Source: INEGI, National Dynamic Demographics Survey 1997, Mexico, 1999.

Vital statistics register, by definition, births and deaths, among other demographic phenomena. However, there exists an additional register o extemporaneous register of births, which should be taken into account. Therefore, this indicator has been taken from the most recent survey for dynamic demographics in Mexico since mortality questions are included in this survey for infants less than one year old.

MATERNAL MORTALITY RATES (MMR)

Definition

Number of maternal deaths for each 1,000, 10,000 or 100,000 live born infants.

Purpose

Measure the percentate of pregnant women that die due to the pregancy or its management. Due to the considerable decrease of maternal death rates in many countries, the percentage is now expressed by frequencies of 10,000 or greater for each 100,000 live births.

Maternal Mortality Rates (MMR), 1990-1997

Year	Maternal deaths during delivery puerperial pregnancy	Live born infants	TMM Maternal deaths for 100 000 live born infants
1990	1 477	2 735 312	54.0
1991	1 414	2 756 447	51.3
1992	1 399	2 797 397	50.0
1993	1 268	2 839 686	44.7
1994	1 409	2 904 389	48.5
1995	1 454	2 750 444	52.9
1996	1 291	2 707 718	47.7
1997	1 266	2 698 425	46.9

Source: INEGI, Demographic Statistics, Population Manual, Numbers 3 - 10, Mexico, editions 1993 - 1998.

The MMR reflects the risk of death for mothers during pregnancy or delivery, due to the following factors: general socioeconomical conditions; unsatisfactory state of health before pregnancy; various complications related to the pregnancy and delivery, availability and use of health services, including prenatal and obstetritional assistance. In addition to the vital statistics considered here, the birth rate surveys developed in Mexico and the National Demographic Survey (ENADID) in 1992 and 1997 are additional data sources for births at the national and state level.

Continues

MATERNAL MORTALITY RATES (MMR)

State Maternal Mortality Rates[1], 1989-1998

Entidad federativa	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
Aguascalientes	35.2	16.6	32.6	31.5	11.7	26.9	39.1	36.1	44.9	35.5
Baja California	39.0	32.5	35.4	15.1	18.4	16.5	18.0	19.5	19.5	34.2
Baja California Sur	11.0	21.5	0.0	21.5	31.5	0.0	20.5	10.3	40.9	49.6
Campeche	51.6	39.8	33.8	55.2	45.7	55.9	61.7	39.5	41.0	36.6
Coahuila	22.5	8.4	9.8	12.9	17.1	29.0	30.5	34.0	30.8	48.7
Colima	30.3	30.9	71.4	24.3	55.8	16.5	23.4	55.2	48.8	15.7
Chiapas	97.9	48.9	55.4	62.5	51.8	57.5	65.0	57.4	62.3	63.7
Chihuahua	56.7	56.0	25.8	37.3	34.2	32.3	30.7	46.1	46.9	27.7
Mexico City (DF)	46.8	51.3	54.9	51.2	74.2	85.9	79.3	89.5	78.2	117.2
Durango	61.1	41.8	14.5	16.8	21.4	25.4	29.0	15.5	23.8	26.9
Guanajuato	51.6	64.0	47.1	58.8	34.2	43.7	46.4	39.4	30.6	46.0
Guerrero	72.2	61.3	54.0	45.2	51.2	53.6	45.7	68.6	52.1	89.2
Hidalgo	66.7	67.1	51.8	73.6	38.2	44.5	59.8	46.4	39.6	43.5
Jalisco	36.3	38.1	27.2	32.9	30.3	23.6	34.0	23.7	42.6	35.0
State of Mexico	78.6	72.1	74.9	54.4	34.4	54.6	52.8	48.5	48.9	51.3
Michoacan	42.3	30.1	32.4	52.1	34.1	33.7	48.3	28.8	41.5	49.5
Morelos	30.6	59.3	30.6	60.8	42.4	42.3	71.2	83.9	48.2	78.0
Nayarit	47.4	33.1	21.9	30.3	22.5	22.4	61.5	15.6	45.5	53.9
Nuevo Leon	19.2	23.3	18.4	14.3	20.0	17.4	18.6	20.2	26.4	37.4
Oaxaca	128.4	119.9	142.3	95.8	93.0	99.9	87.7	79.6	72.9	62.0
Puebla	82.1	82.4	86.6	77.6	66.8	74.3	108.0	67.6	48.3	57.4
Querétaro	81.1	57.8	48.0	54.8	82.7	69.2	75.8	36.8	59.3	55.8
Quintana Roo	55.5	25.3	44.5	68.0	58.4	43.3	53.7	39.7	34.4	47.0
San Luis Potosi	70.9	61.5	55.4	79.2	59.4	48.0	56.7	43.7	47.5	40.7
Sinaloa	31.3	14.9	26.0	18.4	13.7	12.0	10.8	14.1	20.1	21.7
Sonora	15.8	24.7	31.3	43.9	33.9	35.4	33.9	35.4	30.3	23.0
Tabasco	28.6	27.6	28.5	15.9	34.5	34.9	26.2	24.6	56.3	67.7
Tamaulipas	18.1	17.8	21.0	12.3	28.8	29.4	18.5	37.1	35.8	47.3
Tlaxcala	65.0	85.1	59.7	73.1	39.3	37.0	85.2	54.0	70.6	55.9
Veracruz	67.7	74.7	50.3	61.3	52.4	51.7	58.7	52.4	41.4	50.3
Yucatan	60.7	53.8	77.5	57.8	70.9	64.1	67.9	59.6	61.6	56.4
Zacatecas	26.3	36.7	53.6	33.6	38.9	39.2	39.3	36.0	52.2	33.2
National	**57.9**	**54.0**	**51.3**	**50.0**	**44.7**	**48.5**	**52.9**	**47.7**	**46.9**	**53.6**

[1] Deaths during pregnancy, at birth or directly after birth for each 100,000 births.
Source: INEGI, Department of Demographic and Social Statistics.

NUTRITIONAL LEVEL OF CHILDREN WITH RESPECT TO NATIONAL LEVELS

Definition

Children less than 5 years old whose weight-height-age relation is between 80% and 120% of the national base value of the country within a margin of two standard deviations of the these values.

Purpose

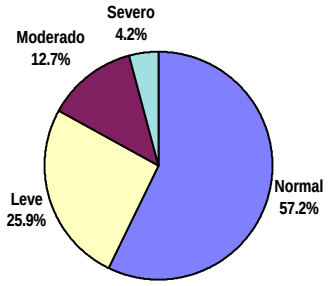
Measure nutritional imbalance and malnutrition, as well as current undernuishment.

Nutritional Levels of Children less than 5 Years[1] Old According to Weight-Height-Age Relationships, 1996

	Weight-Age	Heigth-Age
Prevalence of Malnutrition	42.7	55.9
Interval of Normality	1.9	1.9
Normal	57.2	44.1
Light	25.9	22.0
Moderate	12.7	18.8
Severe	4.2	15.1

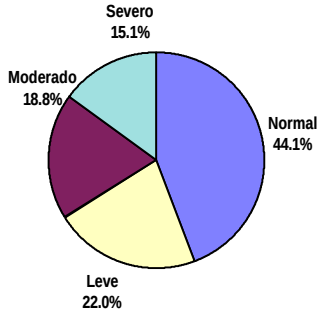
[1] In rural towns with 500 to 2,500 inhabitants.
Source: National Institute of Nutrition Salvador Zubirán, National Survey of Diet and Nutrition 1996,Mexico 1997.

Nutritional Levels of Children[1] relative to National Standards, according to weight-age, 1996



[1] 5 year-old infants in rural towns of 500 to 2,500 inhabitants.
Source: National Institute of Nutrition Salvador Zubirán, National Survey of Diet and Nutrition 1996, Mexico 1997.

Nutritional Levels of Children[1] relative to National Standards, according to height-age, 1996



[1] Menores de 5 años en localidades rurales de 500 a 2 500 habitantes.
Source: National Institute of Nutrition Salvador Zubirán, National Survey of Diet and Nutrition 1996,Mexico 1997.

Continues

NUTRITIONAL LEVEL OF CHILDREN WITH RESPECT TO NATIONAL LEVELS

The data from the 1996 National Diet and Nutrition Survey (ENAL) includes in this indicator were obtained in rural towns of 500 to 2500 inhabitants. This survey evaluates the state of nutrition of children less than five years old from the time of the register of weight, size and age. From the edipemiological perspective, the WHO, FAO and UNICEF recommend the weight-age indicator as a true estimate of the prevalence of undernutrition in children less than five years old. On the other hand, the deficiency of the size-age indicator correlates consistently with the accumulative affect of undernutrition, bur does not permit adequate discrimination among the current undernourished and the undernourished who have adapted and/or recovered.

The national census of children size in their first year of primary education developed by the Department of Family Integration and the Secretary of Public Education, which considers size-age to measure levels of infant nutrition is a source of alternative information for this indicator at the national level, but as mentioned earlier, it is not the best indicator for undernutrition.

Conclusion

PERCENTAGE OF INFANT POPULATION VACCINATED ACCORDING TO NATIONAL POLICIES

Definition

Includes three components: a) percentage of children vaccinated against diphtheria, whooping cough, tetanus, measles, polio, tuberculosis and hepatitis B, during first year of life; b) percentage of vaccinated children against African yellow fever; c) percentage of fertile women vaccinated against tetanus.

Purpose

Oversee application of vaccination programs.

Percentage of Vaccinated Children[1] According to National Vaccination Policies, 1990-1997

Vaccinations2	1990	1991	1992	1993	1994	1995	1996	1997
Complete Treatment (8 doses)	46.00	78.03	92.50	91.75	95.27	95.57	96.96	96.76
Sabin (3 doses)	73.10	85.27	95.40	94.52	96.80	97.01	97.96	98.28
DTP (3 doses)	60.10	84.45	95.00	94.07	96.49	96.77	97.82	98.19
Antimeasles (1 dosis)	85.40	87.28	94.90	93.43	96.65	96.69	97.66	97.24
BCG (1 dosis)	73.60	83.31	96.60	96.98	98.47	98.94	99.48	99.56

[1] Sector results of coverage for complete vaccinations in children 1 to 4 years old.
[2] Nominal vaccination census integrated in the National Vaccination Program.
SABIN: Polio vaccination.
DTP: Vaccine against contra diphtheria, whooping cough and tetanus.
BCG: Vaccine against tuberculosis.
Source: Ministry of Health, National Vaccination Council, National Survey of Vaccination Coverage, 1990, and State Vaccination Councils, Mexico, 1998.

The information considered in this indicator is based on the fist and third definitions and includes vaccination dosages applied to children 1 to 4 years of age which have been completely vaccinated (8 doses) as defined by the national public heath agency.

Trying to establish the number of people vaccinated is difficult since there does exist the possibility that a person can receive more than one vaccination as stipulated in the basic coverage during the various vaccination campaigns that are undertaken throughout the year nationwide. For the component c) of the indicator data for fertile women between the age of 15 a 45 years-old, immunized for tetanus in 1997, was used. Data for previous years is not reported because this is a recent statistic.

USE RATE OF CONTRACEPTION METHODS

Definition

Percentage of fertile women using contraception. Normally the number of fertile married women is calculated, although sometimes the other population groups are estimated as well with the total fertile population or the number of men from a certain age group.

Purpose

The measurement indicates the conscious efforts undertaken by adults and their decisions for planned parenthood. This does not reflect all adopted measures to control births since self induced abortions are common practice in Mexico.

Married Fertile Women Using Contraceptive Methods According to Age Group, 1976- 1997

Age Group	EMF 1976	ENP 1979	END 1982	ENFES 1987	ENADID 1992	ENPF 1995	ENADID 1997
15-19	14.2	19.2	20.8	30.2	36.4	36.0	44.9
20-24	26.7	37.4	45.7	46.9	55.4	58.0	59.2
25-29	38.6	44.5	56.5	54.0	65.7	68.0	67.7
30-34	38.0	49.6	59.8	62.3	70.1	75.0	75.3
35-39	37.9	42.3	57.6	61.3	72.6	79.0	76.1
40-44	25.1	33.1	42.9	60.2	67.4	71.0	74.4
45-49	11.3	16.3	22.1	34.2	50.5	55.0	61.2
Total	**30.2**	**37.1**	**47.7**	**52.7**	**63.1**	**66.5**	**68.4**

EMF: Mexican Fertility Survey. ENP: National Contraceptive Use Survey. END: National Demographic Survey.
ENFES: National Health and Fertility Survey. ENADID: National Dynamic Demographic Survey.
ENPF: National Family Planning Survey.
Source: From 1976 to 1987 and 1995: CONAPO, Demographics Report of Mexico, Synthesis, 1994 and 1997, other years: INEGI, National Dynamic Demographics Survey, 1992 and 1997.

Contraceptive Use[1], 1976-1997

Type of Method	EMF 1976	ENP 1979	END 1982	ENFES 1987	ENADID 1992	ENADID 1997
Pills	35.9	33.0	29.7	18.2	15.3	10.0
DIU	18.7	16.1	13.8	19.4	17.7	20.8
Operation (Female)	8.9	23.5	28.1	36.2	43.3	44.7
Vasectomy	0.6	0.6	0.7	1.5	1.4 [2]	1.8
Injections	5.6	6.7	10.6	5.3	5.1	4.6
Condoms and Spermicides	7.0	5.0	4.1	4.7	5.0	5.5
Traditional Methods	23.3	15.1	13.0	14.7	12.2	12.5
Total	**100.0**	**100.0**	**100.0**	**100.0**	**98.6**	**100.0**

[1] Percentage of users of contraceptive methods by type of method, according to various sources, (Includes women and
[2] Includes users of Norplant.
Source: From 1976 to 1987 and 1995: CONAPO, Demographics Report of Mexico, Synthesis, 1994 and 1997, other years: INEGI, National Dynamic Demographics Survey, 1992 and 1997.

Through family planning programs, which began in Mexico in 1970´s, various contraception methods have been publicized to promote parent consciousness and planned pregnancies. To measure program progress several surveys have been developed (seven until now). As a result the data for contraceptive use included in this indicator has been taken from national surveys with various titles that have been developed until 1997.

NATIONAL BUDGET FOR LOCAL HEALTH CARE SERVICES

Definition

Percentage of national budget for local emergency and general medicine health services. This includes first contact diagnosis and includes community health services, health centers, medicine depositories, and excludes hospitals.

Purpose

Measures the amount of resources dedicated to primary health services.

National Budget for Local Health Services, 1993-1997

State	Exercised Budget for Preventive Care (Millions of Pesos)									
	1993		1994		1995		1996		1997 [1]	
	Maximum	%	Maximum	%	Maximum	%	Maximum	%	Maximum	%
Aguascalientes	12.6	0.04	17.8	0.05	21.4	0.05	25.9	0.04	23.8	0.03
Baja California	42.7	0.13	53.2	0.14	55.8	0.12	63.3	0.11	76.9	0.10
Baja California Sur	11.4	0.03	15.1	0.04	13.8	0.03	17.6	0.03	16.5	0.02
Campeche	17.4	0.05	23.8	0.06	27.8	0.06	36.3	0.06	21.7	0.03
Coahuila	46.3	0.14	61.4	0.16	67.8	0.15	81.5	0.14	69.7	0.09
Colima	11.7	0.04	17.3	0.05	18.7	0.04	23.2	0.04	18.8	0.02
Chiapas	74.1	0.23	99.8	0.26	111.9	0.25	140.3	0.24	59.7	0.08
Chihuahua	62.5	0.19	81.6	0.21	101.4	0.22	115.6	0.20	102.3	0.13
Mexico City (DF)	635.9	1.95	531.2	1.38	504.6	1.11	129.1	0.22	588.8	0.77
Durango	28.3	0.09	39.9	0.10	47.3	0.10	58.0	0.10	39.8	0.05
Guanajuato	37.6	0.12	50.8	0.13	54.6	0.12	75.9	0.13	69.4	0.09
Guerrero	42.5	0.13	53.6	0.14	60.4	0.13	82.1	0.14	52.4	0.07
Hidalgo	29.5	0.09	40.2	0.10	45.1	0.10	69.8	0.12	32.0	0.04
Jalisco	79.8	0.24	104.8	0.27	115.8	0.25	138.9	0.24	130.2	0.17
State of Mexico	124.8	0.38	164.7	0.43	189.8	0.42	214.5	0.37	213.9	0.28
Michoacan	57.7	0.18	75.2	0.20	84.3	0.19	126.3	0.22	53.0	0.07
Morelos	21.7	0.07	30.8	0.08	32.5	0.07	40.6	0.07	35.2	0.05
Nayarit	23.7	0.07	31.0	0.08	35.3	0.08	43.6	0.07	26.4	0.03
Nuevo Leon	70.6	0.22	89.6	0.23	105.7	0.23	110.8	0.19	12.6	0.02
Oaxaca	69.2	0.21	86.3	0.22	111.2	0.24	151.6	0.26	63.3	0.08
Puebla	61.0	0.19	81.2	0.21	90.7	0.20	130.3	0.22	102.8	0.14
Queretaro	17.2	0.05	22.8	0.06	23.8	0.05	28.9	0.05	26.9	0.04
Quintana Roo	18.0	0.06	22.9	0.06	27.3	0.06	29.7	0.05	24.7	0.03
San Luis Potosi	37.8	0.12	50.4	0.13	56.1	0.12	83.3	0.14	46.8	0.06
Sinaloa	64.7	0.20	78.7	0.20	86.5	0.19	110.9	0.19	46.8	0.06
Sonora	38.9	0.12	53.6	0.14	54.4	0.12	57.8	0.10	81.7	0.11
Tabasco	24.2	0.07	31.7	0.08	33.3	0.07	36.1	0.06	40.7	0.05
Tamaulipas	45.7	0.14	63.1	0.16	62.7	0.14	86.9	0.15	23.8	0.03
Tlaxcala	9.1	0.03	13.5	0.04	14.4	0.03	19.4	0.03	62.5	0.08
Veracruz	111.3	0.34	142.2	0.37	153.9	0.34	196.7	0.34	13.8	0.02
Yucatan	39.8	0.12	53.0	0.14	58.4	0.13	68.2	0.12	142.4	0.19
Zacatecas	22.6	0.07	32.5	0.08	33.9	0.07	44.3	0.08	47.1	0.06
National[2]	**32 654.9**	**100.00**	**38 419.2**	**100.00**	**45 490.3**	**100.00**	**58 216.2**	**100.00**	**76 023.3**	**100.00**

[1] Preliminary.
[2] Includes the total national budget in healthcare dedicated to preventive care, first-aid, social services and other national programs.
Source: National Health System, Statistical, Resources and Services Information Bulletin, Vol. I, numbers 13 to 17, Mexico, 1993 to 1997.

The exercised budget in local health services considered in this indicator includes the following programs in each of the 32 states: preventable and vaccinated disease control; control of transmissible diseases; early detection of diseases; family planning, health education and mother-infant programs.

TOTAL HEALTH CARE BUDGET WITH RESPECT TO GROSS DOMESTIC PRODUCT (GDP)

Definition

This indicator defines the percentage of GDP dedicated to the health sector budget. Includes public and private expenditures.

Purpose

Measure percentage of national resources allotted for health services.

Total National Expense in Health Care with respect to GDP, 1990-1998

Year	GDP[1] (Millions of Current Pesos)	National Health Budget (Millions of Current Pesos)	Health Budget/GDP (%)
1990	738 897.5	15 592.0	2.1
1991	949 147.6	23 174.8	2.4
1992	1 125 334.3	28 903.7	2.6
1993	1 256 196.0	32 654.9	2.6
1994	1 420 159.5	38 419.2	2.7
1995	1 837 019.1	45 492.9	2.5
1996	2 525 575.1	58 216.2	2.3
1997	3 174 275.2	76 023.3	2.4
1998	3 844 917.4	83 548.5	2.2

[1] At market prices.

Source: National Health System, Statistical Information Bulletin, No. 17 and 18, 1997 and 1999,and INEGI, National Accounting System of Mexico, 1988-1998, Mexico, 2000.

The exercised budget in health included in this indicator considers the following programs: administration, preventive care, first-aid, public social services (for total population of legal recipients of the social security institutions) and medical policy holders (defined as people legally covered in specie or kind to receive services). This last group includes the insured, pensioned and their family and beneficiaries.

URBAN POPULATION GROWTH RATE

Definition

Measured annual rate of population growth living in urban areas during a certain period.

Purpose

Measures the growth change for urban populations. This indicator adds up the factors of natural population growth, rural to urban net migration and increase of surface land surface area with urban characteristics.

Growth Rate of Semi-urban and Urban Populations, 1950-1995

	Population				Growth Rate (%)		
	1950	1970	1990	1995	1950-70	1970-90	1990-95
Total Population (Thousands of Inhabitants)	25 779	49 050	81 249	91 158	3.3	2.5	2.0
Semi-urban Populations (Cities with 2,500 to 14,999 inhabitants)	3 940	7 407	11 284	12 370	3.2	2.1	1.6
Urban Populations (cities with more than 15,000 inhabitants)	7 209	22 004	46 675	54 633	5.7	3.7	2.8

Source: for 1950 and 1970, Luis Unikel, Urban Development in Mexico: Diagnosis and Future Implications, Mexico, 1976; for 1990 and 1995, INEGI, XI General Population and Housing Census 1990, Mexico 1992 and Population and Housing Registration 1995, Mexico, 1996.

This indicator focuses on the population in cities with 15,000 inhabitants or more as a criteria for defining urban populations, which are defined as having significant population densities and concentrations of non-rural economic activities. In addition, data concerning semi-urban populations is included for cities with populations between 2,500 and 14,999 inhabitants since it is also frequently used to describe a Mexican urban setting.

CONSUMPTION OF FOSSIL FUELS PER INHABITANT IN MOTOR VEHICLES

Definition

Number of average liters of fossil fuels consumed in a year per person in transportation by motor vehicles in urban areas.

Purpose

Measure fossil fuel consumption in land transportation in urban areas.

Consumption of Fossil Fuel[1] per Inhabitant in Motor Vehicles, 1990 and 1995

Year	Total Consumption (Thousands of barrils dialy[2])	Total Consumption (Thousands of liters daily)	Consumption in Urban Areas[3] (Thousands of liters daily)	Consumption of Fossil Fuels (Liters/year per inhabitant)
1990	712.9	113 351.1	67 659.9	511.0
1995	770.3	122 477.7	72 299.2	474.5

[1] Inclues gasoline and diesel.
[2] Un barril is equal to 159 litros.
[3] Consumed fuels in the 100 most important cities of 1995 with 50,000 or more inhabitants.
Source: PEMEX, Statistical Yearbook, 1998, Mexico, 1998 and INEGI, XI General Population and Housing Census, Mexico 1992 and INEGI, Population and Housing Registration 1995, Mexico, 1996.

The information that was originally required of this indicator is not available for urban areas. The estimate here includes the apparent consumption of fuels (based on production + imports - exports of gasoline and diesel) divided by the total population to obtain a figure for each inhabitant, which at the same time is multiplied by the population that resides in 100 cities with 50,000 or more inhabitants.

The result is a macro indicator which allows for a view on a reduced scale, with simplistic dimensions for urban fuel consumption.

Of course this estimate is very general, especially taking into account that not all people in these cities have an automobile.

HUMAN AND ECONOMIC LOSS FROM NATURAL DISASTERS

Definition

Number of human casualties (dead or missing) and number of economic and infrastructure losses as a consequence of a natural disaster.

Purpose

Provide an estimate of human and economic repercussions from emergencies or natural disasters throughout time in order to measure the evolution of the population's vulnerability. The indicators can be used by the responsible decisionmakers for the adoption of policies to counteract phenomena in those regions within the country which have been identified as progressively prone to adverse impacts from these types of disasters.

Loss of Human Life and Economic Damage from Disasters in Mexico, 1980-1998

Event	Number of Dead	Direct Damage (Millions of Dollars)	Indirect Damage (Millions of Dollars)	Total Damage (Millions of Dollars)
Meteorological	2 218.0	3 482.3	0.0	3 481.9
Geological	6 047.0	3 739.1	515.0	4 254.1
Intentional	1 250.0	4 022.3	0.0	4 022.3
Total	**9 515.0**	**11 243.7**	**515.0**	**11 758.3**

Source: D. A. Bitrán, using World Bank figures, Characteristics and effects of disasters occuring in Mexico as of 1980, CENAPRED, Mexico, 1999.

The information available for this indicator gives an aggregate figure for the human and economic loss which allows one to visualize certain trends over time.

Although the method sheet does not specify, intentional or provoked disasters are included here, primarily defined as those disasters which arise as a result of inadequate response to social demands or needs. It is suggested that, as a result, the consideration should be taken into account as part of the definition of the method sheet.

PERCENTAGE OF RESIDENT URBAN POPULATIONS

Definition

Percentage of total population in a country or region living in urban areas.

Purpose

This indicator is an index of the level of urbanization and is used frequently. Although national definitions of "urban" vary, the exists enough uniformity to make significant comparisons in the country over time. It is useful to also classify urban regions according to size since this is a key part of urban planning and monitoring of city growth.

Percentage of Population in Semi-Urban and Urban Areas, 1950, 1970, 1990 and 1995

Population (Thousands of Inhabitants)	1950	%	1970	%	1990	%	1995	%
Total Population[1]	**25 779**		**49 050**		**81 249**		**91 158**	
Population in Semi-Urban Cities (2,500 to 14,999 inhabitants)	3 940	15.3	7 407	15.1	11 284	13.9	12 370	13.6
Population in Urban Cities (more than 15,000 inhabitants)	7 209	27.9	22 004	44.9	46 675	57.4	54 633	59.9

[1] The population in rural towns not included is the difference from urban populations, equal to 100%)
Source: For 1950 and 1970, Luis Unikel, Urban Development in Mexico: Diagnosis and Future Implications, Mexico, 1976; for 1990 and 1995, INEGI, XI General Population and Housing Census 1990, Mexico 1992, Population and Housing Registration 1995, Mexico, 1996.

This indicator focuses on the population in cities with 15,000 inhabitants or more as a criteria for defining urban populations, which are defined as having significant population densities and concentrations of non-rural economic activities.

In addition, cities with populations of 2,500 inhabitants or more, defined as semi-urban, were used due to their utility in the geographical surveys and censuses. If urban and semi-urban cities are added together, the sum will produce the comparative urban figure, a statistic traditionally used in Mexico.

EXPENSE IN INFRASTRUCTURE PER INHABITANT

Definition

Expense per inhabitant in infrastructure services during the course of the year undertaken by the government at all levels, including public and parastatal services.

Purpose

Measures the participation of different levels of the public administration and the private sector in the development, improvement and maintenance of infrastructure. This is a key measurement of the supply of basic services, including housing.

Expense in Infrastructure per Inhabitant, 1990-1998

Year	Investment (Millions of Pesos)	Investment (Millions of Dollars)	Expense in Infrastructure per Inhabitant (US dollars)
1990	33 939.3	11 861	142.0
1991	39 462.7	13 077	153.6
1992	43 835.5	14 166	163.2
1993	47 363.0	15 204	172.0
1994	57 577.4	17 060	189.5
1995	66 820.3	10 410	113.6
1996	79 799.9	10 501	112.7
1997	106 295.0	13 424	141.7
1998[1]	126 320.1	13 827	143.6

[1] Authorized Investment.
Note: For the conversion of dollars the exchange rate to liquidate foreign currency obligations was used (average).
Source: Federal Executive Branch, State of the Union Address, various years and CONAPO, Population projections, unedited.

The exercised budget considered in this indicator includes: social infrastructure, construction of recycling centers, administrative buildings, agroindustrial product commercialization, national defense, agriculture, livestock development, communications and transportation, environmental regulation and preservation and industrial development and commerce.

Economic Indicators

GROSS DOMESTIC PRODUCT PER INHABITANT

Definition

The average production per person is obtained by dividing the Gross Domestic Product (GDP) of a certain period by the total number of inhabitants.

Purpose

The indicator is a basic figure of economic growth and measures the level and magnitude of the total economic product. Reflects the changes in total production of goods and services.

GDP per inhabitant, 1990-1999

Year	GDP (millions of current pesos)[1]	GDP per inhabitant (current pesos)	GDP per inhabitant (US dollars)[3]
1990	676 067.0	8 136.0	2 892.7
1991	868 219.2	10 254.0	3 397.7
1992	1 029 004.6	11 932.2	3 856.0
1993	1 155 132.2	13 156.8	4 223.4
1994	1 306 301.6	14 619.8	4 331.6
1995	1 678 834.8	18 249.8	2 843.1
1996	2 296 674.6	24 544.6	3 229.8
1997	2 873 273.0	30 204.4	3 814.4
1998	3 516 344.8	36 382.7	3 982.5
1999[2]	4 222 258.8	43 026.1	4 500.4

1 GDP in basic values.
2 Quarterly GDP. The total annual data obtained using quarterly calculation can vary from a total annual estimation since in the sector 01 Agriculture, the annual calculations considered the agricultural year of production that in each crop varies from year to year, while the quarterly calculations are determined in the aggregate value of each yearly trimester, obtaining the annual totals by adding up these partial figures.
3 Converted with the exchange rate used to pay obligations in foreign currencies.
Source: INEGI, National Accounting System of Mexico, 1988-1998, Mexico 2000.
CONAPO, Population estimates in Mexico, Mexico 1998.

A variant of the indicator is the growth of real GDP per inhabitant. The National Accounting System for Mexico provides information for each state and current and constant prices.

PARTICIPATION OF NET INVESMENT IN GDP

Definition

This indicator measures the net participation of investment in relation to the income of total production. It is obtained by dividing the gross capital accumulation for production by the gross domestic product, both at purchase prices.

Purpose

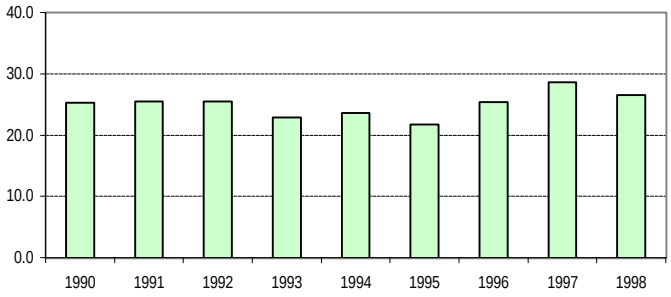
The rate of investment measures the stimulus of economic development to reflect the influx of necessary capital required to finance the development process.

Participation of Investment in GDP, 1990-1998
(Millions of pesos at current prices)

Year	GDP1	Investment	Participation of investment in GDP (%)
1990	676 067.0	170 992.8	25.3
1991	868 219.2	221 422.8	25.5
1992	1 029 004.6	262 108.7	25.5
1993	1 155 132.2	263 776.8	22.8
1994	1 306 301.6	308 399.0	23.6
1995	1 678 834.8	364 099.1	21.7
1996	2 296 674.6	583 558.0	25.4
1997	2 873 273.0	820 956.8	28.6
1998	3 516 344.8	932 506.2	26.5

[1] GDP in basic values.
Source: INEGI, National Accounting System of Mexico, 1988-1998, Mexico, 2000.

Participation of Investment Percentage in GDP, 1990-1998



Source: INEGI, National Accounting System of Mexico, 1988-1998, Mexico, 2000.

In order to quantify investment, the gross accumulation of fixed capital plus variation in inventories was considered.

SUM OF EXPORTS AND IMPORTS AS PERCENTAGE OF GDP

Definition

This indicator measures the openess of an economy, represented by the sum of the exports and the imports of the goods and services in proportion to GDP.

Purpose

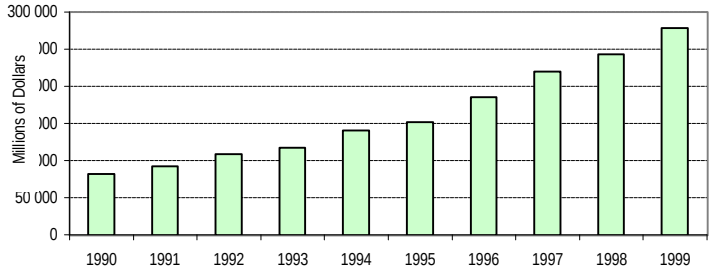
Reflects the degree of economic integration in international commerce. In general, foreign commerce promotes the best utilization of resources at the national level and globally.

Sum of Exports and Imports as Percentage of GDP, 1990-1999
(Millions of dollars)

Year	GDP (At market price)	Imports	Exports	Sum of imports + exports	Importation + exportation/GDP (%)
1990	262 709.8	41 593	40 711	82 304	31.3
1991	314 506.0	49 967	42 688	92 655	29.5
1992	363 656.3	62 129	46 196	108 325	29.8
1993	403 247.3	65 367	51 886	117 253	29.1
1994	420 775.5	79 346	60 882	140 228	33.3
1995	286 184.6	72 453	79 542	151 995	53.1
1996	332 338.7	89 469	96 000	185 469	55.8
1997	400 868.2	109 808	110 431	220 239	54.9
1998	420 867.3	125 373	117 460	242 833	57.7
1999[1]	483 530.0	142 064	136 703	278 767	57.7

[1] Quarterly GDP.
Note: For the conversion to dollars, the exchange rate for liquidating obligations in foreign currencies was used (average).
Source: INEGI, National Accounting System of Mexico 1988-1998, México, 2000.
Workgroup: SHCP, Banco de Mexico, SECOFI and INEGI.

Sum of Imports and Exports, 1990-1999



Source: INEGI, National Accounting System of Mexico 1988-1998, México, 2000.
Workgroup: SHCP, Banco de Mexico, SECOFI and INEGI.

The indicator can be calculated from the commercial balance data for exports and imports in US dollars developed by the Workgroup: Ministry of Finance and Public Credit, Mexico's Central Bank, Ministry of Commerce and Industrial Development and INEGI.

NET DOMESTIC ENVIRONMENTAL PRODUCT PER INHABITANT

Definition

The indicator is obtained from subtracting the environmental costs of Net Domestic Product, and then dividing by the total population.

Purpose

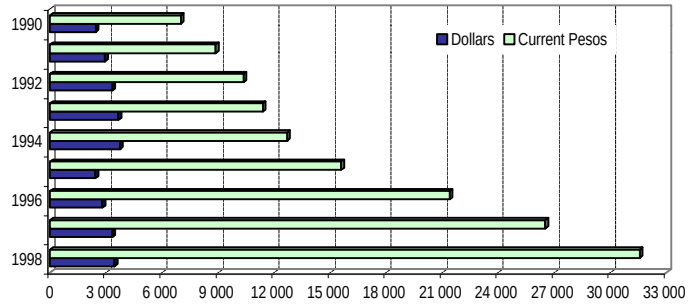
The trend of net domestic environmental product or net domestic ecological product (NDEP) can be used to measure sustainable development growth.

Net Domestic Environmental Product per Inhabitant, 1990-1998

Year	Net Domestic Product	Total Cost[1]	Net Domestic Ecological Product	NDEP Per Inhabitant	NDEP Per Inhabitant
	(Millions of current pesos at market prices)			(Current Pesos)	(US dollares)[2]
1990	670 858.6	85 372.0	585 486.6	7 009.9	2 449.7
1991	864 236.7	107 771.4	756 465.2	8 883.1	2 943.6
1992	1 025 130.3	126 261.3	898 869.0	10 357.2	3 347.1
1993	1 142 808.2	134 933.5	1 007 874.8	11 400.7	3 659.7
1994	1 290 596.5	147 936.3	1 142 660.2	12 694.6	3 761.3
1995	1 626 177.0	198 246.5	1 427 930.5	15 587.7	2 428.4
1996	2 252 492.8	258 890.1	1 993 602.7	21 394.8	2 815.3
1997	2 850 768.0	338 427.7	2 512 340.3	26 520.4	3 349.2
1998	3 447 693.0	408 478.5	3 039 214.7	31 574.8	3 456.2

[1] Includes costs for depletion and degradation of the environment.
[2] Conversion with exchange rates used to liquidate foreign currency obligations (average).
Source: INEGI, System for Economic and Ecological Accounts of Mexico, 1988-1998, Mexico, 2000.

Net Domestic Ecological Product per Inhabitant, 1990-1998



Source: INEGI, System for Economic and Ecological Accounts of Mexico, 1988-1998, Mexico, 2000.

The System for Economic and Ecological Accounts of Mexico incorporates economic aggregates and adjusted derivatives of changes to natural resources and the environment. The monetary estimations of NDEP consider the costs for depletion and degradation.

NET DOMESTIC ENVIRONMENTAL PRODUCT PER INHABITANT

Net Domestic Ecological Product by Activity, 1990-1998
(Millions of current pesos)

Category	1990	1991	1992	1993	1994	1995	1996	1997	1998
Agriculture, Livestock, Forestry and Fisheries									
Net Domestic Product, at basic prices	45 110.7	55 542.4	57 531.3	60 364.7	61 367.4	71 894.8	111 456.2	122 875.4	144 830.7
Total Costs for Depletion and Degradation	13 386.0	15 723.0	16 308.1	16 539.3	15 021.6	22 430.0	24 514.5	30 785.5	34 004.9
Net Domestic Ecological Product	31 724.7	39 819.4	41 223.2	43 825.3	46 345.8	49 464.8	86 941.7	92 089.9	110 825.8
Mining									
Net Domestic Product, at basic prices	12 333.4	11 731.1	13 182.3	11 049.0	11 526.0	20 231.9	25 235.0	33 053.9	32 201.6
Total Costs for Depletion and Degradation	7 945.1	7 673.8	8 910.0	6 391.5	6 068.5	9 782.0	13 030.0	19 964.6	17 158.1
Net Domestic Ecological Product	4 388.3	4 057.3	4 272.3	4 657.6	5 457.5	10 450.0	12 204.9	13 089.3	15 043.6
Manufacturing									
Net Domestic Product, at basic prices	118 471.4	150 338.1	176 531.8	183 595.6	202 427.6	282 812.7	410 237.2	519 427.2	637 495.4
Total Costs for Depletion and Degradation	2 965.2	3 580.6	4 130.3	4 496.2	4 871.9	6 532.9	9 322.1	11 601.7	14 054.0
Net Domestic Ecological Product	115 506.3	146 757.5	172 401.5	179 099.4	197 555.7	276 279.8	400 915.1	507 825.6	623 441.4
Construction									
Net Domestic Product, at basic prices	22 387.8	30 489.8	40 128.8	48 515.4	61 507.8	56 052.4	79 619.8	109 520.5	142 005.9
Total Costs for Depletion and Degradation	129.2	122.2	171.4	222.7	60.9	75.4	74.4	105.5	123.5
Net Domestic Ecological Product	22 258.6	30 367.7	39 957.4	48 292.6	61 447.0	55 977.0	79 545.4	109 415.0	141 882.4
Electricity, Gas and Water									
Net Domestic Product, at basic prices	6 881.8	10 295.0	13 472.5	14 928.0	15 172.9	14 122.8	17 123.0	22 409.7	25 167.2
Total Costs for Depletion and Degradation	3 105.3	3 858.8	4 267.5	4 608.9	5 680.1	7 159.8	9 610.2	13 530.4	17 776.3
Net Domestic Ecological Product	3 776.5	6 436.1	9 205.0	10 319.1	9 492.8	6 963.0	7 512.9	8 879.3	7 390.9
Commerce, Restaurants and Hotels									
Net Domestic Product, at basic prices	162 078.8	194 700.1	227 231.0	243 443.8	266 874.6	336 957.7	476 221.1	593 533.8	679 970.0
Total Costs for Depletion and Degradation									
Net Domestic Ecological Product	162 078.8	194 700.1	227 231.0	243 443.8	266 874.6	336 957.7	476 221.1	593 533.8	679 970.0
Transportation, Storage and Communications									
Net Domestic Product, at basic prices	55 570.9	79 327.3	89 090.4	97 545.8	114 022.6	151 810.7	212 641.5	279 291.1	347 780.0
Total Costs for Depletion and Degradation	46 066.9	61 887.3	74 615.5	81 786.2	94 257.1	121 448.3	160 012.2	209 507.2	258 012.0
Net Domestic Ecological Product	9 504.0	17 440.0	14 474.9	15 759.5	19 765.4	30 362.4	52 629.4	69 783.9	89 768.0

PARTICIPATION OF MANUFACTURERS IN TOTAL MERCHANDISE EXPORTS

Definition

Percentage of contribution of manufactured goods in total merchandise exports.

Purpose

This indicator is characterized by representing an aspect of international cooperation, such as global market access to manufactured goods and participation in the manufacturing process.

Participation of manufacturers in merchandise exports, 1990-1999 (Millions of dollars)

Year	Total Exports	Manufacturing Exports	Participation of Manufacturers in Total Exports (%)
1990	26 838.5	14 861.2	55.4
1991	42 687.7	32 307.2	75.7
1992	46 195.5	36 168.8	78.3
1993	51 886.0	42 500.0	81.9
1994	60 882.2	51 075.3	83.9
1995	79 541.6	67 382.9	84.7
1996	95 999.7	81 013.8	84.4
1997	110 431.3	95 565.3	86.5
1998	117 459.6	106 550.4	90.7
1999	136 703.4	122 920.6	89.9

Source: Workgroup: INEGI, SHCP, Banco de Mexico and SECOFI, Statistical Yearbook of Foreign Commerce in Mexico, Mexico, various years.

The elements of the indicator corresponds to the nine categories of the manufacturing industry according to the Uniform International Industrial Code.

ANNUAL ENERGY CONSUMPTION PER INHABITANT

Definition

Quantity of energy – líquid, solid, gaseous or electricity - used by inhabitant in a year and in a given geographic area.

Purpose

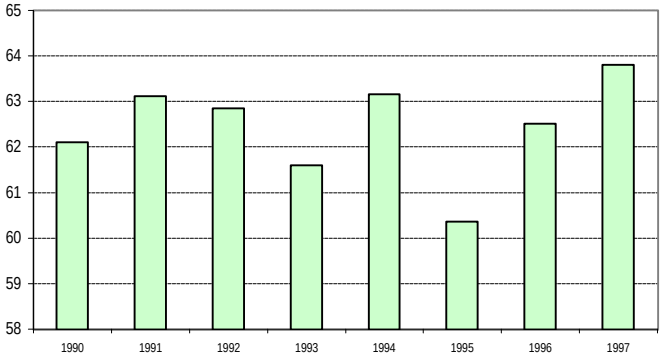
The use of energy is a fundamental aspect of consumption and production. Traditionally energy has been considered the motor for economic progress. However, its production, use and application constitute the greatest environmental impacts.

Annual Energy Consumption per Inhabitant, 1990-1997

Year	National Energy Consumption (petajoules)	Consumption per Inhabitant (gigajoules/inhab)
1990	5 161.029	62.1
1991	5 344.055	63.1
1992	5 419.711	62.8
1993	5 407.794	61.6
1994	5 642.879	63.2
1995	5 487.115	60.4
1996	5 779.034	62.5
1997	5 993.865	63.8

Source: Ministry of Energy, National Energy Report 1998, Mexico, 1999.

Energy Consumption per Inhabitant, 1990-1997
(Gigajoules / inhab)



Source: Ministry of Energy, National Energy Report 1998, Mexico, 1999.

The concept of energy includes energy generated by coal, hydrocarbons, electricity and biomass.

PARTICIPATION OF TRANSFORMATION INDUSTRIES USING NON-RENEWABLE NATURAL RESOURCES IN THE AGREGATE MANUFACTURING VALUE

Definition

Percentage of participation of aggregate value for heavy manufacturing industries using non-renewable natural resources with respect to total aggregate manufacturing value.

Purpose

The indicator represents the potential impact of industrial production's depletion of the non-renewable resources. Although the data obtained reflects an important part of these repercussions, the complexity of the structure of natural resource raw materials (direct and indirect) in industrial production impedes any indicator from being and ideal measure of sustainable development.

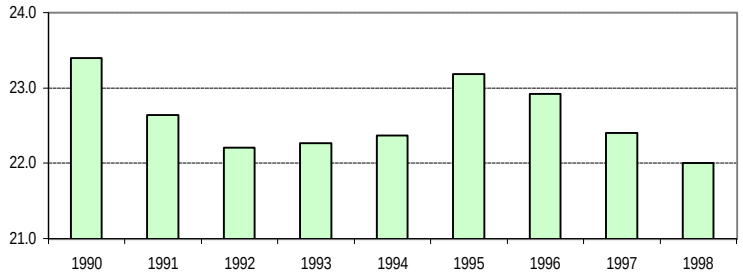
Participation of Heavy Industry in the Use of Non-Renewable Natural Resources in Aggregate Manufacturing Value, 1990-1998

Year	GDP Manufacturing (A)	GDP of Industries Using Non-Renewable Natural Resources[1] (B)	Participation % (B/A)
	(Millions of Pesos 1993)		
1990	205 524.5	48 085.6	23.4
1991	212 578.0	48 119.5	22.6
1992	221 427.4	49 171.0	22.2
1993	219 934.0	48 963.2	22.3
1994	228 891.6	51 194.8	22.4
1995	217 581.7	50 443.2	23.2
1996	241 151.9	55 278.4	22.9
1997	265 113.4	59 501.0	22.4
1998	284 554.4	62 641.4	22.0

[1] Includes: Chemicals, petroleum derivatives, plastics, water based cements, and basic metal industries

Source: INEGI, National Accounting System of Mexico 1988-1998, Mexico, 2000.

Participation of Heavy Industries in Aggregate Manufacturing Value, 1990-1998



Source: INEGI, National Accounting System of Mexico 1988-1998, Mexico, 2000.

Continues

PARTICIPATION OF TRANSFORMATION INDUSTRIES USING NON-RENEWABLE NATURAL RESOURCES IN THE AGREGATE MANUFACTURING VALUE

Participation of Transformation Industries using Non-renewable Natural Resources in the Agregate Manufacturing Value, 1990-1998 (Millions of 1993 Pesos)

Sector	Division	1990	1991	1992	1993	1994	1995	1996	1997	1998
	Division V Oil, Rubber and Plastic Chemical Derivatives	34 724.7	35 060.4	35 684.2	35 075.2	36 270.1	35 935.0	38 297.0	40 910.7	43 374.1
33	Oil and Derivatives	4 867.4	4 844.9	4 765.4	4 790.8	5 061.9	4 736.2	4 786.7	4 725.1	4 968.0
34	Basic Petrochemicals	2 445.8	2 143.7	2 268.7	2 083.3	2 256.2	2 353.8	2 247.9	1 983.3	1 735.4
35	Basic Chemicals	3 529.8	3 575.2	3 732.8	3 672.3	3 787.8	3 897.4	4 122.3	4 460.1	4 563.5
36	Fertilizers	648.5	614.3	439.3	433.2	489.5	565.9	635.5	549.1	483.2
37	Synthetic Resins and Fibers	2 787.4	2 872.5	3 042.9	2 816.0	2 972.5	3 215.5	3 585.0	3 860.0	4 187.9
38	Pharmaceutical Products	6 129.9	6 178.2	6 123.0	6 136.7	5 861.0	6 628.1	7 001.5	7 827.4	8 382.4
39	Soaps, Detergents and Cosmetics	4 198.1	4 356.5	4 474.2	4 393.9	4 556.0	4 251.4	4 377.7	4 694.2	5 084.3
40	Other Chemical Products	3 866.6	4 165.8	4 211.3	4 201.9	4 341.0	3 903.7	4 275.7	4 721.0	5 335.7
41	Rubber Products	2 114.8	2 162.7	2 218.6	2 009.3	2 116.5	1 901.4	2 233.4	2 459.0	2 765.6
42	Plastics	4 136.4	4 146.6	4 408.0	4 537.8	4 827.7	4 481.6	5 031.4	5 631.5	5 868.1
	Division VI Products of non-metalic minerals except derived oil and coal	3 629.0	3 792.0	4 076.3	4 180.9	4 619.8	3 783.6	4 245.3	4 436.3	4 547.2
44	Hydraulic Cement	3 629.0	3 792.0	4 076.3	4 180.9	4 619.8	3 783.6	4 245.3	4 436.3	4 547.2
	Division VII Basic Metal Industries	9 731.9	9 267.1	9 410.5	9 707.1	10 304.9	10 724.6	12 736.1	14 154.0	14 720.1
46	Basic Iron and Steel Industries	6 539.5	6 231.9	6 333.3	6 675.3	7 275.1	8 076.7	9 281.0	10 360.0	10 561.0
47	Non-ferrous Basic Metal Industries	3 192.4	3 035.2	3 077.2	3 031.8	3 029.8	2 647.9	3 455.1	3 794.0	4 159.1
	Total	**48 085.6**	**48 119.5**	**49 171.0**	**48 963.2**	**51 194.8**	**50 443.2**	**55 278.4**	**59 501.0**	**62 641.4**

Source: INEGI, National Accounting System of Mexico 1988-1998, Mexico, 2000.

TESTED MINERAL RESERVES

Definition

Deposits or reserves economically viable for extraction that have been proven and reliable quantities in terms of volume, tonnage and average grade of purity.

Purpose

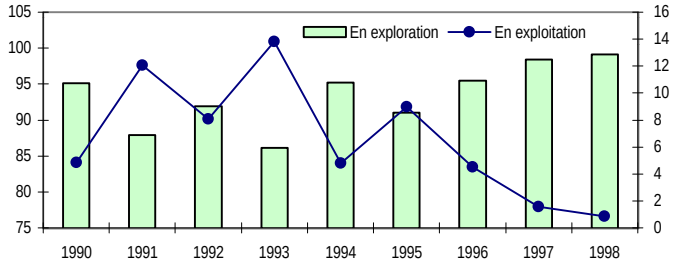
Unavailable since the technical sheet for this indicator is not developed.

Tested Mineral Reserves, 1990-1998
(Thousands of Hectares)

Year	Concesioned Surface Area			Mining Reserve Zone [1]
	Total	Under Exploration	Under Explotacion	
1990	2 800.1	2 664.1	136.0	5 393.8
1991	1 024.0	900.4	123.6	4 781.0
1992	614.2	564.6	49.6	2 987.8
1993	1 745.7	1 504.1	241.6	2 701.8
1994	2 081.4	1 981.6	99.8	524.8
1995	2 191.9	1 995.6	196.3	146.7
1996	3 185.8	3 041.5	144.3	146.3
1997	9 525.1	9 377.5	147.6	134.1
1998[p]	7 342.1	7 279.3	62.8	129.7

[1] Current surface area at beginning of year.
[p] Preliminary data.
Source: INEGI, Mining in Mexico, 1997, México, 1998.

Percentage of the Concessioned Surface Area Under Exploration and Exploitation, 1990-1998



Source: INEGI, Mining in Mexico, 1997, México, 1998.

Information presented for this indicator refers exclusively to the surface area of the reserves in two aspects: exploration and exploitation. The data refers to volume (tonnage) and grade of purity of the resources publicly available. Therefore, this indicator is cataloged as an alternative and is subject to modification.

TESTED RESERVES OF FOSSIL FUEL RESOURCES

Definition

The tested reserves of fossil fuels are generally defined as those quantities identified by the geological and engineering data that can be recovered with reasonable certainty in the future under the existing technical and economical circumstances.

Purpose

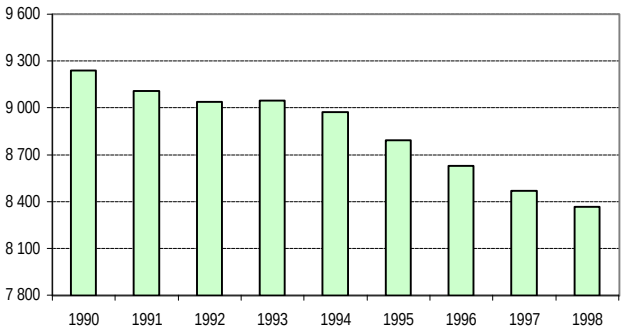
Measure the availability of fossil fuels.

Tested Reserves of Fossil Fuels, 1990-1998
(Millions of Tons of Petroleum Equivalents)

Year	Total[1]	Crude	Liquid Gas	Dry Gas
1990	9 241	6 293	936	2 012
1991	9 109	6 197	937	1 975
1992	9 040	6 160	923	1 957
1993	9 047	6 180	944	1 923
1994	8 972	6 125	936	1 911
1995	8 793	5 998	925	1 870
1996	8 630	5 861	925	1 844
1997	8 469	5 851	890	1 728
1998	8 367	5 757	894	1 716

[1] Data at the beginning of the year.
Source: PEMEX, Statistical Yearbook 1998, Mexico, 1999.

Tested Reserves of Fossil Fuels, 1990-1998
(Millions of Tons of Petroleum Equivalents)



Source: PEMEX, Statistical Yearbook 1998, Mexico, 1999.

For the conversion of barrels of oils to equivalent tons, the UN conversion table was used.

DURATION OF TESTED ENERGY RESERVES

Definition

The duration of the tested energy reserves, know as the index of duration of production, is the proportion of the remaining reserves at the end of any year, with respect to the current year's production.

Purpose

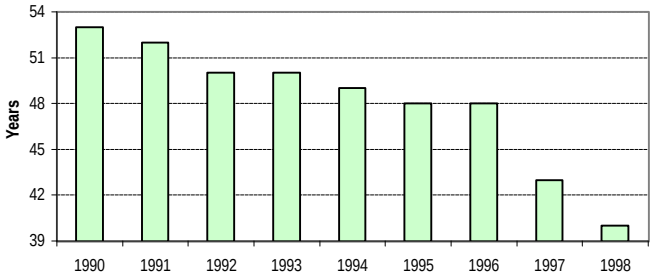
This indicator provides an idea of the time in which the tested reserves will last if production is maintained at current levels. Additionally, this indicator serves as a basis to calculate the future energy supply and to plan strategies for exploitation and efficient use of these resources.

Duration of Tested Energy Reserves, 1990-1998

Year	Hydrocarbons		Reserves/ Producti[1]ón (Years)
	Reserves (Millions of Barrils)	Production (Millions of Barrils)	
1990	66 450	1 268	53
1991	65 500	1 310	52
1992	65 000	1 304	50
1993	65 050	1 316	50
1994	64 516	1 320	49
1995	63 220	1 293	48
1996	62 058	1 413	48
1997	60 900	1 504	43
1998	60 160	NA	40

[1] Reserves to Jan 1/Production from previous year.
NA: Not available
Source: PEMEX, Statiscal Yearbook 1998, Mexico, 1999.

Duration of Tested Energy Reserves, 1990-1998



Source: PEMEX, Statisical Yearbook 1998, Mexico, 1999.

PARTICIPATION OF AGGREGATE MANUFACTURING VALUE IN GDP

Definition

This indicator measures the contribution of the manufacturing sector in total production. It is obtained by dividing the aggregate value of manufactured goods by the total aggregate gross value of production (GDP), to basic prices.

Purpose

The manufacturing sector is one of the structural components of the total economic activity, together with mining, construction, public services, natural resources and services. The size of the manufacturing sector is an indicator which reflects the status of the economy. It also alludes to the fundamental pressures associated with sustainable development.

Participation of Aggregate Manufacturing Value in GDP 1990-1999
(Millions of Pesos at 1993 Prices)

Year	GDP (Basic Values)	GDP Manufacturing	Manufacturing GDP/ Total GDP (%)
1990	1 049 063.8	205 524.5	19.6
1991	1 093 357.9	212 578.0	19.4
1992	1 133 032.1	221 427.4	19.5
1993	1 155 132.2	219 934.0	19.0
1994	1 206 135.0	228 891.6	19.0
1995	1 131 752.8	217 581.7	19.2
1996	1 190 075.5	241 151.9	20.3
1997	1 270 744.1	265 113.4	20.9
1998	1 333 636.9	284 554.4	21.3
1999[1]	1 380 214.5	296 151.5	21.5

[1] Quarterly GDP
Source: INEGI, National Accounting System of Mexico, 1988-1998, Mexico, 2000.

PARTICIPATION OF CONSUMPTION OF RENEWABLE ENERGY RESOURCES

Definition

Consumption of renewable energy resources in proportion to total energy comsumption

Purpose

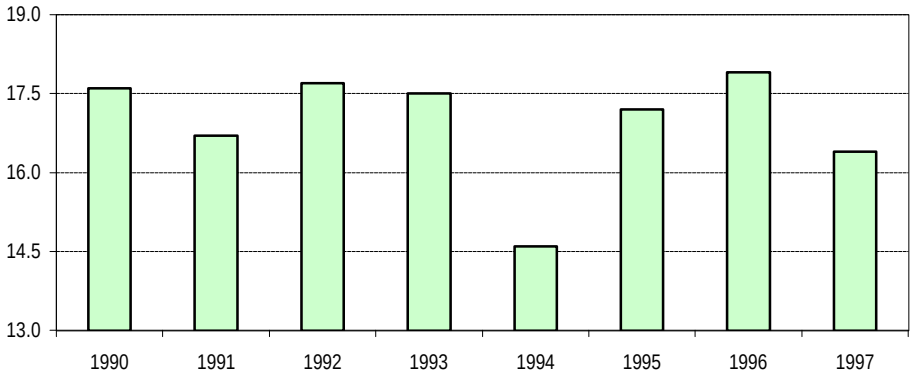
Measure the proportion of renewable energy resources in relation to non renewable resources.

Participation of Consumption of Renewable Energy Resources in Final Energy Consumption Balance, 1990-1997 (Petajoules)

Year	Final Energy Consumption (A)	Consumption of Renewable Energy1 (B)	Participation % (B/A)
1990	3 169.516	557.900	17.6
1991	3 300.529	552.797	16.7
1992	3 350.560	591.818	17.7
1993	3 431.082	600.410	17.5
1994	3 589.639	522.620	14.6
1995	3 564.185	611.581	17.2
1996	3 640.666	650.911	17.9
1997	3 713.423	608.654	16.4

[1] Includes consumption of energy generated by: firewood, bagasse, hydroenergy and wind power.
Source: Ministry of Energy, National Energy Balance 1998, Mexico, 1999.

Percentage of Participation of Consumption of Renewable Energy Resources in Final Comsumption, 1990-1997



Source: Ministry of Energy, National Energy Balance 1998, Mexico, 1999.

Final energy consumption is reflected in four production activities: industry, transportation, livestock and agriculture and public, residential and commercial developments.

NET TRANSFER OF RESOURCES / GROSS DOMESTIC PRODUCT (GDP)

Definition

Proportion of net transfer of aggregate resources with respect to GDP.

Purpose

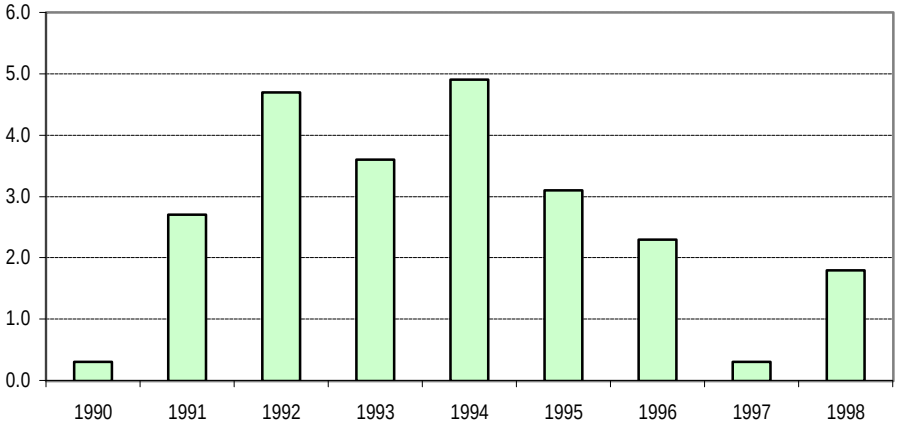
This indicator helps evaluate the availability of long-term external financing. The proportion provides a measurement of external financial resources with respect a GDP of a country.

Net Transfer of Resources / GDP, 1990-1998

Year	GDP[1]	Net Transfer of Resources Abroad	Net Transfer / GDP (%)
	(Millions of Dollars)		
1990	262 709.8	- 896	0.3
1991	314 506.0	-8 337	2.7
1992	363 656.3	-16 988	4.7
1993	403 247.3	-14 513	3.6
1994	420 775.5	-20 555	4.9
1995	286 184.6	8 981	3.1
1996	332 338.7	7 724	2.3
1997	400 868.2	1 239	0.3
1998	420 867.3	-7 620	1.8

[1] GDP at market prices; exchange rate conversion to liquidate obligations in foreign currencies.
Note: The net transfers of resources abroad is defined as a result of current deposit balances of payments, subtracting external interest balance.
Source: INEGI, National Accounting System of Mexico, 1988-1998, Mexico, 2000.
Federal Executive Branch, Fifth Government Report 1999, Mexico 1999.

Percentage of Participation of Net transfers wth respect to GDP, 1990-1998



Source: INEGI, National Accounting System of Mexico, 1988-1998, Mexico, 2000.
Federal Executive Branch, Fifth Government Report 1999, Mexico 1999.

DEBT / GDP

Definition

Proportion of total foreign debt with respect to GDP.

Purpose

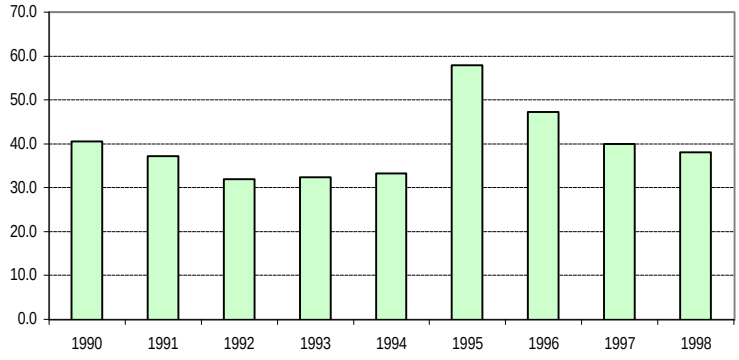
The relation debt/GDP is a measurement of the level of indebtedness. This indicator helps evaluate the status of foreign debt (and the management capacity) of a particular country.

Total Gross Foreign Debt[1] with respect to GDP, 1990-1998

Year	GDP[2] (Millions of Dollars)	Foreign Debt Balance (Millions of Dollars)	Foreign Debt/GDP (%)
1990	262,709.8	106 743.2	40.6
1991	314,506.0	117 016.8	37.2
1992	363,656.3	116 501.1	32.0
1993	403 247.3	130 524.8	32.4
1994	420 775.5	139 817.6	33.2
1995	286 184.6	165 645.2	57.9
1996	332,338.7	157 155.1	47.3
1997	400,868.2	160 150.9	40.0
1998	420,867.3	160 257.4	38.1

[1] Includes the public, private and banking system sectors and Mexico's Central Bank, the Banco de México.
[2] GDP at market prices; exchange rate conversion to liquidate obligations in foreign currencies (average)
Source: INEGI, National Accounting System 1988-1998, Mexico, 2000
Federal Executive Branch, Fifth Government Report 1999, Mexico 1999.

Percentage of Participation of Foreign Debt with respect to GDP, 1990-1998



Source: INEGI, National Accounting System 1988-1998, Mexico, 2000
Federal Executive Branch, Fifth Government Report 1999, Mexico 1999.

SERVICE OF FOREIGN DEBT WITH RESPECT TO EXPORTS

Definition

The proportion of service for foreign debt with respect to exports of goods and services.

Purpose

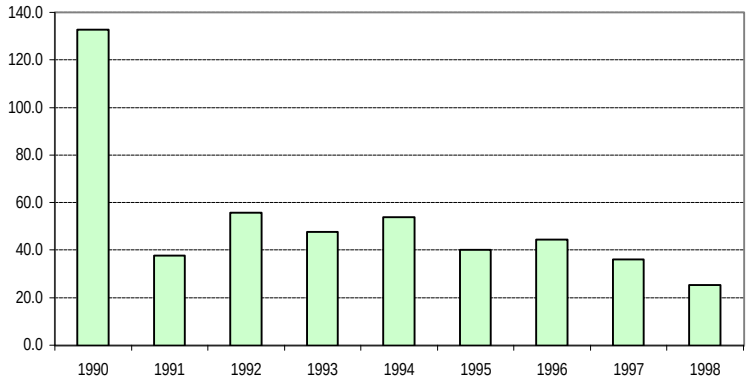
The proportion of service of foreign debt with respect to exports helps evaluate the capacity of country to pay the service obligation. Measures cost of debt service with respect to currency income.

Service of Foreign Public Debt with respect to Total Exports, 1990-1998

Year	Service of Foreign Debt[1]	Total Exports	Foreign Debt Service/ Exports
	(Millions of Dollars)		(%)
1990	54 015.6	40 711.0	132.7
1991	16 118.2	42 688.0	37.8
1992	25 720.7	46 195.0	55.7
1993	24 762.2	51 886.0	47.7
1994	32 817.1	60 882.0	53.9
1995	31 899.6	79 541.5	40.1
1996	42 598.4	95 999.7	44.4
1997	39 806.8	110 431.4	36.0
1998	29 694.3	117 460.0	25.3

[1] Includes amortization of capital and interest.
Source: Banco de Mexico, Annual Report, various years.

Percentage of Participation of Debt Service with respect to Exports, 1990-1998



Source: Banco de Mexico, Annual Report, various years.

EXPENSE IN ENVIRONMENTAL PROTECTION AS A PERCENTAGE OF GDP

Definition

The expense of environmental protection is undertaken to avoid, mitigate or eliminate pollution, as well as any other environmental degradation.

Purpose

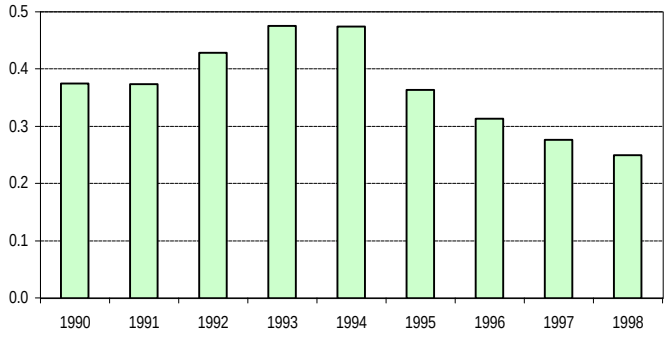
Measures the efforts undertaken by a country to protect/restore the environment. Alternatively, it can be interpreted as a measurement of the economical costs assumed by a society to protect its environment.

Expense of Environmental Protection as a Percentage of GDP, 1990-1998 (Millions of Pesos at Current Prices)

Year	GDP[1]	Expense in Environmental Protection[2]	Expense in Protection/GDP (%)
1990	676 067.0	2 536	0.38
1991	868 219.2	3 248	0.37
1992	1 029 004.6	4 414	0.43
1993	1 155 132.2	5 494	0.48
1994	1 306 301.6	6 190	0.47
1995	1 678 834.8	6 096	0.36
1996	2 296 674.6	7 182	0.31
1997	2 873 273.0	7 934	0.28
1998	3 516 344.8	8 643	0.25

[1] GDP in basic values.
[2] Refers to those used exclusively in expended public buget categories, excluding those expenses that although programmed, were not spent, as well as those which did not relate directly to environmental protection.
Source: INEGI, Economical and Ecological Accounting System, 1988-1998, Mexico 2000.

Percentage of Participation of Expenses in Environmental Protection with respect to GDP, 1990-1998



Source: INEGI, National Accounting System of Mexico 1988-1998, Mexico 2000.

IMPORTATION OF CAPITAL GOODS

Definition
Total value of imported capital goods.

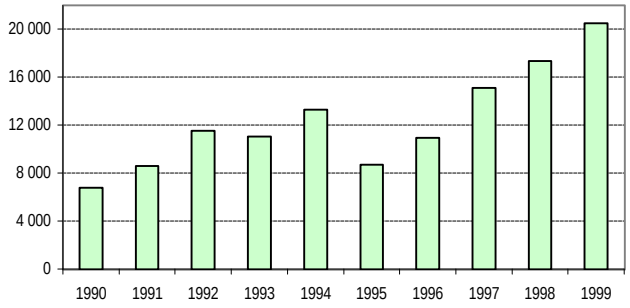
Purpose
The indicator is used to measure the incorporated technology transfer.

Importation of Capital Goods, 1990-1999
(Millions of Dollars)

Year	Capital Goods
1990	6 790
1991	8 588
1992	11 556
1993	11 056
1994	13 322
1995	8 697
1996	10 922
1997	15 116
1998	17 329
1999	20 530

Source: Workgroup: INEGI, SHCP, Banco de Mexico and SECOFI, Statisical Yearbook of Foreign Commerce in Mexico, Mexico, various years.

Importation of Capital Goods, 1990-1999
(Millions of Dollars)



Source: Workgroup: INEGI, SHCP, Banco de Mexico and SECOFI, Statisical Yearbook of Foreign Commerce in Mexico, Mexico, various years.

This indicator would have greater relevance if: 1) it detailed the imports by subsectors or divisions in order to define the percentage of imports of environmentally sustainable capital goods; and 2) in fact it related to other economical, environmental or institutional indicators.

DIRECT FOREIGN INVESTMENT

Definition
The value net flows of direct foreign investment.

Purpose
Represents the technology transfer, through foreign company activities, in another country.

Direct Foreign Investment[1], 1990-1998
(Millions of Dollars)

Year	IED[2]
1990	3 722.4
1991	3 565.0
1992	3 599.6
1993	4 900.7
1994	14 917.3
1995	9 473.4
1996	9 735.9
1997	13 228.0
1998	10 726.9

[1] As of 1994, revised and updated data by responsible department.
[2] Direct Foreign Investment. Calculated by investment transfers as notified to the National Foreign Investment Register and listed by year, including the importation of fixed assets by maquillas.
Source: SECOFI, General Direction of Foreign Investment

Under the globalization framework, the limitations to foreign investment are almost non existent, a fact which increases new technology transfer. Consequentially, receiving countries of such technologies must have a regulatory framework and the appropriate monitoring indicators that enable the importation of ecologically rational technologies which contribute to environmental protection, pollution reduction, use of natural resources more efficiently and recycling of waste processes.

PARTICIPATION OF ENVIRONMENTAL CLEAN CAPITAL GOODS IN TOTAL IMPORTS OF CAPITAL GOODS

Definition

Contribution of imports of environmentally clean capital goods in total imports of capital goods.

Purpose

The positive trend of the indicator can be used to measure more precisely the transition to sustainable technology transfer.

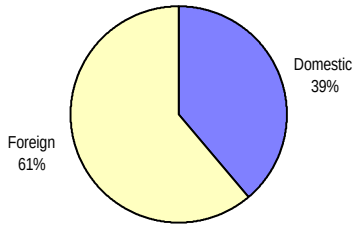
Participation of Environmentally Clean Capital Goods in Total Imports of Capital Goods, 1990-1991 (Millions of Dollars)

Year	Total Imports of Capital Goods	Environmental Protection Equipment Imports[1]	Environmental Protection Equipment Imports / Total Imports of Capital Goods (%)
1990	6 790	69.7	1.0
1991	8 588	94.7	1.1

[1] Refers only to US imports

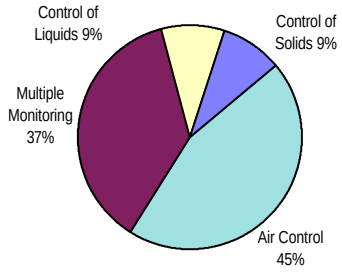
Source: Adapted by INEGI from: U.S. Environmental Protection Agency, Office of Air Quality Planning and Standards. National Air Quality and Emissions Trends Reports, 1992. In: Office of the President of the United States, Environmental Quality 1993. 23th Annual Report, The Council on Environmental Quality, Washington, 1994.

Origin of Environmental Control, Monitoring and Verification Equipment, 1995



Source: R. Constantino, " Encuesta de los mercados de tecnología ambiental en México ", UAM, Mexico, 1995. In Magazine, Comercio Exterior, vol. 46, Num. 10, Mexico, October 1996.

Type of Imported Environmental Equipment, 1990-19



Source: R. Constantino, " Encuesta de los mercados de tecnología ambientalen México ", UAM, Mexico, 1995. In Magazine, Comercio Exterior, vol. 46, Num. 10, Mexico, October 1996.

With respect to the information required for the method sheet, the data presented here is still deficient for two reasons: 1) includes imports for only one country, 2) utilized statistics need updating. Therefore, this indicator is an alternate.

Financial Services, insurance and Real Estate; Comunal, Social and Personal Services

Net Domestic Product, at basic prices	185 193.4	250 884.4	311 632.5	382 302.2	443 839.6	534 109.7	691 058.4	869 654.1	1 109 669.7
Total Costs for Depletion and Degradation	11 774.4	14 925.7	17 858.5	20 888.6	21 976.2	30 818.2	42 326.8	52 932.8	67 349.8
Net Domestic Ecological Product	173 419.1	235 958.8	293 773.9	361 413.7	421 863.4	503 291.5	648 731.7	816 721.3	1 042 320.0

Source: INEGI, System for Economic and Ecological Accounts of Mexico, 1988-1998, Mexico, 2000.

Environmental Indicators

ANNUAL EXTRACTION OF SUBTERRANEAN AND SUPERFICIAL WATER

Definition

Total annual gross volume of subterranean and superficial water extracted for diverse uses, including losses from transportation and back flows as a percentage of available freshwater volume.

Purpose

Show exploitation levels of available water resources to meet national supply. Demonstrates trends of vulnerability in a country with scarce water.

Extraction and Use[1] of Subterranean Water by State, 1996

State	Number of Aquifers	Extraction and Use				
		Agriculture	Public	Domestic	Industrial	Total
		(Millions of Annual Cubic Meters)				
Aguascalientes	5	433.0	94.0	34.0	12.0	573.0
Baja California	48	1 059.5	200.5	62.0	55.0	1 377.0
Baja California Sur	39	410.0	33.0	6.0	2.0	451.0
Campeche	5	228.0	76.0	0.3	9.7	314.1
Coahuila	22	394.9	159.4	29.9	72.1	656.3
Colima	15	171.0	72.0	1.0	6.0	250.0
Chihuahua	60	2 580.7	50.6	40.1	358.8	3 030.3
Chiapas	11	52.9	15.1	0.0	46.6	114.5
Durango	21	152.4	74.9	6.0	19.0	252.3
Guanajuato	22	2 284.5	260.3	36.7	141.5	2 723.0
Guerrero	35	20.1	75.9	0.0	1.5	97.5
Hidalgo	18	230.0	115.7	110.7	54.1	510.4
Jalisco	58	984.6	141.5	14.0	96.8	1 236.9
State of Mexico	5	119.9	448.0	31.3	71.8	671.0
Michoacan	22	715.9	278.5	13.0	68.9	1 076.3
Morelos	4	900.0	242.0	4.0	27.0	1 173.0
Nayarit	12	67.9	74.0	0.0	6.0	147.9
Nuevo Leon	23	229.5	136.5	37.0	63.0	466.0
Oaxaca	13	121.9	34.1	3.4	19.8	179.2
Puebla	5	976.0	229.0	2.4	47.5	1 254.9
Querétaro	11	871.0	99.5	21.2	80.0	1 071.6
Quintana Roo	5	47.0	99.2	0.4	3.7	150.3
Region Lagunera	8	783.0	108.0	18.0	41.0	950.0
San Luis Potosi	19	383.0	164.0	20.0	0.0	567.0
Sinaloa	13	262.2	150.0	3.0	12.0	427.2
Sonora	44	1 867.0	148.0	15.0	17.0	2 047.0
Tabasco	8	8.0	62.2	0.0	30.7	101.0
Tamaulipas	14	244.4	32.2	0.0	5.8	282.4
Tlaxcala	4	174.6	12.0	1.0	0.0	187.6
Veracruz	17	302.0	142.0	16.0	119.0	579.0
Central Mexico Valle	8	127.5	1 389.1	7.4	116.7	1 640.6
Yucatan	4	271.0	244.0	3.0	29.0	547.0
Zacatecas	34	623.5	94.6	5.5	27.3	750.9
National	**632**	**18 097.0**	**5 555.7**	**542.3**	**1 661.1**	**25 856.2**

[1] The indicator from the Sustainable Development Commission of the United Nations only considers water extraction. Information for extraction by use was added incidently.

Sources: SEMARNAP, National Water Commission, 1998.

Continues

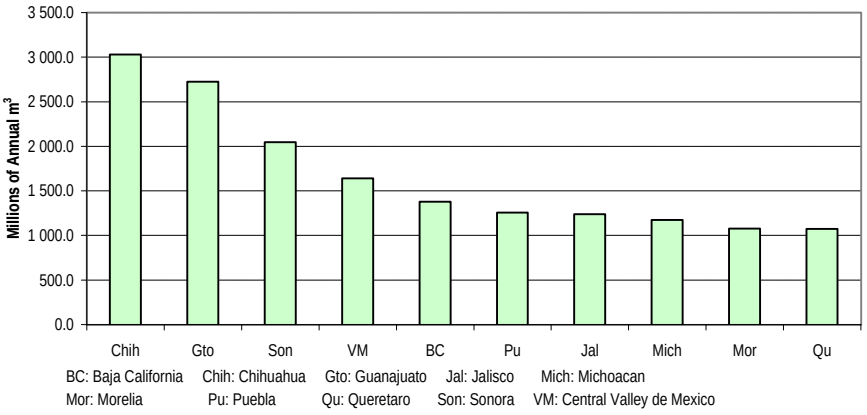
ANNUAL EXTRACTION OF SUBTERRANEAN AND SUPERFICIAL WATER

Gross Annual Extraction of Water, 1998

Use	Superficial Water (km^3)	Subterranean Water (km^3)	Total Volume (km^3)	Percentage of Extraction
Agriculture	44.4	16.1	60.5	76.3
Public (includes industry and services)	4.1	9.4	13.5	17.0
Industrial (includes selfservicing industry)	1.6	2.5	4.1	5.1
Acuícola	1.1	0.0	1.1	1.4
Thermoelectric Plants	0.0	0.2	0.2	0.2
Total	**51.2**	**28.2**	**79.4**	**100.0**

Note: In addition, 9 km^3 of water evaporates each year at the principal lakes and dams in the country.
Source: SEMARNAP, National Water Commission, Compendio básico del agua en Mexico, Mexico, 1999.

States with Highest Extraction and Use of Subterranean Waters, 1996



Sources: SEMARNAP, National Water Commission, 1998.

The interpretation of this indicator is more useful when combined with others related to problem of available freshwater per person, some economic parameters (Gross Domestic Product, among others) and poverty trends as an indicator of equal access. Other indicators of interest are demographic, social and economic in nature; for example, irrigation of farm lands and frequency of drought. The interpretation would also be more adequate if the indicator was examined in the context of unused aquifer and hydrological resources.

Conclusion

DOMESTIC CONSUMPTION OF WATER PER INHABITANT

Definition

The quantity of water consumed by a person to drink, clean, prepare food, and other domestic uses, including garden irrigation. Water used for domestic animals is also included.

Purpose

The indicator evaluates the quantity of water available and/or necessary for individuals of a certain community in order to satisfy basic needs. Assists in identifying communities where these basic requirements are not being satisfied and therefore prioritizes actions and planning for adequate water supply.

Coverage of Potable Water Services, 1998

Climate	Rural Population (liters/person/day)	Urban Population (liters/person/day)
Warm	185	242
Semi-warm	130	197
Temperate	100	175

Source: SEMARNAP, National Water Commission, Compendio basico del agua en Mexico, Mexico 1999.

Domestic Consumption of Water per Inhabitant, 1995
(Cities selected with highest consumption in each state)

City[1]	Domestic Consumption (liters/per/day)	Town[1]	Domestic Consumption (liters/per/day)
National	**216.6**	Gabriel Zamora, Mich.	294.2
Aguascalientes, Ags.	186.4	Compostela, Nay.	254.7
Mexicali, BC	212.6	Monterrey, N.L.	229.2
Los Cabos, BCS	352.2	Santa Maria Huatulco, Oax.	519.4
Campeche, Camp.	261.6	San Juan del Rio, Qro.	181.0
Muzquiz, Coa.	204.1	Benito Juarez, Q. Roo	689.1
Armeria, Col.	303.2	San Luis Potosi, S.L.P.	208.6
Palenque, Chis.	335.7	Navolato, Sin.	225.7
Juarez, Chih.	269.0	San Luis Rio Colorado, Son.	308.0
Gomez Palacio, Dgo.	242.7	Centro, Tab.	276.5
Celaya, Gto.	235.0	Reynosa, Tam.	339.5
Ixtapa, Gro.	253.4	Calpulalpan, Tlax.	250.7
Actopan, Hgo.	112.6	Poza Rica de Hidalgo, Ver.	311.8
Puerto Vallarta, Jal.	340.9	Progreso, Yuc.	160.9
Naucalpan, State of Mex.	230.6	Zacatecas, Zac.	173.4

[1] Information unavailable for: Mexico City (D.F.), Morelos and Puebla
Data does not cover all major cities or towns within each state.
Source: SEMARNAP, National Water Commission, Mexico, 1998.

Continues

DOMESTIC CONSUMPTION OF WATER PER INHABITANT

Domestic Consumption of Water per Inhabitant, 1995

State	City/Town	Domestic Consumption liters/person/	State	City/Town	Domestic Consumption liters/person/d
National		**216.6**	Guanajuato	Acambaro	187.9
				Allende	131.2
Aguacalientes	Aguascalientes	186.4		Celaya	235.0
				Cortazar	78.5
Baja California	Ensenada	152.1		Guanajuato	136.0
	Mexicali	212.6		Irapuato	201.0
	Tecate	201.8		Leon	139.5
	Tijuana	154.0		Moroleon	128.9
				Salamanca	147.4
Baja California Sur	Comondu	91.6		Salvatierra	180.7
	La Paz	251.6		San Francisco del Rincon	130.5
	Los Cabos	352.2		San Luis de La Paz	102.7
				Santa Cruz de Juventino Rosas	210.4
Campeche	Campeche	261.6		Silao	117.8
	Carmen	77.8			
	Escarcega	106.4	Guerrero	Acapulco de Juarez	181.4
				Iguala de la Independencia	130.1
Coahuila	Acuña	193.2		Ixtapa	253.4
	Francisco I. Madero	99.0			
	Monclova	189.7	Hidalgo	Actopan	112.6
	Muzquiz	204.1			
	Parras	144.0	Jalisco	Ciudad Guzman	208.8
	San Pedro	105.6		Guadalajara	308.0
				Puerto Vallarta	340.9
Colima	Armeria	303.2			
	Colima	165.3	Mexico	Naucalpan	230.6
	Manzanillo	165.3			
	Tecoman	206.7	Michoacan	Apatzingan	26.0
				Gabriel Zamora	294.2
Chiapas	Arriaga	203.2		Hidalgo	130.9
	Cintalapa	159.1		La Piedad	170.8
	Palenque	335.7		Patzcuaro	133.0
	San Cristobal de las Casas	234.8		Uruapan	271.7
	Tapachula	258.7		Zitacuaro	158.7
	Tuxtla Gutierrez	235.7			
	Villaflores	146.0	Nayarit	Compostela	254.7
				Tepic	241.6
Chihuahua	Camargo	228.3			
	Casas Grandes	247.6	Nuevo Leon	Monterrey	229.2
	Chihuahua	176.9			
	Cuauhtemoc	149.7	Oaxaca	Ciudad Ixtepec	134.7
	Delicias	218.4		Huajuapam de Leon	95.4
	Hidalgo del Parral	151.5		Juchitan de Zaragoza	91.0
	Jimenez	156.1		Loma Bonita	155.3
	Juarez	269.0		Matias Romero	107.7
	Ojinaga	251.1		Oaxaca de Juarez	105.3
				Puerto Angel	145.6
Durango	Durango	85.4		Salina Cruz	98.2
	Gomez Palacio	242.7		San Juan Bautista Tuxtepec	204.3
	Lerdo	123.8		San Pedro Mixtepec-Distr. 22	111.4

Continues

DOMESTIC CONSUMPTION OF WATER PER INHABITANT

Domestic Consumption of Water per Inhabitant, 1995

Conclusion

State	City/Town	Domestic Consumption liters/person/day	State	City/Town	Domestic Consumption liters/person/day
Oaxaca	San Pedro Pochutla	103.3	Tabasco	Cardenas	83.9
	Santa Maria Huatulco	519.4		Centro	276.5
	Santiago Pinotepa Nacional	98.2		Comalcalco	56.3
	Santo Domingo Tehuantepe	103.9		Huimanguillo	76.8
				Tenosique	163.7
Queretaro	Corregidora	131.5			
	Queretaro	165.7	Tamaulipas	El Mante	197.2
	San Juan del Rio	181.0		Matamoros	328.8
				Nuevo Laredo	323.3
Quintana Roo	Benito Juarez	689.1		Reynosa	339.5
	Cozumel	269.3		Rio Bravo	151.9
	Isla Mujeres	104.2		San Fernando	109.7
	Othon P. Blanco	118.2		Tampico	219.1
				Valle Hermoso	114.8
San Luis Potosi	Ciudad Valles	150.3		Victoria	151.5
	Matehuala	91.6			
	Rioverde	99.7	Tlaxcala	Calpulalpan	250.7
	San Luis Potosi	208.6		Chiautempan	101.0
	Soledad de Graciano Sanch	60.9			
			Veracruz	Coatzacoalcos	169.1
Sinaloa	Ahome	155.2		Fortin	77.6
	Culiacan	145.8		Martinez de la Tor	196.1
	Escuinapa	218.1		Minatitlan	159.4
	Guasave	214.4		Panuco	92.8
	Mazatlan	199.8		Papantla	56.4
	Navolato	225.7		Poza Rica de Hida	311.8
	Salvador Alvarado	187.2		Rio Blanco	160.3
				San Andres Tuxtla	173.9
Sonora	Agua Prieta	188.7		Tuxpan	150.3
	Caborca	214.6		Xalapa	192.4
	Cajeme	244.8			
	Empalme	255.7	Yucatan	Merida	91.5
	Guaymas	189.1		Progreso	160.9
	Hermosillo	229.5		Valladolid	94.9
	Navojoa	150.9			
	San Luis Rio Colorado	308.0	Zacatecas	Fresnillo	141.7
				Jerez	142.9
				Zacatecas	173.4

Source: SEMARNAP, Natoinal Water Commision, Mexico, 1998.

For a more complete evaluation of the situation and trends of water quality, this indicator can be associated with other sociodemographic indicators such as: demographic growth, population density, urban population growth, changes in land use, superficial and subterranean water supply wells and percentage of irrigated farm lands.

Conclusion

SUBTERRANEAN WATER RESERVES

Definition

No definition is available for this indicator since the method sheet is still under development.

Purpose

Since this indicator is still under development, the purpose is also in the process of definition due to the complexity of estimating such an indicator.

Water Reserves, 1998

Reserves	Number
Subterranean Aquifers	450

Note: About 100 aquifers are overexploited, which supply approximately 50% of national extraction for all uses. Due to overexploitation, the subterranean water reserves are being mined at rates close to 8 km3 per year.
Source: SEMARNAP, National Water Commission, Compendio básico del agua en Mexico, Mexico, 1999.

Without the indicator guidelines and given the conceptual difficulty presented with this indicator, the data presented here is general and therefore considered an alternative.

It is recommended that the method sheet consider more appropriate estimates to measure water reserves.

CONCENTRATION OF FECAL COLIFORMS IN FRESH WATER

Definition

Percentage of fresh water resources that contain concentrations of fecal coliforms greater than levels recommended by the World Health Organization (WHO) in potable water parameters.

Purpose

The indicator evaluates water quality available to communities for their basic needs. Also identifies communities where fecal contamination in water from the supply source or network is identified as a threat to human health.

Potable Water and Drainage Coverage and Percentage of Disinfected Water[1], 1990-1998

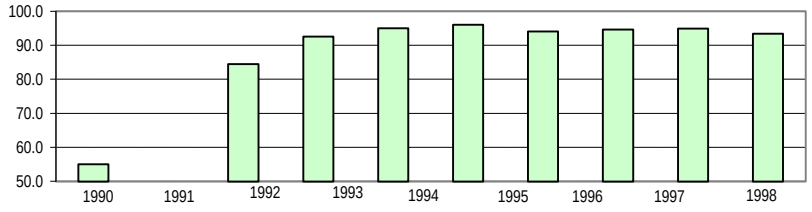
Year	Inhabitants with potable water service (Millones)	Percentage of total population		Percentage of Disinfected Water
		With service	Without service	
1990	63.1	77.6	22.4	55.0 [2]
1991	67.2	79.0	21.0	84.5
1992	69.7	80.4	19.6	92.6
1993	71.9	81.3	18.7	95.0
1994	74.0	82.2	17.8	96.0
1995	76.7	84.2	15.8	94.1
1996	78.7	84.9	15.1	94.6
1997	80.9	85.8	14.2	94.9
1998	82.9	86.5	13.5	93.4

[1] This category does not coincide with the indicator name because the required information is managed differently in Mexico. See following comments.

[2] The difference considered between 1990 and the following years is due to the fact that this year the Clean Water Program began, whose objective is disinfect all potable water sources.

Source: SEMARNAP, National Water Commission, Situación del Subsector Agua Potable, Alcantarillado y Saneamiento a Diciembre de 1998, Mexico, 1999.

Percentage of Disinfected Water Consumed, 1990-1998



Source: SEMARNAP, National Water Commission, Situación del Subsector Agua Potable, Alcantarillado y Saneamiento a Diciembre de 1998, Mexico, 1999.

According to the National Water Commission (CNA), the fecal coliform indicator in supply sources is not used to evaluate water quality available to communities for basic needs, since this bacteriological contamination is eliminated in the majority of cases with the use of chlorine. As a result, the CNA proposes to evaluate, as an alternative indicator, the use of disinfected and potable water which is supplied to the population since it more closely complies with the objective of evaluating water quality for consumption.

BIOCHEMICAL OXYGEN DEMAND (BOD) IN WATER BODIES

Definition

The BOD measures the quantity of necessary oxygen required o consumed for the microbiological decomposition (oxidation) of organic matter in water.

Purpose

Evaluate water quality available to consumers in municipalities or communities to satisfy basic and commercial needs.

Water Quality Index (WQI)[1] in Superficial Water Metering Stations, 1998

Administrative Regions	Grades of Contamination											
	Excellent		Acceptable		Low Contamination		Contaminated		High Contamination		Excessive Contamination	
	%[2]	Medium[3]	%[2]	Medium[3]	%[2]	Medium[3]	%[2]	Medium[3]	%[2]	Medium[3]	%[2]	Medium[3]
National	**0.23**	**93.7**	**6.85**	**85.16**	**17.58**	**74.36**	**58.44**	**60.75**	**6.62**	**45.84**	**10.27**	**31.75**
Baja California Peninsula							62.5	55.7			37.5	38.5
Northwest					16.26	73.86	67.48	61.03	6.5	48.55	9.76	30.28
North Pacific	0	ND	0	ND	11.11	72.64	75.00	60.03	8.33	44.87	5.55	32.37
Balsas	1.22	93.7	26.83	86.48	12.19	74.67	48.78	60.95	4.87	48.77	6.09	28.5
South Pacific					22.22	70.06	77.78	60.89				
Rio Bravo					21.26	74.95	62.12	61.12	10.81	46.01	5.4	32.5
North Central					25	72.6	75	64.48				
Lerma Santiago Pacific					11.53	74.53	52.56	60.34	11.53	44.59	24.36	33.35
North Gulf			2.04	80.7	42.85	74.63	44.89	59.02			10.2	29.75
Center Gulf					17.77	74.09	77.77	61.66	2.22	43.5	2.22	25.1
South Border					14.28	72.92	71.42	61.74	10.71	48.15	3.57	33.22
Yucatan Peninsula							90	56.58	10	50		
Central Mexico Valley							18.18	55.48	27.27	43.29	54.54	32.49

[1] Parameters regularly evaluated for estimation of WQI: alkalinity, chlorides, fecal coliforms, total coliforms, color, conductivity, to blue methylene, acidification, (pH), total suspended solids, hardness, phosphates, greases and oils, nitrogen ammonia, nitrates, reactive agents biochemical oxygen demand, dissolved oxygen, total dissolved solids, turbity.
[2] Percentage of surface water bodies that are located in each one of the categories of water quality for the WQI
[3] Average WQI for surface water bodies considered in each category for water quality.
ND: No Data
Note: The metering network for water quality in surface water bodies includes: 393 stations in 225 rivers, 81 stations in 62 lakes and dams, 26 stations in 13 estuaries or coastal sites and 15 stations in 15 waterwater discharge sites.

Ranges of WQI:	Purification requirements used for potable water:
Excelent (90-100) :	No purification required for human consumption
Aceptable (80-90) :	Requieres purification for human consumption
Low Contamination (70-80) :	Without purification, consumption is at risk
Contaminated (50-70) :	Necessarily requires to be purified
High Contamination (40-50) :	High risk if consumed
Excesive Contamination (0-40) :	Unacceptable for human consumption

Source: SEMARNAP, National Water Commission, 1999.

Since BOD in Mexico is an indicator only for fecal contamination and in addition is not regulated in the ecological criteria of water quality or by the standard NOM-127-SSA1-1994 (Environmental Health: Water for Human Use and Consumption, Permissible Limits of Quality and Treatment) which potable water should adhere, the Water Quality Index (WQI) is recommended, as developed by the National Water Commission (CNA), in accordance with 18 parameters with different values for each administrative CNA region.

WASTEWATER TREATMENT

Definition

The recollection of wastewater from domestic, commercial, industrial or public sources and its transportation to a treatment center with sufficient technological capacity to discharge to the environment without prejudicial effects to human health or the ecosystem.

Purpose

The indicator evaluates potential levels of contamination from domestic and industrial/commercial sources entering the aquatic environment, and allows for the oversight of developments towards the reduction of this potential with a framework related to available hydrological resources. Contributes to identifying those communities which require wastewater treatment measures in order to protect the ecosystem.

Wastewater Treatment

Concept	Volume and Units
Wastewater outflow generated by cities	239.0 m^3/ s
Wastewater outflow generated by industry	159.5 m^3/ s
Municipal wastewater	40.9 m^3/ s
Industrial wastewater	22.2 m^3/ s
Installed capacity of municipal wastewater treatment plants (Design Capacity)	63.2 m^3/ s
Total number of municipal wastewater treatment plants in operation	720
Total number of industrial wastewater treatment plants	1 354

Source: SEMARNAP, National Water Commission, 1998.

DENSITY OF HYDROLOGICAL NETWORKS

Definition

Average surface area of zones with access to hydrological stations. It is the result of dividing the territorial area by the number of operating hydrological stations.

Purpose

Evaluate to determine if the current hydrological networks are adequate to facilitate the necessary information in the context of evaluating fresh water. The density should be sufficient to avoid deficiencies in the evaluation, development and management of hydrological resources.

Density of Hydrological Networks, 1999

Concept	Climatological	Hydrometric
Number of Stations	2 449	651
Density (km/station)	800	3 010

Total National Surface Area: 1,959,248 km^2, based on national framework, updated with topographical maps, scale 1:250,000 and Division of State Geostatistical Framework 1995.

Source: SEMARNAP, National Water Commission, 1999.

It is understood that the network consists of a series of subsystems integrated with pluviometric and limnimetric stations within Mexico, which capture data for distinct variables. However, the minimum recommended density is not uniform to the global level nor with respect to all the hydrological variables. Its value can depend on factors such as national economic development, changes in land use, among others.

POPULATION GROWTH IN COASTAL AREAS

Definition

Despite the fact that the method sheet is still under development by the United Nations, the following criteria were adopted: the coastal region is defined by municipalities consisting in: a) the territory between the seashore and land at 500 meters altitude, and b) an extension of 100 km from the coastal line towards the interior of the national territory, if altitudes of 500 meters are not reached first.

Purpose

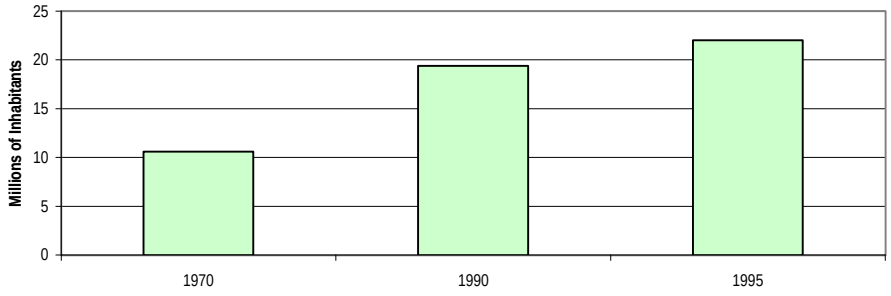
Since this indicator is still under development, the purpose is also in the process of definition due to the complexity of estimating such an indicator.

Population Growth in Coastal Areas, 1970-1995

Areas	Municipalities		Surface Area (Thousands)		Population (Millions)						Growth Annual Medium (%)	
	Number	%	Km^2	%	1970	%	1990	%	1995	%	1970-90	1990-95
Coastal Region	461	19.0	642	32.9	10.6	22.0	19.4	23.9	22.0	24.0	3.04	2.17
Pacific	210	8.7	400	20.5	5.6	11.6	10.3	12.7	11.7	13.0	3.09	2.27
Gulf and Carribbean	251	10.3	242	12.4	5.0	10.4	9.1	11.2	10.3	11.0	2.98	2.06
Littoral Areas[1]	1 046	43.1	470	24.0	11.5	23.9	17.9	22.0	20.0	22.0	2.23	1.97
Pacific	909	37.5	394	20.1	9.3	19.3	14.6	18.0	16.3	18.0	2.28	1.96
Gulf and Carribbean	137	5.6	76	3.9	2.2	4.6	3.3	4.0	3.7	4.0	2.05	2.04
Inner States	921	37.9	841	43.1	26.1	54.1	43.9	54.1	49.1	54.0	2.63	1.99
National Total	**2 428** [2]	**100.0**	**1 953** [3]	**100.0**	**48.2**	**100.0**	**81.2**	**100.0**	**91.1**	**100.0**	**2.63**	**2.05**

[1] Coastal regions not included; [2] Total municipalities for 1995; [3] Based on topographical scale scale 1:1 000,000.
Source: Updated to 1995 using: Gustavo Cabrera, Las regiones costeras: crecimiento y potencial demográfico, Demos, Carta Demográfica sobre Mexico, No. 6, 1993; Cuauhtémoc León y V. García, Diagnóstico de las zonas costeras de Mexico, document in development, Mexico, 1998; INEGI, Population and Housing Survey 1995, Mexico, 1996.

Population Residing in Coastal Areas, 1970-1995



Source: Updated to 1995 using: Gustavo Cabrera, Las regiones costeras: crecimiento y potencial demográfico, Demos, Carta Demográfica sobre Mexico, No. 6, 1993; Cuauhtémoc León y V. García, Diagnóstico de las zonas costeras de Mexico, document in development, Mexico, 1998; INEGI, Population and Housing Survey 1995, Mexico, 1996.

It is proposed that the criteria used by Mexico should be one of the options to be included in the method sheet for the indicator.

MAXIMUM SUSTAINABLE PERFORMANCE OF FISHERIES

Definition

This indicator expresses the status of exploitation for fishing resources at a considerable sustainable level.

Purpose

Expresses the state of fishing resources and/or level of exploitation in relation to maximum permissible levels of capture or in relation to initial population size. If the population size is known at the time of spawning, the indicator can facilitate information about reproductive capacity of the resource.

Fisheries in the Gulf of Mexico

Fisheries		Species Represented	Indicator	Value of Indicator or Status
Gulf of Mexico and Caribbean Shrimp	Brown Shrimp (Tamps. Ver.)	*F. Aztecus*	% Actual Biomass/Biomass to MSP	Close to 100%
	White and Pink Shrimp (Campeche)	*L. Serifenes y F. Duoreram*	% Actual Biomass/Initial Population Biomass	Close to 10%
Shark Sport Fishing		*R. Terranovne, Carcharhinus spp., others*	Captured	Close to maximum sustainable levels
Gulf of Mexico and Caribbean Tuna		*T. Albacares. K.Pelamis*	% Actual Capture/Maximum Permissible Capture	Close to 50%
Jewfish		*E. Morio*	% Actual Biomass/Initial Population Biomass	30-40%
Octopus		*O. maya*	% Actual Capture/Maximum Permissible Capture	Close to 100%
Gulf of Mexico and Caribbean Lobster		*P. argus*	% Actual Capture/Maximum Permissible Capture	Close to 200%
Sea Shell (Caribbean)		*S. gigas*	% Actual Biomass/Initial Population Biomass	Less than 70%
Lake Patzcuaro		*Chirostoma spp., others*	% Actual Biomass/Initial Population Biomass	Close to 20-25%

MSP: Maximum Sustainable Performance
Note: In total there exist 18 fisheries with 70% of the national production.
Source: SEMARNAP, National Fisheries Institute, 1999.

Continues

MAXIMUM SUSTAINABLE PERFORMANCE OF FISHERIES

Pacific Fisheries

Fisheries		Species Represented	Indicator	Value of Indicator or Status
Pacific Ocean Shrimp	Blue Shrimp (Sonora)	Stylirostris	% Actual Biomass/Biomass to MSP	50%
	Brown Shrimp (Sonora)	*F. Californiensis*	% Actual Biomass/Initial Population Biomass	20%
	White Shrimp (Sinaloa)	*L. Vannamei*	% Actual Biomass/Biomass to MSP	70%
	Blue Shrimp (Sinaloa)	*L. Stylirostris*	% Actual Biomass/Biomass to MSP	Less than 100%
	Brown Shrimp (Sinaloa)	*F. Californiensis*	% Actual Biomass/Biomass to MSP	Close to 100%
Pacific Ocean Tuna		*T. Alcacares*	% Actual Biomass/Biomass to MSP	Greater than 100%
Small Pelagic Species	Monterey Sardine (WCCB)	*S. Caeruleus*	% Actual Biomass/Initial Population Biomass	
	Anchovy (WCCB)	*E. mordax*	% Actual Biomass/Biomass to MSP	Potential for development
	Monterey Sardine (GC) Large Anchovy (GC)	*S. Caeruleus* *E. mordax*		Less than 10% Close to 100% Potential for development
Shark Sport Fishing		*Atopias spp., Carcharhinnes spp., Others*	Captured	Close to maximum sustainable levels
Pacifica Ocean Shark		*Atopias spp., Carcharhinuss spp., Prionace*		Potential for development
Giant Calamar		*D. gigas*		Potential for development but biomass varies
Abalone		*Haliotis spp.*	% Actual Biomass/Biomass to MSP	Less than 50%
Pacific Ocean Lobster		*P. Interruptus*	% Actual Biomass/Biomass to MSP	Close to 40%
Sea Cucumber		*L.Fuscus*	% Actual Biomass/Initial Population Biomass	Close to 10%

MSP: Maximum Sustainable Performance
WCCB: Western Coast of the California Bay
GC: Gulf of California.
Note: In total there exist 18 fisheries with 70% of the national production.
Source: SEMARNAP, National Fisheries Institute, 1999.

LAND USE CHANGES

Definition

Total surface area affected in hectares as a percentage of total land surface area.

Purpose

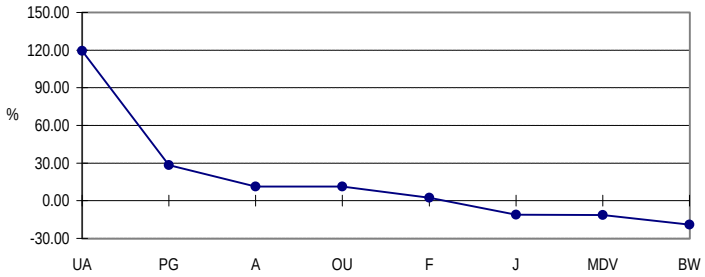
Demonstrate changes in the use of production or protection for land resources in order to facilitate planning and development of sustainable land use policies.

Land Use Changes, 1980 and 1996

Land Use	Surface Area (km^2)		Diference (km^2)	Percentage Variation of Surface Area
	1980	1996		
Urban Areas	2 592	5 689	3 097	119.48
Pastures and Grazing Areas[1]	221 438	284 109	62 671	28.30
Agriculture[2]	271 842	310 781	38 939	14.32
Other Uses[3]	60 516	67 432	6 916	11.43
Forests	334 097	341 872	7 775	2.33
Jungles	373 153	331 970	-41 183	-11.04
Marshes and Desert Vegetation[4]	669 126	593 200	-75 926	-11.35
Bodies of Water	10 738	8 687	-2 051	-19.10

[1] Includes natural, manmade and cultivated pastures.
[2] Includes seasonal, humid and irrigated agriculture.
[3] Includes palm grove, swamp, marshes, vegetational dunes, and areas without vegetation.
[4] Includes matorral, chaparral, mezquital, cactus and gypsophyl vegetation as well as other desert vegetation.
Source: SEMARNAP, based on INEGI, Cartography of Soild Use and Vegetation.

Variation of Soil Surface Area According to Primary Usage, 1996/1980



UA: Urban Areas PG: Pastures & Grazing A: Agriculture OU: Other Uses F: Forests
J: Jungles MDV: Marshes and Desert Vegetation BW: Bodies of Water

Source: SEMARNAP, based on INEGI, Cartography of Soild Use and Vegetation.

The interpretation of this indicator would be even more significant if examined together with the changes of soil use, along with social, economic, environmental and institutional indicators: demographic growth rates, rate of urban population growth, population density, energy and mineral reserves, lands affected by desertification, strategies for sustainable development, among others.

CHANGE IN SOIL CONDITIONS

Definition

Changes by geographical type and location to the condition, quality and nature of soils. These changes can attributed to anthropogenic or natural factors, among the following: physical soil conditions, diversity or density of vegetation, depth of topsoil; construction of protective barricades and layers of vegetation along hillsides, etc.

Purpose

Measure of changes in productive capacity, environmental quality and land sustainability. This indicator is particularly relevant to countries where the quality of land is vital for agricultural activities.

Surface Area and Percentage of Type of Soil Degradation, 1999

Type of Soil Degradation	Surface Area (km^2)	Percentage[1]
Water Erosion		
Loss of Superficial Layer	495 668.85	25.30
Land Deformation	227 760.40	11.63
Sedimentation	1 222.19	0.06
Wind Erosion		
Loss of Superficial Layer	285 856.25	14.59
Land Deformation	5 855.15	0.30
Chemical Degradation		
Loss of Nutrients	31 171.91	1.59
Glicerinization	12 989.26	0.66
Salinity	62 421.15	3.19
Pollution	25 967.18	1.33
Physical Degradation		
Urbanization	7 489.16	0.38
Aridification	10 789.66	0.55
Compactation	5 473.20	0.28
Flooding	11 145.64	0.57
Biological Degradation	70 817.45	3.61
Total	**1 254 627.45**	**64.04**

[1] Total national surface area: 1,959,248 km^2, based on National Framework updated in 1996 topographical map scale 1: 250 000) and the Division of State Geostatistical Framework 1995.
Source: SEMARNAP, using National Soils Inventory, Unedited, 1999.

The interpretation of this indicator would be even more significant if examined together with the changes of soil use, along with social, economic, environmental and institutional indicators: demographic growth rates, rate of urban population growth, population density, energy and mineral reserves, lands affected by desertification, strategies for sustainable development, among others.

NATIONAL INDEX OF MONTHLY RAINFALL

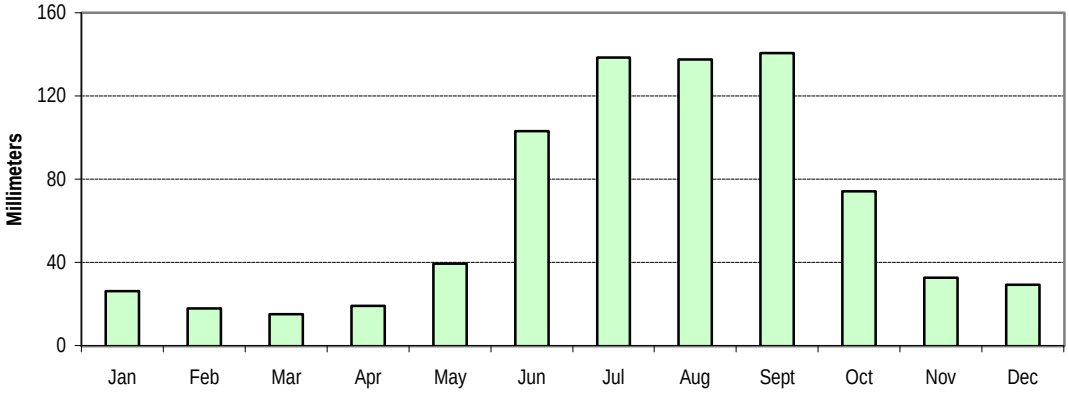
Definition

Monthly national average of percepitation relative to long-term average levels of percipitation.

Purpose

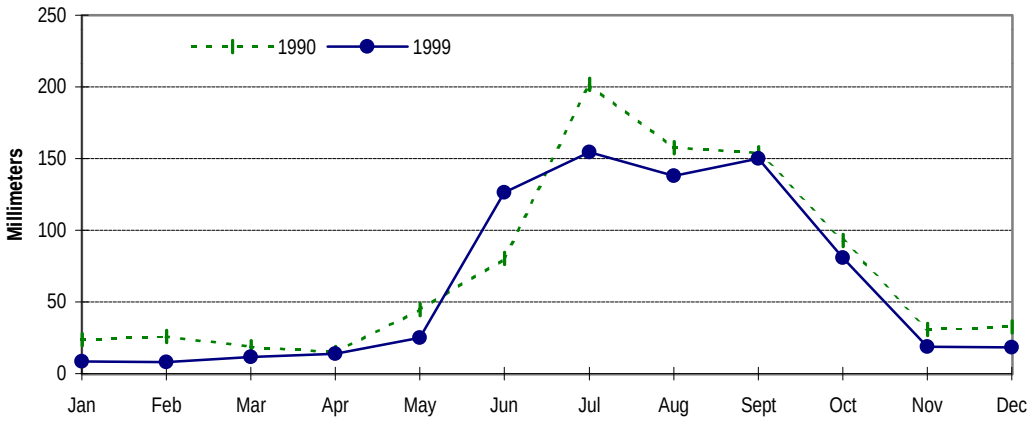
Measure the availability of rain water in countries affected by desertification and drought.

Medium National Monthly Precipitation, 1941-1999



Source: SEMARNAP, National Water Commission, 1999.

Medium National Monthly Precipitation, 1990 and 1999



Source: SEMARNAP, National Water Commission, 1999.

The first graph satisfies the method sheet. The series is an average for each month in the years considered. A second graph is added with recent data, using for each year monthly registers.

LAND AFFECTED BY DESERTIFICATION

Definition

Surface area of land affected by desertification and percentage of represented national territory.

Purpose

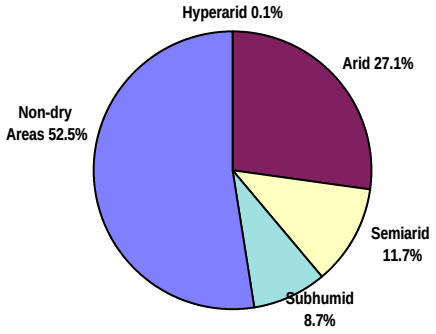
The indicator describes the scope and extent of desertification nationwide. It should be: i) a measure of the status of the problem at a certain moment; ii) an indication of the evolution of the problem over time and the sucess of the performance mechanisms; and iii) a media to compare the gravity of the problem in various countries.

Surface Areas of Arid and Subhumid Dry Areas, 1998

Areas	Km^2	Percentage
Hyperarid	1 959.2	0.1
Arid	530 956.2	27.1
Semiarid	229 232.0	11.7
Subhumid	170 454.6	8.7
Non-dry	1 026 646.0	52.4
Total[1]	**1 959 248.0**	**100.0**

[1] Adjusted to INEGI surface area information, based upon the national framework updated to 1:250 000 scale and the Division of State Geostatistical Framework 1995.
by official topographical map
Source: SEMARNAP, 1999, based upon the Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias (INIFAP) of the SAGAR.

Superficie de zonas áridas y subhúmedas secas, 1998



Source: SEMARNAP, 1999, based upon the Instituto Nacional de Investigaciones Forestales, Agrícolas y Pecuarias (INIFAP) of the SAGAR.

The indicator is strictly linked to other indicators about land use, such as: surface area affected by flooding and salination, protected reserves as a percentage of total land surface areas, surface area of recovered lands, population living under the poverty line in arid zones, among others.

AGRICULTURAL PESTICIDE USE

Definition
Pesticide use by unit of cultivated land.

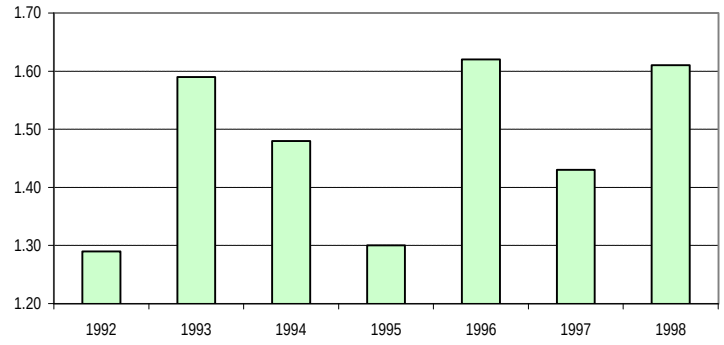
Purpose
Measure the use of pesticides in agriculture, as a factor which impacts health and environment.

Production[1] of Agricultural Pesticides by Product Type, 1992-1998 (Tons)

Year	Total Pesticides	Insecticides			Herbicides & Defoliants	Seeded Areas (Thousands of Hectares)	Tons (Per Thousand Hectares)
		Total	Liquid	Powder			
1992	25 156	14 471	4 856	9 615	10 685	19 561.8	1.29
1993	30 485	17 809	6 566	11 243	12 676	19 205.9	1.59
1994	31 063	19 986	7 454	12 532	11 077	20 997.3	1.48
1995	27 102	16 378	6 578	9 800	10 724	20 920.0	1.30
1996	34 541	22 033	8 393	13 640	12 508	21 338.9	1.62
1997	31 774	19 453	9 173	10 280	12 321	22 109.6	1.43
1998	35 406	18 852	8 504	10 348	16 554	21 982.3	1.61

[1] Only includes production data, giving an overview of consumption. (See further comments).
Source: INEGI, Monthly Industrial Survey, various year.
Data of Seeded Land: 1992-1993: SARH, Statistical Yearbook of Agricultural Production and 1994-1998: SAGAR, Statistical Yearbook of Agricultural Production in Mexico, Mexico, 1998.

Production[1] of Agricultural Pesticides, 1992-1998 (Tons / Thousand Hectares)



[1] Only includes production data. (See next comment).
Source: INEGI, Monthly Industrial Survey, various years.

To develop this indicator basic information is required from various sources. Here only data for pesticide production has been taken into account from the Monthly Industrial Surveys. As a result, to obtain consumption data, the administration records for imports and exports must be accessed, records which are generated by other agencies. This method is an indirect approximation for consumption and differs from the obtained information concerning pesticides sales, as established in the method sheet. Therefore, it is suggested that this indicator be incorporated as an alternative form of estimation.

FERTILIZER USE

Definition

Magnitude of use of agricutlural fertilizer by surface area of cultivated land.

Purpose

Measure the intensity of use of fertilizers.

Fertilizer Use, 1996

State	Macronutrients (Kg /Hectare)						Organic
	N	P	S	K	Ca	Mg	Material %
Average	**59**	**54**	**60**	**1 055**	**4 611**	**910**	**2.4**
Aguascalientes	33	50	6	2 362	3 020	470	1.3
Baja California	43	51	17	1 430	2 742	2 071	1.6
Baja California Sur	17	37	10	495	3 710	1 031	0.5
Campeche	100	28	23	752	5 928	1 000	4.0
Coahuila	36	38	51	1 183	4 832	683	1.4
Colima	38	91	34	729	4 105	1 244	1.7
Chiapas	72	43	206	475	4 036	910	2.8
Chihuahua	40	47	34	820	2 660	662	1.6
Mexico City (DF)	86	156	90	1 648	3 007	1 176	3.3
Durango	33	30	115	1 237	3 762	642	1.3
Guanajuato	40	47	72	1 313	6 065	1 173	1.5
Guerrero	40	48	36	572	4 791	972	1.6
Hidalgo	54	67	32	1 456	5 039	108	3.6
Jalisco	45	41	55	1 022	3 948	1 142	1.8
State of Mexico	71	79	66	1 608	3 320	1 032	2.4
Michoacan	70	55	48	1 194	5 425	1 775	2.7
Morelos	58	48	39	1 134	5 535	1 366	2.6
Nayarit	56	54	24	1 138	2 718	755	2.2
Nuevo Leon	58	58	175	802	6 273	491	2.3
Oaxaca	40	37	160	586	4 020	792	2.0
Puebla	65	48	86	901	3 167	737	2.6
Queretaro	41	40	35	1 292	6 063	1 158	1.6
Quintana Roo	130	87	17	937	4 545	878	5.2
San Luis Potosi	70	56	72	921	7 556	569	2.7
Sinaloa	25	50	21	1 082	9 552	1 612	1.0
Sonora	21	30	23	1 261	6 996	1 156	0.8
Tabasco	73	53	7	421	3 228	547	3.1
Tamaulipas	50	56	49	1 178	5 442	769	2.0
Tlaxcala	26	43	28	684	809	396	1.0
Veracruz	58	52	113	880	4 181	628	3.7
Yucatan	235	48	23	779	6 584	710	9.4
Zacatecas	38	54	125	1 532	4 485	452	1.5

Note: N: nitrogen; P: phosforus; S: sulfur; K: potasium; Ca: calcium; Mg: magnesium.

Source: Ojeda, D. y E. Ojeda T., "Suelos Cultivados de la República Mexicana. Contenido Medio de Nutrimentos Minerales Aprovechables", Universidad Autónoma Chapingo (mimeo), México, 1996. México. Adaptado de: INEGI/Semarnap, Estadísticas del Medio Ambiente, México 1997/Informe de la situación general en materia de equilibrio ecológico y la protección al ambiente, 1995-1996, Mexico, 1998.

Continues

FERTILIZER USE

Production of Fertilizers[1], 1990-1998

Crop Year	Seeded Areas[2] (km^2)	Fertilizer Production (Thousands of Tons)	Fertilizer Production Ton/10 km^2	Consumption Aparent[3] (Tons)
1990	197 298.59	4 267.6	216	ND
1991	192 606.80	3 983.5	207	ND
1992	195 618.15	2 796.3	143	1 360 522
1993	192 058.75	2 975.1	155	1 165 545
1994	209 973.30	4 025.4	192	1 476 363
1995	209 200.21	4 377.0	209	1 571 742
1996	213 389.43	5 111.4	239	1 724 653
1997	221 095.89	4 126.7	187	1 642 601
1998	219 823.49	3 650.9	166	1 673 860

[1] Includes: Urea, Ammonia Sulfate, Ammonia nitrate, Anhydricamonia, Triple Superphosphate, Simple Superphosphate, Di-amonicphosphate and Complexes N-P-K.

[2] Includes cyclical and perrenial crops.

[3] This information corresponds to fertilizers with nitrogen and phosphate which are the most widely consumed.
The apparent consumption is calcuated based on production, plus product imports, minus product exports.

ND: No Data.

Source: SAGAR, Center for Agricultural Statistics; INEGI, Monthly Industrial Survey (various years); and National Association of the Chemical Industry, A.C., Statistical Yearbook of the Chemical Industry (various years).

There is still statistical discrepancies and difficulties of available information and data from the sources to properly estimate this indicator. As a result, in the complementary information provided (second table), in absence of the use of fertilizers, production data is included (considering these give a broader understanding of use). The consumption column are alternative data used which corresponds figures describing Mexican fertilizer application.

Conclusion

IRRIGATION OF CULTIVATED LANDS

Definition

Surface area of irrigated lands as percentage of total cultivated land.

Purpose

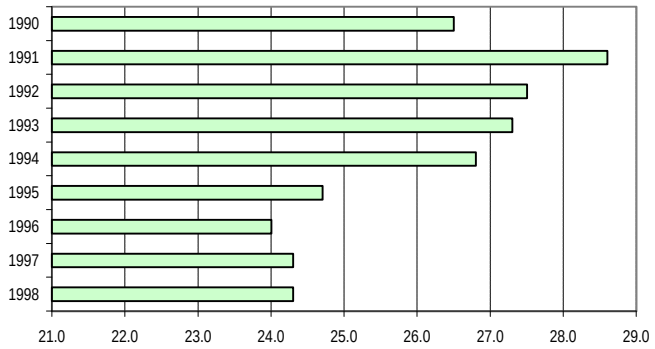
Measure the relative importance of irrigation in the country's agricultural sector from the perspective of land and water usage.

Irrigation of Cultivated Land, 1990-1998

Year	Cultivated Land[1] (Hectares)	Irrigated Land (Hectares)	Irrigated Land/ Cultivated Land (%)
1990	19 730 000	5 221 000	26.5
1991	19 261 000	5 501 000	28.6
1992	19 562 000	5 374 000	27.5
1993	19 206 000	5 238 000	27.3
1994	20 997 000	5 624 000	26.8
1995	20 940 620	5 178 586	24.7
1996	21 318 000	5 113 000	24.0
1997	22 109 590	5 366 006	24.3
1998	22 109 000	5 366 000	24.3

[1] Seeded lands.
Source: SAGAR, Agricultural Statistical Production Yearbook in Mexico, various years.

Irrigation of Cultivated Land, 1990-1998



Source: SAGAR, Agricultural Statistical Production Yearbook in Mexico, various years.

This indicator is strictly related to other agricultural indictors such as: areas affected by salination and flooding, annual water well extraction, subterranean water reserves and land use changes.

AGRICULTURAL ENERGY USE

Definition

The energy used in agriculture annually, expressed as a percentage of energy use in agricultural production in absolute terms.

Purpose

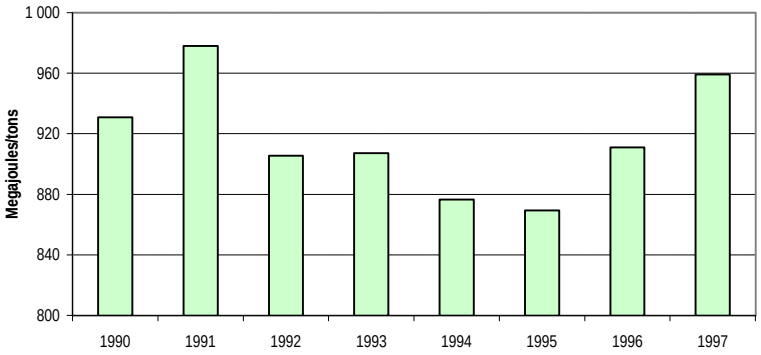
Provide a measurement of the level of energy used in agriculture.

Agricultural Energy Use, 1990-1997

Year	Final National Energy Consumption (Petajoules)	Final Agricultural Energy Consumption (Petajulios)	Percentage Final Agricultural Consumption/ National (%)	Production[1] (Tons)	Megajoules/ Tons
1990	3 169.516	92.577	2.9	99 441 625	930.968
1991	3 300.529	93.874	2.8	95 486 944	977.987
1992	3 350.560	91.210	2.7	100 735 130	905.444
1993	3 431.082	92.557	2.7	102 024 436	907.204
1994	3 589.639	91.048	2.5	103 870 510	876.553
1995	3 564.185	93.536	2.6	107 601 028	869.285
1996	3 640.666	101.401	2.8	111 306 482	911.007
1997	3 713.423	106.918	2.9	111 477 717	959.098

[1] Agricultural production includes perennial, cyclical and other types of crops.
1 petajoule=10^{15} joules.
1 megajoule=10^{6} joules.
Source: INEGI, with: Ministry of Energy, National Energy Report 1997, Mexico, 1998, and SAGAR, Agricultural Statistical Production Yearbook in Mexico, various years.

Final Agricultural Energy Consumption, 1990-1997



Source: INEGI, with: Ministry of Energy, National Energy Report 1997, Mexico, 1998, and SAGAR, Agricultural Statistical Production Yearbook in Mexico, various years.

CULTIVATED LAND PER INHABITANT

Definition

Surface area of cultivated lands, or land dedicated to the production of crops, as expressed per inhabitant.

Purpose

Show the quantity of available cultivated area for food production. To be useful, information must be available over certain time peridos.

Cultivated Land Per Inhabitant, 1990-1998

Year	Crops[1] (miles de ha)			Cultivated Land per Inhabitant (Ha)		
	Total	Cyclical	Perennial	Total	Cyclical	Perennial
1990	19 729.8	15 952.2	3 777.6	0.24	0.19	0.05
1991	19 260.7	15 321.6	3 939.7	0.23	0.18	0.05
1992	19 561.8	15 011.6	4 550.2	0.23	0.17	0.05
1993	19 205.9	14 682.2	4 523.7	0.22	0.17	0.05
1994	20 997.3	16 409.4	4 587.9	0.23	0.18	0.05
1995	20 920.0	16 520.5	4 399.5	0.23	0.18	0.05
1996	21 338.9	16 784.7	4 554.2	0.23	0.18	0.05
1997	22 109.6	17 114.6	4 995.0	0.24	0.18	0.05
1998	21 982.3	17 065.8	4 916.5	0.23	0.18	0.05

[1] Seeded surface area. Includes irrrigation and seasonal growing areas.
Source: SAGAR, Statistical Yearbook for Agricultural Production of Mexico (Various years).

This indicator is related principally to other land indicators such as: affected agricultural land from salination and flooding, forest areas and urban area expansion and development. The indicator is also related to demographic indicators such as population growth and density, among others.

AREA AFFECTED BY SALINIZATION AND WATERLOGGING

Brief Definition

Total Area affected in hectares compared to the total land area.

Purpose

The purpose of the indicator is to show the degree of loss of productive land and decreasing production from non-sustainable water management, especially irrigation and drainage practices. It could also indicate the potential for reclamation of natural areas affected by waterlogging or salinity.

Area affected by salinization and waterlogging

Lands	km^2	Percentage
Acids	60 179.6	3.1
Salines	17 023.8	0.9
Total	**1 953 248.0** [1]	**4.0**

Source:SEMARNAP, using National Soils Inventory, Unedited, 1999.

AGRICULTURAL EDUCATION

Definition

The public budget for agricultural education (high school and technical training), which reflect national investment in human resources for sustainable agriculture and rural development.

Purpose

Measure the public sector investment in development of human resources as a mechanism to obtain agricultural sustainable development.

Agricultural Education, 1990-1998
(Millions of Pesos from 1993)

Year	Total	Federal Expenditure in Education[1]			Total Expense/ GDP (%)
		Postgraduates Colegio de Chapingo	Universidad Autonoma de Chapingo	Universidad Autonoma Agraria Antonio Narro	
1990	57	48	9	-	0.005
1991	93	48	14	31	0.008
1992	64	48	16	-	0.003
1993	101	51	19	31	0.009
1994	81	57	24	-	0.006
1995	96	45	20	31	0.008
1996	86	47	18	21	0.007
1997	90	51	20	19	0.007
1998	142	100	35	7	0.011

[1] Excerpt from "Agricultura, Ganadería y Desarrollo Rural". The Instituto Nacional de Investigaciones Forestales y Agropecuarias was not included, nor the category of "others", considering their activities focus on research, not education.

Source: SPP, Cuenta de la Hacienda Pública Federal, 1990; SHCP, Cuenta de la Hacienda Pública Federal, 1991-1998; and INEGI, Sistema de Cuentas Nacionales de México. In: Consejo Nacional de Ciencia y Tecnología, Indicadores de actividades científicas y tecnológicas 1998.

Due to lack of information concerning technical school expenses (high school level) directed to agricultural education, this indicator should be considered as an alternate.

LOGGING PRODUCTION LEVELS

Definition

The indicator calculates total logging as a percentage of annual net increases. In other words, the indicator compares the quantity of logging each year, or during another time period, o the collection of any other forestry product, with the annual increase of forests. If the annual increase is unknown, the data can be substituted for the known logging levels.

Purpose

Determine if forests are being used within the limits of their real production limits. If the relationship is less or equal to one, this means the country is cutting a quantity, less or equal to the annual forest surface area increase. This represents the principle of sustainable performance. If the relation is greater than one, the country is overexploiting its forest resources or other forest products.

Logging Production Levels, 1998

Resources type	m^3
Trees and Related Wood Products in National Forests	2,803 million m^3
Annual Increase of Trees and Wood Products (A)	30.6 million m3
Annual Logging and Related Activities (B)	8.3 million m3
Percentage (B/A)	0.27

Source: SEMARNAP, Forestry Department, 1999. Estimates from: Ministry of Agriculture and Hydraulic Resources, Periodic National Forest Inventory, 1992-1994, Mexico, 1994.

Wood products from national forests are estimated at 2,803 million cubic meters, with an annual increase of 30.6 million cubic meters, data which provides the national harvesting potential. The interpretation of this indicator is magnified when combined with the surface areas of protected forests, land use changes and soil conditions, or when related to socioeconomic indicators such as the percentage of industries in the manufacturing sector that depend on wood products.

DEFORESTATION

Definition
Variations in surface areas for natural forests and wood plantations.

Purpose
Describe forest surface areas in a region/country over time.

Deforestation in Natural Forests and Wood Plantations, 1950-1995 (Millions of Hectares)

Period	Millions of Hectares			
	Forest Surface Area Variations	Total Deforestation	Annual Deforestation	Commercial Plantation Surface Area Variations
Original a 1950	98.0-77.8	20.2	-	NA
1950-1970	77.8-67.8	10.0	0.5	ND
1970-1980	67.8-60.8	7.0	0.7	0.0085
1980-1990	60.8-56.8	4.0	0.4	0.0085
1990-1995	56.8-55.3	1.5	0.3	0.01

NA: Not applicable.
ND: No data.
Source: SEMARNAP, Forestry Department, 1999. Estimates from: Ministry of Agriculture and Hydraulic Resources, Periodic National Forest Inventory, 1992-1994, Mexico, 1994.

Total Reforestation, 1995-1998

State Totals	1995	1996	1997	1998	Total
Trees	210 994 200	274 648 831	324 529 608	268 175 143	1 331 657 782
Hectares	64 048	109 830	139 629	206 621	571 193

Source: SEMARNAP, Forestry Department, 1999. Estimates from: Ministry of Agriculture and Hydraulic Resources, Periodic National Forest Inventory, 1992-1994, Mexico, 1994.

Total forest and commercial plantation surface areas in Mexico were evaluated by the Periodic National Forest Inventory, which according to the Federal Forestry Law and its Regulation is undertaken every 10 years. To date, only three national inventories have been completed: the first, from 1960 to 1985, the second in 1992 and the third in 1994, all with different scopes, methodologies and objectives, thereby limiting any comparisons of data. (By the year 2000 the fourth inventory will take place). Specifically in relation to commercial plantations, information is updated by public registers every three months.

For a more wide interpretation of the of this indicator, complementary information is provided in the second table.

PERCENTAGE OF MANAGED FORESTS

Definition

Percentage of forest surface area with federally-approved management plans.

Purpose

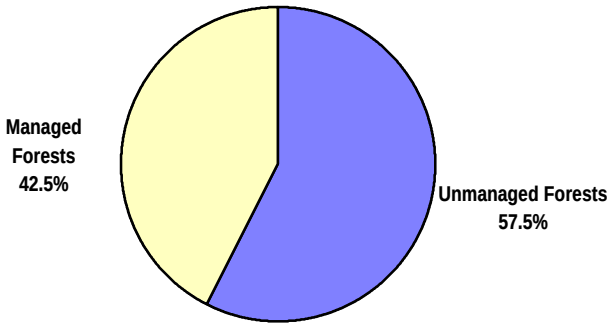
Represents the percentage of regulated forests, according to the forest management plan as approved by the forest authority during a given year.

Surface Area of Managed Forests, 1998

Type of Vegetation	Total	Commercial Use Potential	Managed Forests	Percentage of Managed Forests
	(Millions of Hectares)			
Pines (Conifers) and Leaved Trees	30.4	20	8.5	42.5
Jungle	26.4	-	-	-

-: Not measured.
Source: SEMARNAP, Forestry Department, 1999.

Percentage of Managed and Unmanaged (Commercial Potential) Forests, 1998



Source: SEMARNAP, Forestry Department, 1999.

The interpretation of this indicator will be more useful if compared over time with other indicators such as protected surface area as total percentage of land surface areas, logging production levels, surface area of forests, land use changes, endangered species, among others.

PERCENTAGE OF PROTECTED FORESTS

Definition

A protected area is an area (land or marine) especially reserved to maintain the biological diversity and natural and cultural resources. This area is regulated using by special legal instruments or what (International Union for Conservation of Nature and Natural Resources, IUCN).

Purpose

This indicator measures the total surface area of forests marked for protection, including areas destined for the protection of flora and fauna, unique ecosystems, water and land resources, etc. Higher indicator percentages mean higher conservation and protection action levels in the country.

Surface Area Percentage of Administered Forests, 1998

Types of Vegetation	Total Forest Surface Area (Ha)	Total Protected Forests (Ha)[1]
Temperate Forests (Conifers and Oaks)	32 343.012	968 148
Mesophyll Mountain Forests	1 771 112	131 564
Humid Jungle (Perennifolic Jungle)	11 103 702	1 528 418
Subhumid Jungle (Caducifolic Jungle)	24 812 943	528 267
Wetlands	1 108 063	436 368
Botanical Gardens (Vegetación de galería	124 311	3 418
Total	71 263 143	3 596 183
Percentage	100.%	5.05%

[1] This data only corresponds to the federally protected areas, and exclude state reserves.
Source: SEMARNAP, information provided by INEGI, 1999.

The interpretation of this indicator will be more useful if compared over time with other indicators such as protected surface area as total percentage of land surface areas, logging production levels, surface area of forests, land use changes, endangered species, among others.

ENDANGERED SPECIES WITH RESPECT TO TOTAL NATIVE SPECIES

Definition

Number of endangered species as a percentage of total native species.

Purpose

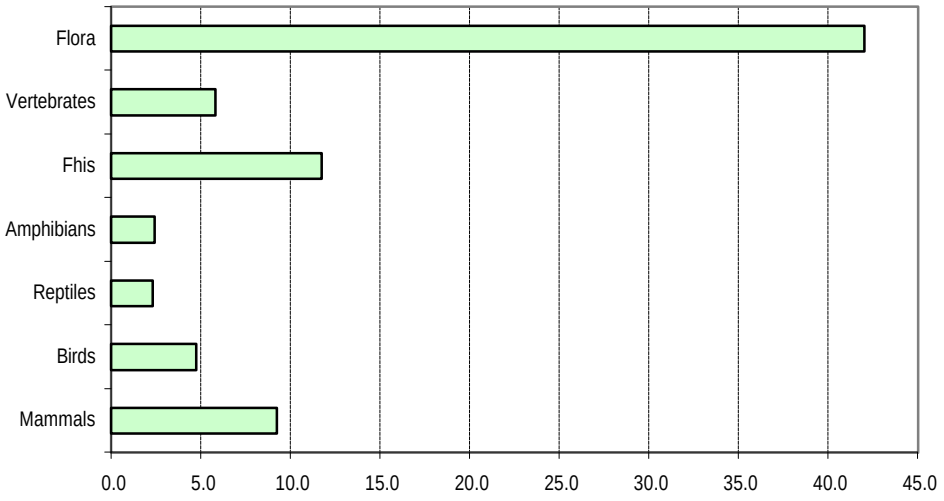
This indicator represents the survival or extinction of specie diversity.

Endangered Species with respect to Total Species

Clasification	Total	Endangered	Percentage
Mammals	491	45	9.2
Birds	1 060	50	4.7
Reptiles	701	16	2.3
Amphibians	290	7	2.4
Fish	506	59	11.7
Vertebrates (Total)	3 048	177	5.8
Flora	755[1]	335	42.0

[1] Includes flora and fungus.
Existing Total: National Commision for Biodiversity Use and Research.
Source: INE/SEDESOL, Official Mexican Environmental Protection Standards, Mexico, 1994.
INE/SEMARNAP, Conservation Program of Wildlife and Rural Sector Production Diversification, Mexico, 1997.

Porcentage of Endangered Species with respect to Total Existing Species



Source: INE/SEDESOL, Official Mexican Environmental Protection Standards, Mexico, 1994.
INE/SEMARNAP, Conservation Program of Wildlife and Rural Sector Production Diversification, Mexico, 1997.

PROTECTED SURFACE AREA AS A PERCENTAGE OF TOTAL SURFACE AREA

Definition

Consists of the protected land surface areas (including fresh water surface areas), expressed as a percentage of total land surface area (and fresh water areas); and the protected marine surface areas as a percentage of total marine surface areas.

Purpose

Represents the response of protection against inconsistent use of areas which are important for biodiversity, the cultural heritage, scientific research (including basic oversight), recreational activities, natural resource preservation, etc.

Natural Reserves[1] with respect to Total National Territory, 1990-1999 (Hectares)

Category	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999
Total Reserves	76	77	82	85	96	99	104	105	113	117
National Parks	55	55	55	55	57	58	61	61	64	64
Hectares	750 782	750 782	750 782	750 782	1 136 788	1 143 899	1 371 141	1 371 141	1 397 225	1 395 953
Biosphere Reserves	8	8	10	13	16	18	19	20	23	26
Hectares	4 443 077	4 443 077	4 807 658	6 470 112	7 240 698	7 552 876	7 697 236	8 080 803	8 761 039	9 163 276
Natural Resource Protection Areas	5	5	5	5	5	5	5	5	5	5
Hectares	117 906	117 906	117 906	117 906	117 906	117 906	117 906	117 906	117 906	117 906
Flora and Fauna Protection Areas	1	1	2	2	8	8	9	9	11	11
Hectares	37 302	37 302	49 487	49 487	1 567 612	1 567 612	1 660 502	1 660 503	1 667 717	1 667 717
Natural Landmarks		1	3	3	3	3	3	3	3	4
Hectares		6 045	13 023	13 023	13 023	13 023	13 023	13 023	13 023	14 099
Other categories[2]	7	7	7	7	7	7	7	7	7	7
Hectares	371 101	371 101	371 101	371 101	371 101	371 101	371 101	371 101	371 101	371 101
Percentage of National Surface Area[3]	2.91	2.91	3.11	3.95	5.31	5.47	5.71	5.90	6.27	6.47
Total	**5 720 168**	**5 726 213**	**6 109 957**	**7 772 411**	**10 447 128**	**10 766 418**	**11 230 909**	**11 614 477**	**12 328 011**	**12 730 052**

[1] Data accumulated for each year. The data is susceptible to modifications, according to reclassifications as a result of future analysis and evaluation of the natural reserves.

[2] Incorporates those areas included in management categories, which according to the modifications to the General Law for Ecological Equilibrium and Environmental Protection, of December 13, 1996, were derogated.

[3] Includes continental and marine areas without detail. Base figure: 1,967,183 km^2.

Source: SEMARNAP. In: Federal Executive Branch, Fifth State of the Union Address, 1999, Mexico, 1999.
Data updated in 1999 by the Coordinator Unit of Natural Reserves, Technical Division of Natural Reserves, INE/SEMARNAP, 2000.

EMISSION OF GREENHOUSE GASES

Definition

National Anthropogenic Emissions of Carbon Dioxide (CO_2), Methane (CH_4) and Nitrious Oxide (N_2O).

Purpose

The indicator measures the principal anthropogenic emissions contributing to global warming.

Emission of Green House Gases, 1990

Gases	National Emissions (Gg)	Conversion Factor -1996	National Emisions (Gg) (Equivalent of CO_2)
Carbon Dioxide (CO_2)	444 449	1	444 449
Methane (CH_4)	3 641.66	21	76 474.86
Nitious Oxide (N_2O)	11.78	310	3 651.8

Gg: Gigagrams.
Source: INE, 1999.

For a more complete understanding of this problem, the context of this indicator has two aspects: a) its relationship to other indicators (growth rate of GNP per inhabitant, annual consumption of energy per inhabitant, expense to reduce air pollution, among others); y b) its comparison with other countries or regions due to the fact that the indicator is in response to a phenomena (fenómeno en torno) where international agreements exist for the reduction of such gases.

SULFUR OXIDE EMISSIONS

Definition

National anthropogenic emissions of sulphur oxides (SO_x), expressed in quantities of sulphur dioxide (SO_2).

Purpose

This indicator is used to calculate the environmental performance of national policies and to describe the environmental pressure with relation to combating air emissions.

Sulphur Dioxide Emissions (SO_2) in the main metropolitan areas (Tons/Year)

Sector	Metropolitan Area			
	Mexico City 1996	Guadalajara 1995	Monterrey 1995	Toluca Valley 1996
Industry	15 630	5 506	27 997	8 667
Services	3 587	118	0	206
Transportation	5 197	2 461	2 469	1 649
Total	**24 414**	**8 085**	**30 466**	**10 522**

Source: INE, Second Report for Air Quality in Mexican Cities, 1997.

Sulphur Dioxide Emissions (SO2), according to economic activity, 1990-1997 (Tons)

Activity	1990	1991	1992	1993	1994	1995	1996	1997
Generation of Electricity	45 161	45 864	45 902	50 631	61 195	57 137	63 959	66 757
Refineries	8 802	8 666	8 813	6 635	8 310	7 966	7 954	8 142
Unused Excess	788	768	81	1 042	1 012	1 598	1 941	2 004
Industrial	21 083	20 503	20 481	20 823	19 506	21 444	24 012	25 523
Residential and Commercial	10 702	10 677	10 764	10 689	8 758	8 847	8 796	8 788
Transportation	25 390	27 144	27 585	28 210	28 495	27 769	29 028	29 868
Agriculture, Fisheries, Mining Construction	3 079	3 177	3 223	3 241	2 821	3 202	3 417	3 562
Total	**115 003**	**116 800**	**116 848**	**121 270**	**130 099**	**127 963**	**139 107**	**144 644**

Source: Latinoamerican Energy Organization (OLADE)/CE (September, 1998), Latin American and Carribean Economic and Energy Información System SIEE Database, Quito, Ecuador.

This method requires data for the whole group of sulphur oxides, but since this information was not available, sulphur dioxide, as reported in the emission inventories for the four principal metropolitan areas of the country, is only included. This data represents 60% of the total emissions for 1995. In addition, emissions by activity are included in the table.

On the other hand, for a more complete understanding of this problem, the context of this indicator has two aspects: a) its relationship to other indicators (growth rate of GNP per inhabitant, annual consumption of energy per inhabitant, expense to reduce air pollution, among others); y b) its comparison with other countries or regions.

NITROGEN OXIDE EMISSIONS

Definition

National nitrious oxide emissions (NO_x), expressed in quantities of nitrogen dioxide (NO_2).

Purpose

The indicator is used to evaluate environmenal performance of national policies and to describe environmental pressure with relation to combating air emissions.

National Emissions of Nitrogen Oxides by Source, 1990-1997
(Tons)

Source	1990	1991	1992	1993	1994	1995	1996	1997
Generation of Electricity	233 132	235 522	233 962	246 863	295 622	259 055	277 238	291 289
Refineries	35 469	34 896	35 485	27 358	33 718	32 148	32 219	32 967
Unused Excess	9 058	8 835	927	11 981	11 642	18 382	22 323	23 043
Industrial	112 561	113 089	108 827	114 553	106 298	118 535	131 535	140 763
Residential and Commercial	113 285	114 565	116 252	117 414	98 538	99 148	98 999	99 242
Transportation	295 156	316 276	320 962	327 332	333 846	321 748	329 589	334 929
Agriculture, Fisheries, Mining Construction	17 250	17 994	18 311	18 493	16 088	18 278	19 537	20 380
Total	**815 911**	**841 176**	**834 727**	**863 994**	**895 750**	**867 293**	**911 440**	**942 614**

Source: Latinoamerican Energy Organization (OLADE)/CE (September, 1998), Latin American and Carribean Economic and Energy Información System SIEE Database, Quito, Ecuador.

Nitrogen Oxide Emissions in the main metropolitan areas
(Tons/Year)

Sector	Mexico City 1996	Guadalajara 1995	Monterrey 1995	Toluca Valley 1996
Industry	28 666	3 148	18 549	2 188
Services	7 832	218	458	62
Transportation	84 961	33 820	34 268	19 139
Total	**121 459**	**37 186**	**53 275**	**21 389**

Source: INE, Second Report for Air Quality in Mexican Cities, 1997.

This method requieres data for the whole group of nitrogen oxides, but is only expressed in levels of nitrogen dioxide. However, the information does not present this equivalency.

The first table includes national data (by source), derived by external estimations, while the second table contains data for emissions from the main metropolitan areas of the country.

On the other hand, for a more complete understanding of this problem, the context of this indicator has two aspects: a) its relationship to other indicators (growth rate of GNP per inhabitant, annual consumption of energy per inhabitant, expense to reduce air pollution, among others); y b) its comparison with other countries or regions.

CONSUMPTION OF OZONE DEPLETING SUBSTANCES

Definition

Quantity of ozone depleting substances that are eliminated as a result of the Montreal Protocol.

Purpose

Represents the commitment by the nation which has ratified the Montreal Protocol for the elimination of the ozone depleting substances.

Consumption of Ozone Depleting Substances, 1989-1998
(Estimated Tons[1])

Substance	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998
CFC-11	2 933.5	2 863.8	2 433.4	3 021.4	2 874.9	3 662.0	2 186.0	1 865.0	1 352.9	752.0
CFC-12	6 000.0	5 791.1	5 601.9	4 528.6	5 376.0	5 340.0	2 597.8	2 878.0	2 800.0	2 704.0
CFC-113	999.0	3 291.1	2 060.2	802.2	784.2	507.2	40.3	88.0	0.0	10.4
CFC-114	4.0	50.2	90.0	57.0	110.3	75.0	25.0	4.0	2.0	0.0
CFC-115	96.0	41.0	105.0	103.6	52.8	67.8	9.5	23.8	2.3	16.5
Halogen 1211	610.8	1 269.6	1 347.6	1 030.2	1 120.5	1 092.0	0.0	89.1	234.6	202.8
Halogen 1301	282.0	1 500.0	1 430.0	660.0	305.0	30.0	0.0	0.0	50.0	10.0
TET	4 287.8	6 551.6	2 956.8	602.8	525.8	0.0	0.0	0.0	0.0	0.0
MCF	1.4	0.0	18.9	11.5	49.2	16.3	135.8	122.6	108.0	76.4
CFC-3	0.5	4.0	0.0	0.0	53.7	2.6	0.8	0.0	0.02	0.0
HCFC-22	137.0	70.1	106.8	304.5	308.3	343.3	217.2	182.5	198.2	214.2
HCFC-123	0.0	0.0	0.6	1.8	4.4	4.3	0.5	0.5	0.7	1.1
HCFC-124	0.0	0.0	0.0	0.0	0.0	0.1	1.2	0.0	0.0	0.2
HCFC-141b	0.0	0.0	0.0	12.4	15.2	47.2	94.2	164.3	233.5	258.5
HCFC-142b	0.0	0.1	0.2	0.2	0.2	0.1	0.0	0.0	0.0	0.0
HCFC-225	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.2	0.3
MBR			396.4	778.4	2 113.8	3 252.6	1 438.2	750.0	1 126.8	1 207.4
Total	**15 352.7**	**21 432.6**	**16 548.0**	**11 914.6**	**13 694.2**	**14 440.3**	**6 746.5**	**6 167.7**	**6 109.4**	**5 453.8**

1 Signifies the value of ozone depleting substances as multiplied by the potential depletion in accordance with the Montreal Protocol.
Note: TET: Carbon tetrachlorine, MCF: Metylcloroform (1,1,1- Tichloroethane), MBR: Methyl bromide.
Source: INE/SEMARNAP, Information provided by the Coordination Unit for Ozone Protection, 1999.

Continues

CONSUMPTION OF OZONE DEPLETING SUBSTANCES

Ozone Depleting Substances, 1989-1997
(Tons in values of ODP)

		Substance		
	Total	CFC	Halogens	HCFC
1989				
Production	13 946	10 156		3 790
Imports	2 613	2 375	232	7
Exports	3 489	2 184		1 306
Apparent Consumption	13 070			
1990				
Production	13 090	10 576		2 514
Imports	6 200	4 565	573	1 062
Exports	3 525	2 250		1 275
Apparent Consumption	15 765			
1991				
Production	12 702	9 784		2 918
Imports	4 743	3 808	592	343
Exports	4 017	2 716		1 302
Apparent Consumption	13 428			
1992				
Production	11 836	9 964		1 872
Imports	7 828	2 525	409	4 893
Exports	4 775	3 707		1 068
Apparent Consumption	14 889			
1993				
Production	15 400	12 525		2 875
Imports	5 280	1 614	404	3 262
Exports	4 937	4 656		282
Apparent Consumption	15 743			
1994				
Production	17 715	15 417		2 298
Imports	6 229	1 381	367	4 482
Exports	8 467	6 971		1 496
Apparent Consumption	15 477			
1995				
Production	17 878	15 737	0	2 141
Imports	4 667	124	0	4 543
Exports	12 813	10 985	0	1 828
Apparent Consumption	9 732			
1996				
Production	14 353	8 959	0	5 394
Imports	3 871	298	30	3 544
Exports	8 474	4 360	0	4 114
Apparent Consumption	9 750			
1997				
Production	13 946	8 431	0	5 515
Imports	3 836	66	83	3 687
Exports	7 787	4 338	0	3 449
Apparent Consumption	9 995			

ODP: Ozone Depleting Potential; CFC: Chloroflurocarbons; HCFC: Hydrocloroflurocarbons.
Source: INE/Semarnap, Coordination of Cooperation and International Agreements, Unit of Ozone Protection, September 1998.

Conclusion

CONCENTRATION OF POLLUTANTS IN URBAN AREAS

Definition

Concentrations of ambient air pollutants derived from ozone (O_3), carbon monoxide (CO), suspended particulates, sulphur dioxide (SO_2), nitrogen dioxide (NO_2) and nitrogen monoxide.

Purpose

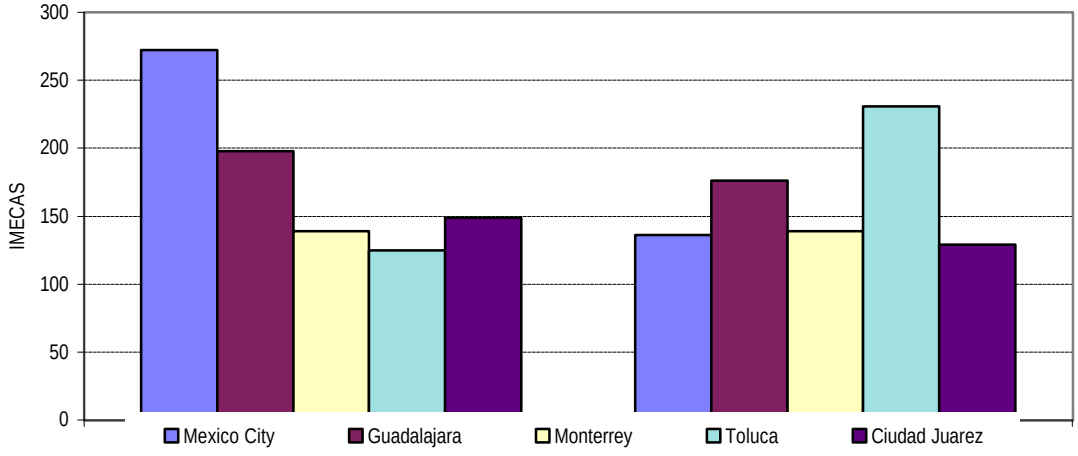
The indicator is used to evaluate environmental performance of national policies and to describe the environmental impact in relation to abatement of atmospheric emissions.

Annual Maximum Levels by Contaminant According to Metropolitan Air Quality Index (IMECA), 1999

City	Ozone	Particulates less than 10 microns (PM-10)	Carbon Monoxide (CO)	Nitrogen Oxide (NO_2)	Sulfur Dioxide (SO_2)
Metropolitan Area of Mexico City	272	136	111	115	72
Metropolitan Area of Guadalajara	198	176	124	168	24
Metropolitan Area of Monterrey	139	139	106	70	43
Metropolitan Area of Toluca	125	231	59	98	49
Metropolitan Area of Ciudad Juarez	149	129	141	-	-

Source: INE, Third Air Quality Report for Mexican Cities, Preliminary Data, Mexico, 1999.

Annual Maximum Levels of Principal Contaminants in Urban Zones, 1999



Source: INE, Third Air Quality Report for Mexican Cities, Preliminary Data, Mexico, 1999.

EXPENDITURE FOR AIR POLLUTION ABATEMENT

Definition

Consists of investment and expenditures directed towards pollution reduction measures in the public sector, private industry and domestic sources.

Purpose

Measure expenditures in actions to reduce air pollution as a reaction to social pressure.

Expenditure for Air Pollution Abatement[1], 1990-1996
(Thousands of Dollars)

Categories	1990	1991	1992	1993	1994	1995	1996
Investment							
Air[2]	6 547	7 555	4 627	20 906	23 935	2 250	3 109
Total Public Expense[3]	393 891	291 819	367 970	439 410	427 344	248 895	262 896
Current Expenditure							
Air[2]	207	3 392	5 688	9 198	8 731	4 808	6 602
Total Public Expense[3]	492 217	784 560	1 058 368	1 324 199	1 406 648	700 843	682 114
Total Expenditure							
Air[2]	6 754	10 947	10 315	30 104	32 667	7 058	9 711
Total Public Expense[3]	886 107	1 076 379	1 426 338	1 763 609	1 833 991	949 738	945 010

[1] The data covers most of the expenditure in environmental protection exercised by the public sector: Federal Administration, Ministries and Mexico City Government. Conversion made with exchange rates used to liquidate obligations in foreign currencies.Of the public sector enterprises, the principal decentralized producers of goods and services are included, such as: Petroleos Mexicanos (PEMEX) and the Federal Electricity Commission, among others.

[2] Includes programs relative to regulation and prevention of air pollution.

[3] In addition to expenditure in air pollution, the other categories contained in this total are: water and soil, waste and "others".

Source: INEGI, with information from the Accounting and Budgeted Expenditure Figures as provided by the Ministry of the Treasury and Public Credit (SHCP) for the years of the studies.
Data prepared for the SEMARNAP report to the OECD for pollution abatement and control expenses.

INDUSTRIAL AND MUNICIPAL SOLID WASTE GENERATION

Definition

The quantity of industrial and solid municipal waste is calculated from the generated volume in the place of production.

Purpose

Reflects the production of solid waste as a result of all activities in inhabited areas.

National Generation of Municipal Solid and Industrial Non-Hazardous Waste, 1995-1999

	1995	1996	1997	1998	1999
Grams/inhabitant/day	828	832	837	841	850

Note: Municipal Solid Waste: Waste generated in domestic houses, parks, gardens, markets, commerce, goods, demolition, constructions, institutions, general service establishments and all others generated by municipal activities that do not require special techniques for their control, except those hazardous and potentially dangerous in hospitals, clinics, laboratories and research centers.
Source: SEDESOL, Solid Waste Department, 2000.

This indicator is directly related to the level of economic activity of a country. It also reflects the intensity of the use of such raw materials and other natural resources. The variations of time may indicate changes in consumption patterns in industrial processes as well as the general population and the use of recycling and reuse processes.

ELIMINATION OF DOMESTIC WASTE PER INHABITANT

Definition

The volume of eliminated waste per inhabitant is calculated from the real volume of eliminated waste in different place than where it was originally produced. Part of this waste is eliminated through the use of official or existing conventional mechanisms. The volume of the eliminated waste includes those deposited in dumps or incinerated, and not those recycled and reused.

Purpose

Reflects the quantity of domestic waste that are eliminated by those domestic sources, some of which by a formal or conventional waste management system.

Elimination of Domestic Waste by Inhabitants, 1995-1999

	1995	1996	1997	1998	1999
Grams/inhabitant/day	637	640	644	647	654

Source: SEDESOL, Solid Waste Department, 2000.

The indicator reflects the existence of existence of a waste management program, as well as trends in reduction or increase in waste and the capacity for elimination, recycling and treatment available in the country.

This indicator is associated with relative aspects of human health, human housing, financial mechanisms, impact upon fresh water resources, land and the atmosphere, access to potable waste, urban population growth, expenditures in environmental protection, among others.

EXPENDITURE IN WASTE MANAGEMENT

Definition

Total expenditure of government agencies, public entities, municipalities or the private sector for the treatment of all waste.

Purpose

This indicator reflects the type and level of provided services and the efforts at all levels of government and private sector to reduce the human health risks associated with exposure.

Expenditure in Waste Treatment[1], 1990-1996
(Thousands of Dollars)

Category	1990	1991	1992	1993	1994	1995	1996
Investment							
Waste[2]	127 536	36 067	52 560	21 837	51 257	28 421	22 740
Total Public Expense[3]	393 891	291 819	367 970	439 410	427 344	248 895	262 896
Current Expense							
Waste[2]	4 348	147 945	219 318	239 362	223 677	124 780	122 195
Total Public Expense[3]	492 217	784 560	1 058 368	1 324 199	1 406 648	700 843	682 114
Total Expenditure							
Waste[2]	131 884	184 012	271 878	261 199	274 934	153 201	144 935
Total Public Expense[3]	886 107	1 076 379	1 426 338	1 763 609	1 833 991	949 738	945 010

[1] The data covers most of the expenditure in environmental protection exercised by the public sector: Federal Administration, Ministries and Mexico City Government. Conversion made with exchange rates used to liquidate obligations in foreign currencies. Of the public sector enterprises, the principal decentralized producers of goods and services are included, such as: Petroleos Mexicanos (PEMEX) and the Federal Electricity Commission, among others.

[2] Actvities of recolection and treatment were registered without distinguishing between municipal, industrial, ordinary or hazardous waste.

[3] In additoin the expenditure in waste treatment, the other categories contained in this total are: water and soil, are and "others".

Source: INEGI, with information from the Accounting and Budgeted Expenditure Figures as provided by the Ministry of the Treasury and Public Credit (SHCP) for the years of the studies.
Data prepared for the SEMARNAP report to the OECD for pollution abatement and control expenses.

SOLID WASTE RECYCLING AND REUSE

Definition
Volume as a percentage of recycled or reused waste per inhabitant.

Purpose
Measure the percentage of reused or recycled solid waste.

National Generated Solid Waste, 1991-1998
(Thousands of Tons)

Product	1991	1992	1993	1994	1995	1966	1997	1998
Paper, cardboard and paper products								
Volume of Generated Waste	2 963	3 090	3 952	4 146	4 292	4 496	4 118	4 298
Volume of Recycled Waste	61	63	81	85	88	92	84	88
Glass								
Volume of Generated Waste	1 242	1 296	1 657	1 738	1 800	1 885	1 727	1 802
Volume of Recycled Waste	48	50	64	67	69	72	66	69
Metal (Aluminum)								
Volume of Generated Waste	336 997	351 480	449 433	471 559	488 154	511 350	468 154	488 808
Volume of Recycled Waste	19	19	25	26	27	28	26	27
Metals - Non-Ferrous								
Volume of Generated Waste	104 259	108 739	139 043	145 889	151 023	158 199	144 898	151 225
Volume of Recycled Waste	6	6	8	8	8	8	8	8
Metals - Ferrous								
Volume of Generated Waste	168 499	175 740	226 121	237 253	245 602	257 273	235 613	245 932
Volume of Recycled Waste	9	10	12	13	13	14	13	14
Plastics								
Volume of Generated Waste	922 530	962 178	1 230 322	1 290 893	1 336 321	1 339 822	1 282 132	1 338 112
Volume of Recycled Waste	0.20	0.20	0.30	0.30	0.40	0.40	0.30	0.40
Used Tires								
Volume of Generated Waste	159 926	166 799	213 284	223 784	ND	ND	ND	ND
Volume of Recycled Waste	1	1	2	2				
Others								
Volume of Generated Waste	313 829	327 316	418 534	439 139	454 539	476 195	436 159	455 202
Volume of Recycled Waste	0.15	0.16	0.20	0.21	0.22	0.23	0.21	0.22

ND: No Data
Source: SEDESOL, Solid Waste Department, 2000.

The recycling and reuse constitute an essential component of sustainable solid waste management. As cities grow, local dumps become saturated, thereby requiring waste to be transported outside the city limits.

As a result, this indicator should contain all recycling sources and alternative methods for waste processing.

SOLID WASTE ELIMINATION

Definition

This indicator refers to the volume of collected and eliminated waste using official resources, depositing them in landfills, incinerators or using some other process. The generation of solid waste is considered an alternative to this indicator.

Purpose

The volume of eliminated waste by the municipal authorities is an indicator which reflects service efficiency. Additionally if compared to the rate of generated waste, this facilitates information for waste volumes eliminated indiscriminately and for the quantity of recycled and reused waste by official and unofficial channels(government and private sector).

Municipal Solid Waste Management and Final Disposal, 1995-1999

Year	Generation (Millions of Tons/Year)	Landfill Disposal (Millions of Tons/Year)
1995	21 357	5 952
1996	22 372	8 573
1997	22 540	10 270
1998	25 855	15 877
1999	30 866	16 050

Source: SEDESOL; Solid Waste Department, 2000.

This indicator describes the relationship with other social, economic and environmental indicators, such as GDP per inhabitant and expenditure in environmental protection, and with indicators related to waste generation and recycling.

Solid waste elimination can be achieved by using a variety of treatment methods (composting, incineration, pyrolisis, etc.) or final disposal. In the treatment sector, several composting plants have been established with modest results. More accurately 100% of the generated solid waste is deposited in landfills, open-air or clandestine dumping sites, abandoned lots, rivers and urban streams. The levels of collection service in 1998 was 84% and 50% was disposed of properly primarily in metropolitan areas, medium sized cities and few smaller cities. In rural communities, the levels of solid waste generation is insignificant.

CHEMICAL PRODUCT INTOXICATIONS

Definition

Annual number of unintentional intoxications from chemical products for each 100,000 inhabitants/year, including the percentage of fatalities.

Purpose

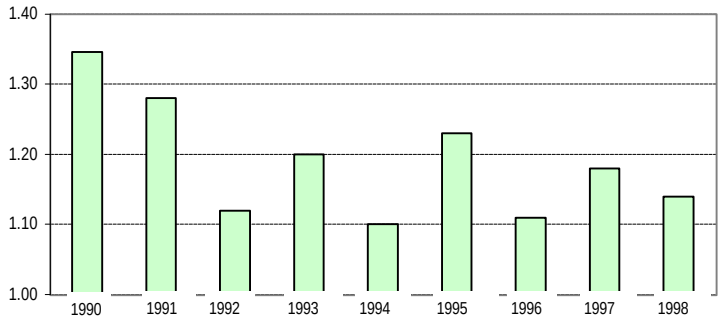
Not availabe since the method sheet is under development.

Death by Accidental Intoxication, 1990 - 1998

Year	Fatalities	Rate per 100,000 Inhabitants
1990	1 124	1.35
1991	1 080	1.28
1992	965	1.12
1993	1 050	1.20
1994	987	1.10
1995	1 116	1.23
1996	1 022	1.11
1997	1 113	1.18
1998	1 085	1.14

Source**:** Ministry of Health, 2000. Information provided by General Direction of Environmental Health, Sanitary Inspection Division of Toxic Substances, and population estimates from June 30th of each year.

Rate of Accidental Deaths from Intoxication, 1990-1998
(Per 100,000 inhabitants)



Source: Ministry of Health, 2000. Information provided by General Direction of Environmental Health, Sanitary Inspection Division of Toxic Substances, and CONAPO population estimates.

This indicator does not include accidental intoxications from drugs, medications, biological products or other toxic substances, liquids, vapors or gases. Additionally, the indicator registers deaths from accidental intoxication and exposure to noxious substances (Codes X40 to X49) of the International Classification of Disease (CIE-10) published by the World Health Organization.

PROHIBITED OR STRICTLY RESTRICTED CHEMICAL PRODUCTS

Definition

This indicator focuses upon chemical products, which for health and environmental reasons (including occupational health and worker safety), have been prohibited by government regulations.

Purpose

Not availabe since the method sheet is under development.

Controlled Substances Under PIC[1]

Plaguicides		Industrial Substances
Aldrin	Chlodimeform	Crocidolite
DDT	HCB (combination of isomers)	Mercury Componds
Dieldrin	Chlordane	Polychlorinated Biphenyls
Dinoseb	Ethylenedibromide	Polybrominated Biphenyls
Fluoroacetamide	Heptachloride	Grey Phosphate (Dibromide-2,3 propyl)

[1] Prior Information and Consent Procedure. This is an international mechanism for voluntary information exchange, which establishes that the exported product subject to PIC should be undertaken with the consent of the importing nation. The procedure was established in 1989 by the United Nations Environmental Program (UNEP) and the United Nations Food and Agriculture Organization (FAO). The substances included in this procedure are prohibited or severely restricted to protect human health or the environment, or are plaguicide formulas which can endanger sustainable development in developing countries.
Source: Joint Program FAO/UNEP for the Application of Disclosure and Prior Consent, 1996.

Number of Prohibited and Restricted Substances
(Only includes prohibited and restricted plaguicides, 1990-1997)

Plaguicides	1990	1991	1992	1993	1994	1995	1996	1997
Restricted	-	20	22	24	25	25	25	25
Prohibited	6	11	13	17	17	19	19	19
Total	**6**	**31**	**35**	**41**	**42**	**44**	**44**	**44**

Source: Developed by INEGI, using information from CICOPLAFEST, Official Catalogue of Plaguicides, various years (1991-1997).

Since the method sheet for this indicator is under development, the information included here is general and therefore will change as the indicator is more clearly defined.

As additional information, the next table includes data relative to prohibited or restricted plaguicides in Mexico.

Continues

NUMBER OF PROHIBITED OR STRICTLY RESTRICTED CHEMICAL PRODUCTS

Prohibited or Restricted Plaguicides in Mexico, 1987-1997

Plaguicide Name	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997
1,3 Dichloropropene	U	U	U	U	U	R	R	R	R	R	R
mercuirphenyl acetate or propionate	-	-	-	-	P	P	P	P	P	P	P
Acid 2, 4, 5 T	-	-	-	-	P	P	P	P	P	P	P
Alaclor	U	U	U	U	U	U	R	R	R	R	R
Aldicarb	R	R	R	R	R	R	R	R	R	R	R
BHC	R	R	R	R	R	P	P	P	P	P	P
Methylbromide	U	U	U	U	U	U	R	R	R	R	R
Phosphorus Cyanide	-	-	-	-	P	P	P	P	P	P	P
Cloranil		-	-	-	P	-	P	P	P	P	P
Chlordane	R	U	U	U	U	R	R	R	R	R	R
Chloropicrin	U	-	-	-	U	U	R	R	R	R	R
Chlorothalonil	U	U	U	U	U	U	U	U	R	R	R
DBCP	-	-	-	-	P	P	P	P	P	P	P
DDT	R	-	-	-	R	R	R	R	R	R	R
Dialifor	-	-	-	-	P	P	P	P	P	P	P
Dicofol	U	U	U	U	R	R	R	R	R	R	R
Dieldrin	-	-	-	-	P	P	P	P	P	P	P
Dinoseb	-	-	-	-	P	P	P	P	P	P	P
E P N	U	U	U	U	U	P	P	P	P	P	P
Endosulfan	U	U	U	U	R	U	U	U	U	U	U
Dinitroamine	-	-	-	-	P	P	-	-	-	-	-
Endrin	-	-	-	-	P	P	P	P	P	P	P
Erbon	-	-	-	-	P	P	P	P	P	P	P
Sodium Fluoroacetate (UO80)	-	-	-	-	P	P	P	P	P	P	P
Foraat	R	R	R	R	R	R	R	R	R	R	R
Formotion	-	-	-	-	P	P	P	P	P	P	P
Aluminium Phosphorus	U	U	U	U	U	U	R	R	R	R	R
Fumisel	-	-	-	-	P	P	P	P	P	P	P
Methyl Isothiocyanate	U	-	-	-	-	R	R	R	R	R	R
Lindane	U	U	U	U	R	R	R	R	R	R	R
Linuron	U	U	U	U	U	U	U	R	R	R	R
Phosphorus Metamid	-	U	U	U	U	U	U	U	R	R	R
Metam-sodium	U	U	U	U	U	U	R	R	R	R	R
Methoxychlor	U	U	U	U	R	R	R	R	R	R	R
Mevinphos	R	R	R	R	R	R	R	R	R	R	R
Paraquat	U	U	U	U	R	R	R	R	R	R	R
Parathinon-ethyl	R	R	R	R	U	R	P	P	P	P	P
Kepone/Chordecone	-	-	-	-	P	P	P	P	P	P	P
Mirex	-	-	-	-	P	P	P	P	P	P	P
Monuron	-	-	-	-	P	P	P	P	P	P	P
Quintozen	U	U	U	U	R	R	R	P	P	P	P
Toxaphene	R	R	R	R	-	P	P	P	P	P	P
Nitrophen	-	-	-	-	P	P	P	P	P	P	P
Schadran	-	-	-	-	P	P	P	P	P	P	P
Triamphos	-	-	-	-	P	P	P	P	P	P	P
Thallium Sulfate	-	-	-	-	-		P	P	P	P	P

P: Prohibited, R: Restricted, U: Use, -: Not found listed.

Source: Official Catalogue of Plaguicides, 1987; Comisión Nacional de Ecología, SARH, SSA, SEDUE. Manual for Food and Veterinary Agrochemicals & Pharmaceutical-Chemicals, 1988; SAGAR, Official Catalogue of Plaguicides, 1991 - 1997, CICOPLAFEST.

Conclusion

HAZARDOUS WASTE GENERATION

Definition

Total quantity of annual generated hazardous waste from industrial activities or other waste generating activities, according to the definition of hazardous waste stipulated in the Basil Convention and other similar agreements.

Purpose

Fundamentally in the case of industrial waste, the indicator measures the scope and type of country industrialization and, consequentially, the industrial activities that use hazardous generating processes or technologies.

National Estimated Generation of Hazardous Waste, 1999

	Hazardous Waste Generation (Ton/Year)	Number of Hazardous Waste Generators
Total	3 183 251	12 514

Source: INE, SEMARNAP, General Direction of Hazardous Materials, Waste and High Risk Activities, 2000.

Estimated Generation of Hazardous Waste by State, 1994

State	Generation of Hazardous Waste (Thousands of Tons/Year)	Percentage	State	Generation of Hazardous Waste (Thousands of Tons/Year)	Percentage
Aguascalientes	65	0.81	Morelos	110	1.37
Baja California	160	2.00	Nayarit	40	0.50
Baja California Sur	10	0.13	Nuevo Leon	800	10.00
Campeche	12	0.15	Oaxaca	70	0.87
Coahuila	300	3.75	Puebla	245	3.06
Colima	15	0.19	Querétaro	178	2.23
Chiapas	60	0.75	Quintana Roo	8	0.10
Chihuahua	210	2.62	San Luis Potosi	180	2.25
Mexico City (DF)	1 839	22.98	Sinaloa	80	1.00
Durango	80	1.00	Sonora	145	1.81
State of Mexico	1 415	17.68	Tabasco	50	0.63
Guanajuato	260	3.25	Tamaulipas	150	1.87
Guerrero	28	0.35	Tlaxcala	60	0.75
Hidalgo	135	1.68	Veracruz	475	5.73
Jalisco	600	7.50	Yucatan	80	1.00
Michoacan	120	1.50	Zacatecas	20	0.25
			Total	**5 309**	**66.34**

Source: National Institute of Ecology/Ministry of Environment, Natural Resources and Fisheries, Integral Program for Hazardous Waste Minimization and Management in Mexico, 1995-2000, Mexico, 1996.

To better understand hazardous waste in Mexico, this indicator requires the separation of data by sector and types of generated waste. Additionally, it is important to note other trends which affect this indicator: reduced industrial activity, cleaner production technologies or changes in consumption. Also, the state by state information has be updated.

HAZARDOUS WASTE IMPORTS AND EXPORTS

Definition

Total quantity of transported hazardous waste across borders, including waste type in accordance with Basil Convention definitions.

Purpose

The indicator shows different categories for imported and exported hazardous waste and shipping and receiving nations.

National Hazardous Waste Imports and Exports, 1998 and 1999
(Tons)

Year	Imports	Exports
1998	284 821	21 833
1999	264 861	33 161

Source: INE/SEMARNAP, General Direction of Hazardous Materials, Waste and High-Risk Activities, 1999.

Due to a lack of statistical information or a description of waste types, this indicator is classified as an alternate and subject to development.

SURFACE AREA OF CONTAMINATED SOILS WITH HAZARDOUS WASTE

Definition

Surface area of soils or contaminated sites in a country as a result of contamination or illegal depositing of hazardous waste in unprotected sites/soils, where inadequate measures have endangered human health and the environment from exposure to hazardous waste.

Purpose

This indicator can be used to evaluate the existing threats to human health and the environment, detect soil contamination trends due to unsustainable practices and to evaluate the risk derived in contaminated sites and establish clean-up priorities and procedures for decontamination.

Abandonded and Illegal Hazardous Waste Dump Sites, 1997

State	Number of Sites	Principal Waste Detected
Baja California	8	Solvents, Heavy Metals, Bag House Dust, Oils
Baja California Sur	2	Mining waste, Metal Slag
Campeche	4	Burned Oils, Biological-Infectious Waste
Chiapas	17	Plaguicides, Hydrocarbons, Hospital Waste, Solvents
Chihuahua	13	Hydrocarbons, Chemical Compounds, Burned Oils
Coahuila	15	Heavy Metals, Mining Waste, Oils, Hydrocarbons, Biological-Infectious Waste, Chemical Compoun
Durango	3	Hydrocarbons, Insecticides
State of Mexico	10	Slag, Biological-Infectious Waste, Chemical Compounds, Oils
Guanajuato	10	Oils, Heavy Metals, Organichlorides, Sludge, Slag
Hidalgo	6	Slag, Paint Waste
Jalisco	7	Bleached Soils, Tetrachlorethylene, Sludge, Battery Waste, Diesel Contaminated Soils, Fuels
Morelos	1	Empty and Unidentified Filled Metal Drums
Nayarit	5	Hospital and Mining Waste, Hydrocarbons
Nuevo Leon	22	Slag, Aluminum, Lead, Cadmium, Nickel, Oils, Cyanide, Hydrocarbons
Oaxaca	1	Variety of Hazardous Waste
San Luis Potosí	10	Hospital Waste, Asbestos, Slag, Nickel, Sludge, Paint Containers
Sinaloa	4	Agrochemical Waste
Tamaulipas	8	Slag, Oils, Silica, Phenols, Chemical Compounds, Empty Containers
Veracruz	8	Biological-Infectious Waste, Sulfur
Zacatecas	9	Mining Waste, Heavy Metals, Chemical Reactive Agents
Total	**166**	

Note: In the remaining states, contaminated sites have not been identified.
Source: SEMARNAP/PROFEPA, Triennial Report, 1995-1997, Mexico, 1998.

Continues

EXPENSE IN HAZARDOUS WASTE TREATMENT

Definition

Total expenditure by federal and state government agencies, government-owned or private sector companies and municipalities for hazardous waste treatment, describing individual cost for each waste category in accordance with the Basil Convention. Treatment includes some disposal processes as described by the Basil Convention.

Purpose

This indicator represents the efforts at all levels of government and by the private sector to reduce risk to human health and the environment from exposure to hazardous waste.

Actual Cost of Managed Waste in Mexico, 1996

Activity	Management Cost (Dollars/Ton)[1]
Final Disposal	
Drums	70-100
Bulk Weight	45-60
Thermal Oxidation	ND
Energy Recycling	
Clean liquids - Fuels	10-30
General Liquids, including Solvents	25-40
Recycling and Recovery	25-120
Physical-Chemical Treatment	
Neutralization, Acids and Bases	15-50
Cyanides and Heavy Metals	200-250
Transportation	0.03 (ton/km)

Investment to Manage Hazardous Waste, 1996 (Millions of Dollars)

Activity	Investment
Final Disposal	41
Recycling of Solvents and Oils	21
Reconditioning of Fuels and Recycling	33
Metal Waste and Scrap Recycling	20
Total	115

[1] Information provided by hazardous waste disposal and management service providers.
ND: No Data.
Note: It is estimated that only 12% of hazardous waste are properly managed.
Source: INE/SEMARNAP, Integral Industrial Hazardous Waste Management and Minimization Program in Mexico, 1995-2000, Mexico,1996.

The information provided of this indicator is from indirect sources and only partially meets the requirements of the method sheet: strictly there is no reference to treatment costs for each treatment process. As a result, the date can be used as an alternate, subject to development.

RADIOACTIVE WASTE GENERATION

Definition

Radioactive waste is generated from various sources, such as nuclear energy plants and related fueling processes, production and use of radioisotopes, medical and industrial uses and research.

Purpose

Measure produced nuclear and other typoes of radioactive waste.

Generation of Radioactive Waste in Energy Production, June 1998 - June 1999

Source	Generated Energy (megawatt/hour)	Waste (m^3)
Central Laguna Verde, Veracruz	10 371 944.4	269[1]

[1] In addition to the annually reported waste by the National Institute of Nuclear Research (ININ), other generated sources amount to an average of 20 m^3.

Note: The Central Laguna Verde Nuclear Power Plant is the only one of its kind in Mexico that generates radioactive waste. These wastes have an intermediate to low level of radioactivity and are stored adjacently to the Plant. The applications of radioactive material in the industry, medicine and research produce low-level radioactive waste which are recollected and stored by ININ. Some waste is exported for proper treatment

Source: Ministry of Energy, General Direction of the National Commission of Nuclear Security, 1999

Due to the local and regional population and environmental risk of exposure, as a result of a power plant accident, the provided quantitative information (volumes of nuclear energy and generated radioactive waste) is important for this indicator. In addition, it is important to have indicators showing qualitative trends, such as: waste reduction activities, availability and capacity of the installations to adequately dispose of waste, monitoring activities, among others.

Institutional Indicators

SUSTAINABLE DEVELOPMENT STRATEGIES

Definition

Not available since the method sheet is under development.

Purpose

Not available since the method sheet is under development.

Plans, Programs, Laws, Standards, Actions and Instruments for Sustainable Development

Category	Description
Plans	Federal Executive Branch, National Development Program 1995-2000, 1995.
Programs	SEMARNAP, Natural Protected Reserves Program of Mexico, 1995-2000, 1996. Federal Executive Branch, Environment Program, 1995-2000, 1996. SEMARNAP, Fisheries and Aquaculture Program, 1995-2000, 1996. SEMARNAP, Forestry and Land Use Program, 1995-2000, 1995. SEMARNAP, Border XXI Program, 1996. SEMARNAP, Water Program, 1995-2000, 1996. Department of the Federal District, Integral Program Against Air in the Metropolitan Area of Mexico City, 1990. Ministry of Urban Development and Ecology, Undersecretary of Ecology, National Program for Environmental Protection, 1984-1989, 1985. Ministry of Urban Development and Ecology, Undersecretary of Ecology, National Program for Environmental l Protection, 1990-1994, 1989. SEMARNAP, Integral Management and Reduction of Hazardous Waste Program in Mexico, 1995-2000, 1996 Department of Federal District/Government of the State of Mexico/SEMARNAP/Ministry of Health, Air Quality Improvement Program in the Valley of Mexico, 1995-2000, 1996. At the local level, the Air Quality Improvement Program in Valley of Mexico, 1995-2000. The remaining 31 states in the country have their own environmental protection programs.
Laws	Federal Executive Branch, Federal Law to Prevent and Control Environmental Pollution, 1971. Federal Executive Branch, Federal Law of Environmental Protection,1982. Ministry of Urban Development and Ecology, Undersecretary of Ecology (and modifications later to SEMARNAP) General Law of Environmental Protection and Ecological Equilibrium, 1988. Additionally, each of the 32 states has their own environmental protection law.
Technical Standards	The Official Mexican Standards (Spanish acronym, NOM) are instruments of environmental performance designed to regulate activities which impact health and environment. The purpose of these standards is to obligate the economic agents to internalize costs associated with the impacts of their activities in a sustainable and efficient framework. Until January 1997, there were 45 NOMs, in the following subjects: water (2), air (20), atmospheric monitoring (6), hazardous waste (8), municipal waste (1), noise emissions (4) and natural resources (4).

Continues

SUSTAINABLE DEVELOPMENT STRATEGIES

Plans, Programs, Laws, Standards, Actions and Instruments for Sustainable Development

Category	Description
Actions:	Environmental performance and management under SEMARNAP is developed with the following guidelines: combine environmental protection of the environment and natural resources with sustainable harvesting techniques of such resources; promote the use of resources which favor social equality; development preventive actions and induce changes to the production and consumption patterns; encourage social responsibility and participation in the design of strategies and policies; inform the society consistently with clear information; articulate active participation in international agreements in the design of policies and define internal policies. The aforementioned objectives materialize, on the one hand, through diverse national mechanisms such as: planning, ecological zoning, environmental education, regulation of human housing, as well as internal regulation and environmental impact, economic instruments, research, audits, and on the other, using instrumentation of the international agenda, including participation in multilateral forums, as well as regional organizations.
Instruments for Evaluation:	Since 1986, the environmental agency (currently SEMARNAP) publishes every two years a report on the state of the environment in Mexico, which evaluates environmental performance and the adoption of environmental polices and measures which impact the nation's path towards sustainable development. These reports have been presented in the following publications: Secretaría de Desarrollo Urbano y Ecología, Comisión Nacional de Ecología, Informe sobre el estado del medio ambiente en México, 1986. Secretaría de Desarrollo Urbano y Ecología, Comisión Nacional de Ecología, Informe general de ecología, 1988. Secretaría de Desarrollo Urbano y Ecología, Comisión Nacional de Ecología, Informe de la situación general en materia de equilibrio ecológico y la protección al ambiente, 1989-1990, 1991. Secretaría de Desarrollo Urbano y Ecología, Instituto Nacional de Ecología, Informe de la situación general en materia de equilibrio ecológico y la protección al ambiente, 1991-1992, 1993. Secretaría de Desarrollo Urbano y Ecología, Instituto Nacional de Ecología, Informe de la situación general en materia de equilibrio ecológico y la protección al ambiente, 1993-1994, 1994. Instituto Nacional de Estadística, Geografía e Informática/Secretaría de Medio Ambiente, Recursos Naturales y Pesca. Estadísticas del medio ambiente, México 1997 – Informe de la situación general en materia de equilibrio ecológico y la protección al ambiente, 1995-1996, 1998. INEGI-Gobierno del Distrito Federal, Estadísticas del Medio Ambiente del Distrito Federal y Zona Metropolitana 1999 (que es a la vez el Informe anual de la situación ambiental del Distrito Federal), INEGI, México, 1999. INEGI/Semarnap. Actualmente se prepara la edición de Estadísticas del Medio Ambiente, México 1999, also know as the Informe de la situación general en materia de equilibrio ecológico y la protección al ambiente 1997-1998.

Source: Recompilation of INEGI, using: Federal Executive Branch, Development Plans, 1988-2000, and environmental laws; SEMARNAP, Plans and Programs; Departament of the Federal District, Plans and Programs related to the environment; INEGI, Environmental Statistics, 1994,1997 y 1999.

Without the methodology required to define the indicator, Mexico proposes to adopt the suggestions offered in the previous table.

Conclusion

INTEGRATED ECONOMIC AND ECOLOGICAL ACCOUNTING PROGRAM

Definition

The Integrated System of Economic and Ecological Accounts (Spanish acronym, SCEE) is a body of statistics and indicators developed periodically which link and incorporate environmental phenomena to economic performance and which additionally form part of regular publications in environmental matters. A informational resource used to the develop the SCEE is the National Accounting System, whose 1993 version already include environmental information as part of the conventional economic accounting data.

Purpose

The existence of a statistical program designed to develop a SCEE demonstrates the interest of a country to incorporate the environmental concerns into the economic decisionmaking process and the analysis of environmental policies.

Integrated Economic and Ecological Accounting Program, 1990-1999

Category	Description
Program Start-up	The development of the Integrated Economic and Ecological Accounting Program of Mexico began in early 1990 in response to a petition by the United Nations to develop pilot program studies among various countries in order to develop an environmental and ecological acccounting manual. The project recieved funding with the collaboration of the Office of Statistics for the United Nations and the World Bank
Objectives	The SCEE is under the auspice of the National Institute of Statistics, Geography and Information (INEGI) and has the objective of developing studies which link economincal facts with the environment and natural resources, providing information to facilitate the analysis and decision making process in enviornmental-economical policymaking.
Program Content	The SCEE analizes the following resources: oil, forests and land use changes (deforestation), hydrological resources, soil errosion and water, air and soil pollution.
Results	To date, the following three studies have been publshed, by INEGI: 1) Economical and Ecological Accounting System of Mexico, 1985-1992, 2) Economical and Ecological Accounting System of Mexico, 1988-1996 y 3) Economical and Ecological Accounting System of Mexico, 1988-1998. Additionally, Mexico reports every two years to the OECD information concerning environmental expenditures, an activity in which the INEGI participates with information provided by the public sector in the following subject areas: water/soil, waste and air. An important aspect of this project is the consulting which the INEGI has provided to other countries interested in developing a SCEE. With these activities and results, the following is attempted to be achieved, among other aspects: expand the concept of assets; quantify the balance and flow of physical units; estimate the costs associated with the depletion and degradation of the monetary accounts; obtain an Environmentally Adjusted Net Domestic Product.

Source: INEGI, Economical and Environmental Accounting System of Mexico, 2000.

The SCEE is a statistical system designed to facilitate the diagnostics of economic and environmental performance and policy development and respond to the resulting diagnostics. Various indicators, such as in physical units or monetary accounts, can be calculated within the System or directly derived from them. The modules of the SCEE most widely utilized are: a) expenditures in environmental protection, b) asset or natural resource reports; c) emission balances, and d) environmentally adjusted aggregate figures, such as the aggregate environmentally adjusted values, the net domestic product and capital formation, among others.

COMPLIANCE MANDATE OF ENVIRONMENTAL IMPACT EVALUATION

Definition

National obligatory legal requirements for environmental impact evaluation.

Purpose

Gauruntee that environmental safeguards are respected during project development. Environmental impact evaluations provide mitigation measures and recommendations in response to the proposed development.

Legally Mandated Environmental Impact Evaluation

Concept	Description
Legal Framework	Federal Executive Branch, Fedeal Law to Prevent and Control Environmental Contamination, 1971. Federal Executive Branch, Federal Environmental Protection Law, 1982. Ministry of Urban Development and Ecology, UnderSecretary of Ecology (and later modifications by SEMARNAP), General Law of Ecological Equilibrium and Environmental Protection, 1998.
Official Standards	Offical Mexican Standards (NOM) are environmental performance instruments directed towards regulating activities which impact the environment and human health. These standards obligate polluters to assume management and clean-up costs for their activities in a sustainable development framework. Until January 1997, there were 45 NOMs, in the following subjects: water, air, atmospheric monitoring, hazardous waste, municipal waste, noise emissions and natural resources.
Evaluation Instruments (Reports)	Ministry of Urban Development and Ecology, National Ecology Commision, Report on the State of the Environment in Mexico, 1986. Ministry of Urban Development and Ecology, National Ecology Commision, General Environmental Report, 1988. Ministry of Urban Development and Ecology, National Ecology Commision, Report on the State of Ecological Equilibrium and Environmental Protection, 1989-1990, Mexico 1991. Ministry of Urban Development and Ecology, National Ecology Commision, Report on the State of Ecological Equilibrium and Environmental Protection, 1991-1992, Mexico 1993. Ministry of Urban Development and Ecology, National Institute of Ecology, Report on the State of Ecological Equilibrium and Environmental Protection, 1993-1994, Mexico 1994 INEGI/SEMARNAP, Environmental Statistics, Mexico 1997 – Report on the State of Ecological Equilibrium and Environmental Protection, 1995-1996, Mexico 1998

Source: Recompilation from INEGI, various sources.

NATIONAL SUSTAINABLE DEVELOPMENT COUNCILS

Definition

Not available since the method sheet for this indicator has not been developed.

Purpose

Not available.

National Council for Sustainable Development, 1998

Institutions	Activities
The National Advisory Council for Sustainable Development of Mexico was founded by the President of Mexico on April 26, 1995 and formed with the participation of: - The Commission of Forestry, Hydraulic Resources, Environment Ecology and Fisheries of the Senate - Commission of Environment, Ecology, Forests and Jungles, Hydraulic Affairs of the Chamber of Deputies - Federal Agencies (Ministry of Agriculture, Livestock and Rural Development, Ministry of Social Development and Mexico City Government) - Higher Educational Institutions (National Autonomous University of Mexico, Monterrey Technological Institute of Higher Education, National Polytechnical Institute and the Ecology Institute, A.C.) - Industrial Chamber Presidents (National Chamber of Transformation Industries, Confederation of Industrial Chambers, and the Business Advisory Council (CCEI)) - Social Organizations (Workers Congress, Permanent Agrarian Congress and the National Farmworkers Confederation) - Non-governmental organizations (PRONATURA, Group of 100, Pact of Ecological Groups and Mexican Ecologist Movement - Members of the Public National Advisory Council of the Commission for Environmental Cooperation of North America - State representatives from the Regional Councils	- Discussion of modifications to the General Law of Environmental Protection and Ecological Equilibrium, per request of the National Advisory Council. The councils played an important role in the unanimous approval of the modifications of the Federal Congress in November 1996. - Participation of advisors using the mechanism developed and approved by the NAFTA-CEC of the National Council, during three public consultations in 1997 by the Public Joint Advisory Committee of the CEC: Mexico City (March 19 and 20), Vancouver (May 14 and 16) and Pittsburgh (June 11-13). - Evaluation undertaken by National Sustainable Development Councils of the United States, Canada and Mexico in Montreal (1997). - Discussion of general performance of Sustainable Development Advisory Council by the Operations Department of the National Advisory Council.

Source: SEMARNAP, www.semarnap.gob.mx, (November 4, 1998).

Regional Division of the Advisory Councils

Region	States
I	Baja California, Baja California Sur, Chihuahua, Coahuila, Durango, Nuevo Leon, Sinaloa, Sonora and Tamaulipas.
II	Aguascalientes, Colima, Gunajuato, Jalisco, Michoacan, Nayarit, Queretaro, San Luis Potosi y Zacatecas.
III	Mexico City (DF), State of Mexico, Hidalgo, Morelos, Puebla and Tlaxcala.
IV	Campeche, Chiapas, Guerrero, Oaxaca, Quintana Roo, Tabasco, Veracruz and Yucatan.

Source: SEMARNAP, www.semarnap.gob.mx, (November 4, 1998).

Realizing that the method sheet is being revised, it is recommended that the required information go beyond the "Yes/No" responses currently used.

POTENTIAL SCIENTISTS AND ENGINEERS

Definition

Total number of professionals with university or equivalent degrees expressed as a percentage per million inhabitants.

Purpose

The percentage provides a statistical representation of the available human resources which can participate in the scientific and technological activities related to sustainable development.

Potential Scientists and Engineers Per One Million Inhabitants, 1995 and 1997 (Thousands of People)

Scientists and Engineers by field of science[1]	1995	1997
Natural and Exact Sciences	270.5	395.1
Engineering and Technology	848.3	1 062.7
Health Sciences	385.8	495.9
Agricultural Sciences	197.2	193.4
Social Sciences	2 100.1	2 745.2
Humanities and Others	87.7	106.3
Total[2]	3 889.7	4 998.6
Scientists and Engineers Per One Million Inhabitants	42 461	52 766

For: 1990: INEGI, XI General Population and Housing Census, 1990, Mexico, 1992.
1995: INEGI-STPS, National Education, Training and Employment Survey, *1995,* Mexico, 1996.
[1] For CONACYT, science refers to: physical, biological, social sciences and humanities.
[2] Does not include the category "others" that corresponds to 7.9 and 6.9 thousand people respectively.
Source: SEP-CONACYT, Technological and Scientific Activity Indicators 1998, Mexico, 1999.

The indicator includes the people who have successfully concluded the fifth grade of higher education (or third level) or more, according to the Uniform Classification System of the UNESCO. It is important to note that the most number of fields of science by postgraduates in Mexico are: engineering, natural sciences, medical and agricultural sciences.

SCIENTISTS AND ENGINEERS EMPLOYED IN RESEARCH AND DEVELOPMENT

Definition

The number of scientists and engineers employed in research and development for each one million inhabitants. The result of this percentage is expressed for full-time employees only, and therefore does not underestimate or overestimate the real numbers of employed professionals in this indicator.

Purpose

The percentage provides a measurement of relative numerical estimations for human resources of highly qualified professionals in a given country.

Scientists and Engineers Employed in Research and Development Per One Million Inhabitants, 1993-1995

Year	Population	Personnel Dedicated to R&D	
		Absolute	Per One Million Inhabitants
1993	88 404 338	26 932	304.6
1994	90 011 259	30 501	338.9
1995	91 606 142	33 297	363.5

Source: SEP-CONACYT, Indicators of Scientific and Technological Indicators, Mexico, 1999.
population estimates.

The relation indicates the number of scientists undertaking research and development with respect to total population and can be used to measure the scientific and technological potential for sustainable development in a country. CONACYT defines research and development (R&D) as the number of full-time personnel dedicated completely to such a task (using this method, the number of people dedicated to different activities other than R&D are eliminated). The figure includes researchers and technicians and assistants. In 1995,l 83% of R&D personnel were employed in the natural sciences and engineering. The same can be said for the health sector where more than 90% is specialized in natural sciences and engineering.

EXPENSE IN RESEARCH AND DEVELOPMENT AS PERCENTAGE OF GDP

Definition

Total national expense in scientific research and development experssed as a percentage of gross domestic product (GDP).

Purpose

Obtain the percentage of fnancial resources dedicated to research and development in terms of GDP.

Expense in Research and Development as a Percentage of GDP, 1990-1997
(Millions of Current Pesos)

Year	GDP at Market Prices	R& D Expenditure[2]	Expenditure/GDP (%)
1990	676 067.0	1 352.0	0.19
1991	868 219.2	1 952.0	0.22
1992	1 029 004.6	2 132.0	0.21
1993	1 155 132.2	2 654.0	0.23
1994	1 306 301.6	3 086.0	0.24
1995	1 678 834.8	3 701.0	0.22
1996	2 296 674.6	5 229.0	0.23
1997	2 873 273.0	8 497.0	0.29

[1] CONACYT defines R&D Expenditure as: Any systematic or creative project undertaken to further science for man, culture, and society and the use of the these for new applications. It is divided into basic research, applied research, and development.

Source: SEP-CONACYT, Indicators of Scientific and Technological Indicators, Mexico, 1999.
GDP: INEGI, National Accounting System of Mexico, 1988-1998, Mexico, 2000.

Scientific research is a fundamental part of every country's effort to expand knowledge and develop tools for measuring and evaluating environmental problems, especially in the sustainable development decisions. Problems such as pollution concentrations in urban areas, growing pollution indicators in oceans and other water bodies, the loss of ecosystems and species, and soil erosion, are some of the concerns which demand new developments in the field of research and development. In this light, and in the transition towards sustainable development, it is important to identify the trends in expenditures of this kind and compare them to socio-economical development and welfare of a society.

RATIFICATION OF INTERNATIONAL AGREEMENTS

Definition

Ratification (accesion, aceptance or approval) of certain international sustainable development agreements.

Purpose

This indicator reflects the commitment by a government to the principles and objectives stipulated in certain international agreements.

Ratification of International Agreements

Description	Date of Ratification
Basil Convention for the Control of Transborder Shipments of Hazardous Waste and Their Elimination	February 22, 1991
Convention on Biological Diversity	March 11, 1993
United Nations Covention Framework on Climate Change	March 11, 1993
International Convention Against Desertification	February 1995
Montreal Protocol on Substances That Deplete the Ozone Layer	December 31, 1998
United Nations Convention on High Seas	March 18, 1983

Source: SEMARNAP, Office of International Affairs, March 18, 1999.

INSTRUMENTATION OF RATIFIED INTERNATIONAL AGREEMENTS

Definition

Existence of national law used to apply international agreement related to sustainable development.

Purpose

This indicator demonstrates the initial measures adopted by the government to implement international agreements related to sustainable development.

Instrumentation of Ratified International Agreements

Agreement	Activities
Basil Agreement for the Control of Transborder Shipments of Hazardous Waste and their Elimination su Eliminación	Adopted with six annexes on March 22, 1989, enforced in May 1992. Mexico ratified the agreement on February 22, 1991. Currently, there are 64 parties to the agreement as a result of three meetings. The objectives are: exchange information concerning oversight, enforcement of national and international law; lower the amount of generated hazardous waste and promote the use of management and disposal technologies; notify the Convention Secretary concerning accidents, change in authorities, decisions to reject imports or prohibit exports of waste. The Agreement promotes the celebration of bilateral or regulatory agreements for transborder shipments of hazardous waste, as is the case between Mexico and the United States, the later not having ratified its agreement to date. In December 1997, the III/I Amendment came into effect, as unanimously adopted by the parties in the Third Conference of Parties (Geneva, September 18-22, 1995), which prohibits the transborder shipments of hazardous waste for their destruction, and specifically prohibits, as of January 1, 1998, transborder shipments destined to operations of value, from parties listed in Annex VII of the Agreement to countries not included in Annex VII. The OECD members, the European Union and the Liechtenstein Members are part of this Annex .
Agreement on Biological Diversity	Signed June 13, 1992 and ratified by Mexico on March 11, 1993, this Agreement has the following principal objectives: a) conservation of biological diversity, sustainable use of the biological components, equal and fair participation to the benefits derived from the use of genetic resources, through adequate access and proper technology transfer; y b) develop strategies, plans or programs for the conservation and sustainable use of biological diversity or adapt these to be reflected in existing or established measures. As a result, signatories must: identify the components of biological diversity; establish natural reserves; restore and protect degraded ecosystems and promote the recovery of endangered species; develop educational and scientific training programs. Events in which Mexico has participated: Regional High Schools of Latin America and the Caribbean in the IV Conference of Parties to the Agreement on Biological Diversity, Lima (Peru), March 1998. IV Conference of Parties to the Agreement on Biological Diversity, Bratislava (Slovak), May 1998.
United Nations Agreement on Climate Change	Signed June13, 1992 and ratified by Mexico March 11, 1993. The objective is to establish the concentrations of green house gases in the atmosphere in order to prevent pollution levels of anthropogenic activities from endangering the earth's climate. This target should be reached as soon as possible so that the ecosystems can slowly adapt to climate change and in such a way so as to not endanger food production and sustainable economic development. As a result the signatories of Annex I (developed countries) are committed to reduce green house gas emissions in the year 2000 to levels achieved in 1990, as well as provide technical and financial support to those countries in development. Some of the efforts by Mexico to comply with the Agreement are: (Article 4.1) develop a general country report; national source emission inventories; green house gas inventories; projections for future emission scenarios and climate changes and the vulnerability of the country towards climate change.

Continues

INSTRUMENTATION OF RATIFIED INTERNATIONAL AGREEMENTS

Instrumentation of Ratified International Agreements

Agreement	Activities
	Other meetings in which Mexico has participated: Third Conference of Parties, Kyoto (Japón), December 1-10 ,1997. Fourth Conference of Parties to the Framework Convention of the United Nations for Climate Change, Buenos Aires (Argentina), November 2-13, 1998.
International Convention Against Desertification	Signed in October 1994, ratified in February 1995 and entered into effect since January 1996, with the following objectives: combat desertification and mitigate the effects of drought; adopt policies integrating the physical, biological and socioeconomical aspects; integrate strategies to eliminate poverty; promote natural resource conservation and use mechanisms and financial instruments to direct sufficient resources to these problems. Directly speaking about the problem of desertification, Mexico's position is that this should be considered a global problem and not just a particular problem of regions such as Africa, in addition erosion and soil degradation are the principal impediments for sustainable farming. The Secretary of the Convention has proposed the acceleration of the negotiations for global mechanisms, specifically in legal frameworks, in order to find an instrument that defines financial resources through special funding. At the regional level it has supported the Action Plan of Latin America and the Caribbean, whose objective is to stop desertification and recover degraded soils for productive uses. Meetings in which Mexico has participated: Fourth Regional Conference for Latin America and the Caribbean, St. Johns (Antigua y Barbuda), May 1998. Second Conference of Parties, Dakar (Senegal), November 30 to January 11, 1998.
Montreal Protocol About Ozone Depleting Substances	Signed in Montreal, Canada, September 16, 1987 and ratified by Mexico March 31, 1988, with the following objectives: protect the ozone layer adopting preventive measures to control global emissions of ozone depleting substances. In compliance with the dispositions, Mexico has acted vigorously to protect the ozone layer, regulating the consumption and use of chlorofluorocarbons (CFCs). In 1995, during the IV Reunion of the Parties to the Montreal Protocol, Mexico committed to eliminate consumption of ozone depleting substances by the year 2000. A 90% reduction at the year 2000 was communicated, leaving a margin of 10% for uses considered essential, among which include medical, sterilization of surgical equipment and inhalers. Since entering into force in 1989, there has been nine Conferences of Parties; the ninth was held on September 15 – 17, 1997 in Montreal, during which methylbromide was one of the most controversial issues discussed due to its use as a pesticides in agriculture and the fact that no effective substitute exists. Mexico will participate in the elimination of such a substance by the year 2015. A reduction by 20% of this substance is expected by the year 2005.
United Nations Convention on Maritime Rights	This Convention is the result of meetings at the Third Convention of the United Nations on Maritime Rights, which began in 1973; adopted in Montego Bay in 1982 and entered into effect on November 16, 1994. The objective is not only limited the codification of international maritime rights, but also contemplates a variety of dispositions to regulate the use of maritime spaces and resources as web as prevent, reduce and control marine pollution. Mexico accepted the Convention on December 10, 1982 and ratified it on March 18, 1983.

Source: INEGI, used with informaton provided by SEMARNAP, March 18, 1999.

Continues

INSTRUMENTATION OF RATIFIED INTERNATIONAL AGREEMENTS

Other Treaties & Agreements

Name	Actividades
Natural Resource and Environmental Multilateral Aggrements	
Transborder Shipments	1989 Basil Agreement on the Control of Transborder Shipments of Hazardous Waste and their Elimination. Signed in Basil, Switzerland, March 22, 1989. Ratified by Mexico February 22, 1992 (DOF, August 9, 1991). Entered into effect on May 5, 1992.
Biodiversity	Agreement on Biological Diversity. Adopted in Rio, Brazil, June 13, 1992, signed ad referendum (DOF, January 13, 1993).
	Convention on International Commerce of Endangered Species of Flora and Fauna. Adopted in Washington, USA, March 13, 1973 (DOF, June 24, 1973).
	Convention of Ramsar Relative to Wetlands of International Importance. Adopted in Ramsar, Paris (February 2, 1973). Modifications in published in DOF in 1985 and 1986.
	Convention for the Protection of Flora and Fauna and the Natural Essential Beauties. Adopted in Washington, USA, November 20, 1940. Approved by the Senate according to the DOF, January 27, 1942.
Energy	Convention on the Prompt Notification of Nuclear Accidents and the Convention on Assistance in Case of Nuclear Accidents or Radiological Emergency. Adopted in Vienna, Austria, September 26, 1986 signed ad referendum (DOF, January 25, 1988).
	Convention on Basic Protection from Nuclear Materials. Adopted on March 13, 1980 in Vienna and New York (DOF, January 25, 1988).
	Vienna Convention on Civil Responsibility for Nuclear Damages. Adopted in Vienna, Austria, May 21, 1963 (DOF, January 27, 1989).
Meteorology and Hydrology	Convention on Nuclear Security. Adopted in Vienna, Austria, September 20, 1994 (DOF, December 20, 1994).
Forestry	Agreement between the National Oceanic and Atmospheric Administration of the United States and SEMARNAP of Mexico for the Cooperation in the GLOBE Program. Signed in Mexico City, November 15, 1996.
Fisheries	Agreement for the Global Consensus of the Regulation, Conservation and Sustainable Development of Forests. Adopted at the Earth Summit (Jun/1992, Rio de Janeiro, Brazil). International Convention on Whale Hunting. Adopted in Washington D.C., December 2, 1946 (Mexican Federal Register - DOF, December 6 , 1949). Agreement on Fishing and Conservation of Living Organisms at High Seas. Adopted in Geneva, Switzerland, April 29, 1958 and published in the Mexican Federal Register, January 5, 1965. Agreement for the Establishment of the Inter-American Tropical Tuna Commission (November 29, 1964).
Health	Cooperative Agreement between the United States and the European Community for the to Control of Chemical Precursors and Substances Frequently Used in the Production of Illicit Psychotropic Drugs. Adopted in Brussels, Belgium, December 13, 1996 (DOF, no date). Plantation Agreement. Adopted in Geneva, Switzerland, June 24, 1964 (DOF, December 16, 1966). Agreement Relative to the Worker Protection Against Ionizing Radiation. Adopted in Geneva, Switzerland, June 22, 1960 (DOF, January 3, 1962). Agreement on Indigenous Peoples and Tribes in Independent Countries. Adopted in Geneva, Switzerland, June 27, 1989 (DOF, August 3, 1990).
Profesional Illness	

Continues

INSTRUMENTATION OF RATIFIED INTERNATIONAL AGREEMENTS

Other Treaties & Agreements

Name	Activities
	Agreement 155 on Worker Safety and Workplace Environment. Signed on March 31, 1984, not published in DOF. Agreement 161 on Worker Health Services. Adopted in Geneva, Switzerland, June 26, 1985. Approved by the Senate on November 28, 1986 (DOF, April 13, 1987). Agreement 170 on the Safety and Use of Chemical Products in the Workplace. Signed in Geneva, Switzerland, July 6, 1990.
Ozone Layer	Vienna Convention on Ozone Layer Protection. Adopted in Vienna, Austria, March 22, 1985 (DOF, September 14, 1987). Montreal Protocol about Ozone Depleting Substances. Adopted in Montreal, Canada, September 16, 1987 (DOF, January 25, 1988).
Sea Pollution	Convention on the Continental Platform. Open to signature in Geneva, April 29, 1958. Approved by the Senate, according to decree published in the DOF, January 5, 1966. (DOF, December 16, 1966). United Nations Convention on Maritime Rights. Ratified by Mexico, March 18, 1983. Agreement for the Prevention of Pollution by Ship. Adopted in London, Great Britain, November 2, 1973 (DOF, January 28, 1992). Cooperation Convention to Combat Hydrocarbon Pollution. Adopted in London, Great Britain, November 30, 1990 (DOF, January 17, 1994). Convention on Maritime Contamination for Disposal of Waste and Other Materials at Sea. Adopted in London, Moscow, Washington, December 29, 1972 (DOF, May 27, 1974). Agreement Relative to the Intervention at High Seas in Case of Accidents. Adopted in Brussels, Belgium, November 29, 1969 (DOF, February 10, 1976). Protocol of Contamination for Substances Different than Hydrocarbons at High Seas. Adopted in London, Great Britain, November 2, 1973 (DOF, January 25, 1980).
Desertification	United Nations Convention Against Desertification in Countries Affected by Severe Drought or Desertification. Signed ad referendum in Paris, France, October 14, 1994 (DOF, January 12, 1995).
Comunications and Transportation	Basil Agreement on the Control of Transborder Shipments of Hazardous Waste and their Elimination. Signed in Basil, Switzerland, March 22, 1989. (DOF, August 6, 1989). International Agreement on Safety of Containers. Adopted in Geneva, Switzerland, December 2, 1972 (DOF, January 27, 1989).
Global Cultural and Natural Patrimony	Convention for the Protection of the Natural and Cultural Monuments of Mankind. Adopted in Paris, France, November 23, 1972 (DOF, January 23, 1984).
Climate Change	UN Convention Framework on Climate Change. Adopted in Rio, Brazil, June 13, 1992 signed ad referendum (DOF, January 13, 1994). Agreement for the Creation of the Inter-American Institute of Research for Global Change. Adopted in Montevideo, Uruguay, May 13, 1992 and ratified in July 1992.
Bilateral and Regional (North America, Central America and the Caribbean, Europe)	Includes other diverse subjects.

DOF: Mexican Federal Official Register.
Source: INEGI, with information by the Coordinating Unit of International Affairs, SEMARNAP, March 18, 1999.

PRINCIPAL TELEPHONE LINES BY POPULATION

Definition

The is calculated by dividing the quantity of telephone lines in operation among the population, multiplying by a factor of 100.

Purpose

This indicator is the standard measurement used to determine the development of telecommunications and the levels of social welfare in a country.

Principal Telephone Lines Per 100 Inhabitants, 1990-1999

Year	Telephone Lines (Thousands)	Telephone Lines Per 100 Inhabitants[1]
1990	5 356	6.4
1991	6 025	7.1
1992	6 754	7.8
1993	7 621	8.6
1994	8 355	9.3
1995	8 802	9.6
1996	8 826	9.5
1997	9 254	9.8
1998	9 927	10.3
1999	10 878	11.1

[1] Does not include cordless telephone units (cellular phones), which have notably increased over the years in Mexico.
Source: Telefonos de Mexico and Teléfonos del Noroeste, in INEGI: Basic Statistics, various years.

This indicator is fundamental for sustainable development. For example, a well developed telecommunications infrastructure reduces the necessity for transportation (which incidentally has benefits for the environment, i.e. reduced air pollution from mobile sources), in addition to providing to the population a greater level of contact both nationally and internationally.

INFORMATION ACCESS

Definition

The variety of newspapers for each 100 inhabitants that are published and distributed in each country.

Purpose

An increased number of newspapers in circulation in a country provides greater public access to information. As a result, better informed citizens are more able to participate in the decision making process for selecting sustainable development strategies.

Information Access, 1980-1996

Year	Newspapers in Circulation (Number)	Individual Papers (Thousands of Samples)	Newspapers for each 100 inhabitants
1980	317	8 322	12.3
1985	332	9 964	13.2
1990	285	11 327	13.5
1995	301	9 338	10.2
1996	295	9 030	9.7

Due to the scarce availability of this information in national newspaper publishers, and given the inconsistency of availability of data, an external information sources was used.
Source: UNESCO, Statistical Yearbook 1998, United States, 1998.

Chapter 36 of Agenda 21 states that "it is necesarry to educate the public about environmental and devleopment problems, encourage its participation in the solution and develop a sense of responsability towards the environment and the increased motiviation and dedication towards sustainable development."

The indicator is best understood in the context of other indicators related to information access for example: number of radios and televisions by inhabitant and number of registered library users as a percentage of total population.

NATIONAL PROGRAM OF ENVIRONMENTAL STATISTICS

Definition

Program for the development and compilation of environmental statistics, which allows for the regular publication of the state of the environment and/or compendium of environmental statistics.

Purpose

The existence of the program signifies the commitment of a country to develop environmental statistics for to formulate and analyze national policies.

National Program of Environmental Statistics, 1990-2000

Category	Description
Program Startup	
Objectives	The commitment of Mexico to develop environmental statistics began in 1990 during the first meeting of the Intergovernmental Workgroup for the Development of Environmental Statistics. This initiative was the result of the recommendations of the Statistics Commission of the United Nations (25ª Session, February 1989) to form a group of countries interested in generating environmental information in order to support the Office of Statistics of the UN. Treated as an official program, the INEGI staff on environmental statistics has the principal objective of establishing, coordinating, organizing and developing the design and application of the methodological schemes proposed by international organizations in the development of environmental statistics and indicators. This information is integrated into the system of environmental statistics which permit the support of decisionmaking in a sustainable development framework.
Program Content	A program of this nature includes a variety of basic statistics and indicators, generated from censuses, surveys, administrative registers, geographical information, monitoring, field research and academia as well as other sources, all of which is systematized within a conceptual framework; Impact-Status-Response. The environmental media and associated activities are grouped in three statistical categories: a) natural environment: air, water, soils, biological diversity and forest resources; b) human housing and infrastructure; y c) divers productive activities, including energy, industry and commerce.
Results	To date, two compendiums have been published: 1) INEGI, Environmental Statistics, Mexico 1994, and 2) INEGI/SEMARNAP, Environmental Statistics, Mexico 1997 – Report on the General Situation of Ecological Equilibrium and Environmental Protection, 1995-1996, 1998. An edition is also expected for 1999. With the Government of Mexico City, the Environmental Statistics for the Environment in Mexico City and the Metropolitan Area was published in 1999. With the National Institute of Ecology, the Indicators of Sustainable Development for Mexico was developed, which is in fact the current publication. In cooperation with the Economic Commission for Latin America and the Caribbean, a survey on the current state of environmental information in Latin America and the Caribbean was developed in 1996. Currently, within the activities of the Technical Committee of Environmental Information, coordinated between SEMARNAP and INEGI, several environment joint projects are under development. Also, it should be noted that the INEGI provides technical assistance in this area to other countries in Latin America and the Caribbean. These activities and products attempt to: provide for public comment information about natural resources and Mexico's environmental problems; offer a foundation for information which facilitates management of sustainable development policies; and improve the system of environmental statistics among the different national institutions which are generating environmental information.

Source: INEGI, Direccion General de Contabilidad Nacional Estudios Socioeconomicos y Precios, Direccion Tecnica.

The information required for this indicator exceeds the type of simplistic responses required in the method sheet (Yes or No) and therefore it is recommended that the method should be revised to reflect this.

REPRESENTATION OF PRINCIPAL GROUPS IN NATIONAL SUSTAINABLE DEVELOPMENT COUNCILS

Definition

Composed of national groups interested in sustainable development, including non-governmental organizations, academia, business organizations, media groups and other social organizations. The unit of measurement for representation is derived from the number of member from each principal group in the national sustainable development councils as a percertage of total members.

Purpose

Reflects the participation of principal groups in institutional mechanisms created at the national level with the objective of achieving sustainable development.

Representation of Principal Groups in National Sustainable Development Councils, 1997

Sector	Percentage Represented by the Sector
Academic	16.66
Private	16.66
Social	16.66
Government	16.66
NGO	16.66
Legislative	16.66

Source: SEMARNAP, General Coordination of Economic and Social Analysis, Sustainable Development Advisory Council, 1997.

Characteristic of the National Advisory Council First Part

Caracteristic	Description
Creation:	The Federal Agreement creating the National Advisory Council and Four Regional Advisory Councils for Sustainable Development was published in the Federal Official Register on April 21, 1995.
Council Members:	The Council is integrated by: a President, a Technical Secretary and the National Advisors.
Function:	The Council has the primary function of acting as an advisory body to the Secretary (of the Environment), in order to support the protection, restoration and conservation of the ecosystems and natural resources, with the objective to promote sustainable development.
Objectives:	(a) Advise the Secretary on the formulation, application and oversight of national strategies in matters of protection in accordance with regional and national necessities, as well as within the framework of assumed international commitments; (b) recommend to the Secretary policies, programs, studies and specific actions environmental protection and sustainable development of natural resources, taking into consideration that such recommendations are presented within budgetary and time constraints; (c) evaluate periodically the results of policies, programs, studies and specific actions in matters of environmental protection and sustainable development of natural resources, from the reports provided by the Secretary, or based on the studies promoted by the same Council; (d) analyze and issue

Continues

Characteristic of the National Advisory Council

Caracteristic	Description
	recommendations in specific cases and matters that are presented for the consideration of the Secretary; (e) propose recomendations to improve laws, regulations and relative procedures for the protection of the environment and sustainable development of natural resources; (f) coordinate with international and national organizatiions, in order to exchange experiences that be seen as mutually beneficial; and (g) recommend guidelines that the Secretary should adhere to for international representations and delegations internacionales.
Matters of Interest:	Subject matters of interest that will be studied in the Technical Groups, among others, are: NAFTA and Free Trade; Education, Science and Technology; Agenda XXI; Sustainability and Economic Policy; Poverty, Social Policy and Natural Resources; Financing.
Composition:	For this one time only, 50% of the Council will by renewed every three years and the other 50% every four and a half years, as stipulated in the terms of the guidelines issued by the Council itself.

Source: SEMARNAP, www.semarnap.gob.mx. (February 24, 2000)

Since the information requirement for this indicator is simplistic (Yes or No response), it is recommended that the method sheet be revised in order to better understand the role and importance of ethnic minorities and indigenous populations. The elements proposed here can give a more precise idea of what should be achieved.

REPRESENTATION OF ETHNIC MINORITIES AND INDIGENOUS POPULATIONS NATIONAL SUSTAINABLE DEVELOPMENT COUNCILS

Definition

Presence in the National Sustainable Development Councils of one or more representatives of ethnic minorities and indigenous populations.

Purpose

Reflect the participation of principal groups in the national institutional mechanisms attempting to achieve objectives for sustainable development.

Representation of Ethnic Minorities and Indigenous Populations in National Sustainable Development Councils

The Advisory Councils for Sustainable Development only contain representatives from the academic, private, social, governmental sector, NGOs and legislatures and does not include ethnic minority representatives.

Source: SEMARNAP, General Coordination of Economic and Social Analysis, Sustainable Development Advisory Council, 1997.

Legal Framework

Document	Prescription
Some considerations involving social groups mentioned earlier are outlined in social and environmental legal policies:	
Organic Law of the Federal Public Administration	Article 32 bis, Section XVII, contemplates; "The development of social and scientific participation in the formulation, application and oversight of environmental policy and coordinate actions and investment in social and private sectors for the protection and restoration of the environment."
National Development Plan 1995-2000	Point 3 on Democratic Development, Section 3.10 Towards Increased Social Participation and Strengthened Citizen Representation, states: "In effect, many of the social and communal development problems can only be resolved by joining government action with society and their organizations." Subsection 3.10.1: "In addition, vinculatory mechanisms within the government should be created to learn and take into account the opinion of social organizations concerning national problems and solutions." Section 3.11: Social Participation, subsection 3.11.2 Advisory Councils: "promote the creation of advisory councils at the municipal, state and federal levels, where social representatives and expert professionals participate."
General Law of Ecological Equilibrium and Environmental Protection	Title Five (Social Participation and Environmental Information), particularly Chapter I, addressing social participation and Article 159, where integration is promoted among "...advisory organizations in which states and government agencies, academics and social and business organizations participate."

Continues

REPRESENTATION OF ETHNIC MINORITIES AND INDIGENOUS POPULATIONS NATIONAL SUSTAINABLE DEVELOPMENT COUNCILS

Legal Framework

Document	Prescription
	The consolidation of social participation as one of the defining transitions of our country (Mexico), signifies that in the application of sustainable development strategies can not be achieved without public participation. As a result, one of the attributes of the Secretary of the Environment, Natural Resources and Fisheries is the promotion of public and academic participation in the formulation, application and oversight of environmental policies.

Since the information requirement for this indicator is simplistic (Yes or No response), it is recommended that the method sheet be revised in order to better understand the role and importance of ethnic minorities and indigenous populations. An approximation to this objective is provided by the elements presented earlier in this document.

Conclusión

CONTRIBUTION OF NON-GOVERNMENTAL ORGANIZATIONS IN SUSTAINABLE DEVELOPMENT

Definition

Number of non-governmental organizations (NGOs) that represent one or more principal groups involved in the development, instrumentation and/or monitoring the national strategies for sustainable development.

Purpose

Shows the level of participation in sustainable development of the principal groups represented by non-governmental agencies.

Contribution of Non-Governmental Organizations of Sustainable Development

The Regional Council for Sustainable Development in each state of Mexico is represented by a council president and assistant directors from each social sector. As a result, since there are 32 states, there are at least 32 NGOs which send at least one or two representatives to the Advisory Council.

Source: SEMARNAP, General Coordination of Economic and Social Analysis, Sustainable Development Advisory Council, 1997.

As with preceding indicators, the information requirement (number of organizations) is no sufficient to demonstrate the role and importance of NGOs. Therefore, it is suggested that the method sheet be reformulated.

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