

**COUNTRY PROFILE
ON
ENVIRONMENT**

DOMINICAN REPUBLIC

November 1998

JICA LIBRARY



J1157258(3)

JAPAN INTERNATIONAL COOPERATION AGENCY

JICA
608
61.9
PVG
LIBRARY

PVG
JR
00-9

Table of Contents

	Page
1. Keywords of the Environment.....	1
Figure 1 Overview.....	2
2. Fact Sheet.....	3
3. Institutional Context	
3.1 Environmental Agency.....	4
3.1.1 Governmental Agency.....	4
3.1.2 Non-governmental Agency (NGO).....	6
3.2 National Environmental Policy.....	6
3.3 Environmental Laws & Regulations.....	6
4. State of the Environment	
4.1 Air Pollution.....	7
4.2 Water Pollution.....	8
4.3 Other Pollution.....	9
4.4 Waste Management.....	10
4.5 Energy Conservation & Alternative Energy.....	11
4.6 Water Supply.....	12
4.7 Waste Water Management.....	13
4.8 Forest Conservation / Desertification.....	14
4.9 Biodiversity.....	15
4.10 Natural Resource Management.....	16
4.11 Natural Disaster.....	17
4.12 Environmental Education.....	17
5. International Relationship.....	18
5.1 International Convention.....	18
5.2 International Cooperation Project.....	18
6. Information Source.....	19
7. Reference.....	21
Abbreviation.....	20

USERS GUIDE: Contents of the Report

This report consisted of the following Chapters on environmental information of the country.

1. Keywords of the Environment

Various features and principal environmental issues and their related matters of the country are schematized within 1 page to easily understand the country's natural and social environmental issues on the whole.

2. Fact Sheet

Principal indices and natural and social environmental characteristics of the country such as economy, demographic statistics, socio-economic conditions, various important resources available in the country are described.

3. Institutional Context

3.1 Environmental Agency

Matrix table on governmental agencies related to the environmental issues in the Chapter 4 is described to grasp the role of the agencies easily. Responsibilities and organizational structure of the principal responsible agency for the environment, and responsibilities of related agencies are explained. Main activities of the various environmental non-governmental organizations are described in the table.

3.2 National Environmental Policy

Environmental policy of the country such as national environmental action plan is explained.

3.3 Environmental Laws and Regulations

Environmental laws and regulations of the country including their status of applications are described.

4. State of the Environment

In this Chapter, status of the various environmental issues as follows are covered with information on related agencies, related standards, laws and regulations, examples of the issue are explained. In the section 4.3, other kind of considerable environmental issues in the country are described based on the report which local consultant prepared.

4.1 Air Pollution	4.7 Waste Water Management
4.2 Water Pollution	4.8 Forest Conservation/Desertification
4.3 Other Pollution	4.9 Biodiversity
4.4 Waste Management	4.10 Natural Resource Management
4.5 Energy Conservation and Alternative Energy	4.11 Natural Disaster
4.6 Water Supply	4.12 Environmental Education

5. International Relationship

Status of the implementation of the economic and technical assistance projects in the country are outlined. International conventions and agreements on environment which the country agreed and ratified are listed up in section 5.1, and environmental projects which are funded and/or implemented in the country by donor countries and international organization in the section 5.2. In addition, location map of the project funded and implemented by using the Official Development Assistance (ODA) of Japanese government are showed.

6. Sources of Information

Governmental environmental agencies related institutions and NGOs are listed with the some information such as contact address and e-mail address.

7. References

References used in the report are listed.

1. KEYWORDS OF THE ENVIRONMENT

1.1 Features of the Country

Related pages

① Gross Domestic Production(GDP)

US\$978 per capita (Japan : US\$33,857, China : US\$361)
Total : US\$7.9billion

- 2. Fact Sheet p.3

② High-concentrated Urban Population

Urban population rate: 65%
Total population: 7.8 million, Urban population: 5 million

- 2. Fact Sheet p.3
- 4.1, 4.2, 4.4

1.2 Keyword of Environmental Issues

Related page

① Air pollution

4.1 Air pollution p. 7

② Waste water management

- Direct disposal of waste into rivers
- Lack of waste water management

4.2 Water pollution p. 8
4.7 Waste water management p. 13

③ Water supply

- Water pollution
- Water supply

4.2 Water pollution p. 8
4.6 Water supply p. 12

④ Forest degradation

- Deforestation

4.8 Forest conservation p. 14

⑤ Natural resource management

- Lack of coordination among institutions, planning,
and appropriate production technology

4.10 Natural resource management p. 14

⑥ Soil degradation

- High erosion level on hillside agriculture



1157258(3)

Dominican Republic

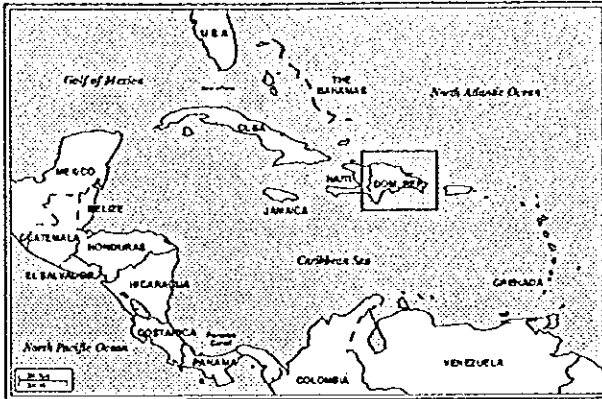


Figure 1 Location of Dominican Republic

2. FACT SHEET

2.1 Socio-economic Index

Index	Data	Data year	Reference
Population	782 million (annual average incremental rate : 1.9% (1990~95))	1995	b)
Race	Halfbreed 73%, Caucasian 16%, Black person 11%	no information	d)
Religion	Catholicism (state religion) over 80%	no information	d)
Literacy rate	Adult Female : 80% Adult Male : 80%	1990	b)
Urban Population rate	65% (5.05 million)	1995	b)
Life expectancy	70 (1990~1995) average	1990-95	b)
Under-5 mortality rate	48 (per 1,000)	1993	b)
GNP ^{*1}	11,400 million (\$ 1,460/person)	1995	b)
GDP ^{*1}	7,900 million (\$ 978/person)	1995	b)
GDP structure	Agriculture : 15% Industry : 23% Service industry & others : 62%	1993	b)
Prime industry	Sugar manufacture, cement, rum	1996	d)
Prime resource	Bauxite, nickel, gold, silver, timber, sugar cane, cacao, coffee, tobacco, rice	1996	d)
Safe water (% of population with access) ^{*2}	Urban : 74% Rural : 67%	1980-1995	b)
% of sewerred population	Urban : 93% Rural : 71%	1980-1995	b)
Human Development Index (HDI)	0.718 (World Bank 87, GDP per capita rank 88 in the same year)	1994	c)

*1 : The estimated value of the GNP was exchanged and adjusted from local currency into US\$ by means of 3-year average of exchange rates. The estimated value of the GDP was presented in US\$ of 1993 based on the exchange rate.

*2 : "Safe water" includes treated surface water, and untreated water which is pumped up from protected spring / excavated well and sanitary well.

*3 : "Sewered population" should be met conditions that the population in urban area can use public sewerage and indoor facility such as dug hole outdoor toilet, pouring water toilet, private sewerage system, public community toilet, and similar facilities, and that the population in rural area can use dug hole outdoor toilet, pouring water toilet, or other proper treatment methods.

2.2 Geographical Characteristics

Area : 48,442km ² (about 1.4 times as Kyushu in Japan)
Geographical features : three important valleys: 1) Cibao Valley, 2) San Juan Valley, 3) Enriquillo basin
3 important valleys: 1) Cibao Valley, 2) San Juan Valley, 3) Enriquillo basin

Source: a)

2.3 Meteorological Characteristics

Climate : sub-tropical
Season: ① Winter (Dec. 22 - May 21), ② Spring (Mar. 22 - Jul. 21), ③ Summer (Jun 22 - Sep. 21), ④ Fall (Sep. 22 - Dec. 21) ⑤ hurricanes and tropical storm season (Jun - Nov.)
Average temperature : 18°C - 24°C
Average annual rainfall: 500 mm/year in dry area, 4,000 mm/year in the wet area
Climatic classification : no information

Source: a)

2.4 Ecological Characteristics

Ecological zones: 9 life zones, 7 transitional zones, 2 basal belt (lowland) life zones
Identified animals and plants: no information
Protected area: no information

Source: a)

2.5 Hydrological Characteristics

Main river: Yuna, Uaque Del Norte Del Sui
Lakes : de Enriquillo

Source: a)

3. INSTITUTIONAL CONTEXT

3.1 Environmental Agency

3.1.1 Governmental Agency

(see "6. SOURCES OF INFORMATION" on each agencies and its contact address.)

Governmental Agency	4.1	4.2	4.3	4.4	4.5	4.6	4.7	4.8	4.9	4.10	4.11	4.12
	Air pollution	Water pollution	Noise	Waste	Energy	Water Supply	Waste Water	Forest	Biodiversity	Resources	Disaster	Education
Secretaría de Estado de Salud Pública y Asistencia Social (SESPAS)	○	—	○	—	—	○	—	—	—	○	—	na
Dirección General de Normas y Sistemas de Calidad (DIGENOR)	○	○	—	—	—	—	—	—	—	—	—	na
Instituto Nacional de Protección Ambiental (INPRA)	○	○	○	—	—	—	—	—	—	—	—	na
Instituto Nacional de Recursos Hidráulicos (INDRHI)	—	○	○	—	—	○	—	○	—	○	—	na
Instituto Nacional de Agua Potable y Alcantarillado (INAPA)	—	○	○	—	—	○	○	—	—	○	—	na
Corporación de Acueducto y Alcantarillado de Santiago (CORAASAN)	—	○	○	—	—	○	○	—	—	○	—	na
Corporación de Acueducto y Alcantarillado de Santo Domingo (CAASD)	—	○	○	—	—	○	○	—	—	○	—	na
Secretaría de Estado de Agricultura (SEA)	—	—	○	—	—	—	—	—	—	—	—	na
Corporación Dominicana de Electricidad (CDE)	—	—	—	—	○	—	—	—	—	—	—	na
Comisión Energética (COENER)	—	—	—	—	○	—	—	—	—	—	—	na
Dirección General de Foresta (DGF):	—	—	—	—	—	○	—	○	○	—	—	na
Dirección Nacional de Parques (DNP)	—	—	—	—	—	○	—	○	○	—	—	na
Comisión Nacional Técnica Forestal (CONATEF)	—	—	—	—	—	—	—	○	○	—	—	na
Comisión Presidencial para la Reforma y Modernización del Estado (CPRyME)	—	—	—	—	—	○	—	—	—	—	—	na
Secretariado Técnico de la Presidencia (STP)	—	—	—	—	—	○	—	—	—	—	—	na
Oficina Nacional de Planificación (ONAPLAN)	—	—	—	—	—	○	—	○	—	○	—	na
Departamento de Vidas Silvestre (DVS)	—	—	—	—	—	—	—	—	○	—	—	na
Centro de Investigación de Biología Marina (CIBIMA)	—	—	—	—	—	—	—	—	○	—	—	na
Instituto para el Desarrollo del Noroeste (INDENOR)	—	—	—	—	—	—	—	—	—	○	—	na
Instituto para el Desarrollo del Suroeste (INDESUR)	—	—	—	—	—	—	—	—	—	○	—	na
General Forestry Directorate	—	—	—	—	—	—	—	—	—	○	—	na
Dirección Nacional de Parques	—	—	—	—	—	—	—	—	—	○	—	na
Secretaría de Estado de Agricultura	—	—	—	—	—	—	—	—	—	○	—	na
Others	—	—	○	○	○	—	○	○	○	○	○	na

Note:1) : ○ → related — → No relation na → no information

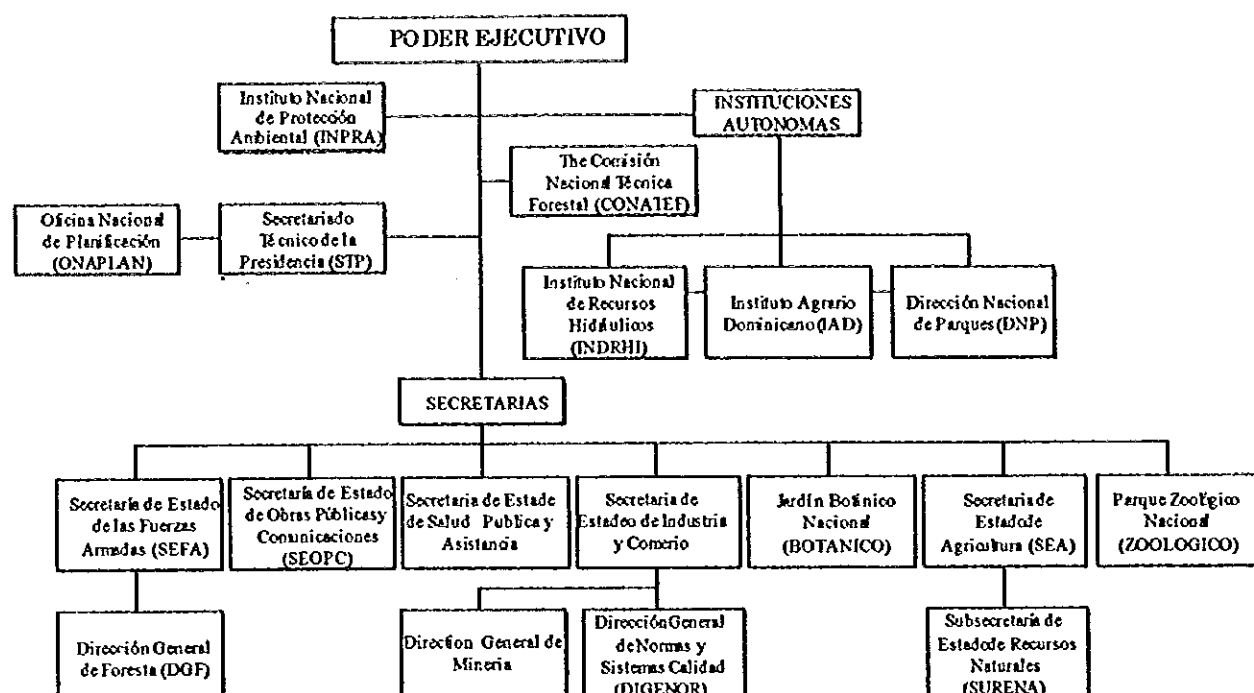
2) : 4.4 Waste management,

4.5 Energy conservation and alternative energy, 4.7 Waste water management,

4.8 Forest conservation / desertification, 4.10 Natural resource management,

4.11 Natural disasters, 4.12 Environmental education

3) : Refer to each section related to other agencies when column "Others" is filled by ○.



Source: a)

Governmental organization related to environmental issues

Organization / Outline of activities	Annual budget	Number of staff
Comisión Nacional Técnica Forestal (CONATEF) (1982, Law 705) • Advisory agency to the President in forest policy, to oversee the preservation and development of existing forest resources; to formulate national forestry policies; to coordinate and supervise the various public and private forest management plans and projects; and to prepare plans for the institutional strengthening of the Commission and the DGF.	(no information)	(no information)
Dirección General Forestal (DGF) (1962, Law 5856) • Management of public forests lands; organization and standardization of the national registry of forest property; surveillance of forests; inventory of forest resources; forestry research; demarcation of forest reservation; reforestation development; sale of state forestry products; national forestry planning.	(no information)	(no information)
Centro de Investigación de Biología Marina (CIBIMA) of the Universidad Autónoma de Santo Domingo (1962, ?) • To conduct scientific research on coastal resources and marine biology	(no information)	(no information)
Subsecretaría de Recursos Naturales (SURENA) (1965, Law 8) • To play normative functions on natural resources base, defining, planning, implementing and supervising of natural resource policy, land use planning for rational use.	(no information)	(no information)
National Institute for Potable Water and Sewers (INAPA) (1962, Law 59944) • Formulation of plans for water supply system and for the disposal of sewage in rural and urban area; execution of this plans; establishment of tariffs to finance potable supply and sewage means.	(no information)	(no information)
Secretaría de Estado de Salud Pública y Asistencia Social (SESPAS) (1956, Law 4471) • The Public Health Code gave to SESPAS control over potable water supplies; to determine standards for potable water; to approve any public and private work related to water supply or waste disposal.	(no information)	(no information)
Instituto Nacional de Recursos Hidráulicos (INDRHI) (1965, Law 6) • Responsible for watershed management; national authority on water resource for irrigation; to regulate the water supply use in cooperation with INAPA and the Compañía Dominicana de Electricidad -CDE (Dominican Electrical Corporation). To construct irrigation infrastructure.	(no information)	(no information)
Corporación de Acueducto de Santo Domingo (CAASD) (1973, Law 498) • Planning, implementing water supply and waste disposal programs for the Santo Domingo city (responsibility transferred from the Municipality)	(no information)	(no information)
Corporación de Acueducto de Santiago (CORAASAN) (1977, Law 582) • Created with similar functions as CAASD for the city of Santiago.	(no information)	(no information)
Superintendencia de Aguas (1998, ?) • Maximum authority on water policy; to coordinate all efforts on planning for potable water and sanitation.	(no information)	(no information)
Dirección General de Minería (DGM) (1971, Law 146) • Absolute control on mining resources exploitation	(no information)	(no information)
Dirección General de Meteorología (1956, Decree 2298) • To Provide meteorological services to the country, To provide meteorological advise for the better use of the resources; data collection on climate	(no information)	(no information)
Departamento de Vida Silvestre (DVS) of the SURENA (1979, Resolution 26 SEA) • To formulate policy and to carry out research on wildlife	(no information)	(no information)
Dirección Nacional de Parques (DNP) (1974, Law 67)	(no information)	(no information)

Organization / Outline of activities	Annual budget	Number of staff
• Autonomous institution responsible for park management; environmental education; environmental research; administration and legal counsel; managing, regulating and protecting recreational, historical, natural systems, and indigenous area.	information)	information)
Comisión Energética (COENER) (1979, Decree 584) • Advise the Presidency on energy policy and on alternatives potential energy sources.	(no information)	(no information)
Instituto Nacional de Protección Ambiental (INPRA) (1998, Decree 216) • To formulate policies concerned with environmental quality; to control, monitor and evaluate its application; control and prevention of the contamination; to carry out research on the status of the environment condition; to establish mechanisms, norms and the rules for waste disposal; to analyze environmental study impact; to emit the Certification of Impact Declaration.	(no information)	(no information)
Dirección General de Normas y Calidad (DIGENOR) (1977, Law 602) • To establish norms and regulations on food processing, and water quality; to monitor the application of the norms.	(no information)	(no information)
Department of Fishery Resource . Secretary of State of Agriculture (1979, Resolution 26, SEA) • To regulate fishing; to do study on potential production capacity of fishery resource; to supervise and to promote the fishing production.	(no information)	(no information)
Oficina Nacional de Planificación (ONAPLAN) (?) • To formulate national development plans; coordinate external aids received by the country; inventory of all type of international aids; to monitor project implementation.	(no information)	(no information)

Source: Nuñez, Rubén; Hernández, José Abel; Morillo Alfredo; et al. 1992. "Dominican Republic Natural Resource Policy Inventory". Technical Report II. THE INVENTORY. Prepared for the USAID. Contract No. LAC-4084-C-00-2016. Project No. 517-0000-3-20009. ABT Associates, Inc. 4800 Montgomery Lane, Suite 500, Bethesda, MD. 20814 (a)

3.1.2 Non-governmental Organization (NGO)

Name of NGO	Established year	Main activities
• Progressio	no information	• Administration of the protected area system "Ebano Verde"
• ADESJO	no information	• Soil conservation adoption in San Jose de Ocoa
• CEBSE	no information	• Working on the biodiversity of Samana and Grupo Jaragua in Oviedo
• Plan Sierra	no information	• Forestry management with the community participation "the Celestina" in San Jose de las Matas
• CASTA	no information	• Organic agriculture and agroforestry in Vill Altigracia

Source: a)

3.2 National Environmental Policy

Policy/Project Name and Contents	Funding or Implementing Agency
(no informaion)	

3.3 Environmental Laws & Regulations

Institution	Policy	Effectiveness of policy or capacity
Secretaria de Estado de Agricultura - SEA	Law 8 /65	The SEA through the SURENA has not been effective in the application of its mandate, due to lack of leadership in the natural resource sector. The management of use of pesticide is not successful either (Law 311/68)
Instituto Nacional de Recursos Hidráulicos- INDRHI	Law 6 /65	INDRHI has been accomplishing the mandate of the Law. It has control on water and farmers who administrate the irrigation system, but not pricing the water.
Secretaria de Estado de Salud Pública y Asistencia Social-SESPAS	Law 1477/56	It has not been effective in the application of the Public Health Code, there is not environmental quality standard; and pollutants are still being discharged without treatment. Besides SESPAS does not have the resources to adequately monitoring the majors points sources.
Dirección General Forestal - DGF	Law 5856/62	This policy has not been effective because the deforestation has increased in the last 30 years.
Instituto Nacional de Agua Potable - INAPA	Law 5994/62	This policy has not been effective because of the large number of the population still do not have access to potable water, none capacity to monitoring water quality; and only 11% of the population is connected to sewage services.
Comisión Nacional Técnica Forestal - CONATEF	Law 705/82	This policy has not been effective because the Commission has not been able to implement the National Forestry Plan specify by the Law. Also there is a permanent conflict between DGF and CONATEF.
Dirección Nacional de Parques -DNP	Law 6774	It has not been effective because this institution has increased the number of protected areas without having the resources and capability for the administration and monitoring. Conflict arise between DGF and DNP in forest management.

Source: a)

4. STATE OF THE ENVIRONMENT

4.1 Atmospheric Pollution

Status

In general, the environmental pollution levels in the Dominican Republic are relatively low, in comparison with the situation in developed countries. However, problems are becoming remarkable, particularly, in Santo Domingo, which is the industrial and economic center of the country, particularly, problems of suspended soots, carbon monoxide, sulphur dioxide, and nitrogen oxides. A certain industrial development, joint with an increase of the number of vehicles, are the main source of atmospheric pollution outside of Santo Domingo. Pollution from mining exploitation (gold, nickel and silver) has been also identified.

Problems

In Santo Domingo, the different type of industries are operating without any kind of controls or regulations. Haina, 20 kilometers from Santo Domingo, is a main center for energy production; the Compañía Dominicana de Electricidad – CDE (Dominican Electricity Company) has several power plants. The use of fuel creates problems because it contains heavy metal, amounting for 60 % of lead. There is neither an environmental normative on air quality, nor organization are responsible for that issue.

Pollution Levels

A few studies about the levels of atmospheric pollution have been carried out by Contreras; the presence of nitrogen oxides, hydrocarbons, sulphur dioxide and formaldehyde have been found. In 1993, in the north side of Santo Domingo, the CO level was under 10 ppm, which is below the standard level (40 ppm) used by the Environmental Protection Agency of the United State of America (EPA), while the nitrogen oxides was under 2.5 ppm. Values less than 1 ppm was reported for hydrocarbons, and for sulphur dioxide under 0.1 ppm. The levels of formaldehyde was under 0.5 ppm, which are below the EPA levels. The acid rain is not yet a problem for Santo Domingo and neither it is for any other city or land in the country.

Source: a)

Related Agency
① Secretaría de Estado de Salud Pública y Asistencia Social (SESPAS)
② Dirección General de Normas y Sistemas de Calidad (DIGENOR, General Directorate for Norms and Quality Systems)
③ Instituto Nacional de Protección Ambiental (INPRA)

Source: a)

Laws and Regulations	Presence	Name of Laws or Regulations (Reference)
① Law on air pollution	?	
② Ambient air quality standard	?	
③ Emission standard (stationary and/or mobile sources)	?	
④ Environmental monitoring results	?	

Note: ○ : Issued, × : None, △ : Under planning, ? : Unknown

4.2 Water Pollution

Status

The status of water pollution in the Dominican Republic is very severe. Most of the industries drain their residual water directly into the municipal sewage system and this goes to the rivers in many cases without treatment, such as in the Isabela, Ozama and Yaque del Norte. The application of a water quality standard for human use and for residual waters is, in practice, null.

Problems

The public health is also affected by contamination of water. Water for human consumption shows certain levels of pollution due to old and malfunctioning pipe lines, as well as for a poor or none water treatment. According to SESPAS, 36% of all disease was reported diarrhea in 1991 due to water contamination. The main causes of water pollution are: lack of treatment of domestic and industrial waste; near the mining field; disposal of raw, solid and liquid waste into rivers; sedimentation of water in streams and aqueducts; uncontrolled use of agrochemical; leakage from the sewage system, latrines and septic tanks connected with the ground water sources; dumping oil and lubricant on soil surface.

Source: a)

Related Agency: Issue	
①	Instituto Nacional de Protección Ambiental (INPRA): Normative Institute on environment
②	Instituto Nacional de Recursos Hidráulicos (INDRHI): Water quality
③	Instituto Nacional de Agua Potable y Alcantarillado (INAPA): Potable water quality
④	Corporación de Acueducto y Alcantarillado de Santo Domingo (CAASD): Potable water quality for Santo Domingo city
⑤	Corporación de Acueducto y Alcantarillado de Santiago (CORAASAN): Potable water quality for Santiago city
⑥	Dirección General de Normas y Sistemas de Calidad (DIGENOR): Establishment of norms of quality for industrial product, regulation of weights and measures, etc.

Source: a)

Water quality Standard

Determinaciones FISICO-QUIMICAS	Analisis	Normas	Determinaciones FISICO-QUIMICAS	Analisis	Normas
Turbiedad Unid		5-25	Sodio (Na) Calc.		
Color Und.		(a) (b)	Carbonatos (CaCO ₃)		
		5-50			
PH		(a) (b)	Bicarbonatos (CaCO ₃)		
		6.5-9.2			
Olor		(a) (b)			
Temperatura °C		Ninguno	Sulfatos (SO ₄)		200-400
			Cloruros (Cl ⁻)		(a) (b)
					200-600
Cloro residual		0.2-1.0	Fluoruros (F ⁻)		(a) (b)
		(a) (b)			0.6-1.7
		500-1500			(a) (b)
Sólidos totales		(a) (b)	Nitratos (NO ₃)		45
CO ₂					100-500
Calcio (CaCO ₃)		187.5-500	Dureza Total (CaCO ₃)		(a) (b)
Magnesio (CaCO ₃)		(a) (b)	Dureza Carbonato		300
Hierro (Fe)		125-600	Alcalinidad (F)		
		(a) (b)	Alcalinidad Total		400
		0.1-1.0			
Manganeso (Mn)		(a) (b)			
		0.05-0.5			
		(a) (b)			
Alcalinidad Total		400			

Source: JICA Project Formulation Study (Water Resources•Underground water development)

Laws and Regulations	Presence	Name of Laws or Regulations (Reference)
① Law on water pollution	?	
② Water quality standard	○	?
③ Effluent standard	?	
④ Drinking water standard	?	
⑤ Water quality monitoring	?	
⑥ Guidelines on water quality	?	

Note: ○ : Issued, × : None, △ : Under planning, ? : Unknown

4.3 Other Pollution

Other types of pollution, such as pollution by noise, soil pollution, underground water pollution, pollution by odors, and radioactive pollution are not significant yet.

(1) Noise

Status

Noise coming from power plants, motor vehicles, motorcycles, entertainment places and popular grocery stores (colmado) with loud music are affecting the environmental quality. There is not legislation on noise control, but a municipal resolution for Santo Domingo establish a maximum of 60 decibel.

Source: a)

Related Agency: Type of pollutions
① Policía Nacional: Noise
② Ayuntamiento de Santo Domingo: Noise
③ Instituto Nacional de Protección Ambiental (INPRA): Normative, monitoring and assessment
④ Instituto Nacional de Agua Potable y Alcantarillado (INAPA): Underground water
⑤ Instituto Nacional de Recursos Hidráulicos (INDRHI): Underground water, flow water, soil erosion
⑥ Secretaría de Estado de Salud Pública y Asistencia Social (SESPAS): Water quality
⑦ Corporación de Acueducto y Alcantarillado de Santo Domingo (CAASD): Water quality
⑧ Corporación de Acueducto y Alcantarillado de Santiago (CORAASAN): Water quality
⑨ Secretaría de Estado de Agricultura (SEA): Water quality and soil erosion

Source: a)

Laws and Regulations	Presence	Name of Laws or Regulations (Reference)
① Law on noise	×	
② Standard on noise level	×	

Note: ○ : Issued, × : None, △ : Under planning, ? : Unknown

4.4 Waste Management

Status

In 1984, the Dominican Congress passed a Law 128 banning introduction of human and animal excrement, garbage, and sewage mud. Existing norms point that Ayuntamientos (Municipalities) are responsible for urban solid waste collection. However, lack of economic resources, equipment, and personnel make it difficult to accomplish the task. The public health code (law 1477/1956) banned discharge of solid waste in rivers and other water bodies if they are not appropriately treated. But, this law has not been enforced and causing water body pollution. Appropriate places for waste disposal are lacking.

The Capital of Santo Domingo produces about 2,400-2,800 ton per day of solid waste, in 1996 according to ONAPLAN, which is critical to be handled. The recycling in the country refers to paper, aluminum cans, automotive battery lead and metal. But, only paper is recycled in a significant quantity the paper industries and metals by the Industria Complejo Metalrgico Dominicano – Metaldom (Dominican Metal Industry). Glass bottles are reused in the ron (Dominican rum), beer and soda industry.

A sanitary landfill is being constructed, but municipalities face problems with waste recollection. Besides the Municipality, three private companies have been contracted for solid waste collection in Santo Domingo; Dixi Sanitary Services, Klinetex and Colimec. In other towns the Municipalities carry out this task. In 1998, a sanitary landfill structure "Duquesa" was constructed with the cooperation of the Government of Japan.

Problems

Lack of regulations to control waste disposal; lack of awareness about waste management and associated problems; incapacity of Municipalities to accomplish their mandates; insufficient economic resources; lack of sanitary landfill; insufficient equipment; and lack of long term solid waste management plan.

Source: a)

Related Agency: Issues
① Municipalities: Household solid waste
② Private companies (Dixi, Colimec and Klinetex): Industrial and commercial solid waste

Source: a)

Status of the Landfill Sites

Name of Landfill Site in St. Domingo City	Status	Topography and Landfill Method	Residual Capacity	Environmental Problem	Other
Haiti	Under use as main landfill site for city.	Dumping into narrow and deep valley (30m depth). Difficult situation for changing into sanitary landfill.	1 year	High possibility of leachate from the bottom of a ravine into sea.	Private land
San Isidro	Under use as special disposal site for the Directorate of the President.	Dumping into closed open pit mining site.	2 years	No public problem due to inside airbase/	National land
Guaricano	Closed	Dumping on gentle hill.	none	—	Private land
Cansino	Closed	Dumping on flatland.	none	—	Many houses built.

Source: JICA, 1993

Laws and Regulations	Presence	Name of Laws or Regulations (Reference)
① Laws on waste	○	Law 1477/1956
② Laws on hazardous waste	×	

Note: ○ : Issued, × : None, △ : Under planning, ? : Unknown

4.5 Energy Conservation

Status

By 1995, 24 units using fossil fuel generated 74% of the total energy production; and 15 hydroelectric units produced the remaining 26% of energy. Corporación Dominicana de Electricidad (CDE) controls 70% of the total energy produced and the private sector produces the remaining 30% of the electric power. By that time, around 29 % of households and small industries used charcoal and fuel wood as main source of energy.

The CDE is experimenting a privatization process, which is being handled by the Comisión de Capitalización de las Empresas Públicas (Commission for the Capitalization of Public Enterprises). It is expected that by December 1998 the energy generation sector will be under private administration, excluding hydroelectric power and the transmission, which will continue under the Government control.

Problems

There is a big energy shortage and leakage, lack of power plant maintenance and obsolescence of installed power plants in energy generation during transmission, also, incapacity for users for energy bills, is causing economic deficit to the CDE. Inefficient administration, international debt as well as a large amount of workers are affecting the privatization and capitalization process.

Source: a)

Related Agency: Issue
① Corporación Dominicana de Electricidad (CDE): Electric energy production/distribution
② Superintendencia de Energía: Electric energy planning
③ Comisión para la Reforma de las Empresas Públicas: Privatization and capitalization of the public enterprise
④ Comisión Energética (COENER): Alternative energy, wind power energy

Source: a)

Laws and Regulations	Presence	Name of Laws or Regulations (Reference)
① Laws on energy use and conservation	?	

Note: ○ : Issued, × : None, △ : Under planning, ? : Unknown

4.6 Water Supply

The water distribution system is centrally administered, but characterized by a shortage of water supply system for human consumption. According to the Comisión Presidencial para la Reforma y Modernización del Estado – CPRyME (Presidential Commission for the Reform and Modernization of the State), in 1997 only the 65 % of the total population, 4,593,698 habitants have access to potable water, but not necessarily with the continuity and quality expected. It means that there is remaining 35 % of the total population without the potable water (2,481,164 habitants).

The water distribution follows to 80.1 % of the urban population (3,123,077 habitants), and 46.1 % (1,470,621 habitants) in the rural zones. In the urban area about 19.9 % (775,875 habitants) and the 53.9 % (1,719,447 habitants) of the rural population do not have received water services.

The drinking water from superficial source (such as Valdesia and La Isabela river in Santo Domingo; Yaque del Norte, and Bao river in Santiago) is distributed by a red of 502 aqueducts, 114 in the urban zone and 388 in the rural area, water is also collected by 403 wind mills located in the rural zone, underground water is distributed by 1,342 dwells.

Source: a)

Related Agency: Issues
Water Resource
① Instituto Nacional de Recursos Hidráulicos (INDHRI): Responsible for watershed management and water supply for different use, for domestic and industry consumption, irrigation and energy production
② Secretaría de Estado de Salud Pública y Asistencia Social (SESPAS): Water quality control
③ Dirección General de Foresta (DGF): Obligations on forest protection/conservation
④ Dirección Nacional de Parques (DNP): Administration of national parks and other protected areas
Water Supply System
① Instituto Nacional de Agua Potable y Alcantarillado (INAPA): Responsible for water supply distribution for the entire country, except for Santo Domingo and Santiago
② Corporación Acueducto y Alcantarillado de Santo Domingo (CAASD): Responsible for the water supply distribution of Santo Domingo city
③ Corporación Acueducto y Alcantarillado de Santiago (CORAASAN): Responsible for the water supply distribution of Santiago city
④ Comisión Presidencial para la Reforma y Modernización del Estado (CPRyME): Is uncharged of the reform and modernization of the water sector among other sectors
⑤ Secretariado Técnico de la Presidencia (STP): Allocation of foreign and local resources and national planning infrastructure
⑥ Oficina Nacional de Planificación (ONAPLAN): Allocation of foreign and local resources and national planning infrastructure
⑦ Secretaría de Estado de Salud Pública y Asistencia Social (SESPAS): Water quality control

Source: a)

The water supply problems
Institutional problems
<ul style="list-style-type: none"> . The institutions must define roles . Poor coordination and overlapping of functions among institutions . Only 9 % of the water connections, mainly in Santiago city, have device installed to control the volume of water used by households and other users . Lack of strength of institutional capacity
The legal problems
<ul style="list-style-type: none"> . The legal frame is very disperse . Overlapping of current legal instruments . There is not regulatory frame in the provision of the water service . No provision of the water service . Water tariff does not reflect the water resource value . Deficit on financial operation

Source: a)

Laws and Regulations	Presence	Name of Laws or Regulations (Reference)
① Laws on water resources and supply	?	
② Laws on use of water resources	?	

Note: ○ : Issued, × : None, △ : Under planning, ? : Unknown

4.7 Waste Water Management

In 1997, there are 38 sewage systems (32 in the urban area and 6 in the rural zone), which provide utilities to 854,700 persons, representing a 11 % of the total population (CPRyME). The common practice of discharging solid waste into waterways is affecting water quality. Sewage treatment has never been a discussion issue, but it will gain relevance because of the competence for land use. There is a lack of information for sewage treatment in the country, and only data from Santo Domingo is available. There are four treatment plants in Santo Domingo. Most of the waste are discharged directly into the river.

Source: a)

Related Agency: Issue	
<i>At the national level</i>	
①	Instituto Nacional de Agua Potable y Alcantarillado (INAPA): Waste water treatment and sewage treatment
<i>At the local level</i>	
①	Corporación de Acueducto y Alcantarillado de Santo Domingo (CAASD): Waste water treatment and sewage treatment
②	Corporación de Acueducto y Alcantarillado de Santiago (CORAASAN)
③	Ayuntamientos Municipales: Waste water treatment and sewage treatment

Source : a)

The problems of waste water management
<ul style="list-style-type: none"> • Lack of treatment of domestic and industrial wastes; • Disposal of liquid wastes into rivers, streams and ocean waters; • Uncontrolled use of fertilizers and pesticides, washes into rivers and streams; • Sedimentation of water sources affects water quality; • Percolation of contaminated wasters from surface dumps later contaminate groundwater.

Source: a)

Laws and Regulations	Presence	Name of Laws or Regulations (Reference)
① Laws on sewerage system	?	
② Laws and regulations on industrial effluent	?	
③ Effluent standard	?	
④ Results of monitoring	?	

Note: ○ : Issued, × : None, △ : Under planning, ? : Unknown

4.8 Forest Conservation/Desertification

Status

In 1967, the Organization of American States (OAS) reported the Dominican Republic has 67% (1.85 million hectares) of its land area in soil classes VI, VII, VIII, which are most appropriate for forestry; in 1990 FAO in its report "Forestry Statistics Today for Tomorrow, 1993", a 22 % of the land is scattered covered with some type of forest. The same report indicated that in 1991 the Dominican Republic has produced close to 1 million m³ of round woods from non-coniferous forest (broad leaves); and the country imported an estimated of US\$85 million of forest product in 1991. The Government and private institutions are making efforts and using resources for planting trees, such as Quisqueya Verde Plan, which coordinate the implementation of a national reforestation with the participation of NGOs and public institutions, but the deforestation rate is greater than plantation rate.

Problems

Hernández (1998) estimated the deforestation rate for the Southwest Region in 90.27 km²/year, during 1989-1992, due to slash and burn agriculture and to forest fire. The main issue associated with the deterioration of forest resources is the accelerated rate of deforestation. The legal restriction, such as the regulation that prohibit the cutting trees without the permission given by CONATEF, including forest exploitation as well as the non property right on the forest resource. Others problems affecting the forest sector are institutions overlapping functions and insufficient human resource to conduct the activities.

Source: a)

Related Agency: Issue	
<i>At the National level: Monitoring the deforestation</i>	
①	Dirección General Forestal (DGF): Reforestation
②	Comisión Nacional Técnica Forestal (CONATEF): Review the existing law
③	Dirección Nacional de Parques (DNP): Administration of national parks
④	Instituto Nacional de Recursos Hidráulicos (INDHRI): Watershed management (reforestation)
⑤	Plan Nacional Quisqueya Verde: Reforestation
⑥	Comisión Nacional para la Desertificación in Oficina Nacional de Planificación (ONAPLAN) : Desertification
⑦	PRONATURA, Inc: Desertification
<i>At the Regional/Local Level</i>	
①	Plan Sierra, Inc. ¹ : Deforestation
②	Plan Cordillera, Inc. ² : Aforestation
③	ADESJO ³ : Social Forestry

Social Forestry/Aforestation in: ¹ San Jose de las Matas ² La Vega, Bonao ³ San Jose de Ocoa

Source: a)

National Park (km²)

	Arid forest	Broad leaf forest	Coniferous forest	Others	Total
Armando Bermudez	—	278.6	462.2	25.3	766.0
Jose del C. Ramirez	—	—	678.4	85.7	764.0
Bahoruco	81.4	123.6	377.8	16.5	600.0
Jaragua	303.2	157.4	—	939.4	1,400.0
Los Haitises	—	530.0	—	—	530.0
El Este	—	393.6	—	36.4	430.0
Total	348.6	1,483.1	1,518.2	1,103.3	4,490.0

Note: Pine trees 1,518km² (National forest: 67%),

Total forest area: 3,387 km² (National forest: 38%)

Source: Estudio de la Legislacion e Instituciones Forestal en la R.D. (1987)

Forest area and protected area

Forest area (1990) (1,000km ²)	11
Annual deforest (1981~90)	
Total area (1,000 km ²)	0.4
% of Total area	3.3
Protected area (1993)	
Total area (1,000 km ²)	10.5
No. of designated area	17
% of total area	21.5

Source: World Development Report 1996, The World Bank

Laws and Regulations	Presence	Name of Laws or Regulations (Reference)
① Laws on forest conservation	?	
② Laws and regulation on protection area	?	
③ Laws on desertification	?	

Note: ○ : Issued, × : None, △ : Under planning, ? : Unknown

4.9 Biological Diversity

Status

The level of the endemism for fauna in the country is high: 15 % of the fishes, 97 % of the amphibians, 83 % of the reptiles, and 15 % of the birds are exclusive to the island. Approximately, 36 % of the 5,600 species of plants are thought to be endemic. 137 plant species are threatened or in danger of extinction. There are 72 protected areas (more than 15% of its 48,400 km²), in addition to that, there are extensive marine habitats and offshore islands.

Some of the national parks are: José del Carmen Ramirez, Armando Bermudez, los Haitises, Jaragua, Parque del Este and Sierra de Bahoruco; and some of the scientific areas are: Laguna Cabral, Reserva Ebano Verde y Loma Quita Espuela.

Problems

According to DIRENA during the past two decades, the forested land has drastically dropped around 14-27 % of the country's surface. In 1992, 89 species of vertebrates are considered as threatened and require actions to guarantee the recovery of their population. There is a lack of personnel and infrastructure to administrate protected areas.

Source: a)

Related Agency: Issue
① Zoológico Nacional: Protection of endangered species and important habitats
② Departamento de Vidas Silvestre (DVS): Protection of endangered species and important habitats
③ Dirección General de Foresta (DGF): Protection of endangered species and important habitats
④ Jardín Botánico Nacional: Protection of endangered species and important habitats
⑤ Centro de Investigación de Biología Marina (CIBIMA): Coral reefs
⑥ Dirección Nacional de Parques (DNP): Wetlands
⑦ Dirección Nacional de Parques (DNP): Administration of national parks
⑧ Comisión Nacional Técnica Forestal (CONATEF): Forestry policy
⑨ Dirección General de Foresta (DGF): Reforestation
⑩ Dirección Nacional de Parques (DNP): Protected areas

Source: a)

Laws and Regulations	Presence	Name of Laws or Regulations (Reference)
① Laws on protection for fauna and flora	?	
② Laws and regulations for protection for specific species	?	
③ Laws and regulations on hunting	?	
④ Laws and regulations on protection area	?	
⑤ Listed species in the Red Data Book	?	

Note: ○ : Issued, × : None, △ : Under planning, ? : Unknown

4.10 Natural Resource Management

Bases of physical and biological resources are degraded and depleted. Protection of natural areas: parks and others, such as, Park del Este, Montecristi Park and Laguna Limón, is jeopardized by tourism promoters and small farmers for agricultural production, because of non clear boundary delimitation of these areas. Forest land use is still banned, but deforestation is progressive, and wildlife is barely protected, over fishing is generally occurring, as is the case of Green turtle (*Chelonia mydas*), lobster and crab and over hunting is occurring in the case of Manatee (*Trichechus mamatus*), Humpback whole (*Megaptera novaeangliae*) and Oyster catcher (*Haematepus ostralegus*), which are reported endangered by the World Conservation Union. Agricultural chemicals, industrial and municipal wastes are polluting fresh water bodies superficial and underground and ocean. The soil pollution due to its magnitude on the environment are also serious.

Source: a)

Related Agency	
Assessment	Monitoring and Management
<p><i>National Level</i></p> <p>① Secretaría de Estado de Agricultura</p> <p>② Comisión Nacional Técnica Forestal</p> <p>③ General Forestry Directorate</p> <p>④ Instituto Nacional de Recursos Hidráulicos (INDRHI)</p> <p>⑤ Dirección Nacional de Parques</p> <p>⑥ Secretaría de Estado de Salud Pública y Asistencia Social (SESPAS)</p> <p>⑦ Secretaría de Estado de Obras Públicas y Telecomunicaciones</p> <p>⑧ Dirección General de Minería</p> <p>⑨ Oficina Nacional de Planificación (ONAPLAN), STP</p> <p><i>Local</i></p> <p>① Plan Sierra, Inc.</p> <p>② Instituto para el Desarrollo del Noroeste (INDENOR)</p> <p>③ Instituto para el Desarrollo del Suroeste (INDESUR)</p> <p><i>Sectoral</i></p> <p>① Secretaría de Estado de Agricultura</p> <p>② Comisión Nacional Técnica Forestal</p> <p>③ Dirección General Forestal</p> <p>④ Instituto Nacional de Recursos Hidráulicos (INDRHI)</p> <p>⑤ Dirección Nacional de Parques</p> <p>⑥ Institute Nacional para la Protección del Ambiente</p> <p>⑦ Secretaría de Estado de Salud Pública y Asistencia Social (SESPAS)</p> <p>⑧ Secretaría de Estado de Obras Públicas y Telecomunicaciones</p>	<p><i>National Level</i></p> <p>① Secretaría de Estado de Agricultura</p> <p>② Comisión Nacional Técnica Forestal</p> <p>③ General Forestry Directorate Instituto Nacional de Recursos Hidráulicos (INDRHI)</p> <p>④ Dirección Nacional de Parques</p> <p>⑤ Instituto Nacional de Agua Potable y Alcantarillado (INAPA)</p> <p>⑥ Secretaría de Estado de Obras Públicas y Telecomunicaciones</p> <p>⑦ Oficina Nacional de Planificación (ONAPLAN), STP</p> <p><i>Local</i></p> <p>① Corporación de Acueducto y Alcantarillado de Santo Domingo (CAASD)</p> <p>② Corporación de Acueducto y Alcantarillado de Santiago (CORAASAN)</p> <p><i>Sectoral</i></p> <p>① Secretaría de Estado de Agricultura</p> <p>② Comisión Nacional Técnica Forestal</p> <p>③ General Forestry Directorate</p> <p>④ Instituto Nacional de Recursos Hidráulicos (INDRHI)</p> <p>⑤ Dirección Nacional de Parques</p> <p>⑥ Instituto Nacional de Agua Potable y Alcantarillado (INAPA)</p>

Source: a)

The main problems affecting natural resources
<ul style="list-style-type: none"> • Overlapping institutional responsibilities and non coordination among governmental institutions and NGOs to implement the environmental actions; • Lack of a natural resource management strategy; • Existing inappropriate legal framework with obsolete laws and regulations; • High deforestation level; • Non sustainable soil and water conservation program; • Institutional weakness; overgrazing and over fishing; • Lack of land use plan and control; • Non control on waste and pollutant discharges; • Non standards for environmental conditions; • Non priority on allocating national fund for resource conservation.

Source: a)

Laws and Regulations	Presence	Name of Laws or Regulations (Reference)
① Laws on conservation of natural resources	?	
② Laws on use and conservation of mining resources	?	
③ Laws on underground resources	?	

Note: ○ : Issued, × : None, △ : Under planning, ? : Unknown

4.11 Natural Disasters

The Dominican Republic is also located in an area of periodic seismic activity resulting from a series of recorded tremors ranging in magnitude on the Richter scale between 4-5 during the last 50 years. The 1983 seismic potential map covers the eastern portion of the country and estimates that this region has the potential for large, moderate and moderately low earthquakes. However, volcanic hazards are not a significant concern.

Tropical storms and hurricanes originating in the tropical Atlantic and the Caribbean Sea during June to October have repeatedly wreaked havoc and destruction on the island of Hispaniola. Serious damage and loss of life are primarily due to high winds and storm surges.

With the fact that 84% of all hurricanes occur during August and September, most often destruction by hurricanes is attributable to wave or wind which give direct impact on fixed structures. "El Niño" appear almost every two years, it is another natural phenomena that had changed the rainfall behavior, the same is true for "La Niña" for dry seasons and temperature.

Source: a)

Related Agency
① Civil Defens Corps.
② Red Cross
③ Fire and Police Station
④ Emergency medical services

Source: a)

Laws and Regulations	Presence	Name of Laws or Regulations (Reference)
① Laws on natural disaster	?	

Note: ○ : Issued, × : None, △ : Under planning, ? : Unknown

4.12 Environmental Education

During 1970s, the Dominican people became aware of the effects of their unplanned development. Poverty and rapid increase of the population have been causing many environmental problems such as waste management, air pollution, water pollution, deforestation and soil erosion. Many environmental protection groups and environmental education government offices have been set up since them.

Universities, public and private schools, NGO centers and international development assistance agencies have been playing the leading formal roles with variety of skills at the different levels such as natural resource management, environmental education issues, protected areas, marine and coastal ecosystems, pollution control, and so on.

Source: a)

Related Agency
(no information)

Laws and Regulations	Presence	Name of Laws or Regulations (Reference)
① Laws on education	?	
② Guidelines on environmental education	?	

Note: ○ : Issued, × : None, △ : Under planning, ? : Unknown

5. INTERNATIONAL RELATIONSHIP

5.1 International Convention

Name of international Convention	Year
1) (no information)	

Source:

5.2 International Cooperation Project

Name of Project (Project cost: million dollars)	Period	Donor/South African lead agency
Hydroelectric dam Los Toros	(no information)	CEE
Geologic mining development program	(no information)	
National Parks conservation Program	(no information)	
Integrated rural development of the northwest (PROLINO)	(no information)	
Natural resource data base inventory	(no information)	DPE-SWI
Rehabilitation program for the electric sector	(no information)	BID
Watershed administration and irrigation land	(no information)	
Program for transferring irrigation system to users	(no information)	
Program for the agricultural development of San Juan de Maguana	(no information)	
Agricultural credit and capacitating for small farmer in the frontier region	(no information)	
Dominican Corporation of Electricity rehabilitation	(no information)	
Dry forest management	(no information)	GTZ
Coastal fishing development in Samaná	(no information)	
Agricultural statistics and information support	(no information)	FAO
Fishery legislation	(no information)	JICA
Protected area planning	(no information)	DED
Nalga de Maco Reserve management plan	(no information)	
Forest extension program	(no information)	
Forestry micro enterprise organization in Zambrana	(no information)	
Monitoring marine environment pollutant	(no information)	OIEA
Reform and modernization of the agricultural sector	(no information)	IICA

Note: 1992-1994; 1997. Santo Domingo, D. N.

Source: PNUD/ STP. 1997. Informe de Cooperación para el Desarrollo. República Dominicana.

6. INFORMATION SOURCE

6.1 Governmental Agency

Name of Organization	Contact Address
a) Oficina Nacional de Planificación (ONAPLAN) Departamento Ambiental. Cooperación Internacional	• Edificios Oficinas Públicas. Bloque B. Ave Mexico/Dr. Delgado, Santo Domingo. Tel. (809) 221-8625; 221-5140, Fax. (809) 221-8627 Email. onaplan2@Codetel.net.do
b) Agencia Internacional para el Desarrollo de los Estados Unidos de América (AID)	• US. American Embassy, Santo Domingo
c) Comisión de Protección del Ozono	• Secretaría de Estado de Agricultura. DIRENA. Av. J. F. Kennedy, Urb. Jardines del Norte, Santo Domingo. Tel. (809) 547-3484
d) Instituto Tecnológico de Santo Domingo (INTEC)	• Av. Los Próceres, Santo Domingo.
e) Secretaría de Estado de Salud Pública y Asistencia Social (SESPAS)	• Av. San Cristóbal, Santo Domingo Tel. (809) 541-3121, Fax. (809) 544-4337
f) Instituto Dominicano de Tecnología (INDOTEC)	• Av. Nuñez de Cáceres. Santo Domingo. Tel. (809) 566-8121
g) Instituto Nacional de Agua Potable y Alcantarillado (INAPA)	• El Millón, Santo Domingo Tel. (809) 567-1241, Fax. (809) 566-2950
h) Corporación de Acueducto y Alcantarillado de Santo Domingo (CAASD)	• Euclides Morillo, Santo Domingo. Tel. (809) 565-6530, Fax. (809) 562-2131
i) Corporación de Acueducto y Alcantarillado de Santiago (CORAASAN)	• Av. Circunvalación, Nivaje, Santiago. Tel. (809) 575-0524, Fax. (809) 581-8730
j) Instituto Nacional de Recursos Hidráulicos (INDRHI)	• Centro de los Héroes, Santo Domingo Tel. (809) 532-3271, Fax. (809) 508-3825.
k) Corporación Dominicana de Electricidad (CDE)	• Centro de los Héroes, Santo Domingo Tel. (809) 534-1100, Fax. (809) 535-7472
l) Comisión de Reforma de la Empresa Pública	• Gustavo Mejía Ricart # 73. Santo Domingo Tel. (809)683-3307, Fax. (809) 683-3888; Email. cde.comisión@codetel.net.do
m) Superintendencia de Energía	• Gustavo Mejía Ricart # 73. Santo Domingo Tel. (809)683-3307, Fax. (809) 683-3888 Email. cde.comisión@codetel.net.do
n) Secretaría de Estado de Agricultura (SEA)	• Secretaría de Estado de Agricultura. DIRENA. Av. J. F. Kennedy, Urb. Jardines del Norte, Santo Domingo Tel. (809) 547-2585;
o) Subsecretaría de Recursos Naturales (SURENA)	• Apartado Postal 761-2, Edificio Secretaría de Estado de Agricultura (SEA), Ph. Domingo Tel. Santo (809) 547-2189, Fax. (809)227-7426
p) Comisión Presidencial para la Reforma y Modernización del Estado (CPRyME)	• Galván /México. Santo Domingo.
q) Comisión para la Reforma de las Empresas Públicas (CREP)	• Gustavo Mejía Ricart # 73. Santo Domingo Tel. (809)683-3307, Fax. (809) 683-3888 Email. cde.comisión@codetel.net.do
r) Ayuntamiento de Santo Domingo	• Centro de los Héroes, Santo Domingo Tel. (809) 535-1181; (809) 535-1021
s) Liga Municipal Dominicana	• Av. Jiménez Moya, Santo Domingo Tel. (809) 533-3181, 533-0844
t) Plan Nacional Quisqueya Verde	• Apartado Postal 761-2, Edificio Secretaría de Estado de Agricultura (SEA), Santo Domingo Tel. (809) 227-6933
u) Dirección Nacional de Parques	• Av. Máximo Gomez. Santo Domingo. Tel. (809). 562-0333 Fax. (809) 562-0333
v) Comisión Nacional Técnica Forestal (CONATEF)	• Edificio de Oficinas Gubernamentales _Juan Pablo Duarte_ Piso 14, Santo Domingo, D. N. Tel.(809) 688-0902, Fax. (809) 685-4950

Source: a)

6.2 Embassy

Name of Organization	Person in Charge	Contact Address
Embajada del Japón	no information	• Torre BHD 8 Piso, Avenida Winston Churchill, Esquina Luis F. Thomén Santo Domingo, República Dominicana

Name of Organization	Person in Charge	Contact Address
Embassy of Dominican Republic	no information	〒106-0031 Room 904 Kowa 38 Bld., 4-12-24 Nishiazabu, Minato-ku, Tokyo Tel: 03-3499-6020

Source: d)

List of Abbreviation			
ADESJO	Asociación para el Desarrollo de San José de Ocoa (San José de Ocoa Development Association)	GATT	General Agreement of Tariff and Trade
BAGRICOLA	Banco Agrícola de la República Dominicana (Agricultural Bank)	GTZ	Agencia de Cooperación Técnica Alemana (Germany Technical Cooperation Agency)
BID	Banco Interamericano de Desarrollo (Inter-American Development Bank)	HELVETAS	Agencia de Cooperación Suiza (Swiss Cooperation Agency)
BOTANICO	Jardín Botánico Nacional (National Botanic Garden)	IAD	Instituto Agrario Dominicano (Dominican Agrarian Institute)
CAASD	Corporación de Acueducto y Alcantarillado de Santo Domingo (Corporation of Aqueduct and Sewage of Santo Domingo)	IICA	Instituto Interamericano de Cooperación Agrícola
CDE	Compañía Dominicana de Electricidad (Dominican Electricity Company)	INDENOR	Instituto de Desarrollo del Noroeste (Northwest Development Institute)
CEE	Comunidad Económica Europea (European Economic Community)	INDESUR	Instituto de Desarrollo del Suroeste (Southwest Development Institute)
COENER	Comisión Energética (Energetic Commission)	INDOTEC	Instituto Dominicano de Tecnología Industrial (Dominican Technology Industry Institute)
CREP	Comisión de Reforma de las Empresas Públicas (Commission for the Reform of the Public Enterprises)	INDRHI	Instituto Nacional de Recursos Hidráulicos (National Institute for Hydraulic Resource)
CONATEF	The Comisión Nacional Técnica Forestal (National Technical Forestry Commission)	INDUSTRIA & COMERCIO	Secretaría de Estado de Industria y Comercio (Secretariat of State of Industry and Commerce)
CORAASAN	Corporación de Acueducto y Alcantarillado de Santiago (Corporation of Aqueduct and Sewage of Santiago)	IDECOOP	Instituto de Desarrollo del Crédito Cooperativo (Development Institute of Credit Cooperative)
CPRyME	Comisión Presidencial para la Reforma y Modernización del Estado (Presidential Commission for the Reform and Modernization of the State)	INESPRE	Instituto Nacional de Estabilización de Precios (National Institute for Price Stabilization)
DED	Servicio Alemán de Cooperación Social-Técnica (Germany Social-Technical Cooperation Service)	INPRA	Instituto Nacional de Protección Ambiental (National Institute for Environmental Protection)
DCT	Departamento de Corteza Terrestre (Earth Crust Department)	OAS	Organization of American States
DGF	Dirección General de Foresta (Forestry General Directorate)	OIEA	Organización Internacional de Energía Atómica (Atomic Energy International Organization)
CFI	Corporación de Fomento Industrial (Corporation for the Industrial Promotion)	SEA	Secretaría de Estado de Agricultura (State Secretariat of Agriculture)
DGM	Dirección General de Minería (Mining General Directorate)	SEFA	Secretaría de Estado de las Fuerzas Armadas (Secretariat of State of the Army Forces)
DIGENOR	Dirección General de Normas y Sistemas Calidad (General Directorate for Norms and Quality Systems)	SEOPC	Secretaría de Estado de Obras Públicas y Comunicaciones (State Secretariat of Public Works and Communication)
DIRENA	Departamento de Inventario de los Recursos Naturales (Natural Resources Inventory Department)	SERE	Secretaría de Estado de Relaciones Exteriores (State Secretariat of Foreign Affairs)
DNP	Dirección Nacional de Parques (National Parks Directorate)	STP	Secretariado Técnico de la Presidencia (Technical Secretariat of the Presidency) ONAPLAN Oficina Nacional de Planificación (National Planning Office)
DPE-SWI	Departamento de Política Extranjera de Suiza (Foreign Policy Department of Switzerland)	SURENA	Subsecretaría de Estado de Recursos Naturales (Natural Resources Undersecretariat)
DRP	Departamento de Recursos Pesqueros (Department of Fishery Resources)	USAID	Agencia para el Desarrollo Internacional de los Estados Unidos de Norteamérica (United State International Development Agency)
DVS	Departamento de Vida Silvestre (Wildlife Department)	WTO	World Trade Organization
FAO	Food and Agricultural Organization of the United Nations	Zona Franca	Free Trade Industrial Zone
FUDECO	Fundación de Desarrollo Comunitario (Community Development Foundation)	ZOOLOGICO	Parque Zoológico Nacional (Zoo National Park)

Source: a)

7. REFERENCE

a) José Abel Hernández Santo Domingo, D.N., 1998. Country Profile Study on Environment for The Dominican Republic
Following references numbered by a-O are referred in a).

Atmospheric Pollution

- a-1) The Dominican Republic Country Environmental Profile: A Field Study. 1981. USAID (prepared by Harsthorn, et al.). JRB Associates 8400 Westpark Drive. McLean, VA 22102. USA.
- a-2) Contaminación Ambiental de los Barrios Pericentrales de la Ciudad de Santo Domingo. Report of the Project 'Uso de Suelo y Contaminación Ambiental de los Barrios Pericentrales de Santo Domingo'. 1993. Ford Foundation. (prepared by Contreras, José B). Instituto Tecnológico de Santo Domingo) Santo Domingo, D.N. Dominican Republic.
- a-3) Dominican Republic Environmental Issues Paper. 1993. World Bank. Final Version. Report No. 11813-DO. Latin American and the Caribbean Regional Office. Department III. Country Operation Division 1. Washington D.C.
- a-4) Resultados del VII Censo Nacional de Población y Vivienda. 1993. ONE. Santo Domingo, the Dominican Republic.

Water pollution

- a-5) Investigación Intensiva de las Actividades Rurales y Urbanas y sus Impactos en los Recursos de Agua y Costeros. 1992. USAID (prepared by Tropical Research and Development, Inc.). Santo Domingo, D.N. Dominican Republic.
- a-6) Dominican Republic Environmental Issues Paper. 1993. World Bank. Final Version. Report No. 11813-DO. Latin American and the Caribbean Regional Office. Department III. Country Operation Division 1. Washington D.C.

Other Pollution

- a-7) Dominican Republic Environmental Issues Paper. 1993. World Bank. Final Version. Report No. 11813-DO. Latin American and the Caribbean Regional Office. Department III. Country Operation Division 1. Washington D.C.
- a-8) The Dominican Republic Country Environmental Profile: A Field Study. 1981. USAID (prepared by Hartshorn, et al.) JRB Associates 8400 Westpark Drive. McLean, VA 22102. USA.

Waste Management

- a-9) Análisis Sectorial y Lineamiento para la Reforma y Modernización del Sector Agua de la República Dominicana. RESUMEN EJECUTIVO. 1997. CPRyME. Santo Domingo, D.N. Dominican Republic.
- a-10) Investigación Intensiva de las Actividades Rurales y Urbanas y sus Impactos en los Recursos de Agua y Costeros. 1992. USAID (prepared by Tropical Research and Development, Inc.). Santo Domingo, D.N. Dominican Republic.
- a-11) Dominican Republic Natural Resource Policy Inventory. Volum II. INVENTORY. APAP II. Technical Report 128. 1992. USAID (prepared by Abt Associates Inc. MA. USA). Santo Domingo, D.N. Dominican Republic.

Energy Conservation

- a-12) Evaluación Ambiental del Sector Electrico. 1995. USAID. Santo Domingo, D. N. Dominican Republic.
- a-13) Dominican Republic Natural Resource Policy Inventory. Volum II. INVENTORY. APAP II. Technical Report 128. 1992. USAID (prepared by Abt Associates Inc. MA. USA). Santo Domingo, D.N. Dominican Republic.

Water Supply

- a-14) Análisis Sectorial y Lineamiento para la Reforma y Modernización del Sector Agua de la República Dominicana. RESUMEN EJECUTIVO. 1997. CPRyME. Santo Domingo, D.N. Dominican Republic.

Waste Water Management

- a-15) Análisis Sectorial y Lineamiento para la Reforma y Modernización del Sector Agua de la República Dominicana. RESUMEN EJECUTIVO. 1997. CPRyME. Santo Domingo, D.N. Dominican Republic.
- a-16) Dominican Republic Natural Resource Policy Inventory. Volum II. INVENTORY. APAP II. Technical Report 128. 1992. USAID (prepared by Abt Associates Inc. MA. USA). Santo Domingo, D.N. Dominican Republic.

Forestry Conservation/Desertification

- a-17) Informe Nacional para UNCED. 1993. CONATEF. Santo Domingo, D.N. Dominican Republic.
- a-18) Forestry Statistic Today for Tomorrow. 1993. FAO. Rome.
- a-19) Plan de Acción Forestal para la República Dominicana. 1991. FAO. Santo Domingo, D.N. Dominican Republic.
- a-20) The Dominican Republic Country Environmental Profile: A Field Study. 1981. USAID (prepared by Hartshorn, et al.) JRB Associates 8400 Westpark Drive. McLean, VA 22102. USA.
- a-21) Dinámica de Cambio del Uso de la Tierra en la Region Suroeste de la República Dominicana. 1998. DIRENA. HELVETAS (prepared by Hernández, J. A). Santo Domingo, D.N. Dominican Republic.
- a-22) Dominican Republic Natural Resource Policy Inventory. Volume II. INVENTORY. APAP II. Technical Report 128. 1992. USAID (prepared by Abt Associates Inc. MA. USA). Santo Domingo, D.N. Dominican Republic.

Biological Diversity

- a-23) Una Estrategia para la Conservación de la Biodiversidad de la República Dominicana 1994-2003. 1994. Grupo Jaragua, Inc. AWWF/USAID. Santo Domingo, D.N. Dominican Republic.
- a-24) The Dominican Republic Country Environmental Profile: A Field Study. 1981. USAID (prepared by Hartshorn, et al.) JRB Associates 8400 Westpark Drive. McLean, VA 22102. USA.
- a-25) Biodiversidad, Suma Total de la Vida. 1997. Colección Banreservas. Tomo I y II. (prepared by Martínez, Eleuterio). Editora Arnigo del Hogar. Santo Domingo, D.N. Dominican Republic.
- a-26) La Diversidad Biológica de La República Dominicana. 1990. SEA/DEDAWWF. Santo Domingo, D.N. Dominican Republic.
- a-27) Estrategia Global para la Biodiversidad. Pautas de Acción para Salvar, Estudiar y Usar en Forma Sostenible y Equitativa la Riqueza Biótica de la Tierra. 1992. WRI. UICN. PNUMA. FAO y UNESCO.

Natural Resource Management

- a-28) Dominican Republic Natural Resource Policy Inventory. Volume II. INVENTORY. APAP II. Technical Report 128. 1992. USAID (prepared by Abt Associates Inc. MA. USA). Santo Domingo, D.N. Dominican Republic.
- a-29) Dominican Republic Environmental Issues Paper. Final Version. Report No. 11813-DO. 1993. World Bank. Latin American and the Caribbean Regional Office. Department III. Country Operation Division 1. Washington D.C.

Agriculture

- a-30) Agricultural Agenda 1996-2000. 1996. Secretaría de Estado de Agricultura. Santo Domingo, D.N. Dominican Republic.

Natural Disasters

- a-31) Case Report on Hurricanes David and Frederick in The Dominican Republic. 1980. United Nations Disaster Relief Organization (UNDRO). Geneva, Suiza.
- a-32) Countries of the Caribbean Community. 1989. USAID/OFDA: Washington, D.C.

Energy

- a-33) Plan Nacional de Desarrollo Social. 1996. ONAPLAN-STP. Santo Domingo, D.N. Dominican Republic.
- a-34) Evaluación Ambiental para el Sector Eléctrico de la República Dominicana. 1995. USAID. Washington, D. C.

Environmental Education

- a-35) Estrategia Mundial para la Conservación: La Conservación de los Recursos Vivos para el Logro de un Desarrollo Sostenido. 1980. IUCN. PNUMA/WWF/FAO/UNESCO.

International Cooperation

- a-36) Informe de la Cooperación para el Desarrollo. Inf. 1992-1994. 1997. NUD/STP/ONAPLAN. Santo Domingo, D.N. Dominican Republic.
- a-37) Plan Nacional de Desarrollo Social. 1996. ONAPLAN-STP. Santo Domingo, D.N. Dominican Republic.
- a-38) Resultados del VII Censo Nacional de Población y Vivienda. 1993. ONE. Santo Domingo, D.N. Dominican Republic.
- b) World Resource Institute, United Nations Environmental Program, United Nations Development Program, 1996. World Resources 1996-97 A Guide to the Global Environment.
- c) United Nations Development Program, 1997. Human Development Report 1997.
- d) Syueisha, 1996. The Asia & World Data Book.

