National Profile

Suriname

May 2006

The 2004-2005 project on “National Profile Preparation, Priority Setting and Information Exchange for Sound Chemicals Management” has been supported by the United Nations Institute for Training and Research (UNITAR) with financial support of the European Union and the Government of Switzerland.

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Toxicology Focal Point, Ministry of Public Health, May 2006

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Introduction to the National Profile

In 1992, the Rio Earth Summit, the United Nations Conference on Environment and Development (UNCED), marked an important event towards the goal of achieving sustainable economic developments which meets the needs of the present without compromising the needs of future generations. Heads of States or Government from more than 150 United Nations member states adopted Agenda 21, a comprehensive document outlining responsibilities of States towards the achievement of sustainable development.
Chapter 19 of Agenda 21, entitled “Environmentally Sound Management of Toxic Chemicals, Including Prevention of Illegal International Traffic in Toxic and Dangerous Products”, called for the creation of an intergovernmental forum to improve coordination and management of chemicals.
In April 1994, the United Nations Environmental Programme (UNEP), the International Labour Organization (ILO) and the World Health Organization (WHO) held the International Conference on Chemical Safety in Stockholm. During this meeting, which was attended by high level representatives of 114 governments, the Intergovernmental Forum on Chemicals Safety, IFCS, was established. At its inception meeting in Stockholm the IFCS recognized a National Profile, which indicates the current capabilities and capacities for management of chemicals and the specific needs for improvements, as one of its “Priorities for Action” to implement Chapter 19 Agenda 21.

The National Profile of Suriname has been prepared as part of the 2004 - 2005 project “National Profile Preparation, Priority Setting and Information Exchange for Sound Chemicals Management”, a project supported by the United Nations Institute for Training and Research (UNITAR) with financial support of the European Union and the Government of Switzerland.
The preparation of the NP has been a good opportunity to bring together the different governmental and non-governmental parties involved in chemical safety in the country.
It is hoped that the NP will serve as a useful reference document both domestically and internationally and that it will be the starting point for improving the sound chemicals management in the country. A commitment Suriname made at the Rio Earth Summit.

In July 2004 as start of the process for the preparation of the profile a national planning meeting with different stakeholders involved or interested in chemicals management was organized.
As result a National Co-ordinating Team was established with representatives of the Ministries of Public Health, Labour Technology and Environment, Agriculture Husbandry and Fisheries, Trade and Industry, and Finance (customs department). Under the guidance of the NCT members with the input from different working parties as identified during the planning meeting, the NP was prepared.
The draft NP was presented for comment and approval at the National Priority Setting Meeting in November 2005, the second activity of the 2004-2005 project, before the final version was prepared by the National Co-ordinator. This document will be revised and updated as needed.

Further help, corrections and additions will be gratefully received.

Paramaribo, May 2006
National Co-ordinator
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Executive Summary

Chemical production, import, export and use

The data on chemical production, import, export and use are inadequate. Besides data on imports and exports there is no substantial data on production and use available that is easily accessible. It highlights the urgent need for appropriate data collection and reporting for chemicals management purposes. In general the data on chemicals import during the period 2000 – 2004 reflects the increased economic activities in the country since 2000, with a sharp increase for the industrial chemicals. The data on chemical waste, besides some data on pesticides are mainly descriptive of nature.

Priority concerns related chemicals production, import, export and use

There are several problem areas in chemicals management identified; handling and use of pesticides, import, handling and use of mercury, (hazardous) waste management, handling of obsolete chemicals, including pesticide stocks, soil contamination by leaking underground gasoline storage tanks of fuel station, and disposal of asbestos containing building materials. Field observations are influential factors to establish relative priorities of the national problems in chemicals management, due to the lack of available objective data or when present the accessibility.

Problems with chemicals related to economic activity are defined by the types of industrial activity and scale of activity; international versus national, formal or informal, and the location; local versus regional. International operating mining and the oil industry are aware of chemical related problems and adhere to international standards and practices. Besides monitoring these industries, the national larger industries, smaller firms and informal activities in the country are more a priority of concern for proper chemicals management. Lack of awareness or proper information, financial constrains, size of operation of the small firms and informal activities, or no effective enforcement of regulations is often the cause. The informal activities are mainly concentrated in the Paramaribo district. The mercury pollution due to the small to medium size artisanal gold mining activities is concentrated in the mining area in the tropical rainforest. The handling and use of pesticides and related problems are mainly concentrated in the coastal areas of the country with intensive agricultural activities. Stocks of obsolete chemicals, including pesticides, are scattered over the country, depending on the location of the former (agriculture) activity.

The country, as a small society, has limitations in resources and capacity to deal with the above mentioned problems on a national, regional and local level.

National legal and regulatory infrastructure

Various legal instruments regulate parts of the life cycle of different classes of chemicals, with several ministries involved. Departments responsible for monitoring compliance with the laws often lack capacity for implementation, there is no good collaboration between departments in following chemicals through the different stages of the cycle, and laws need updating. These shortcomings have a significant impact on chemicals management.

Ministries, agencies and other institutions managing chemicals
The relevant ministries and agencies are involved in chemicals management. For an effective chemicals management it is important to create a good coherence between the mandates of the ministries for their specific responsibilities in the subsequent stages of the chemical life cycle.

Relevant activities of industry, public interest groups and the research sector
The industry provides the government with information related to chemicals management. Voluntary initiatives in chemicals management and risk reduction take places in the international operating mining and oil industry. The degree of cooperation between the government and non-governmental sectors in chemicals management so far has been minimal and there is no structural approach to make optimal use of available expertise in the non-governmental sector. Non-governmental organizations do not play an active role in governmental decision-making concerning the management of chemicals. NGO's, especially environmental groups and the media, play an important role in informing the public about environmental and human risks of chemical use and government activities in this area.
Information, studies and research are conducted by research institutes and environmental groups; they are relatively few, often focused on specific chemicals and vary in quality. Notice is taken by the government of these studies and where relevant used for policy making purposes.

Inter-ministerial commissions and coordination mechanisms
The existing individual inter-ministerial commissions and coordination mechanisms in chemicals management work effectively, but they do not cover all important aspects which require inter-ministerial coordination and cooperation and they are not formally linked which each. Additional parties from outside the government can be brought into these mechanisms. There is a need for the establishment of a permanent coordinating mechanism which will have an oversight, set priorities and coordinate actions in the field of chemicals management where needed and share on regular and structured basis information across the different agencies charged with chemicals management.

Data access and use
There are substantial shortcomings in the national chemical information management structure. There is a lack of adequate data and collecting systems which will benefit chemicals management in the country. There are some initiatives for the collection of data on chemicals for the assessment and management, with adequate support these can be valuable sources in the future.
Access to international databases and documentation on chemicals in the country has become much easier in recent years through the internet.
It will be important for the improvement of chemicals management in the country if the government formulates a national policy on public access to relevant information.

Technical infrastructure
The overall technical laboratory infrastructure is rather poor. There is limited compliance with GLP rules, lack of coordination from the government and collaboration between laboratories, there are few reference laboratories available, and limited use is made from (international) references.

An evaluation is needed to see where the regulatory tasks in chemicals management are the best addressed, with regional cooperation as an option.
Computer capabilities are available within the government and can be used for information purposes and implementation of government policies and programmes related to chemicals management.
Regional and international collaboration is useful to improve the quality of existing technical training and education programmes in the field of chemicals management in the country. There is a need for continued education programmes and specific training programmes in the field of chemicals management aimed at government employees to improve the implementation of government policies and programmes.

International linkages
A national strategy for the sound management of chemicals and an appropriate co-ordination mechanism on the national level is lacking. The number of national implementation activities of international activities and agreements in sound chemicals management is few and often focused on the programme activities of the individual ministries. There is consultation on an ad-hoc basis about these activities between the different ministries and/or its agencies involved in chemical safety.
The collaboration of Suriname with several of the specialized agencies of the United Nations who are involved in chemical safety has been positive in promoting several initiatives in this field in the country. In the process of developing a national strategy and to form its capabilities to effectively link international programmes with the strategy, Suriname can benefit from technical support and a good co-ordination of chemical safety activities of the international agencies in the country, to make optimum use of the limited local human resources.

Awareness and understanding of workers and the public
Occupational health and safety issues in general are addressed by law and regulations are issued for some specific chemical categories. Under the pesticides law labels of pesticides products need to include hazard information.
The public or workers are informed on hazards of chemicals by the key ministries and/or its agencies involved in chemical safety and NGO’s. Information to the general public focuses on specific chemicals and covers environmental, health and safety issues and relevant national information. It is often provided through mass media, educational activities, or workshops. Workers are informed by means of mass media, workshops or specific training sessions. It is unclear to what extend workers are informed in the informal sector. From primary school onwards at different educational levels awareness is raised for chemical safety issues.

Human and financial resources available and needed
A weakness of the current arrangements at the various ministries and agencies to address chemicals management is the absence of a coordination mechanism at the national level. To mobilize technical and human resources that are appropriate an essential step will be implementing such a mechanism, followed by filling in the gaps in capacity by specific training for relevant institutions, with the support of the local private sector and international organizations. Awareness raising for chemicals management and training in appropriate data collection and management, risk assessment and communication, use of the GHS and health and safety aspects of chemicals will be essential for the further development of sound chemicals management in the country.

The estimate is that some ministries who fulfill an essential role in chemicals management; public works waste disposal department, regional development, education and transportation, will need some specialized/trained staff so that they can participated more actively then until know.

Follow-up actions recommended to implement the major findings of the National Profile

For an effective chemicals management the follow-up actions recommended are:

1. The establishment of a permanent coordinating mechanism on a national level, which will have oversight, set priorities and coordinate actions in chemicals management, to make optimum use of the limited local resources
2. Place chemicals management higher on the political agenda.
3. The development of a national strategy for the sound chemicals management, which address:
    - The coherence between the mandates of the ministries for their respective responsibilities in chemicals management and the improvement of the collaboration between departments in following chemicals through the different stages of the chemicals life cycle.
    - The need for updating relevant laws.
    - A structural approach to make use of available expertise in the non-governmental sector.
    - The urgent need for data collection and management.
    - The regulatory tasks of reference laboratories in chemical management.
    - Education and specific training for capacity building in chemicals management.
    - The link with international activities and agreements.
    - Awareness raising of the informal sector.
4. The mobilization of technical and human resources.
5. Ratifying relevant international agreements and conventions
6. Establishment of regional oversight body
7. Harmonization of regional activities and commitments within the context of the Caribbean Single Market and Economy (CSME).

1 National Background Information

1.1 Physical and Demographic Context

Suriname is situated along the north coast of south America between 2-6^0 N and 54-58 ^{0} W, bordering with French Guiana in the east, Guyana in the west, Brazil in the south, and the Atlantic Ocean in the north. The country has a typical tropical climate with two rainy and two dry seasons, a mean daily temperature of about 27 ^{0}C and an annual average rainfall of 1500-3000 mm. The land area can be distinguished in a swampy coastal plain, a central plateau region containing broad savannahs and swamp forest, and to the south a mountainous region densely forested with tropical rainforest.

- ***Size of the Country (area in square km)***

The size of the country is 163,820 sq. km.

- ***Form of Government***

Constitutional democracy

- ***Official Language***

The official language is Dutch

- ***Local Language***

Sranan tongo major one spoken, most of the different ethnic groups have their own language.

- ***Total Population[1]***

The total population is 492,829 inhabitants (2004). The population is characterized by an ethnic diversity: Creoles, 17.7%; Maroons, 14.7%; Hindustani, 27.4%; Javanese, 14.6%; Mixed, 12.5%; Others (Chinese, Indigenous peoples, Lebanese, Chinese, European, etc), 6.5%; Unknown); Not reported, 6.6%.

- ***Urban Population[1]***

The urban population consists of 328,932 inhabitants, 66.7% of the total population. They are defined as the inhabitants who live in Paramaribo and the district Wanica in the coastal region.

- ***Rural Population (% plus definition)[1]***

The rural population consists of 163,897 inhabitants, 33.3% of the population. They are defined as the population of Suriname who live in the other districts in Suriname; Nickerie, Coronie, Saramacca, Commewijne, Marowijne, Para, Brokopondo and Sipaliwini.

- ***Average age of the population[1]***

The medium age of the population is 26.5 years

- ***Population of Working Age[2]***

292,089, age group 15-59 (2004)

- ***Birth Rate (per 1,000)[3]***

20.2 (2003)

- ***Life Expectancy[4]***

71.1 years at birth (2002)

[1] Suriname Census 2004 Vol. 1, General Bureau of Statistics 213-2005/02
[2] Suriname Census 2004 Vol. 2, General Bureau of Statistics, Data not published yet
[3] General Bureau of Statistics data
[4] PAHO health data

- ***Literacy Rate***[1]

90.6% (2000-2002)

- ***Average Education Level of Population***

-

- ***Unemployment Rate***[2]

10% (2002), Statistical Yearbook 2003)

- ***Percentage of Women Employed Outside the Home***

-

1.2 Political and Geographic Structure of the Country

In 1975 Suriname became independent from the Netherlands. The Republic of Suriname[3] is a constitutional democracy based on the 1987 constitution. The legislative branch of government consists of a 51 member unicameral national assembly, simultaneously and popularly elected for a 5 years term. The last election was held May 2005.

The executive branch is headed by the president, who is elected by a two-thirds majority of the National Assembly or, failing that, by a majority of the 'People's Assembly' for a 5 years term. The People's Assembly is formed from all National Assembly delegates and regional and municipal representatives who were elected by popular vote in the most recent national election. A vice president, normally elected at the same time as the president, needs a simple majority in the National Assembly or People's Assembly to be elected for a 5 year term. As head of government, the president appoints a cabinet of ministers. There is no constitutional provision as yet for removal or replacement of the president unless he resigns. A 15 member State Advisory Council chaired by the president advises the president in the conduct of policy. Eleven of the 15 council seats are allotted by proportional representation of all political parties represented in the National Assembly, two respectively to representatives of labor and employers organizations.

The judiciary is headed by the Court of Justice, Supreme Court. This court supervises the magistrate courts. Members are appointed for life by the president in consultation with the National Assembly, the State Advisory Council, and the National Order of Private Attorneys.

The country is divided in 10 administrative districts, each headed by a district commissioner appointed by the president.

[1] Suriname Census 2004 Vol. 1, General Bureau of Statistics 213-2005/02
[2] Statistical yearbook 2003, General Bureau of Statistics
[3] Annex 3 Map of Suriname

1.3 Industrial and Agricultural Sectors

Table 1A Overview of the Industrial and Agricultural Sectors (2003)

Sector	Contribution to Gross Domestic Product (%)	Number of Employees	Major Products In Each Sector
Industrial/Manufacturing	10	7,221	Food industry, textiles and clothing goods, wood -, plastic-, paper products, metal works, other manufacturing
Mining and Extraction	7.7	2,276	Bauxite and alumina, crude oil, gold
Agricultural	6	10,213	Rice, Vegetables, Fruits, Flowers
Informal Sector	14.6		
Total	**38.3**	**19,710**	

Sources: General Bureau of Statistics (March 2005), IMF Country Report (2005) No 05/142

Table 1 B Structure of the Manufacturing and Agricultural Sector
No data is available for the manufacturing and agricultural sector to characterize the facilities into micro, small, medium, or big, based on the number of employees.

Table 1C Breakdown of Agricultural Production by Regions (2003)

Region	Major Crops	Total Value Crop in millions US$	Total Number Employees	Size of Productive Areas (# hectares)
Coastal Region	Rice	9.1		52,425
	Bananas [i]	10.5		2,172
	Vegetables [ii]	4.6		1,034
	Fruits[iii]	0.1		3,659
	Flowers	0.1		50
Total		**24.3**	**10,213**	**61,466**

Sources: General Bureau of Statistics (March 2005), IMF Country Report (2005) No 05/142, Ministry of Agriculture, Animal Husbandry and Fisheries (ASP 2004)

Table 1D Breakdown of Industrial Production by Region
No data is available to characterize by region the major products, total value of production, number of industrial facilities and number of employees.

[i] Data 2001; banana industry collapsed in April 2002
[ii] Data 2002, total value crop expressed in export value
[iii] Data 2002, only value of export included

1.4 Industrial Employment by Major Economic Sector

Table 1E Industrial Employment by Major Economic Sector (2003)

ISIC Code	Description	Number Facilities	Total Employment	Output Value (per year)[i]	Major Emissions (type)
31	Food Industry				Different chemicals
32	Textiles/Clothing and Leather Goods				
33	Wood, Wood Products, Printing				
34	Paper and Paper Products				
35	Chemical/Petro/Plastic Products				
36	Non-metallic Mineral Products				
37	Basic Metals Industry				
38	Fabrication Machinery Equipment				
39	Other Manufacturing Industries				
Subtotal			7,221	110.1	
	Mining and Extraction (Oil/Minerals/Metals)		2,276	510.8	Gases, water, chemicals
	Electric Generation[ii]	2	1,631	715[iii]	Diesel exhaust gases
	Dry Cleaning	2			
Total			**11,128**[iv]		

Sources: General Bureau of Statistics (March 2005), IMF Country Report (2005) No 05/142,

The total numbers of employees in other major sectors[v] are: 40,129 (government), 14,235 (construction, trade, transport and communication, banking, insurance, other services).

[i] Million of US dollars export value
[ii] Electricity generated by hydro plant (610 gigawatts-hour) and diesel generators (105 gw-h)
[iii] In gigawatts-hour
[iv] 10% of total labor force 2003
[v] IMF Country Report (2005) No 05/142

2 Chemical Production, Import, Export and Use

2.1 Chemical Production, Import and Export

Data on chemical production, import and export are scattered and not always easy accessible or it is sometimes difficult to determine the quality of it. Chemical goods are mainly imported in Suriname and the customs maintain a relatively complete registry of it. Therefore the customs data is seen as the primary source for information on the production and trade of chemicals. These data are completed with other available sources and are presented in Table 2A by chemical type for the years 2000 to 2003 and 2004 period January- November. No specific information is listed in the table concerning production/use and import for the major regions of the country; however some general remarks can be made. The import of chemicals is handled through three major port sites in the country; the harbor in the capital and nearby the bauxite refinery also located at the Suriname River approximately 30 km land inward, the harbor in Nieuw Nickerie the second major city in the west of the country, and the international airport at Zanderij approximately 45 km land inward from the capital. The major economic activities are located in the coastal plain. Agriculture with rice farming on a large scale is concentrated nearby Nieuw Nickerie. Other crops, such as bananas, fruits and vegetables, are cultivated in the rural areas. Industrial manufacturing facilities are located primarily in or nearby the capital city Paramaribo. Industrial mining and extraction facilities of bauxite and gold are located in the Para and Brokopondo districts respectively. Gold mining on a small to medium that can be characterized as artisanal mining is located in the in the Green Stone Belt. An area of approximately 24,000 km^2, located in the district Brokopondo and northern part of the Sipaliwini district to the east of Brokopondo district. Oil exploration is located in the continental shelf zone and coastal plain, with exploitation in the latter. The oil is transported from the production fields in the Saramacca district by pipeline to the sole oil refinery located to the south in the proximity of the capital nearby the Suriname River.

Table 2A Chemical Production and Trade 2000 – 2004

Chemical Type[i]	**2000 2001 2002 2003 2004** [ii]	**Production/ Manufacturing**		**Imports**		**Formulation Packaging**		**Exports**	
		Tons/yr	**Value**	**Tons/yr**	**Value**[iii]	**Tons/yr**	**Value**	**Tons/yr**	**Value**
Pesticides		ND[iv]	ND	1,092 1,010 - 1,382 1,231	3941 3830 3545 - 2,944	ND	ND	ND	ND
Fertilizers		ND	ND	11,636 15,362 9,843 13,742 17,691	2,219 3,672 2,333 3,356 4,976	ND	ND	ND	ND
Petroleum Products[v]		ND	ND	89,105 281,724 230,029 237,565 233,622	29,059 78,700 69,142 81,278 96,232	ND	ND	ND	34,400 30,200 37,200 35,700 -
Industrial		ND	ND	7,367 16,829 8,353 10,926 27,534	10,022 10,869 10,574 14,584 20,145	ND	ND	ND	ND
Consumers Chemicals		ND	ND	10,471 13,065 10,416 12,920 8,553	12,241 17,073 16,841 18,611 16,998	ND	ND	ND	ND

Chemical Type[i]	2000 2001 2002 2003 2004 [ii]	Production/ Manufacturing Tons/yr	 Value	Imports Tons/yr	 Value[iii]	Formulation Packaging Tons/yr	 Value	Exports Tons/yr	 Value
Others		ND	ND	4,345 5,332 4,873 9,120 8,218	2,777 3,099 4,044 6,076 6,635	ND	ND	ND	4,600 1,900 2,300 3,700 -
Total		**ND**	**ND**	**124,015** **333,321** **263,514** **285,655** **296,849**	**60,260** **117,243** **106,479** **123,904** **147,930**	**ND**	**ND**	**ND**	**>39,000** **>32,100** **>39,500** **>39,400**

Sources: Customs all data except: pesticide imports tons/yr 2003, Ministry of Agriculture, Animal Husbandry and Fisheries; exports value, IMF Country Report (2005) n0 05/142

[i] Pesticides: formulations; Fertilizers, Petroleum Products, Industrial: individual or mixture of chemicals; Consumer Chemicals: preparations; Other Chemicals: individual or mixture of chemicals and preparations.
[ii] 2004 period January – November
[iii] Value expressed in US$x1000
[iv] ND = No Data available
[v] Mainly mineral fuels

Figure 1 Chemicals Import 2000-2004: Different Categories

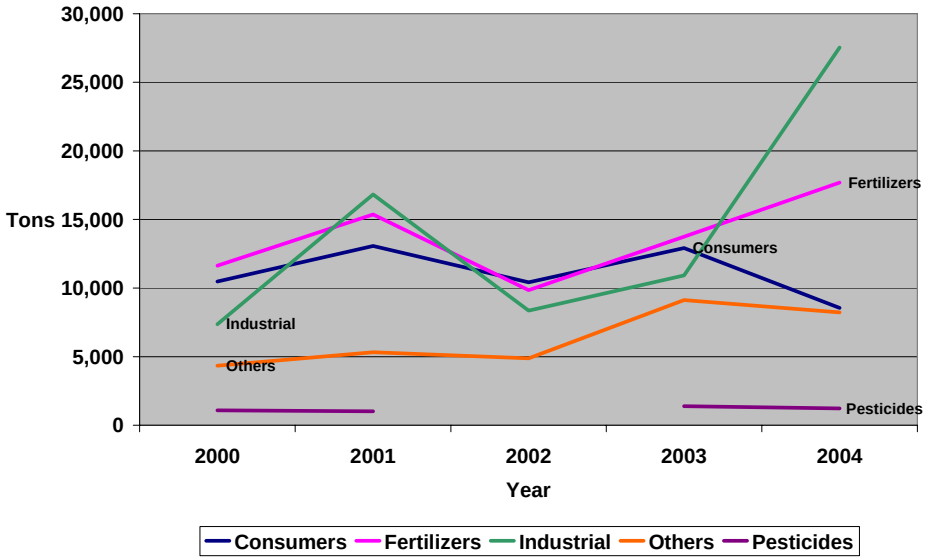
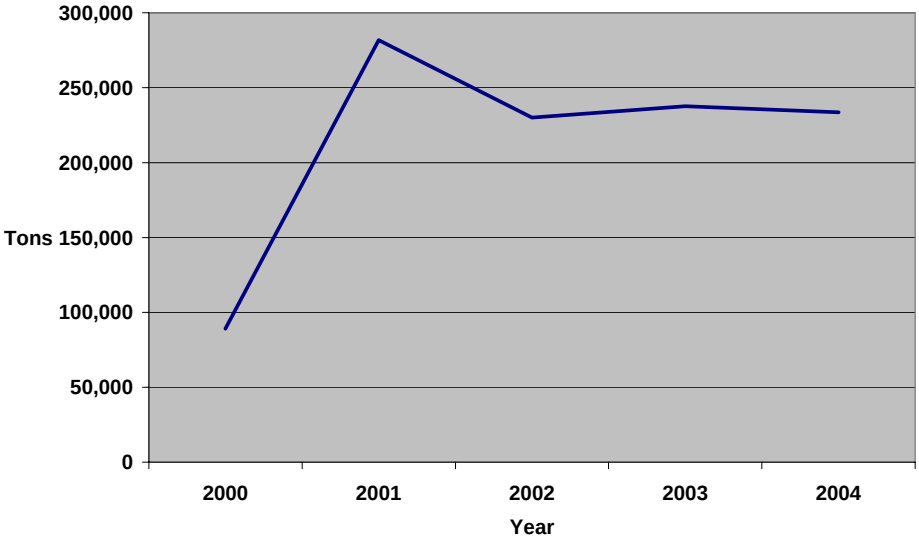


Figure 2 Chemicals Import 2000-2004: Petroleum Products



Comment

The data collect by the customs on imports are classified in group codes based on the derivation of the product; mineral -, chemical industry -, and plastic and rubber products. In the product group codes there is a sub classification based on physical - or chemical characterization or use. These sub codes are further divided in the different goods codes with a description of the goods they contain. Attached o the goods codes are the corresponding import duties. For the categorization by chemical type used in Table 2A the description of the goods codes were used. In case that the description was not conclusive it was categorized under other use.

During the interpretation of the data it was noticed that for some chemicals of interest, e.g. metallic mercury, the data were not specifically mentioned. No specific data on formulation and packaging could be found. In general the chemicals import reflects the increased economic activities in the country since 2000.

2.2 Chemical Use by Categories

Table 2B Chemical Use by Categories

Type of Chemical	Number of Tons Used per Year[1]
Pesticides (agricultural, public health, consumer use)	1,300
Fertilizers	15,000
Petroleum Products	235,000
Industrial Chemicals	30,000
Consumer Chemicals	10,000
Other Chemicals (unknown/mixed use)	9,000
Total	**300,300**

Comment
Data on chemical use by category are not ready available, therefore based on the import data an estimate of chemicals use by category per year is made. During the period 2000 – 2004 there was an increase in import for most of the categories (Figure 1 and 2), with a sharp increase for the industrial chemicals. The later reflecting the increased economic activities in the country, such as industrial gold mining, the oil industry.

2.3 Chemical Waste

The data on chemical waste, besides some data on pesticides are mainly descriptive of nature. No separate solid waste collection is practiced and the collection and processing on the uncontrolled municipal garbage dump sites is a matter of concern. Chemical waste; household, industrial or laboratory, or building - or demolish debris[2] (asbestos containing building materials) are all dumped uncontrolled on the municipal garbage dump site. No separation of chemical from wastewater is practiced; photo- and laboratory chemicals or others from different small scale or informal industries are disposed of into sewage system, which in some areas are composed of a system of open channels. Exceptions are the international mining industries that use Environmental Management System (EMS). Some small-scale industries use also EMS because of required ISO quality and environmental certification for their exports.
The municipal garbage dump site of Great Paramaribo[3] is located in the Wanica district. In the urban areas in the other districts smaller garbage dump sites are located nearby the main towns. The responsibility for the garbage collection and disposal in Great Paramaribo and the other districts is divided over two ministries,

[1] These are estimates based on the imports during the period 2000-2004 listed in Table 2A
[2] An attempt is being made for the controlled dumping of asbestos containing building materials.
[3] Paramaribo district

respectively the Ministry of Public Works and Ministry of Regional Development. Efforts have been made by the Ministry of Public Works to improve the collection of garbage in general during the past several years. Notwithstanding this still litter, small illegal dumping sites with old refrigerators (CFC's), car wreckages, household and other waste do occur in and near by the capital. Dumping of garbage excluded household, to fill-up private properties located nearby the Suriname River is a tendency observed in the last years. The phenomenon of scavengers is also present on the municipal garbage dump site in the Wanica districts. Suriname did not sign the Basel Convention and no import and export of chemical waste under this convention takes place. In the 80's based on financial considerations it was attempted to import chemical waste for dumping purposes, because of public pressure this was abandoned. So far there are no indications of illegal importing of chemical waste.
In the period 1975 - 1985 on a very small scale radioactive material was used for medical purposes, these sources are contained in a very responsible manner. At present on a very small scale radioactive sources are used in the bauxite mining and oil industry.
Chemical waste is produced in mining operations. Nearby the bauxite mines and bauxite refinery controlled dumping sites and mud lakes are situated in the Para District. The process water of the industrial gold mining, which contains cyanide, is stored in tailing ponds and in a controlled manner discharged through a nearby tributary in the Saramacca River a in the district Brokopondo. The international mining firms and the international operating oil industry are aware of chemical related problems and adhere to international standards and practices. The tailing ponds of the small to medium size artisanal gold mining pose a real threat to the environment because of there high mercury content and there uncontrolled release into rivers in the interior.

Table 2C Chemical Waste Generation and Trade

Type of Chemical Waste	**Generation (tons/year)**	**Export (tons/year)**	**Import (tons/year)**
Pesticides[1]	31		
Petroleum Products			
Industrial (mining, oil industry, other industries)			
Consumer (household chemicals, batteries, rechargeable, used oil)			
Other Chemicals (laboratory)			
Total	**>31**		

Sources: Ministry of Agriculture, Animal Husbandry and Fisheries

[1] Inventory data obsolete, unwanted and/or banned pesticide stocks in the country January 2000.

2.4 Comments/Analysis

The data on chemical production, import, export and use are inadequate. Besides data on imports and exports there is no substantial data available that is easily accessible. The data on chemical waste, besides some data on pesticides are mainly descriptive of nature. It highlights the urgent need for appropriate data collection and reporting for chemicals management purposes.

3 Priority Concerns Related to Chemical Production, Import, Export and Use

3.1 Priority Concerns Related to Chemical Import, Production and Use

In the different stages of the chemical life, specifically the import, storage, transport, distribution, use and disposal, problems are identified. The general description of these problems is listed in Table 3A. In Table 3B, C and D the problems for specific chemicals; asbestos, mercury and pesticides and are listed. In Table 3E the priority concerns related to chemicals are listed according to the nature of the problem.

Table 3A General Description of Problem Areas

Nature of Problem	**Region**	**Brief Description of Problem**	**Chemicals(s) or Pollutant(s)**
Awareness	Country Level	In general insufficient awareness of the environmental and health risks involved with import, storage, transport distribution, use and disposal of chemicals at different levels in society.	Imported chemicals
Monitoring		No adequate data collection of different facets of chemical life cycle for risk management	Imported chemicals
Enforcement		Weak infrastructure (organizational structure, staff, etc) for enforcement of national legal instruments	Different chemicals
Transportation		No internationally accepted labeling is used and transportation from the harbor is with open trucks	Different chemicals
Health and safety aspect		Inadequate implementation of health and safety procedures for the use of chemicals in production processes of medium to small formal or informal enterprises	Imported chemicals
Use		Insufficient dissemination of information to users of different types of chemicals	Agro-chemicals, industrial or household chemicals
Disposal		Management of chemical waste	Different type of chemical waste
		Uncontrolled disposal of (rechargeable) batteries	Nickel, Cadmium, Lead, etc
		Uncontrolled release of different types of industrial waste by medium to small, formal or informal enterprises	Mixture of chemicals

Table 3B Description of Problem Area - Asbestos

Nature of Problem	**Region**	**Brief Description of Problem**
Management	Country	No monitoring system in place yet to contain the problem of asbestos.
Awareness risk		No adequate data collection for risk management of chemicals.
		Risk involved with unprofessional removal of intact asbestos containing building materials.
Health and safety aspect		Inadequate implementation of health and safety procedures for workers who are involved in handling of asbestos, demolish debris or removed asbestos containing building materials.
Disposal		Management of chemical waste: uncontrolled disposal of asbestos containing materials; Burning as disposal method for asbestos containing building materials.

Table 3C Description of Problem Area – Mercury use in small to middle scale artisanal gold mining

Nature of Problem	City/Region	Brief Description of Problem
Legal status	Interior	The illegal status of the miners in the interior makes it almost impossible to manage the problem adequately.
Management	Country	No national coordinated approach to deal with the problem of small to medium scale artisanal mining and its use of mercury.
Monitoring	Interior	No adequate infrastructure (organizational structure and staff) to monitor and enforce legislation.
Use	Interior	Uncontrolled use of mercury in the extraction of gold by small to middle scale artisanal gold miners.
Interventions	Paramaribo	No incentives to import alternatives to stop the use of mercury
	Interior	No enforcement of the use of alternatives by creating incentives to use it.
Health and safety aspects	Interior	Occupational health aspects of mercury use
		Environmental health aspects of bio-accumulation of mercury; fish contamination and food security.
	Paramaribo	Occupational health aspects of refinery of gold in gold shops.
Disposal	Interior	Uncontrolled release of mercury in the environment.
	Paramaribo	Uncontrolled release of mercury in the environment or disposal of mercury condensate.

Table 3D Description of Problem Area - Pesticides[1]

Nature of Problem	City/Region	Brief Description of Problem
Management	Country	No monitoring system in place yet for residue measurement in products with consequences for consumer health and export revenues.
Distribution	Country	Retail shops can have pesticides in there assortment without knowledge of the local authorities, who are responsible to grant a permit to open a shop, due to lack of restriction in the permit and communication with the Ministry of Agriculture, and monitoring.
Training	Country	Old production methods used in the horticulture without 'integrated plant protection management'.
Awareness	Country	Irresponsible use of professional formulations in house hold setting due lack of awareness of environmental and health risk when using.
Suicides	Nieuw Nickerie	The easiness of availability in the agro district and specific circumstances in the local community are leads to the highest suicide rate with pesticides in the country.
Disposal	Country	Uncontrolled disposal and sediment run off.

[1] In the new Pesticide Law approved 8 February 2005 certain pesticides are banded, labeling in Dutch is compulsory, there is registration obligation for importers and retailers of all pesticides and buyers personal details and purpose of purchase are registered.

Table 3E Priority Concerns Related to Chemicals

Nature of Problem	**Scale of Problem** -Local -Regional -National	**Level of Concern** -Low -Medium -High	**Ability to Control Problem** -Low -Medium -High	**Availability Statistical Data**[1] -Sufficient -Insufficient -No Data available	**Specific Chemicals Creating Concern**	**Priority Ranking Problem** 1=most severe 2=2nd 3=3rd 4=4th 5=minor severe
Air Pollution	L/R L	L/M M	L/M M L	I I ND	Mercury Asbestos Plastics, and Tires Burning	1 4
Pollution of Inland Waterways	L/R	H	L	I	Mercury	1
Marine Pollution	R			ND		5
Ground-water Pollution	L	M L/M	H L/M	I ND	Gasoline Lubricants Pesticides	3 4
Soil Contamination	L	M	H L/M	I ND	Gasoline Pesticides	3 4
Chemical Residues in Food	R	H	M	I	Pesticides	3
Drinking Water Contamination				ND		5
Hazardous Waste Treatment/Disposal	L	M	M/H	I	Different chemicals	3
Occupational Health: Agriculture	N	M	M	I	Pesticides	3
Occupational Health: Industrial	N	M	M	I	Different Chemicals Pesticides	3
Public Health	L/R	M/H	L/M	I I ND	Asbestos Mercury Pesticides	1 1 2
Chemical Accidents: Industrial	N	L	M	ND	Different chemicals	4
Chemical Accidents: Transport	N	L	M	ND	Different chemicals	5
Unknown Chemical Imports	R			ND	Mercury	3
Storage/Disposal Obsolete Chemicals	N	H	H	S	Different chemicals	1
Chemical Poisoning/Suicides	N	M	L/M	S	Pesticides	3
Persistent Organic Pollutants	L	L	M	ND	Transformer Oil PCB's	3

[1] Data source in Annex 4

3.2 Comment/Analysis

In general government ministries and agencies, with the input of local professionals, international organizations or non-governmental organizations are able to identify problem areas in chemicals management. The handling and use of pesticides, the import, handling and use of mercury, and (hazardous) waste management, e.g. industrial, laboratories, or obsolete chemicals have created concern over the years. In recent years to these concerns the handling of obsolete pesticide stocks and other (laboratory) chemicals have been added. Due to recent incidents soil contamination by leaking underground gasoline storage tanks of fuel stations has become a new emerging problem as is the case with asbestos containing building materials. Inadequate handling and unacceptable disposal practices of asbestos has created concern. However, statistical data are few and data is often more descriptive of nature or sometimes lacking. Therefore it can be difficult to establish relative priorities of national problems in chemicals management without the solid justification. For chemicals management in the near future it is essential to collect statistical data for the different identified problems, to make adjustments if necessary or further sustain the relative priority setting. This will be just as important as capacity building and improvement of communication with the public to deal with these problems on a national scale.

For the chemicals management a distinction needs to be made between the types of industrial activities and scale of activity; international versus national, formal or informal, and the location; local versus regional.
International mining firms and the international operating oil industry are aware of chemical related problems and adhere to international standards and practices. Besides monitoring these industries, the national larger industries, smaller firms and informal activities in the country are more a priority of concern for proper chemicals management. Lack of awareness or proper information, financial constrains, size of operation of the small firms and informal activities, or no effective enforcement of regulations is often the cause. The informal activities are mainly concentrated in the Paramaribo district.
The mercury pollution due to the small to medium size artisanal gold mining activities is concentrated in the mining area in the district Brokopondo and northern part of the Sipaliwini district to the east of Brokopondo district. The handling and use of pesticides and related problems are concentrated in the coastal area of the country mainly the Nieuw Nickerie, Saramacca and Wanica district with intensive agricultural activities. The handling and use of pesticides in the interior, although small compared to the use in the coastal region should not be neglected.
The stocks of obsolete chemicals, including pesticides, are scattered over the country, depending on the location of the former (agriculture) activity.

In principal the existing problems are manageable, but Suriname as a small society has limitations in the capability to deal with these problems on a national, regional and local level. For example with the execution of laws which regulates the various stages of the chemical life cycle in different sectors of society there are a number of problems associated; laws are outdated, capacity (financial and staff) for legal implementation and updating.
Therefore these problems are experienced by the general public as substantial.

Institutions which are responsible to generate objective data within a short time period when problems with chemicals do exist often lack the experience or the ability to do so. Together with poor official communication this leads to speculation and confusion for the concerned individual parties and general public, and involvement of too many parties as an end result. Due to the lack of available objective data or when present the accessibility, it's not always clear whether the relative priorities of concern are based on objective or subjective criteria depending on the concerned parties involved. Also due to insufficient experience at the local and regional level in chemicals management there is a tendency to underestimate the problems or not recognizing them. At the moment field observations are influential factors to establish the relative priorities of concern.

4 Legal Instruments and Non-regulatory Mechanisms for Managing Chemicals

4.1 Overview National Legal Instruments Which Address Management of Chemicals

The following translation for legislative terminologies referred to below are used.

Dutch	English
Wet (until 1975 called *Verordening & Landsverordening*)	Law, Act
*Decreet**	Decree
Staatsbesluit	Government Decree
Resolutie	Presidential Decree
Presidentieel Besluit	Presidential Order
Ministeriële Beschikking	Ministerial Order

Source: Ministry of Justice and Police

*A Decree has the same status as a past or present Law. The Decrees date from the period of 1980 - 1986.

Table 4A Existing Legal Instruments to Address Management of Chemicals

Legal Instrument (Type, Reference, Year)	**Responsible Ministries or Bodies**	**Chemical Use Categories Covered**	**Objective Legislation**	**Relevant Articles / Provisions**	**Resources Allocated**	**Enforcement Ranking 1= Effective 2= Fair 3=Weak**
General						
Constitution	State	All types of chemicals	[i]	Article 48		1
Air emissions						
Hindrance Law G.B. 1930 no 64 amended S.B. 2001 no. 63	M of Regional Development District Commissioner	All types of chemical byproducts	Prohibit pollution of air		ND[ii]	3
Water emissions						
Police Criminal Law G.B. 1915 no 77 as amended	M of Justice and Police	Different chemicals		Article 51[iii]	ND	3
Penal Code G.B. 1911 no1 as amended	M of Justice and Police	Different chemicals		Articles 224, 225 [iv]	ND	3
Harbors Decree 1981 S.B. 1981 no 86	Maritime Authority Suriname[v]	Different chemicals	Provisions for harbor activities	Article 17 [vi]	ND	1
Chemicals						
Movement of Goods Law S.B. 2003 no 58	M of Trade and Industry	General	General rules on international trade	Article 3 sub3, and 8 [vii]	ND	1
Government Decree Resolution Negative List 2003 S.B. 2003 no 74	M of Trade and Industry	Different chemicals[viii]	[ix]	Annex to Government Decree	ND	1
Draft Government Decree to amend		Different chemicals[xi]	[xii]	Article 1	ND	1

Legal Instrument (Type, Reference, Year)	Responsible Ministries or Bodies	Chemical Use Categories Covered	Objective Legislation	Relevant Articles / Provisions	Resources Allocated	Enforcement Ranking 1= Effective 2= Fair 3=Weak
Resolution Negative List 2003 S.B. 2003 no 74[x]						
Pesticides						
Pesticide Law G.B. 1972 no 151 amended S.B. 1989 no 116	M of Agriculture, Animal Husbandry and Fisheries	Pesticides	Rules on handling and use	Article 1-15	ND	1
Government Decree on Pesticides G.B. 1974 no 89				Article 1-18 [xiii]	ND	1
Government Decree Resolution Negative List 2003 S.B. 2003 no 74	M of Trade and Industry	Pesticides[xiv]	[xv]	Annex to Government Decree	ND	1
Draft Government Decree to amend Resolution Negative List 2003 S.B. 2003 no 74[xvi]		Pesticides[xvii]	[xviii]	Article 1	ND	1
Pesticide Law G.B. 1972 no 151 amended S.B. 1989 no 116 , S.B. 2005 no 18	M of Agriculture, Animal Husbandry and Fisheries, M of Labor, Technology, Environment	Pesticides	[xix]	Article 1	ND	1
Government Decree on Pesticides G.B. 1974 no 89 amended S.B. 2005 no 21	M of Agriculture, Animal Husbandry and Fisheries, M of Labor, Technology, Environment, M of Public Health	Pesticides	[xx]	Article 1-27	ND	1
Occupational Health and Safety						
Industrial Injuries Law G.B. 1947 no 145 amended G.B. 1949 no 90, 1950 no 62, S.B. 1975 no 164d, 1980 no 116, 1983 no 8	Labor Inspection M of Labor, Technology, Environment	Different chemicals	[xxi]	Article 25	ND	1
Occupational Safety Law G.B. 1947 no		Different chemicals	[xxii]	Article 3 Safety Rules 1-9 [xxiii]	ND	1

Legal Instrument (Type, Reference, Year)	Responsible Ministries or Bodies	Chemical Use Categories Covered	Objective Legislation	Relevant Articles / Provisions	Resources Allocated	Enforcement Ranking 1= Effective 2= Fair 3=Weak
142 amended G.B. 1962 no 109, S.B. 1980 no 116						

[i] Assigns to the State the responsibility of the supervision of the manufacturing, storage and trade of chemical, biological, pharmaceutical and other products used for consumption, medical treatment and diagnosis.
[ii] ND = No Data available
[iii] Polluting of a water source or water well is fined.
[iv] Contamination of water resources is penalized.
[v] Maritime Authority Suriname (former Shipping Services) since March 1998 and district commissioner, they are assisted by the Prosecutor's office, the Police and the Ministry of Trade and Industry.
[vi] Prohibits discharge of waste, oil, and oil-contaminated water and condemned goods into public waterways and harbors.
[vii] The Negative List is defined;
[viii] Prohibited goods are chemical and radioactive substances and chemical, biological and nuclear weapons; license obligatory goods are medicines (human and veterinary) and psychotropic substances, mercury, radioactive minerals, PCB and PCT containing apparatus; certificate- or register bound goods waste products (excluded chemical or radioactive), all CFC's containing apparatus.
[ix] By Government Decree the 'Decision Negative List' is determined and the goods are defined for which import and export restriction apply.
[x] The draft is considered in the ministry council at the moment.
[xi] A further specification of prohibited, license obligatory or certificate- or register bound goods; added e.g. chemical and radioactive substances, such as cyanides, sodium hydroxide, nitric acid, acetone and iridium.
[xii] Based on experiences it was felt necessary to amend the 'Decision Negative List'.
[xiii] Regulations for the sale, to keep stock, transport and use of pesticides and the keeping, removal or destruction of empty packages or remainders of undiluted pesticides in such a manner that water procurement areas or surface waters are polluted.
[xiv] Prohibited goods are pesticides and chemicals on the FAO negative list; license obligatory goods are pesticides excluded those that are on the FAO negative list.
[xv] By Government Decree the 'Decision Negative List' is determined and the goods are defined for which import and export restriction apply.
[xvi] The draft is considered in the ministry council at the moment.
[xvii] License obligatory goods are all chemicals excluded those that are on the FAO negative list, including methyl bromide.
[xviii] Based on experiences it was feld necessary to amend the 'Decision Negative List'.
[xix] Ban on import, transport, keep stock, selling, and use of pesticides that are on FAO negative list.
[xx] Some of the important amendments are:
- Definition of terms such as acute toxicity, aerosol, dermal, fumigant
- Classification of pesticides by hazards: extremely -, highly -, moderately -, slightly hazardous
- Use of and hazard symbols and pictograms

[xxi] Liability and compensation for occupational diseases are addressed.
[xxii] Occupational safety is addressed.

[xxiii] Safety Rule 1: G.B. 1972 no 95; Rule 2: G.B. 1972 no 104; Rule 3: G.B. 1948 no 183; Rule 4: G.B. 1949 no 128 amended G.B. 1969 no 30; Rule 6: S.B. 1981 no 71; Rule 7: S.B. 1981 no 72; Rule 8: S.B. 1981 no 73; Rule 9: S.B. 1981 no 74.

4.2 Summary Description Key Legal Instruments Relating to Chemicals

In Table 4B additional details are provided for the legal instruments mentioned in Chapter 4.1, which are considered of particular importance for the management of chemicals. For each legal instrument the following information is provided:

- The specific chemicals which are covered.
- The administrative procedures included under the legal instruments, such as information requirements, risk assessment, classification, labeling and management schemes (licensing of traders, provision of information to the public).
- Mechanism included to monitor implementation (audit procedures, reporting requirements) and action for non-compliance (fines, revocation of licenses, prison terms).
- Existing databases which have been created as result of the instrument, scope, objectives, location and responsible body.

New legislation is made publicly known by publishing it in the law gazette of the Republic Suriname under the supervision of the Ministry of Internal Affairs. All laws are published in Dutch and translations are not available.
Relevant information is handled confidentially for the protection of proprietary information.

Table 4B Additional Details on Legal Instruments Relating to Chemicals

Legal Instrument (Type, Reference, Year)	Chemicals Covered	Administrative Procedure	Monitor Implementation Action Non-compliance	Existing Databases
Pesticide Law G.B. 1972 no 151 amended S.B. 1989 no 116	Pesticides	[i]	. M of Agriculture, Animal Husbandry and Fisheries[ii] . Criminal Code[iii]	Yes
Government Decree on Pesticides G.B. 1974 no 89	Pesticides		. M of Agriculture, Animal Husbandry and Fisheries[iv] . Criminal Code	
Government Decree Resolution Negative List 2003 S.B. 2003 no 74	Different chemicals[v]	[vi]	. M of Trade & Industry[vii] . Criminal Code	Yes
Draft Government Decree to amend Resolution Negative List 2003 S.B. 2003 no 74[viii]	Different chemicals[ix]			
Movement of Goods Law S.B. 2003 no 58	General	[x]	. M of Trade & Industry . Economical Offence Law S.B. 1986 no 42	
Pesticide Law G.B. 1972 no 151 amended SB 1989 no 116 , S.B. 2005 no 18	Pesticides	[xi]	. M of Agriculture, Animal Husbandry and Fisheries . M of Labor, Technology, Environment . Criminal Code[xii] . M of Trade & Industry[xiii]	
Government Decree on Pesticides G.B. 1974 no 89 amended S.B. 2005 no 21	Pesticides			
Industrial Injuries Law G.B. 1947 no 145 amended G.B. 1949 no 90, 1950 no 62, S.B. 1975 no 164d, 1980 no 116, 1983 no 8	Industrial Chemicals	[xiv]	. M of Labor, Technology, Environment	
Occupational Safety Law G.B. 1947 no 142 amended G.B. 1962 no 109, S.B. 1980 no 116				

[i] The Ministry of Agriculture, Animal Husbandry and Fisheries decide on the approval and banning of pesticides in consultation with the Ministry of Public Health.
[ii] Minister can give general instruction in consultation with the Minister of Public Health (article 4); Minister decides on the approval of pesticide and can withdraw it in consultation with the Minister of Health (article 5-7); attorney-general approves the destruction after advice of relevant departments of Ministry of Agriculture, Animal Husbandry and Fisheries and Public Health (article 13); Sampling for analysis (article 14, 17).
[iii] Ministry of Justice and Police, Criminal Code S.B. 1977 no 94 amended S.B. 1989 no 100: powers of criminal investigation attorney-general and other members of the prosecution counsel, district commissioners, police and extraordinary police appointed by the minister of justice and police (article 134); others who also have powers of criminal investigation (article 135).
[iv] Minister can in consultation with the Minister of Public Health approve other pesticides (article 14 and 15 section 3); Head of the plant protection department can make exemptions (article 17); Minister can ban pesticides in consultation with Minister of Public Health (article 18).
[v] Prohibited goods are pesticides and chemicals on the FAO negative list, chemical and radioactive substances, chemical, biological and nuclear weapons; license obligatory goods are pesticides excluded those that are on the FAO negative list, medicines (human and veterinary) and psychotropic substances, mercury, radioactive minerals, PCB and PCT containing apparatus; certificate- or register bound goods waste products (excluded chemical or radioactive), all CFC's containing apparatus.
[vi] A license can be obtained at the Import, Export and Foreign Exchange Department, 'Dienst IUD' of the Ministry of Trade and Industry.
[vii] By license application
[viii] The draft is considered in the ministry council at the moment.
[ix] A further specification of prohibited, license obligatory or certificate- or register bound goods; added e.g. methyl bromide and chemical and radioactive substances, such as cyanides, sodium hydroxide, nitric acid, acetone and iridium.
[x] General description of rules for international trade, and definition of the negative list; categories types, description, license procedure (application, objection, appeal) (article 3 sub 3 and 8-11).
[xi] The Ministry of Agriculture, Animal Husbandry and Fisheries decide on the approval and banning of pesticides in consultation with the Ministry of Public Health.
[xii] Ministry of Justice and Police, Criminal Code S.B. 1977 no 94 amended S.B. 1989 no 100: powers of criminal investigation attorney-general and other members of the prosecution counsel, district commissioners, police and extraordinary police appointed by the minister of justice and police (article 134); others who also have powers of criminal investigation (article 135).
[xiii] Ministry of Agriculture, Animal Husbandry and Fisheries is responsible for issuing permits for the import of pesticides together with the Ministry of Trade and Industry.
[xiv] Labor Inspectorate is involved in the implementation.

4.3 Existing Legislation by Use Category Addressing Various Stages of Chemicals from Production/Import through Disposal

Table 4C provides a strategic overview of the legal instruments that regulate each stage of chemicals from import, production through disposal, for each of the main use categories of chemicals.

Table 4C Overview Legal Instruments to Manage Chemicals by Use Category

Chemical Type	**Import**	**Production**	**Storage**	**Transport**	**Distribution marketing**	**Use Handling**	**Disposal**
Pesticides	Y[1]	N[2]	Y	Y	Y	Y	Y
Fertilizers	U[3]	U[4]	U	U	U	U	U
Petroleum Products		U	U	U	U	U	U
Industrial Chemicals	Y	U	U	U	U	U	U
Consumer Chemicals	U	U	U	U	U	U	U
Chemical Wastes	Y				U[5]		
Others	U	U	U	U	U	U	U

4.4 Summary Description of Key Approaches and Procedures for Control of Chemicals

Current legislation; laws, subsidiary legislation, implementing regulation, regulates various stages of the chemical life cycle in different sectors of society. They address classification and labeling of chemicals and products registration of chemicals, permits and licenses for operation, reporting requirements, inspection and information to be provided to workers or public, storage requirements and disposal. The legislation does not always sufficiently accommodate the various classes of chemicals and the different stages of the life cycle; it is fragmented and dispersed over various sectors, lacks subsidiary legislation and regulation, or is out of date, fails to use implementation and enforcement powers and establishes a low regime of fines and penalties.
Table 4D provides descriptive information on policy approaches and procedures used to control various classes of chemicals in the different stages of the chemicals life cycle.

[1] Y = Yes, stage is adequately addressed through legislation.
[2] N = Stage is Not adequately addressed through legislation.
[3] Import tariffs are defined for different categories of goods.
[4] U = Unknown if stage is adequately addressed through legislation.
[5] A new law on waste is in preparation.

Table 4D Additional Details Policy Approaches, Procedures Chemicals Control

Chemical Life Cycle Stage	**Policy Instrument**	**Responsible Ministry, Agency, etc N = National R = Regional L = Local**	**Enforcement . Level, Nature . Resources Human, Financial**	**Role NGO's M = Monitoring En = Enforcement Ed = Education PA = Public Awareness**
Import	. Movement of Goods Law . Negative List . Import tariffs Law			
Production	. Planning Law . Mining Law . Bauxite law . Petroleum Law . Drilling Law . Hindrance Law . Safety Law . Labor Inspection Law . Enterprises & Professions Permits Decree			
Storage	. Pesticide Law . Hindrance Law			
Transport				
Distribution / Marketing	. Pesticide Law			
Use / Handling	. Pesticide Law . Commodities Law . Hindrance Law			
Disposal	. Hindrance Law . Harbor Law . Police Criminal Law . Penal Code			

Table 4E provides information on chemicals which have been banned or severely restricted.

Table 4E Banned or Severely Restricted Chemicals.

Name of Chemical	**Level Restriction B=Ban S=Severe Restriction**	**Details Restriction**
Pesticides	B	FAO Negative List, Methyl Bromide
Pesticides	S	Not on FAO negative list
Chemicals and radioactive substances	B	
Chemical, biological, nuclear weapons	B	
Medicines	S	Human, veterinary, psychotropic substances
Mercury	S	
Specific chemical and radioactive substances	S	. E.g. acetone, cyanides, sodium hydroxide, nitric acid, iridium . PCB and PCT containing apparatus

4.5 Non-regulatory Mechanisms for Managing Chemicals

No data could be obtained.

4.6 Comments/Analysis

Not always are the laws available at the relevant institutions. Sometimes the staff at a ministry that have specific tasks in accordance to Government Decree is insufficiently informed, that this ministry is responsible for the implementation of a specific law. Not all ministries have an up to date organization chart available and not always it can be indicated by staff what the tasks of other departments within the ministries are.
Departments that are responsible for monitoring of compliance with the laws often lack resources (financial and staff). Many of the laws are outdated, but it still offers possibilities for monitoring and enforcement, and to minimize negative consequence for man and environment, although limited, directly or indirectly. Often the lack of resources and outdate laws are mentioned as reasons within the administration for not taking action to prevent negative impacts.
The different policy instruments are not always in good harmony. It is for example possible to obtain a construction permit without an approved permit for the final destination of the building. Due to overlaps that exist in the different authorities of ministries and departments in chemicals management, in certain areas there is a duplication of activities or no adequate monitoring and enforcement is done.
Administrative data are collected, but no adequate control on the composition of specific chemical products such as pesticides (physical, analytical) is performed that are imported into the country.
The administration controls itself minimal on the compliance with law.

5 Ministries, Agencies and Other Institutions Managing Chemicals

5.1 Responsibilities of Different Government Ministries, Agencies and Other Institutions

A general overview of the responsibilities of the different ministries, agencies and other institutions for the different stages of the chemical life cycle is presented In Table 5A. For specific classes of chemicals; pesticides, petroleum products, industrial chemicals, and consumer chemicals the information is presented in Table 5A1 – 4 respectively.

Table 5A Responsibilities of Government Ministries, Agencies, Other Institutions

Stages of Life-Cycle / Ministry, Agency Concerned	Importation	Production	Storage	Transport	Distribution/ Marketing	Use/ Handling	Disposal
Public Health[1]	X	X	X		X	X	X
Agriculture[2]	X		X		X	X	X
Natural Resources[3]		X	X	X			X
Labor, Technology, Environment[4]	NIMOS	LI NIMOS	LI NIMOS	LI NIMOS		LI NIMOS	NIMOS
Trade and Industry	X[5]	X[6]			X[7]		
Finance[8]	X						
Public Works							X
Regional Development[9]		X	X		X	X	X
Justice and Police[10]	X	X	X	X	X	X	X[11]
Defense[12]	X		X	X		X	X
Foreign Affairs[13]							
Transportation				X[14]			
Other			X[15]				X[16]

[1] Department Bureau of Pubic Health: Department Environmental Inspection (storage, production, use/handling and disposal) and Sanitation (importation, production, storage distribution/marketing, waste disposal)
[2] Pesticide Department of Subdivision Agricultural Research, Sale and Processing
[3] Mining of minerals
[4] LI = Labor Inspection; NIMOS = National Institute for Environment and Development in Suriname
[5] Department Import, Export and Foreign Exchange Control, 'Dienst IUD'
[6] Department Firm Licenses
[7] Department Firm Licenses
[8] Customs Department
[9] District Commissioners

[10] Narcotics: Police (import, disposal); Fire Department, Enforcement (Police)
[11] Procurator-general formally approves destruction or it is delegated to relevant departments
[12] Explosives (import, storage, transport, use/handling, disposal); National Centre for Disaster Control (NCCR)
[13] International agreements
[14] Transportation by water, air and road and facilities for water and air transportation
[15] Port Authority
[16] Maritime Authority Suriname

Table 5A1 Responsibilities of Government Ministries, Agencies: Pesticides

Stages of Life-Cycle / Ministry, Agency Concerned	Importation	Production[1]	Storage	Transport	Distribution/ Marketing	Use/ Handling	Disposal
Public Health	X		X		X	X	X
Agriculture	X		X		X	X	X
Labor, Technology, Environment			LI			LI	NIMOS
Trade and Industry	X				X		
Finance	X						
Public Works							X
Regional Development			X		X	X	X
Justice[2]	X		X	X	X	X	X

Table 5A2 Responsibilities of Government Ministries, Agencies: Petroleum Products

Stages of Life-Cycle / Ministry, Agency Concerned	Importation	Production	Storage	Transport	Distribution/ Marketing	Use/ Handling	Disposal
Health			X		X	X	X
Natural Resources[3]		X	X	X			X
Labor, Technology, Environment	NIMOS	LI NIMOS	LI NIMOS			LI	NIMOS
Trade and Industry	X				X		
Finance	X						
Public Works							X
Regional Development		X	X		X	X	X
Justice and Police[4]		X	X	X	X	X	X
Other[5]	X		X	X			

[1] At present no production of pesticides takes place.
[2] Enforcement of legislation and disposal see note Table 5.A.
[3] Oil exploitation
[4] Enforcement and fire department
[5] Handling at oil terminal Maritime Authority Suriname

Table 5A3 Responsibilities of Government Ministries, Agencies: Industrial Chemicals

Stages of Life-Cycle / Ministry, Agency Concerned	Importation	Production	Storage	Transport	Distribution/ Marketing	Use/ Handling	Disposal
Public Health	X	X	X		X	X	X
Labor, Technology, Environment	NIMOS	LI NIMOS	LI NIMOS	LI NIMOS		LI NIMOS	NIMOS
Trade and Industry	X				X		
Finance	X						
Public Works							X
Regional Development		X	X		X	X	X
Justice and Police		X	X	X	X	X	X

Table 5A4 Responsibilities of Government Ministries, Agencies: Consumer Chemicals

Stages of Life-Cycle / Ministry, Agency Concerned	Importation	Production	Storage	Transport	Distribution/ Marketing	Use/ Handling	Disposal
Public Health	X	X	X		X	X	X
Labor, Technology, Environment		LI NIMOS	LI NIMOS			LI	NIMOS
Trade and Industry	X						
Finance	X				X		
Public Works							X
Regional Development		X	X		X	X	X
Justice and Police		X	X	X	X	X	X

5.2 Description of Ministerial Authorities and Mandates

In this section for the Ministries and Agencies identified in Section 5.1 the aspects of the primary responsibilities for and involvement in specific aspects of chemicals management, and the type and level of expertise available for chemicals management activities are described.

Ministry of Public Health

- *Responsibility*

The responsibility of the ministry in chemicals management is focused on the public health aspects of the use of chemicals and emergency responses to accidents with chemicals. The environmental inspection and sanitation services of the department Bureau of Public Health are involved in the enforcement of rules and regulations for the different stages of the chemical life cycle: import, production, storage, use/handling and disposal. Two emergency departments in the country deal with acute poisoning cases from chemical exposures.

- *Expertise*

Lower-, middle technical and academic level

Ministry of Agriculture, Animal Husbandry & Fisheries

- *Responsibility*

The responsibility of the ministry in chemicals management is focused on pesticide control. The pesticide department is involved in the enforcement of the rules and regulations for pesticides; regulating imports, correct labeling, distribution and disposal. The agricultural information department is responsible for training in safe handling and use of pesticides.

- *Expertise*

Lower-, middle technical and academic level

Ministry of Natural Resources

- *Responsibility*

The responsibility of the ministry in chemicals management is focused on environmental protection and industrial safety aspects of mining activities. The mining department is involved in the enforcement of the rules and regulations for the inventory, exploration and exploitation of minerals.

- *Expertise*

Lower-, middle technical and academic level

Ministry of Labor, Technology, Environment

- *Responsibility*

The responsibility of the ministry in chemicals management is focused on environmental protection, occupational health and industrial safety. The environmental department and the institute NIMOS are involved in environmental protection, training and awareness raising, the formulation of environmental legislation, standards and policies, and implementation of international environmental agreements. The import, production, storage, transport, use and handling, and disposal of chemicals in different industrial sectors are monitored by NIMOS. The Labor Inspection is involved in the monitoring and enforcement of

occupational rules and regulations and its covers the different stages of the chemical life cycle.

- *Expertise*

Lower-, middle technical and academic level

Ministry of Trade and Industry

- *Responsibility*

The responsibility of the ministry in chemicals management is focused on industrial policy and supervision of industrial activities. The department for Import, Export and Foreign Exchange Control, 'Dienst IUD' is responsible for the enforcement of rules and regulations on import of goods (including chemicals) in general. The chamber of commerce and industry support beginning enterprises by providing information and keeps an active register of commercial activities.

- *Expertise*

Lower-, middle technical and academic level administrative expertise

Ministry of Finance

- *Responsibility*

The responsibility of the ministry in chemicals management is focused on the administrative control of the import of chemicals. The customs department of the ministry is responsible for the enforcement of the rules and regulations for the import of chemicals.

- *Expertise*

Lower-, middle technical and academic level administrative expertise

Ministry of Public Works

- *Responsibility*

The responsibility of the ministry in chemicals management is focused on solid waste collection and disposal in the capital. The waste collection department is involved in solid waste collection and disposal in the Paramaribo district, with no specific involvement in chemical waste management.

- *Expertise*

Low and middle level technical expertise in waste collection and disposal

Ministry of Regional Development

- *Responsibility*

The responsibility of the ministry in chemicals management is focused on environmental protection and public health issues. The district commissioners of the ministry are involved in the regulation of economic activities through the issue of permits in consultation with the technical ministries. The commissioners are also responsible for solid waste collection and disposal in the districts, excluded the Paramaribo district, with no specific involvement in chemical waste management.

- *Expertise*

Regulation

Ministry of Justice and Police

- *Responsibility*

The responsibility of the ministry in chemicals management is focused on the enforcement of rules and regulations as mechanism for non-compliance to specific

legal instruments regulating chemicals; air and water emissions, waste, pesticides, negative list for imports and movement of goods, or emergency responses and prevention of fire hazards. Several departments are involved.

- *Expertise*

Fire prevention, enforcement

Ministry of Defense

- *Responsibility*

The responsibility of the ministry in chemicals management is focused on disaster management and it accommodates the National Centre for Disaster Control (NCCR, Nationaal Coordinatie Centrum voor Rampenbestrijding), which collaborates with several ministries and organizations in disasters.

- *Expertise*

Disaster management

Ministry of Foreign Affairs

- *Responsibility*

The responsibility of the ministry in chemicals management is focused on international agreements. The ministry keeps record of Suriname's signatory and the countries follow-up.

- *Expertise*

International laws and agreements

Ministry of Transport, Communication and Telecommunication

- *Responsibility*

The responsibility of the ministry in chemicals management is focused on the transportation by water, air and road and facilities for water and air transport in general.

- *Expertise*

Technical and administrative expertise at lower-,middle-, and academic level in transportation.

5.3 Comment /Analysis

The mandates of the different ministries are regulated in government decrees of 1991, 2002 and 2005. The decrees highlight the general mandates and are not specific on the responsibility of the ministries in the subsequent stages of the chemical life cycle. Without this clear definition situations of overlapping are created which are not sufficiently addressed; e.g. approval for the import of industrial chemicals. But also the opposite were specific aspects are not clearly regulated are observed; e.g. for the transportation of dangerous chemicals no labeling is used and it's unclear who is responsible for it, or risk assessment and management of chemicals that are imported.

At present various legal instruments regulate parts of the life cycle of different classes of chemicals. Several ministries are involved in it and the enforcement of the rules and regulations is generally not adequate. Also there is not a good collaboration between departments in following the chemical through its different stages of the cycle. The causes that underlie this situation vary from low awareness

or lack of capacity to deal with chemicals management issues, the absence of subsidiary legislation and regulation or if present it is outdated, limited budget and staff for the implementation and enforcement, or a low regime of fines and penalties.

At the moment the relevant ministries are involved. However, for an effective chemicals management it will be important to create a good coherence between the ministries in their mandates so that all aspects of the chemical life cycle are covered. Just as well as the improvement of the enforcement of the rules and regulations and updating them were necessary.

6 Relevant Activities of Industry, Public Interest Groups, and the Research Sector

6.1 Description of Organizations and Programmes

In this section brief information is provided for relevant non-governmental organizations: industrial organizations and entities; university and research institutes, private laboratories and quasi-governmental organizations; other non-governmental organizations.

Industrial organizations and entities

- VSB, Vereniging Surinaams Bedrijfsleven (Society Surinamese Business)

Prins Hendrikstraat 18, Paramaribo
T: (597) 47 52 86 / 87
F: (597) 47 22 87
Web: http://www.vsbstia.org

- ASFA, Associatie van Surinaamse Fabrikanten (Association of Surinamese Producers)

Jagerna Lachmanstraat 187, Paramaribo
T: (597) 43 97 97, 43 4013 / 14
F: (597) 43 97 98

Universities, research institutes, private laboratories, and quasi governmental organizations

- Anton de Kom University of Suriname

Leysweg 86, Paramaribo
T: (597) 46 55 58
F: (597) 46 22 91
Web: http://www.uvs.edu
Related activities/area of interest:

  - Faculty of Technological Sciences, Department Environmental Studies
  - CMO, Centre for Environmental Research
    T: (597) 49 47 56
  - CELOS, Centre for Agricultural Research
    T: (597) 49 07 89 / 49 01 28
    F: (597) 49 80 69

- National Board for Occupational Health Service (Nationale Raad voor Bedrijfsgezondheidszorg)

Derbystraat 13a, Paramaribo
T: (597) 47 99 66

- Maritime Authority Suriname

Cornelis Jongbawstraat 2, Paramaribo
T: (597) 47 67 33
F: (597) 47 29 40

- Port Authority (Havenbeheer NV)

Havenlaan zuid, Paramaribo
T: (597) 40 40 44
F: (597) 40 36 91

Other non-governmental organizations

- *Labor Unions*

Ravaksur, Raad voor de Vakbeweging in Suriname
All relevant labor unions are organized in this coordinating organization

- *Teachers Association*
    - FOLS, Federatie van Organisaties van Leraren in Suriname
    - KOB, Katholieke Onderwijzersbond
      Burenstraat 38-40, Paramaribo
      T: (597) 41 08 10 / 47 53 05
- *Environmental Groups*
    - Conservation International Suriname
      Kromme Elleboogstraat 20, Paramaribo
      T: (597) 42 13 05
      F: (597) 42 11 72
      Web: http://www.ci-suriname.org
    - Foundation for a Clean Suriname (Stichting Schoon Suriname)
      Van Idsingastraat 125, Paramaribo
      T: (597) 41 12 28
- *Consumers Groups*

Consumenten Federatie Suriname

- *Women's Groups*

NVB, Nationale Vrouwen Beweging
Verlengde Gemenelandsweg 132b, Paramaribo
T: (597) 46 56 26 / 43 29 21
F: (597) 43 31 67

- *Others*

Stichting Bedrijfsgezondheidszorg
Dr. S. Redmondstraat 250, Paramaribo
T: (597) 44 10 12
F: (597) 44 10 13

6.2 Summary of Expertise Available Outside of Government

Table 6A provides, in summary form, a general overview of the nature of expertise in non-governmental organization which might be available to support national programmes and policies related to chemicals management.

Table 6A Summary of Expertise Available Outside of Government[1]

Field of Expertise	**Research Institutes**	**Universities**	**Industry[2]**	**Environmental/ Consumer[3]**	**Labor Unions**	**Professional Organizations**	**Other[4]**
Data Collection	X	X	X	X	X	X[5]	
Testing of Chemicals	X	X	X[6]				
Risk Assessment			X				
Risk Reduction			X				
Policy Analysis						X	
Training and Education		X	X		X	X	
Research on Alternatives		X	X				
Monitoring	X	X	X		X	X	
Enforcement			X	X	X		
Information to Workers					X		X[7]
Information to Public				X			X[8]

[1] Further information can be obtained from the organizations listed in Section 6.1.
[2] International industries in the mining sector and national oil industry
[3] No formal consumers group exist
[4] Media, Occupational Health organizations
[5] Private laboratories
[6] Selected national industries are capable to do testing related to their activities
[7] Occupational health
[8] Media

6.3 Comment / Analysis

No official policies do exist concerning opportunities for non-governmental organizations to obtain government information related to management of chemicals. If information is provided it is on an ad hoc basis. Neither do they exist for providing of information to the government by these organizations. Information is provided to the government related to the management of chemicals; production and import, for monitoring purposes by several industries. Often this is done when a special commission is installed and data is collected.

At the moment non-governmental organizations do not play an active role in governmental decision- making concerning the management of chemicals. Voluntary initiatives in chemicals management take places in the international industry in the mining sector and the national oil industry. Non-governmental organizations, especially environmental groups and the media, play an important role in informing the public about environmental and human risks of chemical use and government activities in this area. So far they have focuses on air and water pollution by bauxite and gold mining activities, pesticide use in agriculture and waste.

At present there is no specific legislation related to the control of chemicals. International operating industries voluntary observe international accepted regulations and standards.

Information, studies and research are conducted by research institutes and environmental groups, but they are relatively few and vary in quality. They often focus on specific chemicals or issues, e.g. artisanal gold mining, mercury, pesticide use. Notice is taken by the government of these studies and where relevant used for policy making purposes.

The degree of cooperation between the government and non-governmental sectors in chemicals management so far has been minimal. The government is initiating actions in the field of chemicals management, but no structural approach has been made to make optimal use of available expertise in the non-governmental sector.

7 Inter-ministerial Commissions and Coordinating Mechanisms

7.1 Inter-ministerial Commissions and Coordinating Mechanisms

Relevant mechanisms for coordinating activities among relevant institutions are provided in Table 7A.

Table 7A Overview Inter-ministerial Commissions and Institutions

Name of Mechanism	**Responsi-bilities**	**Secretariat**	**Members**	**Legislative Mandate/ Objective**	**Info. Provided In Section 7.2 (Yes/No)**	**Effectiveness**
Inter-ministerial commission	Specific task(s) is (are) dedicated to the commission	The ministry who initiated the establishment of the commission	Limited to relevant institutions needed to perform responsibilities	Ministerial order for a limited period	Yes	Adequate
Institution	Specific tasks	Independent	Limited	Government decree	Yes	Adequate

7.2 Description of Inter-ministerial Commissions and Coordinating Mechanisms

In this section for the inter-ministerial commissions and institutions referred to in Table 7A which are considered of particular importance for the management of chemicals the following information is provided: type of mechanism, scope of issues and chemicals covered, parties included, working procedure, diagnosis of weakness.

- **Commission monitoring gold mining industry**

Type of mechanism
Inter-ministerial commission
Scope of issue and chemicals
Gold mining activities are monitored, including rehabilitation and chemicals used in the mining process.
Parties
Ministry of Natural Resources, Mining Department, Ministry of Labor, Technology, Environment, NIMOS and Ministry of Finance
Working procedures
Monthly there is a meeting with the mining company. The use of chemicals is monitored by NIMOS in collaboration with Ministry of Labor, Technology, Environment
Diagnosis of weakness
No information

- **Commission fuel spills and gold refinery shops**

Type of mechanism
Inter-ministerial commission

Scope of issue and chemicals
Major fuels spills at service stations are monitored and inventory is made of gold refinery shops in the capital to protect the environment and public health. Chemicals covered are: gasoline and diesel fuels, and benzene, xylene, toluene, ethyl benzene; mercury.
Parties
Ministry of Labor, Technology, Environment, NIMOS, District Commissioner, Ministry of Public Health, Fire Department
Working procedures
There are monthly meetings to discuss the monitoring and inventory activities.
Diagnosis of weakness
Technical information discussed with non-professionals in this area.

- **Bauxite Institute Suriname**

Type of mechanism
Institution
Scope of issue and chemicals
All bauxite processing activities of the international mining companies in Suriname are monitored by the institute. Different chemicals are used or may be releases during the processing activities.
Parties
Staff institute, international mining companies
Working procedures
Permanently staffed
Diagnosis of weakness
No information

- **NIMOS**

Type of mechanism
Institution
Scope of issue and chemicals
The environmental monitoring, enforcement and legal department prepares environmental standards and rules for different chemicals and monitors the compliance.
Parties
Staff environmental monitoring and enforcement department NIMOS, different ministries and government institutions
Working procedures
Standard and rules for chemicals are prepared based on the departments experience in the past or those used in the country, and existing national and/or international information and awareness raising.
Diagnosis of weakness
No information

7.3 Description of Mechanisms for Obtaining Input from Non-Governmental Bodies

No information

7.4 Comment /Analysis

The existing individual coordinating mechanisms mentioned in section 7.1 are working effectively. However, the output of the inter-ministerial commissions can be further improved by technological solutions such as online data access. Organizational solutions such as the strengthening of secretarial support will also add to it. Often the same staff members of the various ministries are involved in the different coordinating mechanism due to shortage of specialized staff.
Parties from government ministries and agencies which may be able to contribute in the existing coordinating mechanisms are represented and when not they may participate on an ad-hoc basis when needed. The mechanisms do not cover all important aspects of chemicals which require inter ministerial coordination and cooperation, e.g. transport or risk assessment and reduction of use for classes of chemicals such as pesticides, industrial chemicals. The existing inter-ministerial commissions and institutions are not linked which each other directly and work separately, but since members participate in other commissions there is a not structured exchange of information. There is a need for the establishment of a permanent coordinating mechanism which will have an oversight, set priorities and coordinate actions in the field of chemicals management where needed. It will be a challenge to create such a mechanism which will enable the optimum use of the limited staff members that are available without becoming a bureaucratic entity.
Additional parties from outside the government can be brought into these mechanisms, however when these are research institutes or private laboratories financial constrains of the government often will limit this option. This also applies more or less to bringing in additional parties on a case-by case basis to deal with special issues of concern.
At present there is no mechanism to share on regular and structured basis information across the different agencies charged with chemicals management. When shared it is on an ad-hoc basis.

8 Data Access and Use

8.1 Availability of Data for National Chemicals management

Table 8A provides an overview of whether data is available for different decision-making activities which are required under some of the legal instruments.

Table 8A Quality and Quantity of Available Information[1]

Data Needed for/to	Pesticides	Industrial Chemicals	Consumer Chemicals	Chemical Wastes
Priority Setting	X	X	X	(X)
Access Chemicals Impact under Local Conditions	(X)	(X)	(X)	(X)
Risk Assessment (environmental health)	(X)	(X)	(X)	(X)
Classification/Labeling	X	(X)[2]	(X)[3]	U
Registration	X	X	X	U
Licensing	X	X	X	U
Permitting	X	X	X	U
Risk Reduction Decisions	(X)	(X)	(X)	(X)
Accident Preparedness/ Response	X	(X)	(X)	ND
Poisoning Control	X	(X)	(X)	ND
Emissions Inventories	U	(X)	U	U
Inspections & Audits (environment/health)	U	(X)	X	(X)
Information to Workers	X	(X)	X	(X)
Information to Public	(X)	(X)[4]	(X)[5]	(X)

[1] Sufficient information (quality and quantity) available for the task listed in the left hand column is marked with “X”; insufficient: (X); no data: ND; unknown (U).
[2] Not all products are consequently labeled in Dutch.
[3] Idem
[4] Information is often available but does not address the perception of the general public.
[5] Idem

8.2 Location of National Data

Table 8B gives an indication of the nature of the national data related to chemicals management which is available and the form in which the data is maintained.

Table 8B Location of National Data

Type of Data	Location(s)	Data Source[1]	Access Who? [2]	Access How?[3]	Format
Production Statistics	. Planning Bureau . Statistics Bureau				Automated database
Import Statistics	. Customs . Statistics Bureau . M of Trade & Industry				Automated database Paper files
Export Statistics	. Customs . Statistics Bureau . M of Trade & Industry				Automated database Paper files
Chemical Use Statistics					
Industrial Accidents Reports	. Labor Inspection				Automated database
Transport Accidents Reports					
Occupational Health Data (agricultural)	. Labor Inspection				Automated database
Occupational Health Data (industrial)	. Labor Inspection				Automated database
Poisoning Statistics	. M of Public Health: Emergency Departments				Automated database
Pollutant Release and Transfer Register					
Hazardous Waste Data					
Register of Pesticides	. M of Agriculture, Animal Husbandry & Fisheries				Automated database Paper files
Register of Toxic Chemicals	. NIMOS				Automated database
Inventory of Existing Chemicals					
Register of Imports	. Customs				Automated database
Register of Producers	. M of Trade & Industry: Chamber of Commerce				Automated database
PIC Decisions	. M of Agriculture, Animal Husbandry & Fisheries . NIMOS . M of Public Health, Central Laboratory				Paper files

8.3 Procedures for Collecting and Dissemination National / Local Data

By law there are restrictions on the import and export of certain chemicals: license obligatory; certificate- or register bound.[4] The data required for the license chemicals

[1] No information available
[2] Idem
[3] Idem
[4] These chemicals are listed in the government decree 'Resolution Negative List' (2003) and the amended of the decree (2005).

are administrative data on the importer/exporter and supplier/customer and data related to chemicals management; exact description of the goods and the quantity. These data need to be submitted at the department for Import, Export and Foreign Exchange Control, 'Dienst IUD of the Ministry of Trade and Industry. The license is granted at time and the importer or exporter need to apply for this license.
For the certificate- or register bound chemicals; CFC's containing apparatus, the same data as for the license chemicals need to be submitted by the importer to the earlier mentioned department. Besides this the National Ozone Unit of NIMOS records these data. For chemicals without a restriction on the import and export a declaration is needed, in which a description of the goods and the quantity are given, and submitted at the same department.
No data on the health and environmental effects of chemicals are maintained at this moment. The pesticide department of the Ministry of Agriculture, Animal Husbandry & Fisheries maintains data on imported pesticides in the country and since one year NIMOS on selected industrial chemicals imported in the country. The access to the relevant data is limited to government authorities.

8.4 Availability of International Literature

Table 8C gives an overview of available international literature in the country and if known the location, who has access and how to gain it. Nowadays international information is available through the websites of the individual organizations.

Table 8C Availability of International Literature

Literature	**Locations**	**Access Who?[1]**	**Access How?[2]**
Environmental Health Criteria Documents (WHO)	. M of Public Health . M of Agriculture, Animal Husbandry & Fisheries		
Health and Safety Guides (WHO)			
International Chemical Safety Data Cards (IPCS/EU)			
Decision Guidance Documents for PIC Chemicals (FAO/UNEP)	. M of Agriculture, Animal Husbandry & Fisheries		
FAO/WHO Pesticides Safety Data Sheets	. M of Agriculture, Animal Husbandry & Fisheries		
Documents form FAO/WHO Joint Meeting on Pesticides Residues	. M of Agriculture, Animal Husbandry & Fisheries		
Chemical Safety Data Sheets (Industry)	. Labor Inspection		
OECD Guidelines for Testing of Chemicals			
Good Laboratory Practice Principles			
Good Manufacturing Practice Principles			
WHO/UNEP Global Environmental Library			
Other ILO Guidelines and Conventions	. M of Labor Technology, Environment		

[1] No specific information available. Data can be accessed through websites.
[2] Idem

8.5 Availability of International Databases

Nowadays international databases are accessible through the websites of the individual organizations.

Table 8D Availability of International Databases

Database	Locations	Access Who?	Access How?
IRPTC			
ILO CIS	. Labor Inspection		
IPCS INTOX	. M of Public Health		
Chemical Abstract Services Database			
Global Information Network on Chemicals (GINC)			
Scientific & Technological Information Network (STN) Database, US Chemical Abstract Service			
Relevant Databases Other Countries			

8.6 National Information Exchange Systems

No information is available of national activities, programs or policies which facilitate information flow from international organizations to all concerned parties in the country. A system for the exchange of information between ministries and government institutions exists and is used for the exchange of national information on chemicals management issues. When relevant this information is also provided to other concerned parties.

8.7 Comments / Analysis

The information presented in this chapter on data access and use for chemicals management demonstrates that there are substantial shortcomings.
The information on location, access and how to gain access of national data related to chemicals management or international literature and other information sources is limited. Therefore it is difficult to make an assessment of significant gaps and its distribution. It will be relevant to complete the overviews presented in Table 8B and 8C.
In general it can be stated that there is a lack of adequate data and collecting systems. Data relevant for chemicals management is collected, but at different institutions, and not always adequate, automated or compiled, therefore limiting its use. There are some initiatives for the collection of data on chemicals for the assessment and management, with adequate support these can be valuable sources in the future. Creating a permanent platform, e.g. a website, for the exchange of data and information will benefit chemicals management in the country. The access to international databases and documentation in the country is limited. However, access through the internet has become much easier in recent years for all stakeholders. It will be useful to make the stakeholders aware of the relevant websites.

The information on the use of specific chemicals in the country can be improved by collecting more specific information when chemicals are imported and by requesting information from industry. The register of the chamber of commerce on registered enterprises can be a starting point for the latter.
It will be important for the improvement of chemicals management in the country if the government formulates a national policy on public access to relevant information.

9 Technical Infrastructure

9.1 Overview of Laboratory Infrastructure

In 2003 NIMOS, office of environmental monitoring and enforcement did an inventory survey on existing public and private laboratories in Suriname[1]. The survey provides an overview of the capacity for environmental monitoring and thereby outlining the gaps and deficiencies. Through a systematic process of collection and analysis of qualitative and quantitative data the current status of 49 laboratories in Suriname is determined. The inventory survey was conducted in February 2001 and updated in September 2003. The survey concludes that:

- The majority of laboratories do not comply with the principles of Good Laboratory Practices and there is a large gap between the current situation and the international standard according with GLP;
- A small number of laboratories exist with regulatory tasks in comparison with other countries and are not performing adequately;
- There is a lack of coordination from the government (regulation, control mechanism) and the laboratories themselves (limited collaboration);
- The majority of laboratories do not use (international) references and there are very limited reference laboratories available.

In Annex 5 an overview is presented of the availability of laboratory infrastructure for regular chemical analysis.

9.2 Overview Government Information Systems/Computer Capabilities

At the ministries involved in chemicals management computer capabilities are available which can be used for chemical information systems or to access the internet for international databases, and for the implementation of government policies and programmes related to chemicals management.

9.3 Overview Technical Training and Education Programmes

Training and education programmes are provided at technical schools and at university level which aim at providing technical expertise in the field of chemistry, environmental sciences and toxicology. Expertise that can be used to implement government policies and programmes related to chemicals management. These programmes will benefit from structured collaboration with other regional and international institutions to improve their quality. At present no continued education programmes are provide in the field of chemicals management locally.

- ***Anton de Kom University of Suriname***

The Environmental Studies Department of the Faculty of Technological Sciences provides training and education programmes in environmental sciences as part of the four-year Bachelor of Science programme in environmental science, which started in 1996.
The Pharmacology Department of the Medical Faculty provides training in human toxicology in the pre clinical phase of the medical program.

[1] Environmental Laboratory Survey in Suriname, NIMOS October 2003

- ***Technical school***

The NATIN technical school provides a training programme in laboratory chemistry.

9.4 Comment / Analysis

The overall technical laboratory infrastructure is rather poor. The majority of the laboratories do not comply with GLP rules, including laboratories with regulatory tasks, there is a lack of coordination in the field of laboratory management from out of the government and between the laboratories themselves, there are few reference laboratories available, and limited use is made from (international) references. It is important for the laboratory services in general and in the field of chemicals management to improve their quality as soon as possible. Implementation of GLP rules will be an essential issue. An evaluation is needed to see where the regulatory tasks in chemicals management are the best addressed in terms of availability of tests, quality, costs, efficiency, etc. Regional cooperation should be explored in this process not only for assistance in analysis of specific chemicals but also in references programmes.

Computer capabilities are available within the government that can be used for information purposes and implementation of government policies and programmes related to chemicals management.

To improve the quality of existing technical training and education programmes in the field of chemicals management at technical schools and university level regional and international collaboration will be useful. There is a need for continued education programmes which are not available at the moment. Also specific training programmes in the field of chemicals management aiming at government employees are needed to improve the implementation of government policies and programmes.

10 International Linkages

10.1 Co-operation and Involvement with International Organizations, Bodies and Agreements

In Table 10A and B the involvement in international activities and agreements are listed.

Table 10A Membership International Organizations, Programmes and Bodies

International Organization/ Body/Activity	National Focal Point (Ministry/Agency & Primary Contact Point)	Other Ministries/ Agencies Involved	Related National Activities
IFCS	. M of Public Health	. M of Labor, Technology, Environment . M of Agriculture, Animal Husbandry & Fisheries	
UNEP IRPTC-Nat Correspondent IE/PAC-Cleaner Prod Center	. M of Labor, Technology, Environment	. M of Public Health . M of Agriculture, Animal Husbandry & Fisheries	
IPCS	. M of Public Health		
PAHO/WHO	. M of Public Health	. Bureau of Public Health	
FAO	. M of Agriculture, Animal Husbandry & Fisheries		
UNIDO			
ILO	. M of Labor, Technology, Environment	. Labor Inspection	
World Bank IDB Caribbean Development Bank	. M of Finance		
CARICOM	. M of Foreign Affairs		
ACTO	. M of Foreign Affairs		

Table 10B Participation International Agreements/Procedures Related to Chemicals management

International Agreements	Primary Responsible Agency	Related National Implementation Activities
Agenda 21 – Commission for Sustainable Development	. NIMOS	
UNEP London Guidelines (voluntary procedure)		
FAO Code of Conduct (voluntary procedure)		
Vienna Convention on the Protection of the Ozone Layer (1985)	. NIMOS	
Montreal Protocol on Substances that Deplete the Ozone Layer (1987) and	. NIMOS	Trainings programme phasing out of CFC products 2005

International Agreements	Primary Responsible Agency	Related National Implementation Activities
its London Amendment (1992), Copenhagen Amendment (1994), Montreal Amendment (1999) and Beijing Amendment (2002)		
ILO Convention 13: Use of Lead in White Painting (1921) ILO Convention 42: Workmens Compensation (Occupational disease, revised) (1934) ILO Convention 62: Safety Provisions (Building) (1937)	. Labor Inspection	
Convention on Biological Diversity (1992) Cartagena Protocol on Biosafety (1999)	. M of Labor, Technology, Environment	National Biosafety Framework for Suriname April 2005
UN Recommendation for Transport of Dangerous Goods		
GATT/WTO Agreements (related to chemicals trade)	. M of Trade and Industry	
Convention on the Prohibition of the Development, Production, Stockpiling and Use of Chemical Weapons and Their Destruction (1992)	. M of Defense, Defense Strategic Planning and Training Department	Training workshop 1997
Regional/Sub regional Agreements		
Bilateral Agreements		
United Nations Framework Convention on Climate Change (1992)	. M of Labor, Technology, Environment	Awareness activities (NIMOS)
Rotterdam Convention on the Prior Informed Consent Procedure for Certain Hazardous Chemicals and Pesticides in International Trade (1998)	. M of Agriculture, Animal Husbandry & Fisheries	
International Maritime Organization Convention for the Prevention of Pollution from Ships [MARPOL], Annexes I to V (1973/ 1978)	. Maritime Authority Suriname	Maritime Pollution Law (draft)
Stockholm Convention on Persistent Organic Pollutants (2001)	. M of Labor, Technology, Environment	Preparation of National Implementation Plan (2006)

10.2 Participation in Relevant Technical Assistance Projects

Table 10C Participation as Recipient in Relevant Technical Assistance Project

Name of Project	International/ Bi-lateral Donor Agency Involved	National Contact Point	Relevant Activities
Air Pollution	Max Planck Institute	Meteorological Department	
Guianas Sustainable Forest Resources Management Project	WWF Guianas Regional Program	Geological Department	Goldmining Pollution Abatement Program

10.3 Comment / Analysis

National capabilities to effectively link international programmes with a national strategy for the sound management of chemicals are limited so far. As such the number of national implementation activities of international agreements in this area that has been undertaken are relatively few.

In absence of a national strategy for the sound management of chemicals and the lack of an appropriate co-ordination mechanism on the national level the implementation of the international activities and agreements in the area of chemicals management is not effective as it could be and often focused on the programme activities of the individual ministries. However, on an ad-hoc basis there is consultation about these activities between the different ministries and/or its agencies involved in chemical safety, in particular health, environment, labor and agriculture, and other relevant ministries.

The collaboration of Suriname with several of the specialized agencies of the United Nations such as the FAO, ILO, PAHO/WHO and UNEP who are involved in chemical safety, has been positive in promoting several initiatives in this field in the country. At the moment the country is in the process of developing a national strategy for the sound management of chemicals and to gradual forms its national capabilities to effectively link international programmes with the strategy. This process can benefit from technical support and a good co-ordination of the activities in the field of chemical safety of these international agencies in the country, to make optimum use of the limited local human resources.

11 Awareness/Understanding of Workers and the Public

Occupational health and safety issues in general are addressed by law and for the implementation of this law regulations are issued for some specific chemical categories. A general duty of employers under law is to provide relevant information to advance safety and hygiene in enterprises so that the chance of accidents and occupational diseases can be reduced to a minimum. Also the employee is obliged under law to comply with the relevant instruction of these specific regulations. Under the pesticide law the importer and/or supplier of pesticides is obliged to label the individual product properly, including hazard information for the user.

To provide information to the public or workers on the hazards of chemicals several initiatives are or have been undertaken by ministries and/or its agencies involved in chemical safety, in particular health, environment, labor and agriculture, and NGO's[1]. Information to the general public focuses on specific chemicals, e.g. mercury, or groups of chemicals, e.g. pesticides, POPs, and covers environmental, health and safety issues and relevant national information on the production, import, export handling, use and disposal. The information for the public is often provided through mass media, educational activities, or workshops. Workers are informed on the hazard of chemicals by means of mass media, workshops or specific training sessions, especially in industries that are international orientated, e.g. international mining firms, oil industry, and export industry, and to certain extend in small to medium-scale national industries. It is unclear to what extend workers are informed in the informal sector.

From primary school onwards at different educational levels awareness is raised for chemical safety issues. At the Ministry of Education & Community Development there are initiatives to redesign the primary and secondary school curricula to incorporate environmental issues into the regular study programme. In 2000 a workshop on environmental education in schools was organized by one of the local environmental NGO's. At the university level awareness raising and education is provided in the environmental sciences progamme as part of the four-year Bachelor of Science programme in environmental science. To educate and raise awareness for environmental management NIMOS implemented a National Environmental Management Training Programme aimed at training representatives of the government, NGOs, private sector and the university in 2000.

[1] See for details Chapter 5 and 6.

12 Resources Available and Needed for Chemicals Management

12.1 Resources Available and Needed in Government Ministries/Institutions

The information available on existing human resources within ministries and agencies specifically to address the management of chemicals is listed in Table 12A. The expertise is concentrated in the capital.

Table 12A Resources Available in Ministries/Agencies to address management of chemicals

Ministry/Agency Concerned	Number of Professional Staff Involved	Type of Expertise Available	Financial Resources Available
Public Health[1]	3	Chemist, Public Health Inspector, Toxicologist	PUBLIC FUNDS
Agriculture[2]	3	Agricultural sciences	
Natural Resources	2	Geologist, Specialized Staff	
Labor, Technology, Environment[3]	8	Environmental Sciences, Jurists, Physician,	
Trade and Industry[4]	2	Specialized Staff	
Finance[5]	3	Custom Officers	
Public Works[6]	1	Specialized Staff	
Justice and Police[7]	5	Chief Inspector, Firefighters/Disaster Managers, Jurists	
Foreign Affairs	1	International Affairs	
Other[8]	3	Disaster Manager, Safety Officers	

[1] Toxicology Focal Point, Bureau of Pubic Health: Environmental Inspection and Sanitation Department, Central Laboratory
[2] Pesticide and Education Department
[3] Environmental Section, Labor Inspection Medical Bureau, NIMOS
[4] Import, Export and Foreign Control Department, Firm Licenses Department
[5] Customs Department
[6] Waste Disposal Department
[7] Legal Department, Fire Department (Prevention and Training)
[8] National Centre for Disaster Control (NCCR), Port Authority

12.2 Resources Needed by Government Institution to Fulfill Responsibilities Related to Chemicals Management

The estimated human resources and training requirements needed by ministries and agencies in order to fulfill their responsibilities in chemicals management are listed in Table 12B.

Table 12B Resources Needed by Government Institutions to Fulfill Responsibilities Related to Chemicals management

Ministry/Agency Concerned	Number/Type Professional Staff Needed[1]	Training Requirements[2]					
		ACM	DCM	RA	RC	GHS	HSA
Public Health[3]							
Agriculture[4]							
Labor, Technology, Environment[5]							
Trade and Industry[6]							
Finance[7]							
Public Works[8]	2 Specialized Staff						
Regional Development[9]	1 Specialized Staff						
Education	1 Specialized Staff						
Justice and Police[10]							
Transportation	1 Specialized Staff						
Foreign Affairs							
Other[11]							

[1] Additional Staff compared to Table 12A
[2] ACM=Awareness Chemicals Management; DCM=Data Collection and Management; RA=Risk Assessment; RC=Risk Communication; GHS=Globally Harmonized System for the Classification and Labelling of Chemicals; HAS=Health and Safety Aspect of Chemicals
[3] Toxicology Focal Point, Bureau of Pubic Health: Environmental Inspection and Sanitation Department, Central Laboratory
[4] Pesticide and Education Department
[5] Environmental Section, Labor Inspection Medical Bureau, NIMOS
[6] Import, Export and Foreign Control Department, Firm Licenses Department
[7] Customs Department
[8] Waste Disposal Department
[9] District Commissioners
[10] Police (Enforcement); Fire Department (Prevention and Training)
[11] National Centre for Disaster Control (NCCR), Maritime Authority Suriname, Port Authority

12.3 Comment / Diagnosis

The human resources are available at the key ministries and/or its agencies involved in chemicals management; health, environment, labor and agriculture. However, due to the absence of a coordination mechanism for chemicals management at the national level, this capacity is not efficiently used as it could be. This causes a weakness of the current arrangements at the various ministries and agencies to address chemicals management.

Besides an effective coordination mechanism strengthening and capacity building of supportive staff of the individual ministries and agencies will be useful so that professionals can delegate tasks and focus more on their tasks in chemicals management. Table 12B indicates the areas in chemicals management for the individual ministries and agencies were human resources training are needed. Awareness raising for chemicals management for relevant institutions will be essential for the further development of sound chemicals management in the country. Like the training in appropriate data collection and management is. Professionals of the key ministries and agencies involved in chemicals management need specific training for capacity building in risk assessment and communication. Training in the use of the GHS and health and safety aspects of chemicals are also needed for selected institutions.

The estimate is that some ministries who fulfill an essential role in chemicals management; public works waste disposal department, regional development, education and transportation, will need some specialized/trained staff so that they can participated more actively then until know.

To mobilize technical and human resources that are appropriate to ensure the sound chemicals management in Suriname an essential step will be implementing a coordination mechanism at the national level. The following step will be to fill in the gaps in capacity by specific training, with the support of the local private sector and international organizations.

Annexes

Annex 1 Glossary

ACTO	Amazon Cooperation Treaty Organization
CARICOM	Caribbean Community
CFCs	Chlorofluorocarbons
Consumer Chemical	Any substance or preparation intended for individual use or in the household setting, including medicines.
FAO	Food and Agriculture Organization of the United Nations
Formulation	A preparation of a pesticide with other ingredients for effective application against the pest involved.
GATT	General Agreement on Tariffs and Trade
GHS	Globally Harmonized System for the Classification and Labelling of Chemicals
GLP	Good Laboratory Practice
IDB	Inter-American Development Bank
IMF	International Monetary Fund
Industrial Chemical	A compound which is feedstock to or output from a transformation process or one that is ancillary to any industrial process or operation.
IE/PAC	Industry and Environment Programme Activity Centre
IFCS	Intergovernmental Forum on Chemical Safety
ILO	International Labour Organization
IPCS	International Programme on Chemical Safety
IRPTC	International Register of Potential Toxic Chemicals
LI	Labor Inspection
License	A special permit approved and issued by a government authority after formal application as a prior condition for importing or exporting certain goods.
MAS	Maritime Authority Suriname
NCCR	Nationaal Coordinatie Centrum Rampenbestrijding, National Centre for Disaster Control
NGO	Non-Governmental Organization
NIMOS	Nationaal Instituut voor Milieu en Ontwikkeling in Suriname, National Institute for Environment and Development in Suriname
OECD	Organisation for Economic Co-operation and Development
PCBs	PolyChlorinated Biphenyls
PCT	PolyChlorinated Terfenyls
Permit	Legal document issued by a government authority giving official permission to do something.
Pesticide	Any substance which by itself, or in combination with others, is proposed, represented or used for destroying or controlling pests in agricultural, public health or for consumers use.
Petroleum products	Product derived from the petrochemical industry.
PIC	Prior Informed Consent
POPs	Persistent Organic Pollutants
Rural	The rural population is defined as the population who live in Suriname excluded Paramaribo and district Wanica in the coastal region.
Trade	The activity of buying, selling or exchanging goods and, or services national and, or international.
UNEP	United Nations Environment Programme
UNIDO	United Nations Industrial Development Organization
UNITAR	United Nations Institute for Training and Research

Urban	The urban population is defined as the inhabitants who live in Paramaribo and the district Wanica in the coastal region.
PAHO	Pan American Health Organization
WHO	World Health Organization
WTO	World Trade Organization
WWF	World Wildlife Fund

Annex 2 Names, Addresses of Organizations

Ministry / Organization	Address in Paramaribo
Ministry of Public Health	Henck Arronstraat 64 T: 47 76 01
▪ Toxicology Focal Point	
▪ Bureau of Public Health, Environmental Control Department	Rode Kruislaan 22 T: 494 130
Ministry of Labor, Technology, Environment	Wagenwegstraat 22 T: 47 52 41
▪ Environmental Section	Herenstraat 20 T: 42 09 60
▪ Labor Inspection, Medical Bureau	Watermolenstraat 17 T: 42 22 40
▪ NIMOS	Onafhankelijkelijkheidplein 2 T: 52 00 45
Ministry of Agriculture, Animal Husbandry & Fisheries ▪ Pesticide Department ▪ Education Department	Letitia Vriesdelaan T: 42 56 32
Ministry of Trade and Industry	Havenlaan T: 40 20 80
▪ Dienst IUD Department Import, Export & Foreign Exchange Control	
Ministry of Finance	Nieuwe Haven T: 40 27 78
▪ Customs Department	
Ministry of Justice and Police	Henck Arronstraat 1 T: 47 38 41
▪ Legal Department	
Ministry of Natural Resources	Mr. Dr. J.C. de Mirandastraat13-15 T: 47 46 66
▪ Mining, Energy and Water Supply Department	
▪ Geological and Mining Department	Jagerna Lachmanstraat 181 T:43 45 54
Ministry of Defense	Kwattaweg 29 T: 47 15 11
• NCCR	

MAS	Cornelis Jongbawstraat 2 T: 47 67 33
Anton de Kom University of Suriname	Leysweg 86 T: 46 55 58
▪ Faculty of Technological Sciences, Department Environmental Studies	
▪ CMO, Centre for Environmental Research	T: 49 47 56
Environmental NGO Stichting Schoon Suriname	Van Idsingastraat 125 T: 41 12 28
International Organizations	
PAHO	Burenstraat 33 T: 47 16 76
▪ Environmental Health Unit	
UNDP	Heerenstraat 17 T: 42 51 48

Annex 3 Map of Suriname

Annex 4 Data Source Table 3E Priority Concerns related to Chemicals

Nature of Problem	**Availability Statistical Data** -Sufficient -Insufficient -No data available	**Specific Chemicals Creating Concern**	**Data source**
Air Pollution	I	Mercury Asbestos	Studies mercury exposure miners and refiners Inventory of gold shops inner city Inventory asbestos use
Pollution of Inland Waterways	I	Mercury	Studies Fish contamination mercury
Marine Pollution			
Ground-water Pollution	I	Gasoline	Data monitoring pollution Texaco incident Kwatta
Soil Contamination	I	Gasoline	Data monitoring pollution Texaco incident Kwatta
Chemical Residues in Food	I	Pesticides	Pilot studies University of Suriname. Confirmation of banned pesticide in exported vegetables to Netherlands
Drinking Water Contamination			
Hazardous Waste Treatment/Disposal	I	Different chemicals	Descriptive data in studies to address bottlenecks in management of garbage in Paramaribo, Ministry of Public Works and NIMOS documents
Occupational Health: Agriculture	I	Pesticides	Data Ministry of Agriculture, Livestock and Fisheries, Labor Inspectorate
Occupational Health: Industrial	I	Different Chemicals Pesticides	Data Labor Inspectorate
Public Health	I	Asbestos Mercury Pesticides	Studies mercury exposure miners and refiners, Inventory of gold shops inner city Inventory asbestos use
Chemical Accidents: Industrial			
Chemical Accidents: Transport			
Unknown Chemical Imports		Mercury	
Storage/Disposal of Obsolete Chemicals	S	Different chemicals	Data inventory Ministry of Agriculture, Livestock and Fisheries January 2000
Chemical Poisoning/Suicides	S	Pesticides	Data Emergency Departments Paramaribo and Nieuw Nickerie
Persistent Organic Pollutants			

Annex 5 Availability of Laboratory Infrastructure for Regular Chemical Analysis

Laboratory	Nature	Test item	Type of testing	Type of tests	Type of safety
OW-Meteology	Routine analysis	Air	Physical	Temperature, pressure, wind, cloudiness, atmosperic humidity, precipitation / rainfall Trace elements: ozone, SO2, NOx, CO, CO2, NO2	--
SWM	Quality control	Water	Chemical/physical/biological	Chemical: hardness, Fe, Cl, Mn Physical: pH, turbidity, Temperature, conductivity Biological: coliform, total count	Chemical/biological
OW-Hydrology	Routine analysis	water	Chemical/biological	Hardness, pH, O2, Cl, conductivity, phytoplankton, light penetration, SCO4, turbidity	Chemical/biological
Iber	Research	Water, animal tissue	chemical	Water: BOD, COD, pH, conductivity, minerals, Hg Animal tissue: Hg	Chemical
Suralco	Routine analysis	Soil, water, oil	Chemical/physical/biological	Soil: bauxite, Al, S and other minerals Oil: BTU, H2O, leshpoint, ashes, viscosity, wear parameters Water: minerals, TSS, TS, pH, conductivity, hardness, microbiological analysis.	Chemical/biological
CELOS-soil	research	Soil	Chemicall	PH, CEC. Conductivity, minerals	Chemical
BHPBilliton	Routine analysis	Soil	Chemical/physical	Bauxite analysis of TAl2O3, TSIO2, Fe2O3, TIO2, SO3	Chemical
LVV-soil	Research	Soil	Physical	Permeability, liquid content, pH	
State Oil refinery	Quality control	Oil, water	Chemical/physical	Water: pH, COD, BOD, TSS, fenol Oil: density, heat of combustion, S, viscosity, Na, K, Ca, fleshpoint, asphalt, boiling point, asphalt penetrating	chemical
State oil production	Quality control	Oil, water	Chemical/physical	Water: SO4, Ca, Fe, CO3, pH, TSS, salinity, oil content, Mg Oil: water in oli, viscosity	Chemical
UVS-soil	Education	Soil	Chemical/physical	Soil: pF, pH, texture, permeability, CEC, P, Al, ex. acidity, N. K, C Plant: P, K, trace elements, Ca Water: pH, conductivity, slib	Chemical
SAB	Quality control	Food-beverage	Chemical/physical	Water: hardness, BOD, minerals, pH, conductivity	Chemical
Suriname brewery	Quality control	Food-beverage	Chemical/physical/biological	Beer: taste, components identification and analysis, water	Chemical/biological
Milk company	Quality control	Food-beverage	Chemical/biological	Chemical: fat content, density, freezing point, viscosity, pH Microbiological: total count, coliform, molds and yeasts Organoleptic: T, color, smell, appearance	Chemical/biological
Fernandes bottling	Quality control	Food-beverage	Chemical/biological	Water: hardness, Cl, Fe, coliform, total count Softdrink: brix, turbidity, S, SO2, C2S, CO2, H2, O2, gasvolume, density, organoloeptic, yeast, mold, coliform, total count	Chemical
BOG-bacteriology	Routine analysis	Food	biological	Water: E.coli, enterococcen, bacteriological test on food, TBC	biological
LVV-nematology	Research	Plant	biological	Nematological identification	biological
LVV-bacteriology/mycology	Research	Plant	biological	Field survey's, fungus, bacteriological identification	biological
LVV- entomology	Research	Plant	biological	Entomological identification	biological
CELOS- tissue culture	Research	Plant	biological	Vegetative propagation	biological
CELOS-wood technology	Research	Plant	biological	Microbial analysis of wood	biological
LVV-seed unit	Research	Plant-seed	biogical	Germination test	biological
ADRON-rice research	Research	Plant-rice	Chemical/physical/biological	Chemical: amylose Physical: germination test: liquid, break, swarf, thresh, grain size. Microbiological: fungus, virus	Chemical/biological
Phytotech	Routine analysis	Plant	Chemical/biological	Vegetative propagation	Chemical/biological
Plantprop	Research	Plant	Chemical/biological	Vegetative propagation	Chemical/biological
UVS-agronomy	Education	plant	physical	Growth analysis	--
LVV-fishery service	Routine analysis	Animal	Chemical/biological	Ciquatera, Q-factor, pH	Chemical/biological
LVV-vetenary service	Routine analysis	Animal	Chemical/biological	Gram identification, cultivation, blood/stomach parasites	Chemical/biological
SAIL	Quality control	Animal-shrimp	Chemical	Water: Cl Fish: SO3, salt content, organoleptic analysis	Chemical

Laboratory	Nature	Test item	Type of testing	Type of tests	Type of safety
BGVS	Quality control	Drug	Chemical	Drugs: pharmaceutical analyis, raw material Water: hardness, pH	Chemical
Diakonessen hospital	Routine analysis	Human	Chemical/biological	Standard clinical chemical test, hematology, urine, faeces	Chemical/biological
Academic Hospital	Routine analysis	Human	Chemical/biological	Standard clinical chemical test, haematology, urine, faeces, parasitology, serology, bacteriological	Chemical/biological
SLands hospital	Routine analysis	Human	Chemical/biological	Standard clinical chemical test, hematology, urine, faeces, fat test	Chemical/biological
Regional hospital Nickerie	Routine analysis	Human	Chemical/biological	Clinical chemical test, hematology, urine, faeces	Chemical/biological
Medilab	Routine analysis	Human	Chemical/biological	Standard clinical chemical test, haematology, urine, faeces, serology,	Chemical/biological
Health control	Routine analysis	Human	Chemical/biological	Standard clinical chemical test, hematology, immunology, malaria, sperm analysis	Chemical/biological
St Vincentius hospital	Routine analysis	Human	Chemical/biological	Clinical chemical test, hematology, urine, faeces, bacteriological	Chemical/biological
Bloodbank	Routine analysis	Human	Chemical/physical	Blood typing, Hepatitus B, C HIV, HTLV, malaria, syphyllus	Chemical
NATIN-medical	Education	Human	Biological	Blood analysis, urine, faeces	Biological
VG-dermatology	Routine analysis	Human	Biological	Gonorrhoea, syphilis, fungus, dylismanie, urine sediment, leprosy	Biological
UVS-immonology	Research	Human	Biological	HIV	Biological
UVS-parasitology	Research	Human	biological	Malaria	biological
BOG-parasitology	Routine analysis	Human	biological	Intestinal parasite and malaria diagnostics	biogical
NATIN-chemical	Education	---	Chemical	Analysis and procedures of chemicals	Chemical
CMO	Research	Water, animal tissue	Chemical	Water: Hg, COD, pH	Chemical
CIC	Quality control	Detergent	Chemical/physical	Water: hardness, conductivity, minerals, alkalinity Detergent: texture, viscosity, brix, strenght, moisture content	chemical
BOG-chemical	Routine analysis	Food	chemical	Drugs, tests on alcohol, several toxicological tests Water: minerals	Chemical
UVS-chemical	Education	---	chemical	Identification of chemicals	Chemical
UVS-environmental	Research	Water, soil	chemical	Element analysis of pollutants (heavy metals, toxics)	chemical