Report No. PID9848

Project Name	Dominican Republic-HIV/AIDS Prevention and... Control Project
Region	Latin America and the Caribbean (LCR)
Sector	Other Population; Health & Nutrition
Project ID	DOPE71505
Borrower	Government of the Dominican Republic
Implementing Agency	National HIV/AIDS Council/COPRESIDA
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Environment Category	B
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1. Country and Sector Background:
The HIV prevalence rate among the adult population is estimated at 2-3%, suggesting that HIV/AIDS is in a transition from a concentrated to a widespread epidemic. Only a fraction of HIV/AIDS cases are reported. The Sexually Transmitted Infections and AIDS Control Directorate (DIGECITSS) of the Secretariat of Public Health and Social Assistance (SESPAS) estimates that approximately 120,000 people in the DR are living with HIV--about nine times the total reported accumulated cases--and that over 16,000 have already died as a consequence of AIDS. In 1998, nine hundred cases of AIDS deaths were reported to SESPAS, making this disease the leading cause of death from infectious diseases. Other studies performed on the general population indicate that AIDS is the principal cause of death among women of reproductive age.

The principal means of HIV transmission in the DR is sexual transmission--in particular, heterosexual intercourse, which accounts for about 70% of cases. The majority (81%) of HIV/AIDS cases occur among individuals in their prime reproductive and economic ages, i.e., between 15 to 44 years. The ratio of male to female has varied, and there has recently been a major increase among young women. It is estimated that 4,000 pregnant women who have prenatal checkups are infected with HIV, and may deliver 1,300 infected children in the absence of a program to reduce vertical transmission. It is estimated that 2.5% of the sexually active population, between 2% and 9% of commercial sex workers (CSW), and 11% of men who have sexual relations with men (MSM) are infected with HIV. Furthermore, 6% of persons who have checkups for sexually transmitted infections (STIs) are infected.

Despite efforts made in the DR to control the epidemic, conditions still exist for it to spread rapidly. These conditions are expressed in high rates of infection of sexually transmitted diseases; high rates of births among adolescent and young women; active migration to and from the country; a growing number of CSW; hidden

homosexuality and bisexuality; and stigmatization of the disease that keeps it from being dealt with openly. The existence of a large and hard-to-reach migrant population compound the situation. Over 2 million tourists visit the country each year and there are an estimated 500,000 Haitians residing legally and illegally in the country, most of them young men who migrate to work in the construction and agriculture sectors. Country projections indicate that if current trends continue, HIV prevalence could reach 5% of the adult population by 2005. Studies performed in other parts of the world indicate that when the epidemic reaches these levels, HIV spreads much more rapidly and the country's economic growth is reduced by more than 1% per year.

The reproductive rate of HIV depends upon the time a person remains infectious, the risk of transmission per sexual contact and/or per infected needles, and the rate of acquisition of sexual partners. An HIV-infected person remains infectious about 10 years and his/her capacity to transmit the infection is greatly influenced by behavior. Thus, the challenge facing the DR is to reduce the reproductive rate of transmission by inducing positive behavioral changes in the entire population, but especially in high-risk groups.

The GODR recognizes that the HIV/AIDS epidemic puts the economic and social development of the country in serious jeopardy and considers reducing the rate of HIV transmission a national priority. Apart from having an economic impact on the country due to disability and years of life lost prematurely, HIV/AIDS imposes substantial direct costs on the health system. If the cost of treating an AIDS patient remains constant at the 1998 rate of US$5,000 per year, then the costs of hospital care will increase over 50% from US$4.8 million in 1998 to US$7.4 million in 2005. If anti-retroviral therapy were included, the total cost of treatment would reach nearly US$52.6 million in 2005, or 18.2% of the health budget. The situation is compounded by the emergence of opportunistic diseases associated with HIV/AIDS (some 5,440 cases of tuberculosis due to AIDS are expected for the period 2001-2005). Finally, besides the direct toll on the infected population and on the health system, there is the tragedy of an increased number of orphans--a number that could double from 18,500 in 1999 to nearly 38,200 in 2005.

2. Project Objectives:
This project would assist the Government of the Dominican Republic (GODR) in curbing the spread of the Human Immune-deficiency (HIV) epidemic through the scaling up of programs and activities targeted to high-risk groups; expanding awareness about HIV/Acquired Immune-deficiency Syndrome (AIDS) among the general population; and strengthening institutional capacity to ensure the effectiveness and sustainability of the effort.

3. Project Description:
Component #1: Promotion/Prevention to Reduce HIV Transmission US$17.20 million. Under this component, the project would support the development of five cost-effective priority interventions: a) Information, education, and communication (IEC) activities to reduce HIV/AIDS transmission, with emphasis on high-risk groups; b) Condom social marketing programs, with emphasis on high-risk groups; c) Improved management and treatment of STIs; d) Interventions to prevent mother-to child transmission of HIV; and e) quality control of HIV testing in blood bank and laboratories.

Component #2: Diagnosis, Basic Care and Support of Individuals Affected by HIV/AIDS US$4.8 million. This component will support the implementation of the following diagnostic and basic care interventions aiming at reducing disability and

death due to HIV/AIDS, reducing the reservoir of HIV/AIDS, and mitigating the suffering of children orphaned by HIV/AIDS: a) Organization of voluntary HIV testing with pre- and post-test counseling services; b) Support of home care for HIV/AIDS patients; c) Establishment of basic AIDS Health Care Units; d) Implementation of directly observed treatment (DOT) regimens for tuberculosis (TB) patients; and e) Support to children orphaned by AIDS.
Component #3: Strengthening HIV/AIDS and STI Surveillance; and Project Coordination, Monitoring, Evaluation and Research US$7.75million. This component, support: Improvements in the HIV/AIDS and STI disease surveillance system; and provide support for project coordination, monitoring, evaluation and research.

4. Project Financing: The total cost of the proposed program is estimated at US$30.0 million.

5. Project Implementation:
The project will be executed by COPRESIDA, and its Directive Council would serve as an advisory Project Steering Committee. A Project Coordination Unit (PCU) that would be part of COPRESIDA's organizational structure would support the Director of COPRESIDA. The PCU would be comprised of a Technical Coordination Team, physically located at COPRESIDA.
The Administrative-Financial Unit of the Executive Commission for Health Sector Reform (CERSS), that is charge of managing the implementation of the ongoing WB-supported Provincial Health Services Project (Ln. 4272-DO) would also support project implementation in coordination with the PCU's Technical Coordination Team.

All public sectors related project activities in the project would be implemented by the respective Line State Secretariats, IDSS, and their HIV/AIDS units, as mandated by the Presidential Decree that established COPRESIDA. The Director of such units in each sector secretariat will oversee the operations in their respective State Secretariats and in the IDSS would be accountable for their project-related activities and results. In addition, State Secretariats and IDSS would actively involve and support their provincial or local level offices to implement the project in their jurisdictions. The Line State Secretariats would present their HIV/AIDS plan for each year to the COPRESIDA's PCU.

The civil society organizations, private sector groups, and NGOs would participate in the project in two ways. When preparing their annual plans, the sectoral State Secretariats would involve the related civil society groups/private sector agencies/NGOs in developing their HIV/AIDS plans. For project implementation, civil society organizations, private sector and NGOs could be contracted following criteria and procedures in the Operations Manual. The COPRESIDA's PCU would assist, facilitate and supervise implementation of these activities. The criteria to be used for contracting these organizations would include: technical and efficiency criteria; cost-effectiveness criteria; assessments of their implementation capacity, record keeping arrangements, experience and reputation of the sponsors in technical, organizational and financial matters
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6. Project Sustainability:
Three factors contribute to increasing the likelihood of program sustainability after project completion: (i) there is a very clear political commitment at the highest level of the GODR: HIV/AIDS is considered a matter of national priority given the enormous and increasing economic and social cost caused by the epidemic; (ii) because the process has been participatory, the beneficiaries and the stakeholders have a great sense of ownership of the PEN, which would likely continue upon project closing; (iii) the project was designed to ensure that its

incremental recurrent costs can be and are picked up by the health system.

7. Lessons from Past Operations:
More than two decades of experience in attempting to control the spread of HIV and treat AIDS victims shows that successful efforts share key features:
- Government commitment in placing the epidemic in open discussion, accepting that a problem exists and that the means of transmission are known, reducing policy barriers and striving for reduction of the stigma associated with infection;
- cooperation and collaboration among different groups and sectors in which all stakeholders including PLWHA, religious groups, industry, NGOs, health care professionals play separate but coordinated roles and recognition that public sector agencies cannot address all of the issues involved;
- decentralized and participatory approaches to prevention and treatment to ensure that responses are tailored to the needs of specific population groups and regions and to ensure sustainability through greater ownership. Adopting a decentralized and participatory approach implies substantial additional costs and time (capacity building, empowering regions and communities) that must be understood and accounted for;
- the creation of a National AIDS Commission is necessary to anchor government commitment and to coordinate the country's HIV/AIDS response, especially if a decentralized and inter sectoral approach is adopted;
- actions that influence the socioeconomic determinants of behavior that make people vulnerable to infection and that seek to change behavior directly, especially of the young;
- inclusion of treatment and care in country projects and the involvement of PLWHA in policy making and the implementation of activities would lower taboos, raise hope, openness and acceptance of the condition;
- adequate HIV/AIDS surveillance systems must be strengthened for effective monitoring and evaluation of the impact of HIV/AIDS interventions; and
- adopt good experiences in WB financed projects related to implementation procedures that favor flexibility, learning and innovation, and responsiveness to opportunities and demand.
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8. Government Commitment:
The GODR has given concrete expression to its commitment to coordinate and multiply efforts to mitigate the HIV/AIDS epidemic by establishing COPRESIDA at the beginning of 2001. COPRESIDA operates under the leadership of a prominent national health and political personality and a multi-sectoral commission, within the office of the President. The preparation of the proposed HIV/AIDS Prevention and Control Project was carried out with the direct involvement of COPRESIDA members in all aspects of the project design. The project closely mirrors the priorities established by the 2000-2004 PEN, which was put together through a participatory process and benefits from a high degree of ownership from all the stakeholders involved.

9. Environmental Aspects:
Category B. See Annex on environmental aspects.

10. Program Objective Category: The category for this project is Poverty Reduction and Human Resource.

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Note: This is information on an evolving project. Certain components may not necessarily be included in the final project.

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Annex to the PID. Dominican Republic HIV/AIDS Prevention and Control Project

Medical Waste Management Assessment in the Dominican Republic

The recent enactment of two new laws in the DR are an encouraging sign that the GODB is committed both to protecting the environment and to reducing the risks posed by the improper management of medical waste. These laws provide a new framework for managing infectious and other medical waste that poses health risks to patients and health care staff, as well as to people who are exposed to such waste outside health facilities.

The solid waste produced in health facilities is potentially hazardous, infectious, contagious, or toxic, producing the risk of the spread of diseases.

The proposed HIV/AIDS Prevention and Control Project, building on the World Bank-financed Provincial Health Systems Project, would support activities related to the handling of medical waste from patients infected with HIV/AIDS in the Dominican Republic. Specifically, it would support (1) an assessment of medical care waste handling and disposal related to HIV/AIDS programs and activities; (2) the development and adoption of a manual to address proper handling and disposal of medical waste; and (30 the training of health personnel associated with HIV/AIDS prevention and control programs and activities supported under the project.

The following sections of this document:

- Describe what constitutes medical waste and discusses the management of medical waste;
- Provide an overview of the new legal and institutional framework for addressing the problem of medical waste in the DR;
- Discuss investments financed under the ongoing WB-financed Provincial Health Systems Project in the Dominican Republic; and
- Identify how the proposed HIV/AIDS Prevention and Control Project will contribute to addressing the problem of medical waste in the Dominican Republic.

A. What Constitutes Medical Waste

Medical waste is defined as any material disposed of by a health facility, whether it be in solid, liquid, or gaseous state. Health facilities are understood to be public hospitals, private centers, clinical laboratories, pharmacies, etc.

According to the international standards dictated by the WHO, medical waste falls into the following categories:

General medical waste. This category includes paper and byproducts, plastic and glass products, and non-infectious materials.

Special biomedical waste. This is infectious or other waste produced by a health facility that poses health risks both within the health facility and beyond it.

Infectious biomedical waste. This includes blood, secretions, needles, syringes, vaccines, and pointed or sharp materials that may have been contaminated with infectious agents. Preventive measures in handling and final disposal of such waste are important.

Chemical waste. This includes disinfectants and other chemicals used for examinations, research, cleaning, etc.. Special regulations are required for the handling and final disposal of such chemical waste.

Radioactive waste. This is waste contaminated with radioactive substances used in diagnostic examinations or special therapeutic procedures. The elimination of radioactive waste requires specialized procedures because of its hazardous nature.

Anatomical waste. This consists of corpses or human remains from births, abortions, mutilations, or surgical operations. Anatomical waste poses a great risk spreading infection. Both forensic medicine regulations and ethical considerations are important in the handling of such waste.

Internationally accepted standards establish a total production of medical waste between 3.3 and 11 pounds per bed per day. Eighty -percent of this consists of general medical waste and the remaining 20% consists of special biomedical waste, approximately 14% of which corresponds to infectious waste. A study performed in 1992 by the Universidad Autónoma de Santo Domingo, based on the analysis of a sample of 29 public and private health facilities in the DR, found that the production of medical waste per bed per day was 5.5 pounds.

Internationally accepted standards for the % ages of waste produced by various components of health facilities are as follows: food service (50%); hospitalization service (18%); maternity service (8%); emergency service and orthopedics (8%); surgery (5%); and administrative, diagnostic and other services (11%). The 1992 study of 29 public and private health facilities in the Dominican Republic found the following distribution of waste production by type of service: (25.6%); kitchen (20.8%); surgery (11%), and outside consultation (9.2%).

B. Approaches to the Management of Medical Waste

This management of medical waste requires special care that requires the provision of information and training to the staff of a health facility that are involved in the various aspects of waste production and management. The waste management process has several phases, which control waste from the point of production to its final disposal, as detailed below:

- Classification. Classification of waste at the point of production (i.e., separating infectious and hazardous waste from the conventional waste stream with the goal of reducing the amount of waste that needs to be specially treated) makes it possible to reduce the volume of infectious waste and minimize treatment costs.
- Internal collection. Internal collection refers to the use of special containers, designed for the type of waste to be handled, placed near where

the waste is produced and used only once.
- Internal transfer. The shortest route between the point of production and intermediate storage of waste should be selected for the internal transfer of waste. Waste containers should be checked to ensure that they are closed. Special measures should be taken to protect the staff involved in transfers.
- Storage. The storage place where the containers with waste are held before the treatment and/or final disposal of the waste should be equipped with hermetically sealed containers.
- External transport. The transport of waste from the point of intermediate storage to the waste treatment point should be done using special vehicles that can be disinfected.
- Treatment. Waste treatment includes methods, techniques, or procedures that change the characteristics of waste, reducing or eliminating the possibility that the waste will affect people's health or the environment. The WHO has identified several procedures for medical waste treatment:
- Incineration. Incineration involves burning waste in a medium under controlled conditions to oxidize the carbon and hydrogen present in the waste. This method reduces the volume of solid waste by 80-95%. Although incineration can produce environmental toxins such as dioxin if adequate controls are not adopted, it is often recommended because it is the only waste treatment method applicable to all types of biomedical waste.
- Steam sterilization. This method involves submitting the waste to steam inside an Autoclave, at an adequate temperature and pressure and for a determined time.
- Gas sterilization. This method consists of destroying pathogens present in waste by placing them in a compressed air chamber in which sterilizing agents are introduced, such as ethylene oxide or formaldehyde.
- Chemical disinfection. This process involves treating waste with liquid chemical disinfectants.
- Other methods of sterilization. Other methods of waste treatment that are less commonly used are including exposure to ultraviolet radiation or microwaves.

C. The Dominican Republic's New Legal and Institutional Framework for Handling Medical Waste

The enactment of the General Law on the Environment and Natural Resources in August 2000 and the enactment of the General Health Law on March 8, 2001, that was prepared with support of the World Bank-financed Health Services Project, are an auspicious development in the DR. The enactment of these laws indicates that environmental protection and the improving the management of medical waste have become priorities for the GODR. As discussed below, the laws also provide a clear legal and institutional framework for addressing the management of potentially hazardous, infectious, contagious, or toxic waste produced in health facilities.

General Law on the Environment and Natural Resources

The purpose of the General Law on the Environment and Natural Resources was to establish guidelines for the conservation, protection, improvement, and restoration of the environment and natural resources, thus assuring their sustainable use and to create institutions to take the lead in addressing issues related to the protection of the environment and natural resources. The General Law on the Environment and Natural Resources created the State Secretariat of Environment and Natural Resources as the lead agency for environmental management. In addition, it designated the National Council for the Environment and Natural Resources as the body responsible for programming and evaluating policies and for a biodiversity conservation strategy. This

council is composed of the State Secretariats of Environment and Natural Resources, of Agriculture and Livestock, of Public Health and Social Assistance, Education, Public Works, Armed Forces, Tourism, Industry and Commerce, Foreign Affairs, Labor, along with the Municipal League, the Natural Resources Institute, and regional representatives of NGOs, peasant organizations, universities (public and private), and the national business sector.

Responsibility for the handling and disposal of waste water is distributed by territoriality: the Santo Domingo Aqueduct and Sewer Corporation (CASAD) of the National District; the Santiago Aqueduct and Sewer (CORAASAN) of the province of Santiago; and the National Institute of Drinking Water and Sewers (INAPA) in the country's other provinces.

Several special offices and commissions created by decree also have objectives related to environmental preservation, including the Commission for the Study of Causes of Environmental Pollution (Decree 2596-72); National Council of Radiology Protection (Decree 413-91); National Commission to Monitor Agreements of the United Nations Conference on the Environment and the development of the "Land Summit" (Decree 340-92); Office for the Reform and Modernization of the Drinking Water and Sanitation Sector (Decree 203-98); National Institute of Environmental Protection (Decree 216-98); and the Coordinating Commission of the Natural Resources and Environment Sector, created by Decree 152-98.

General Health Law

The General Health Law enacted on March 8, 2001, incorporates major changes in the DR's health care organization and financing. Provisions of the General Health Law pertaining to the management of medical waste, which supersede provision of previous laws dealing with this topic, are summarized below.

SECTION IV--Solid Waste

Art. 46. The State Secretariat of Public Health and Social Assistance (SESPAS), in coordination with the State Secretariat of Environment and Natural Resources and other relevant institutions, shall prepare the official regulations that govern the disposal and management of solid waste whose use, collection, treatment, holding, recon version, industrialization, transport, storage, elimination, or final disposal may be hazardous to the population's health.

Art. 47. The institutions of the health system and all those health facilities which, due to their operations, utilize toxic or radioactive materials or substances, contaminants or other substances that may spread elements which are pathogenic or harmful to health, should have waste elimination systems developed in terms of the pertinent regulation prepared by the SESPAS, in coordination with the State Secretariat of Environment and Natural Resources and other relevant institutions. Medical waste shall be stored separately, technically treated in the establishment of origin and/or delivered to the corresponding municipality or institution, as the case may be, for transport and proper final disposal.

Art. 48. Health authorities must inform the State Secretariat of Environment and Natural Resources about those establishments or places which constitute a hazard to the health or life of the population due to undue, unhygienic accumulation of solid waste, so that said Secretariat may order them to be cleaned and may execute the corresponding administrative and safety measures.

SECTION V--Disinfection and other Measures

Art. 67. Those substances or objects that, by favoring the spread of diseases and causing harm to people's health, are considered hazardous shall be handled, sterilized, or destroyed by their owners or those in charge, or by

the health authority itself, following the instructions and regulations that are prepared for this purpose by the health authority, in coordination with the relevant environmental authority and without jeopardizing compliance with prevailing environmental regulations and measures.
Paragraph. SESPAS shall collaborate with the State Secretariat of Environment and Natural Resources on the preparation of a list of hazardous substances and products, on the constant updating of this list, and on the preparation of regulations governing the waste management of these substances.
Art. 68. The owners, directors or heads of health or medical care facilities and other places where human groups stay or pass through, should avoid the spread of transmissible diseases within their establishment or towards the community, and shall be responsible for ensuring that the establishment has the necessary elements to avoid such spread, and that the staff of their agency carry out prophylactic practices in a timely and proper manner.
Art. 100. SESPAS is responsible for equipping the institutions or health establishments and, together with the advisory unit of the National Commission for the Accreditation of Clinics and Private Hospitals, for accrediting these institutions, ensuring the application of rules related to the minimum requirements which, according to their classification, said institutions should meet, with regard to physical installations, equipment, personnel, organization and operation, to ensure that the user receives a proper level of care, even in the case of disasters.
Paragraph I. In coordination with the corresponding institutions of the national health system, SESPAS shall regulate, by resolution, the equipping, operation and accreditation of health establishments and promote quality assurance, which shall be carried out through the assessment of public and private establishments, by rules and mandatory minimum criteria, and of their staff.
Paragraph II. SESPAS shall establish the general regulatory guidelines based upon which the duties assigned in this article shall be complied with.
Art. 101. The professionals or technical directors of health establishments in which natural or artificial radioactive material, or equipment designed for the emission of ionized radiation for diagnostic, medical therapy or dental purposes or for scientific research, is used should seek a permit from SESPAS that endorses their activities, without jeopardizing the duties of the State Secretariat of Environment and Natural Resources in this regard.
Art. 102. The boards of directors and the administration of health establishments shall be responsible for ensuring that staff correctly and properly performs their duties, so as not to expose the health or life of patients to unnecessary risk due to the lack of technical or therapeutic elements for reasons of unhealthy environmental conditions.
Art. 106. Health laboratories shall be directed by an expert in the subject who is duly accredited in the corresponding discipline and who shall be responsible for the establishment’s progress, compliance with biosafety regulations, suitability of operations, and precision and quality in reports issued on the results of analyses.
Paragraph. Authorized staff who perform analyses or special testing in public, private, civilian, military, and other laboratories, should adjust their work to the technical regulations stipulated by the Laboratory and Blood Bank Divisions of SESPAS. Said staff shall be subject to technical control of the quality of their analyses of the aforementioned divisions.
SECTION VI - Blood Banks, Blood Transfusion Services, And Serology Control
Art. 107. The drawing of human blood, the fractionating and industrial transformation of human blood, and the practice of any of the activities

mentioned in this article, may only be performed in blood banks and in blood derivative plants authorized SESPAS, which shall define, through the corresponding regulation, the rules for the installation, operation and control of these establishments, in coordination with pertinent institutions.
Paragraph I. The supply and transfusion of blood and its derivatives constitutes an act of legal and ethical responsibility. Doctors shall be the health professionals trained and authorized to therapeutically prescribe human blood, its components and derivatives, in accordance with the disease to be treated.
Paragraph II. The institutions of the National Health System shall ensure that their blood banks perform mandatory testing of blood and its derivatives, according to the prevailing international regulations of WHO, as well as pre-transfusion compatibility testing. No product may be transfused without the respective quality certification. SESPAS shall ensure compliance with this provision.
Paragraph III. A duly accredited staff member in terms of the nature of such banks and centers shall direct blood banks and hemotherapy centers.
Paragraph IV. The technique of aphaeresis, as a means of fractionating to obtain blood derivatives, may only be used by blood banks that are qualified and expressly authorized by authority of SESPAS. This should correspond to a concrete program, associated with the country's needs, in accordance with the regulation prepared by SESPAS, and in coordination with institutions specialized in this subject.

D. Related investments financed under the World Bank Provincial Health Systems Project in the Dominican Republic

In 1999, SESPAS, requested that the Executive Commission for the Reform of the Health Sector (Comisión Ejecutiva para la Reforma del Sector Salud, or CERSS), through the WB-financed Provincial Health Systems Project and a parallel project financed by the IDB, support the provision of technology for the treatment and final disposal of waste in the main health facilities around the country. As a result, the Provincial Health Systems Development Project has invested nearly US$1 million in the DR to date, to strengthen the medical waste management capacity of SESPAS' health care facilities. The vast majority of the resources (apart from about US$50,000 devoted to civil works) has been used to helped several hospitals purchase incinerators to treat medical waste and to support training of staff in the operating of this equipment and the management of medical waste:

- Purchase of incinerators by hospitals for the purpose of treating medical waste. Incinerators, along with peripheral equipment (identified containers) and services related to training in the operation and maintenance of equipment, have already been purchased and installed in several hospitals. They include the San Vicente de Paul Hospital in Duarte Province, Luis Bogaert Hospital in Valverde Province, Pascasio Toribio Piantini Hospital in Salcedo, Jaime Mota Hospital in Barahona, as well as the Armed Forces Central Hospital, Nuestra Señora de la Altagracia Maternity Hospital, Los Minas Maternity Hospital, Moscoso Puello Hospital, Robert Reid Cabral Children's Hospital, and the Luis E. Aybar Complex in the city of Santo Domingo. Of the incinerators installed, however, only two are operating at full capacity, and it is expected that the rest will be fully operational by June 2001. This situation is due in part to the fact that the staff trained to operate the equipment at some hospitals have left or taken on other functions.
- Training. Training courses in the operation and maintenance of the medical waste incinerators and in managing medical waste within the hospital were carried out successfully in all hospitals:

Training in the operation and maintenance of the medical waste incinerators was provided to at least three people per hospital. It included training relate to the features of the equipment (e.g., electrical installation, gas-oil connection, ash removal) and the operation of the equipment (e.g., startup, shutdown of the installation, operating regulations, safety checks),

Training in the management of medical waste within the hospital was provided to hospital staff (20 per establishment). This course was generally well accepted, both in terms of attendance and participation, and it has raised expectations about improving the way in which medical waste is managed. At most hospitals, attendance was complete, with between 25 and 30 people, including mid-level and higher level staff, on average per course. The exception was Los Minas Hospital, where only about 10 people (mostly maintenance staff) attended. At Luis E. Aybar Hospital, about 50 people attended, including nursing students who were very interested in the subject. In some cases, technical staff, especially from central services departments attended the course at different hospitals. At several hospitals, the instructors were asked to repeat the talks at another time so that staff that was not able to attend the first time could then do so.

A key challenge in the DR's health facilities is to devise mechanisms to keep the trained personnel who work in the waste collection and storage process. Furthermore, it was confirmed during the training process that the problem of handling such waste in health facilities is considered a housekeeping problem--so medical and paramedical staff does not participate in the waste management process.

Hospitals' Strong and Weak Points in Addressing the Problem of Medical Waste

The Provincial Health Systems Development Project assessment team reported prior to the installation of the incinerators in 2001 that there is no management of medical waste by hospitals in the DR, with the exception of Robert Reid Children's Hospital, where waste selection is beginning to be performed and some clear criteria exist. In general, hospitals in the DR exhibit the same strengths and weaknesses in addressing the problem of medical waste:

Weak points in addressing the problem:

- All waste at the hospital is treated in the same way.
- There is no differentiation of medical waste by types, based on their danger and/or the social alarm produced, except for the separation of needles and sharp objects in some hospitals.
- The only type of waste that is treated differently is a placenta, which in some centers is washed manually to keep fluids from dripping (La Altagracia Maternity Hospital) and in others ends up in septic tanks (Pascasio Toribio Hospital).
- Where bags are used for waste, they are only one color;
- Where bags are used, they are not as thick as is advisable (>55 m.), so they often break.
- In most cases, sufficient means for possible waste separation are lacking. There are no proper trash containers.
- There are no special containers for sharp or pointed objects.
- The staffs that generate waste lack proper training in the elements of correct management. The bags are so overfilled that they cannot be closed. Capped and uncapped needles are thrown in the bags. In some emergency units, needles can be observed on the floor.
- Waste collection personnel are unaware of minimum safety standards for waste management. In some cases, they do not use gloves or they use inadequate ones, and they do not wear specific clothing for the task.

Bags are not handled correctly (e.g., bags are sometimes carried on the shoulders).
- The transport of waste from the units to the waste dump is sometimes done in vehicles, sometimes not.
- In waste dumps, it is common to find a large quantity of waste that has been thrown out without use of plastic bags.
- With the exception of centers whose installations have a municipal storage container, waste storage sites are in poor conditions. They lack doors and allow the access of children and animals. They lack cleaning hoses and/or fire extinguishers.

Strong points in addressing the problem:
- There is awareness in hospitals of the issue of waste, both by personnel and management. Awareness is not as strong among janitorial and trash collection staff, especially because they are unaware of the risk.
- There is an important potential among persons interested in participating in and doing something about waste management.
- There is external awareness about the current way in which waste is eliminated, both among the public and authorities.
- A credible process has begun, aimed at improving waste management. The installation of incineration plants in the seven hospitals is a sign of this.
- A draft plan for Hospital Hygiene Standards developed by SESPAS has been put in place.

Conclusions

The Provincial Health Systems Project assessment team concluded that implementation of a waste policy for any hospital in the DR will come up against two essential difficulties: (i) material means, and (ii) the awareness and preparation of staff. The assessment team made the following recommendations currently under implementation with respect to improving the preparation of staff:
- Create a Waste Management Commission in each hospital. Each hospital's Waste Management Commission should include staff from different occupations who participate in the hospital's daily operations or in that environment--i.e., an epidemiologist, a nurse, a janitor, and an engineer--and should be charged with preparing a Waste Plan for the hospital that establishes waste generation points, collection routes, storage points, and waste management responsibilities for various parties.
- Offer hospital staff training in waste management. Staff should be offered a three to four hours training course on waste management that is tailored to their particular needs. For example, maintenance and janitorial staff are at special risk in handling waste. Nursing staff and nursing students (very important) could benefit from training related to the generation of medical waste.
- Involve outside consultants. Outside consultants should be involved in the presentation of training courses and subsequently to provide support to the Waste Management Commission in: (i) the establishment of an initial work plan, (ii) follow-up/correction, and (iii) final evaluation.

E. The Proposed HIV/AIDS Prevention and Control Project

As suggested earlier, public health problems generated by the management of medical waste affect the hospital population--that is, medical and paramedical staff, patients (and visitors), and service employees--but also affect the population outside the hospital. One of the main concerns regarding medical waste in the DR is the possible transmission of diseases such as HIV/AIDS or hepatitis B through wounds caused by contaminated needles. The population

groups at greatest risk from this are: (i) patients and health personnel; (ii) staff of hospital support services (trash collectors, treatment plant operators, etc.); and (iii) patients at high risk of contracting infections (e.g., people with diabetes, people with AIDS; drug addicts).

The HIV/AIDS Prevention and Control Project, building upon and complementing the activities supported under the Provincial Health Services Project, contemplates interventions under Component 2 to reduce HIV/AIDS transmission, aimed at protecting high-risk human groups such as patients and health staff within and outside hospitals, preserving the environment by establishing proper systems and processes for the management and treatment of contaminated hospital waste. Specifically, it would support: (i) an assessment of medical care waste handling and disposal related to HIV/AIDS programs and activities under the project; (ii) the revision and updating by COPRESIDA (the Presidential Commission for HIV/AIDS), through the SESPAS' General Directorate of Sexually Transmitted Infections and AIDS (DIGECITSS) and other specialized institutions, of the existing manual for medical waste handling and disposal; and (iii) the training of health personnel associated with HIV/AIDS programs and activities under the project in the application of these standards to protect high-risk human groups such as patients as well as health staff in the participating facilities.

The manual would address procedures for health center staff with regard to the handling, transport, treatment, and final disposal of medical waste, as well as the provision of required equipment and inputs, with special attention to the handling of sharp and pointed objects (the main risk of viral contamination inside hospitals), beginning at the point where the waste is generated, through the use of receptacles for the collection, storage, and disposal of sharp and pointed objects. The receptacles for sharp objects should be synthetic fiber containers, with a hermetically sealable translucent cover to keep liquids from spilling. They should have rounded edges to avoid cuts to staff involved in handling and should be identified with international coding for biohazard us waste. Differentiated routes within the health establishment should be defined to transport the special containers, physical identification of routes, as well as inputs and training for the staff responsible.

The above-mentioned activities should be complemented by the provision of hospital waste treatment equipment financed under the Provincial Health Services Project and the parallel IDB project, which include the training of staff assigned to this work, with regard to the operation and maintenance of such equipment. This treatment should ensure that the local governments of each locality could carry out the final disposal of residual waste, without any risk to their staff or to the environment.

F. Bibliography

Informe Ambiental and Social-BID-D-0078 1997 [IDB Environmental and Social Report]

Marco Regulador JurÚdico SESPAS. [Legal Regulatory Framework]

Consideraciones Sobre Manejo de Residuos Sanitarios en América Latina. OPS/OMS, 1992 [Considerations on Medical Waste Management in Latin America]

Manejo de los Residuos Sólidos Hospitalarios en la Dominican Republic. UASD. 1992 [Management of Hospitals' Solid Waste]

Managing Medical Wastes in Developing Countries. OMS, 1994.

Proyecto Ley General de Salud [Draft of General Health Law]

Ley General de Medio Ambiente y Recursos Naturales [General Law on Environment and Natural Resources]

Análisis Comparativo Proyecto Ley General de Salud and Ley Gral. Sobre Medio Ambiente y Recursos Naturales. CERSS 2001 [Comparative Analysis of Draft of

General Health Law and General Law on Environment and Natural Resources]
Descriptivo Técnico Incinerador Saunier Duval Setri Española, SA [Technical Description of Saunier Duval Setri Española Incinerator]
WHO Information, Fact Sheets. Backgrounder No. 1. WHO 2000.
BoletÚn EstadÚstico Año 1, No.1-SESPAS 2001 [Statistical Bulletin year 1]

Prior to the enactment of the General Law on the Environment and Natural Resources in August 2000, the responsibility for environmental protection in the Dominican Republic was shared by several institutions. They included the State Secretariat of Public Health and Social Assistance (SESPAS); the Dominican Social Security Institute (IDSS); city councils; the State Secretariat of the Armed Forces; and the General Bureau of Forestry.

Prior to the enactment of the General Health Law, medical waste problems were addressed by a diversity of codes and laws, including the National Public Health Code (1956) and general health care guidelines contained in Health Law 456-38; Law 1459-38 on Health Procedures; the 1956 Labor Code; and Law 1896-62 on Social Security and General Hospital Regulations (Decree 351-99).