BAHIA STATE HEALTH SYSTEM REFORM PROGRAM

STATE OF BAHIA, FEDERATIVE REPUBLIC OF BRAZIL

ENVIRONMENTAL ASSESSMENT

Martin H. Ochoa
Environmental Specialist

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### Glossary of Terms

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<th>Term</th>
<th>Definition</th>
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</thead>
<tbody>
<tr>
<td>CONAMA</td>
<td>National Council for the Environment</td>
</tr>
<tr>
<td>CRA</td>
<td>Environmental Resources Center/ Centro de Recursos Ambientais</td>
</tr>
<tr>
<td>DIVISA</td>
<td>Divisao da Vigilancia Sanitaria/ Division for Sanitary Surveillance</td>
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<tr>
<td>EAR</td>
<td>Environmental Assessment Report</td>
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<td>EMP</td>
<td>Environmental Management Plan</td>
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<td>HSWMPs</td>
<td>Health Services Waste Management Plans</td>
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<tr>
<td>PAD</td>
<td>Project Appraisal Document</td>
</tr>
<tr>
<td>PAHO</td>
<td>Pan American Health Organization</td>
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<tr>
<td>SESAB</td>
<td>Secretaría de Saude do Estado da Bahía/ Secretary of Health for the State of Bahía</td>
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</table>
1. Summary

The Environmental Assessment Report (EAR) for the Bahia State Health System Reform Project has been designed as a stand-alone document, to be included as annex to the Project Appraisal Document (PAD). The EAR incorporates an assessment of project scope, components and activities, and their potential environmental impacts, both positive and negative. The EAR includes an assessment of State of Bahia’s existing environmental framework related to the provision of health services and management of medical wastes, an environmental assessment of each of the components of the Project, and based on the assessment an Environmental Management Plan (EMP). The EMP is oriented to strengthen the efforts initiated by the SESAB to improve the health status, including sanitary and environmental aspects, of the population in the State of Bahia, in particular the poor and vulnerable groups.

The EAR covers in detail aspects related to current sanitary surveillance and environmental laws. Based on findings, it is concluded that the State of Bahia’s environmental regulations and norms contain clear procedures and guidelines for environmental assessment of health services, proper handling of medical wastes, proper final disposition of such wastes, and proper monitoring guidelines for reducing health risks. State and municipal roles are clearly stated as well. In addition, results from field visits to health centers in the State of Bahia indicate that local sanitary and environmental practices for proper handling and disposal of medical wastes are applied; however, implementation of these norms and standards in poor rural municipalities may be weak. Some concern remains as these municipalities do not have the technical capacity to design and carry out proper waste management plans, including the proper management and final disposal of medical wastes.

Considering the scope of the project and the environmental impacts associated with each component, the Bahia State Health System Reform Project should be considered as Environmental Category B. Most of the potential environmental impacts associated with the project are considered positive. Project components are aimed at increasing efficiency of hospital care, reducing wasteful health care practices and better use of resources. However, even though the proposed Project does not have a direct impact on the environment, the implementation of health services and the generation of medical wastes as these health centers provide better services, might have a direct connotation with environmental implications, since the final disposition of these wastes might have an impact on surrounding natural resources and if they are not handled properly they could generate negative effects. Potential negative environmental impacts can be significantly attenuated with the implementation of environmental criteria in the construction, operation, and monitoring of health centers.

The Project’s EMP will strengthen the environmental management capacity of SESAB as well as the environmental management capacities of participating center municipalities. EMP activities include: (i) Implementation of existing local environmental assessment and licensing of health centers; (ii) Mandatory preparation of Medical Waste Plans in each health center of participating municipalities, as required by División de Vigilancia Sanitaria del Estado de Bahía; (iii) Municipal technical assistance for the preparation of Solid Waste management plans, including medical wastes, with emphasis in poor participating municipalities covering over 200 beds equivalent; (iv) Incentives to those municipios polo with proper solid management plans, where special consideration will be given to municipios polo when competing for the financing of subprojects; (v) Implementation of environmental criteria in the audit of health services, according to existing Divisão da Vigilância Sanitária (DIVISA) guidelines; (vi) Implementation of local basic sanitation information, through the financing of information material, according to local existing guidelines; and (vi) Implementation of environmental criteria during construction and supervision of infrastructure, were needed/ where applicable.

During pre-appraisal, the Bank and SESAB teams discussed the main findings of the EAR and agreed with the proposed EMP. Counterpart team agreed that the Project’s Operations Manual and Project Implementation Plan would include the Environmental Management Plan. Except the provision of municipal technical assistance for the preparation of solid waste management plans, remaining actions are considered within the scope of the project’s components. All actions will be the responsibility of SESAB. No additional staff is required for the monitoring of the plan. For the provision of municipal assistance, it
was agreed the project would reserve up to 10% of the cost for component 2 of the Project. No additional studies are needed for the preparation of the project.

2. Project description.
The following sections represent a summary of key issues and project objectives described in the Project Appraisal Document (PAD). Detailed information on Project Development Objectives, socio economic context, main sector issues addressed, project implementation arrangement and project costs can be obtained in the PAD.

2.1. Socioeconomic background of the Health Sector in the State of Bahía.
The State of Bahia is one of the poorest states within the Brazilian federation. Recent statistics show that 50% of bahians live in poverty, more than twice the country’s average. Poverty in the rural areas reaches an alarming 70%. In addition, 55% of the state population, estimated at 13 million inhabitants, has less than four years of study, and a 24% illiteracy rate.

Most of Bahia’s health indicators are below country average. High poverty rates, low educational levels, lack of access to water and sanitation, and unequal access to and poor performance of the health systems, are considered the main reasons for Bahia’s low poor health and nutrition outcomes. According to 1996 data, Infant mortality rates in urban areas are 47 per 1,000 live births, 57 in rural areas; 60% of all infant deaths are due to perinatal causes. Malnutrition among children and pregnant women, and early pregnancy amongst teenagers are also significant in the State of Bahía.

Despite recent efforts from the State of Bahia to improve access to primary care, there still remains significant gaps in access to health care amongst the poor. Most of the poor have no or limited access to the primary, secondary and/or tertiary health services. Those who have, often travel long distances to receive them. Availability of basis pharmaceuticals in health facilities is limited, uneven and of poor quality.

Bahia's current health care delivery model is based on a curative approach, hospital centered, and with inadequate referral systems. Hospital admissions are susceptible of ambulatory care and patients are submitted without previous filter from the primary care level. Referral system suffers from weak institutional capacity at the local level, high administrative transactional costs, loss of economies of scale, and duplication of service provision.

At the municipal level, responsibilities transferred to local governments are considered as an extraordinary institutional burden. Municipalities are responsible for procurement and distribution of pharmaceuticals, increasing the risk of acquiring pharmaceuticals of poor quality and high prices. With transfers from the SESAB, municipalities are also responsible for financing, regulating, and purchasing health services. However, evaluation of municipal performance indicates several weaknesses, including poor planning and programming, poor accounting and financial control mechanisms, inadequate management and information systems, amongst others.

2.2. Proposed project scope.
According to the PAD, the Bahia State Health Reform Project will assist the State in its efforts to improve the health status of its population, in particular the poor and vulnerable groups. Project objective is to enhance the equity, quality, and efficiency of the health services in the State of Bahía. Specifically, the proposed project will: (a) improve access to health care in neglected regions in the State of Bahía; (b) improve the health system’s overall governance and management capacities; and (c) address key health problems through multi-sector collaboration at the community level, of problems such as teenage pregnancy. The project will be part of a phased approach nine-year program and it will cover a population of 4.9 million, located in 214 municipalities in the first four years.
The Project will target its investments into Bahia's poorest geographical regions and to pregnant women and children under 5. It will also help SESAB develop a new formula for improving equity in the allocation of financial resources within the state. Community and private sector participation in the provision of health services will be fostered; the project will attempt to increase private sector participation in the management of public facilities and the provision of basic services. Integration with the education sector will also be fostered; in particular those actions aimed at preventing teenage pregnancy and promotion of school health.

The project will contribute Bahia's government strategy to promote sustainable economic growth and fight poverty, improving access to basic education and health services and the human capital in the State. It will also contribute to Bahia's health sector priorities, improving the health status of children, women and indigenous communities, reducing the incidence of communicable diseases, and improving the performance of the health system.

2.2.1 Project components.

The estimated cost of the Bahia State Health System Reform Project is US$ 50 million, 60% financed by the World Bank. Project consists of three components: (i) Support for micro regions in the State of Bahia; (ii) Strengthening SESAB core functions; and (iii) support for Basic Health. Table 1 shows a summary of project component, activities and costs, according to the PAD.

<table>
<thead>
<tr>
<th>Components/Activities</th>
<th>Costs US$</th>
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<tbody>
<tr>
<td><strong>Component 1. Support for micro regions in the State of Bahia.</strong></td>
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<tr>
<td>A. Strengthening the administrative and management capacity of micro-regional Regulation Centers.</td>
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<tr>
<td>B. Purchasing basic medium complexity equipment for micro regions.</td>
<td></td>
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<tr>
<td>C. Strengthening of public health functions at the micro-regional level.</td>
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<tr>
<td>D. Assistance with investment in equipment to support M1 level of medium complexity health care services.</td>
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<tr>
<td><strong>Component 2. Strengthening SESAB core functions.</strong></td>
<td>9.0 million</td>
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<tr>
<td>A. Information System, Monitoring and Evaluation.</td>
<td></td>
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<tr>
<td>B. Policy development.</td>
<td></td>
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<tr>
<td>C. Strengthening the management capacity in the Municipality of Salvador.</td>
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<tr>
<td>D. Implementation of a High Complexity State Center.</td>
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<tr>
<td><strong>Component 3. Support for Basic Health.</strong></td>
<td>17.0 million</td>
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<tr>
<td>A. Strengthening the Pactos de Atención Básica.</td>
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<tr>
<td>B. Sub-projects for the expansion of the Family Health Program.</td>
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2.2.2 Implementation arrangements

2.2.2.1 Component 1. Support for micro regions in the State of Bahía (US$ 23 million)\footnote{1 For detailed information on subproject scope and costs, please refer to the PAD.}.

A. Strengthening the administrative and management capacity of micro-regional centers of regulation

As described in the PAD, this subcomponent will finance three functional domains to improve the effectiveness of administrative and management health functions in selected micro-regions. Subcomponent will help improve the quality of health care that is delivered in the micro-region, to
improve the efficiency of hospital care, to detect and reduce fraud and abuse, to identify and reduce wasteful healthcare practices, and to increase provider accountability for service quality and access.

Subcomponent will assist in the development and deployment of Regulation Centers at the micro-regional level, located in central municipalities (municipios polo). Activities will support management functions, to assure that care is being delivered in an appropriate and equitable manner.

The project will also help strengthen the role of the micro-region as a purchaser of health care services. Activities include: (i) the development and deployment of performance based contracts and the development and deployment of a contracting department at the micro-regional level. (ii) the development of resources that will be required to deploy new Regulation Centers in the micro-regions. (iii) provide financial support for the process currently underway by the Ministry of Health to develop, distribute, and maintain the SUS Card (Sistema Unico de Saude). (iv) support for the convening of the CIB and the production of a micro-regional PPI, including sponsoring meetings and seminars for municipal health secretaries, and sponsoring field trips for members of the CIBs to visit other states that have successfully completed a regional PPI process.

Technical assistance will develop clinical protocols that will guide the referral review and gatekeeping functions of the Regulation Centers, to support the writing of performance based contracts and to develop performance measures for those contracts.

Subcomponent will also build a strong auditing function at the level of the micro-region. In order to effectively serve in an evaluative and monitoring capacity, the micro-regional Regulation Center will have the capacity to conduct detailed clinical and financial audits of providers and facilities. Performance-based contracting will require accurate data derived from these audits in order to determine if the contracted provider will be in compliance with the contract goals. Audit functions will also serve as a control mechanism to assure provider accountability for efficiency and quality of care, as well as to detect fraud, abuse, and ineffective practices.

To build a strong auditing function at the level of the micro-region, the project will support the following activities: (i) hire an external consultant with experience in the development and deployment of a care management infrastructure to provide SESAB with turn-key operations of the auditing functions noted above. (ii) develop courses to teach physician and nurse auditors the techniques of evaluation of patient care through the use of standards of care and clinical protocols. (iii) develop courses to train hospital personnel in the techniques of internal quality review and the investigation and reporting of sentinel events. (iv) develop strategies to recruit qualified personnel to perform these audit functions.

In addition, subcomponent will initiate accreditation of health care providers and facilities. Accreditation and licensing are important roles in the surveillance of the micro-regional provider network. Audit data revealing fraud, inadequate service quality, and other deficits will be reported, tracked, and fed back to the contracting section on a regular basis. Accountability for discipline and sanctions for poor quality or non-compliance with policy also resides in the accreditation section. Accreditation will be based on standard criteria (such as those of the Joint Commission, for facilities). To build a strong accreditation function at the level of the micro-region, the project will support the following activities: (i) external consultants to assist the micro-regions in the development and deployment of standard systems of accreditation and standard record-keeping systems. (ii) provide training courses for accreditation personnel in the methods of accreditation, including the use of standard guidelines for accreditation of hospitals.

B. Assistance with Investment in Equipment to Support M1 Level of Medium Complexity Healthcare Services.

The project will finance equipment for micro-regions. Financial support will be provided for purchase of equipment for minor surgical suites, urgent care centers, ultrasound, radiography, clinical laboratory, small vehicles for transport of specimens, and vans for transportation of patients (located at the central municipalities). Financing will also support the purchase of vehicles to transport patients referred within the micro-region and to transport specimens from laboratory collection stations to the contracted
laboratory. These vehicles will also be used to support the distribution network in the micro-region for the basic pharmacy program.

C. **Strengthening of public health functions at the micro-regional level.**

Subcomponent will strengthen public health functions at the micro regional level, within the decentralized process. The objective within this subcomponent is to complement procurement activities, accreditation, and auditing, oriented to the functioning of the services networks. Micro regions will need to assume their epidemiological and environmental surveillance functions, in particular those related to the management of medical wastes at the primary level of attention; health hazard surveillance, and primary care monitoring and supervision.

Activities include: (i) definition of a public health organizational structure at the micro region levels; (ii) assessment and adoption of current sanitary legislation; (iii) training in public health at the micro region level.

The Superindente de Vigilancia e Protecao de Saude (SUVISA) will supervise the implementation of this subcomponent. SUVISA will be responsible for (i) prepare a proposal for the Código Sanitario Estadual; (ii) coordinate training for micro regional staff; (iii) coordinate studies related to the reorganization of micro regions. Micro regions will be responsible for hiring their how staff, under SUVISA guidelines. Each micro region will prepare annual epidemiological surveillance action plans, under the SUVISA supervision.

D. **Strengthening the Basic Pharmacy Assistance Program.**

Subcomponent activities will strengthen primary care strategies, promoting access and rational use of pharmaceuticals in the Basic Pharmacy Assistance (hypertension, diabetes, etc.). Activities include: (i) strengthening municipal planning capacity and technical assessment of the production cycle at the micro region levels; (ii) strengthening procurement and payment municipal capacities; (iii) strengthening regional and state storage capacities; and (iv) promoting the rational use of pharmaceuticals.

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2.2.2.2 Component 2. **Strengthening SESAB core functions (US$ 9.0 million)**

A. **Information Systems, Monitoring and Evaluation.**

Subcomponent has two areas: Health and Demographic Surveys and Support for the implementation of Cartao SUS in selected micro regions.

A.1 Health and Demographic Surveys. Two surveys (one at project start and the second at completion of the first phase of APL1) will cover about ten thousand households, establishing their main health and demographic characteristics with a questionnaire that will also obtain some data on household assets and health care use.

A.2. Support for the implementation of Cartao SUS in selected micro regions. The project would provide technical assistance and financial support to pilot test the implementation of Cartao SUS in selected micro regions. Micro-regions wishing to advance more rapidly in the implementation of NOAS would be selected. Cartao SUS is a project conducted by the Ministry of Health, and a Convenio specifying the responsibility of the Ministry, SESAB, Project and Microregion will be required. The Convenio would state the type of support and organizational arrangements to be used. Likely categories of financing include technical assistance, informatics equipment and training.

B. **Policy Studies.**

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2 For detailed information on subproject scope and costs, please refer to the PAD.
Sub component will finance three or four studies to support the development of contracts, a reform of the Tabela SUS and improvements of environmental management of medical waste.

C. Support for Management improvements in the Municipality of Salvador.

The areas of support and the categories to be financed are the same as in component 1.A. Implementation would be a responsibility of the Municipality of Salvador and appropriate legal and financial arrangements would be made to ensure compliance with all fiduciary responsibilities.

D. Control and Management of High Complexity Care.

This component will finance three functional domains to improve the effectiveness of administrative and management functions in high complexity care in Bahia. The aims of this component are to improve the quality of high complexity care that is delivered in the state, to improve the transparency of resource allocation decisions, to improve the efficiency of hospital care, to detect and reduce fraud and abuse, to identify and reduce wasteful healthcare practices, and to increase provider accountability for service quality and access.

2.2.2.3. Component 3. Support for Basic Health (US$ 17 million).

A. Technical assistance for the implementation of Pactos de Atención Básica.

Sub component will finance: (i) monitoring and evaluation of health primary care, and (ii) improving the quality of health in primary care.

B. Sub-projects for the expansion of the Family Health Program.

This component will finance sub-projects to support the expansion of the Family Health program in participating municipalities. Participating municipalities will prepare a Plano Diretor de Saúde da Família, indicating the additional human resources that will be made available to the municipality and their sources of financing, and identifying bottlenecks requiring project support. These bottlenecks will become identified during the first year of project implementation, but are expected to require subprojects that finance works, equipment (transport, communication and small medical), training, permanent education programs. Sub-projects will also finance the conversion of small general hospitals into family health hospitals (requiring small investments in works and equipment). Sub-projects will also finance professional development grants that will be made available to family health physicians and professional nurses upon completion of a period of stay of two years in remote municipalities (note that these professionals are not civil servants, they are consultants and that part of the objective of the grants would be to retain them in the remote municipalities).

3 For detailed information on subproject scope and costs, please refer to the PAD.
3 Assessment of the Environmental Legal framework associated with health services in the State of Bahía.

3.1 Environmental legislation in the State of Bahía.

Environmental legislation in Brazil is based on a framework classified according to federal, state, and municipal competencies. According to the National Council for Environment (CONAMA), depending on the extent of the environmental impacts and the project’s area of influence, licensing of projects, public or private, will depend on federal, state, or municipal responsibility. Projects with nationwide interventions, involving neighboring countries, affecting indigenous lands, are subjected to the federal competence of the Brazilian Institute for Environment and Natural Renewable Resources (IBAMA). Projects affecting more than one municipality, or which impacts would affect the territory, are subjected to state competence. In Bahía, state responsibility for environmental assessment falls in the competence of the Bahía Environmental Resources Center (CRA). Environmental licensing of those activities or projects with impacts limited to local influence fall in the competence of municipalities.

Environmental legislation is not of recent creation in the State of Bahía. According to the CRA, environmental legislation for management of natural resources in Bahía was initially established in 1973. Law No. 3.163 established the Secretary for Planning, Science and Technology and the State Council for Environment. The Environmental legislation has received several amendments, being Law No. 7.799 from June 2001, the latest amendment.

Current Environmental State Law establishes clear procedures for environmental assessment of those activities, civil works, and services with a significant environmental pollution potential. Implementation of such works, activities, or services depends on norms and regulations defined in State Law No. 7.799/01. Detailed procedures are described in annex 1.

3.2 Environmental legislation associated with waste management and disposal from health services centers in the State of Bahía.

Health services and solid waste collection, transport, treatment, and disposal are specifically addressed in environmental state legislation Law No. 7.799/01 (see annex 1). Each activity can be classified in micro, small, medium, large, or exceptional, according to its magnitude. In the case of health services, the magnitude is based on the number of beds per center, and in the case of sanitary landfills, magnitude is measured in tons per day. Using Pan American Health Association estimates, the number of patient-equivalent per day can be calculated using a ratio of 10 patients per bed. Using this equivalence, micro scale health posts with less than 30 beds could be attending up to 300 patients per day. Generation of medical wastes can be determined indirectly using local references for waste generation (Ministerio de Saude, Estudos Ambientais, October 2001). References for developing countries indicate a generation of medical wastes in the order of 1.2 to 3.8 kgs/bed/day and up to 6 kgs/bed/day. Hazardous medical wastes are also considered in a range of 2 to 10% from the waste generated in health center/hospital. Using same example, micro scale health posts could be generating up to 114 kgs of medical waste per day, up to 11.4 kgs./per day considered as hazardous. Table 2 shows a classification of health posts, hospitals, and sanitary landfills according to magnitude, based on Bahía’s environmental state law.

According to the environmental legislation, each health unit generating medical wastes is responsible for the safe sanitary and environmental management of its wastes (from generation to final disposition); is also responsible for the preparation and implementation of a Health Services Waste Management Plans (HSWMPs); for the proper separation, condition, and identification of wastes; proper environmentally and sanitary temporary safe storage; and responsible for adopting clean production solutions, where possible (art. 152, State Law NO. 7.799).
Table 2. Classification of health centers and sanitary landfills according to magnitude.

<table>
<thead>
<tr>
<th>Magnitude</th>
<th>Hospitals/health posts (no. of beds)</th>
<th>Patient equivalent per day (4)</th>
<th>Sanitary landfills (tons/day)</th>
<th>Population equivalent (5)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Micro</td>
<td>&lt;30</td>
<td>&lt;300</td>
<td>&lt;10</td>
<td>&lt;20,000 &lt; 35,000</td>
</tr>
<tr>
<td>Small</td>
<td>&gt;30 &lt;50</td>
<td>&gt;300 &lt;500</td>
<td>&gt;10 &lt; 20</td>
<td>&lt; 40,000 &lt; 70,000</td>
</tr>
<tr>
<td>Medium</td>
<td>&gt;50 &lt;100</td>
<td>&gt;500 &lt;1,000</td>
<td>&gt;20 &lt; 60</td>
<td>&lt; 70,000 &lt; 200,000</td>
</tr>
<tr>
<td>Large</td>
<td>&gt;100 &lt; 200</td>
<td>&gt;1,000 &lt; 2,000</td>
<td>&gt;60 &lt; 100</td>
<td>&lt; 200,000 &lt; 350,000</td>
</tr>
<tr>
<td>Exceptional</td>
<td>&gt;200</td>
<td>&gt;2,000</td>
<td>&gt;100</td>
<td>&gt; 350,000</td>
</tr>
</tbody>
</table>

Source: Bahia State Law no. 7.799

With respect to environmental licensing of health centers, the Environmental Legislation in Bahia classifies environmental licenses depending on project magnitude and project cycle. There are six types of environmental licenses: Site, Implementation, Operation, Altering, Operation post altering, and Simplified License.

- Site location environmental license. Preliminary license. Approves project location, scope, and environmental viability, sets out basic requisites and conditionalities to be addressed in further stages of project implementation.
- Implementation license. Clears out if project has been constructed according to design specifications, including environmental control measures.
- Operations license. Approves during project operation if activities are in agreement with previous licenses.
- Modification license. If current operation needs to be altered.
- Simplified environmental license. License for site location, implementation and operation of micro and small magnitude activities.

In the case of the state of Bahía, the CRA can issue Simplified Licenses (SLs) for micro and small projects. Subject to implementation of environmental action plans, SLs can be renewed periodically.

3.3 Legislation associated with Sanitary and Environmental Surveillance in the State of Bahía.

According to State Legislation, Sanitary Surveillance is defined as a set of actions oriented toward the prevention, mitigation and elimination of health risks, and interventions in sanitary hazards associated with health, environment and the production of goods and services. In this context, actions can be characterized as those associated with prevention (e.g. education), regulation (norms and standards), and/or punitive actions.

The legal framework of Sanitary Surveillance also follows federal, state and municipal distribution. Federal Constitution of 1988 institutionalized the Sistema Unico de Salud (or SUS), a decentralized network of actions and public health services following an integrated approach with an active participation of communities. Within the SUS, Sanitary Surveillance in the state of Bahía includes environmental protection and sustainable development; basic sanitation; food and water; drugs; health and the working

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4 According to PAHO, 10 patients per bed per day on average.
5 According to PAHO, 0.2-0.5 kgs. per person per day on average.
environment; health services and assistance; production of toxic and radioactive material, blood and
derivatives, amongst others (see annex 2 for a compendium of applicable legislation in the state of Bahía).

At the state and regional levels, the Directorate for Sanitary Surveillance and Control (DIVISA), is
responsible for providing planning, coordination, advisory, supervision and assistance to municipal and
regional sanitary surveillance activities. At the municipal level, municipalities are responsible for
inspection and monitoring of public services (e.g. food, pharmaceuticals, and health services). Depending
on the level of development of municipal health services and the implementation of the decentralized
SUS, municipal sanitary surveillance can be classified in either low complexity (municipalities
implementing the Basic Attention phase), or medium to high complexity (municipalities implementing
the full Municipal System).

3.4 Norms and standards associated with management and final disposal of wastes from health
services.

Activities associated with the proper management and final disposal of health wastes are clearly defined in
the State of Bahía. Norms for classification of solid wastes (NBR 10004), management and disposal of
radioactive wastes (CNEN-NE-6.05), specifications for plastic bags suited for solid waste conditioning
(NBR 9190), classification of health services wastes (NBR 12808 and 807), and management of health
service wastes (NBR 12810), are some of the current norms regulating most of the activities associated
with the management and final disposal of wastes from health services.

Wastes from health services are classified according to their biological, physical and chemical
characteristics. By law, all health centers are responsible for the classification of their wastes, according to
the following categories:

Group A: Biological wastes. Wastes containing biological agents or wastes contaminated with
biological wastes, posing high contamination risks to the environment and to public health, such
as blood bags, collected organic fluids and secretions, vaccines and culture dishes, disposable
materials in contact with organic fluids, body parts ad pieces, animals, air condition filters from
isolated rooms, wastes from isolated patients, cutting instruments, and sludge from health centers’
wastewater treatment.

Group B: Chemical wastes. Waste with high contamination risk from their chemical
constituencies, such as corrosive materials, inflammables, expired pharmaceuticals, bactericides,
mercury and lead, disinfectants, cancer treatment drugs, and alike.

Group C: Radioactive wastes: Radionuclide wastes, including those type A, B, and D,
contaminated with radionuclides.

Group D: Common wastes; non-high risk wastes, including paper, plastic, plants and shrubs, food
wastes non-contaminated with organic fluids or those coming from isolated patients.

Each health unit is responsible for the safe sanitary and environmental management of its wastes (from
generation to final disposition); it is also responsible for the preparation and implementation of a Health
Services Waste Management Plans (HSWMPs); for the proper separation, condition, and identification of
wastes; proper environmentally and sanitary temporary safe storage (art. 152, State Law NO.7.799).
HSWMPs must be part of each environmental license.

Proper segregation, identification and conditioning of health residues must be done at each health center.
Groups A, B, and C wastes, except cutting wastes, must be separated and disposed in standardized plastic
bags, and properly labeled. Cutting wastes must be discarded in rigid containers, and also properly
labeled. Once properly segregated and labeled, wastes must be stored externally for collecting.

Final disposition of medical wastes is also normalized in the State of Bahía. Norm 10.157 (landfills for
high risk wastes) defines criteria for design, construction and operation of landfills for high-risk wastes.
In municipalities with no access to lands, alternatives such as impermeable septic tanks and incineration are also defined. Annex 3 presents detailed guidelines for the proper management and final disposal of medical wastes, according to the Ministry of Health.
4 Potential environmental impacts associated with the Bahía State Health System Reform Project.

As stated in section 2, the Project has been designed to assist the State of Bahía’s efforts to improve the health status of its population, in particular the poor and vulnerable groups. Even though the Project does not have a direct impact on the environment, the implementation of health services and the generation of medical wastes as these health centers provide better services, might have a direct connotation with environmental implications, since the final disposition of these wastes might have an impact on surrounding natural resources and if they are not handled properly they can have negative effects.

In this regard, the objective of this section is to identify the possible environmental implications of the project and its components, and from there include the necessary considerations for its prevention and mitigation in each component to guarantee the environmental quality and sustainability of the decisions of the technical assistance and investment activities intended. Section incorporates conclusions from field assessment that included visits to SESAB, CRA, Municipality of Salvador, Municipality of Camacari, mid to large range hospitals and health posts.

4.1 Field assessment report.

As per Terms of Reference of August 15th 2002, Martin Ochoa visited the State of Bahía in order to: (i) carry out an environmental review of the project and its institutional arrangements; (ii) assess local environmental guidelines for environmental assessment and medical waste management; (iii) compile existing documentation pertaining local norms and legislation regulating medical waste management; and (iv) draft an environmental Action Plan for the project.

Results from the visit indicate that local sanitary and environmental practices for proper handling and disposal of medical wastes are applied. Field visits to primary health centers to medium and large capacity hospitals in the Salvador and Camacari urban areas indicate application of satisfactory practices for separation, classification and handling of medical wastes. Visits to the municipal sanitary landfill and to the operator of the waste collection services in Camacari indicate proper collection and final disposal of medical wastes.

The typical type of medical waste generated in primary health centers include disposed syringes, contaminated bands and bandages, flasks, vials, blood from emergency procedures, and alike. Even though these types of centers do not provide overnight services (although some might have emergency rooms), it is estimated that the waste generated by 10 patients is equivalent to one bed, and that each bed generates between 0.5 and 3.0 pounds of medical waste per day. Significant environmental and health risks will be posed in areas where the medical waste of more than 200 patients per day will be collected and where no proper final disposition is provided, as the collection and final disposition of these wastes is a municipal responsibility at this moment.

Discussions with SESAB, CRA, DIVISA, Salvador’s Municipal Health Secretariat, and contractors for the waste management facilities in Salvador and Camacari indicate that although proper legislation, norms and standards for medical waste collection and final disposal exist in Bahía, implementation of these norms and standards in poor rural municipalities may be weak. Neither visits to rural municipalities were made, nor a classification of municipalities with a distribution of health centers and population served was obtained, but some concern remains as these municipalities do not have the technical capacity to design and carry out proper waste management plans, including the proper management and final disposal of medical wastes. As described below, municipalities participating in the Program will be responsible for preparing Waste Management Action Plans, as part of the conditions to access funds.

With respect to environmental licensing, even though municipal sanitary landfills might have an environmental operations license, neither hospital nor health posts visited have one. Meetings with the Environmental Resources Center of Bahía (CRA), the State’s environmental Directorate Office, indicated that priority is given to projects from the private sector. However, CRA officials indicated a positive attitude toward simplifying the provision of environmental operation licenses to micro and small health
posts, as required by law. CRA is also interested in providing technical assistance to SESAB in the environmental assessment of mid to large hospital centers, with particular attention to technology conversion (utilizing methane powered steamers instead of bunker operated in hospitals such as Hector Santos in Salvador).

Conclusions from field assessment indicated that there are no major environmental issues associated with the project. Environmental issues pertaining the proper management of medical waste and its final disposition, classification of health services according to local environmental legislation and proper monitoring of sub projects are clearly defined in State environmental and sanitary prevention legislation. For a complementary assessment of the field visit report, please see annex 4.

4.2 Potential environmental impacts associated with the Project.

As shown in table 3, most of the potential environmental impacts associated with the project are considered positive. As described in section 2, project components are aimed at increasing efficiency of hospital care, reducing wasteful health care practices and better use of resources.

Potential negative environmental impacts are related to the construction, operation and maintenance of health centers, especially in municipalities with limited resources to implement proper management and final disposal of medical wastes. An environmental action plan for the Project will need to address these impacts and to consider the design and implementation of primary health centers and municipal medical waste management plans.

4.3 Project environmental classification.

Considering the scope of the project and the environmental impacts associated with each component, the Bahia State Health System Reform Project should be considered as Environmental Category B. Negative environmental impacts can be significantly attenuated with the incorporation of environmental criteria for health centers construction, operation and monitoring within the Projects’s Operations Manual.
Table 3. Environmental impacts associated with the Bahia State Health System Reform Project.

<table>
<thead>
<tr>
<th>Project component/ activity</th>
<th>Possible environmental impacts.</th>
</tr>
</thead>
</table>
| **Component 1. Support for micro regions in the State of Bahia** | **A. Strengthening the administrative and management capacity of micro-regional Regulation Centers.** Positive. Better efficiency of hospital care will reduce wasteful healthcare practices; performance based contracting, accreditation and periodic audits will ensure that proper sanitary and environmental surveillance according to DIVISA standards are also observed. Negative. Even though component does not have a direct impact on the environment, the implementation of health services and the generation of medical wastes as these health centers provide better services, might have a direct connotation with environmental implications, since the final disposition of medical wastes might have a negative impact on surrounding natural resources, specially in poor municipalities.  

B. Purchasing basic medium complexity equipment for micro regions  
C. Strengthening of public health functions at the micro-regional level  
D. Assistance with investment in equipment to support M1 level of medium complexity health care services.  
**Component 2. Strengthening SESAB core functions.**  
A. Information System, Monitoring and Evaluation.  
C. Strengthening the management capacity in the Municipality of Salvador.  
D. Implementation of a High Complexity State Center. Positive. Improving efficiency of hospital care will reduce wasteful health care practices and will help reduce the final disposal of unnecessary expired pharmaceuticals. Negative. Even though component does not have a direct impact on the environment, the implementation of health services and the generation of medical wastes as these health centers provide better services, might have a direct connotation with environmental implications, since the final disposition of medical wastes might have a negative impact on surrounding natural resources, specially in poor municipalities.  
**Component 3. Support for Basic Health**  
A. Strengthening the Pactos de Atención Básica.  
B. Sub-projects for the expansion of the Family Health Program. Not rated. Negative. Even though component does not have a direct impact on the environment, the implementation of health services and the generation of medical wastes as these health centers provide better services, might have a direct connotation with environmental implications, since the final disposition of medical wastes might have a negative impact on surrounding natural resources, specially in poor municipalities.  


5.1 Environmental Management Plan scope.

In consultation with SESAB and CRA, environmental assessment mission agreed that even though the objective of the Project is to assist in the implementation of the health sector reform, an environmental action plan for the Project will address the need to design primary health centers and municipal medical waste management plans. Actions agreed between the mission and SESAB Project counterpart team include:

- Implementation of existing local environmental assessment and licensing of health centers. Resources from the project will assist SESAB and CRA define simplified procedures for environmental licensing of micro and small centers, and the environmental assessment of medium to large health centers participating in the program. Procedures will be reflected in the Project's Operation Manual.

- Mandatory preparation of Medical Waste Plans in each health center of participating municipalities, as required by Division de Vigilancia Sanitaria del Estado de Bahía.

- Municipal technical assistance for the preparation of Solid Waste management plans, including medical wastes, with emphasis in poor participating municipalities covering over 200 beds equivalent.

- Incentives to those municipios with proper solid management plans, where extra points will be given when competing for the financing of subprojects.

- Implementation of environmental criteria in the audit of health services, according to existing guidelines in the Division de Vigilancia Sanitaria.

- Implementation of local basic sanitation information, through the financing of information material, according to local existing guidelines.

- Implementation of environmental criteria during construction and supervision of infrastructure, were needed where applicable.

The Environment Management Plan is perceived as a cross-cutting element to the different components of the Project, thus it is an integral part of each one of them. The environmental variable is incorporated through two fundamental guidelines: (i) Technical Assistance Requirements and (ii) Investment for Institutional Strengthening. The objective of the Project's EMP is to strengthen the efforts initiated by the SESAB to improve the health status, including sanitary and environmental aspects, of the population in the State of Bahía, in particular the poor and vulnerable groups. In addition, the Project's EMP will strengthen the environmental management capacity of SESAB as well as the environmental management capacities of participating center municipalities, providing adequate resources to reach adequate environmental management in the implementation of solid waste management plans.

During the pre-appraisal mission, the Bank and SESAB teams discussed the main findings of the EAR and agreed with the proposed EMP. In addition, during discussions between the environmental consultant and the SESAB counterpart team it was agreed that the Project's Operations Manual and Project Implementation Plan would include the Environmental Action Plan. No additional staff is required for the monitoring of the plan. All actions will be the responsibility of SESAB.

Except the provision of municipal technical assistance for the preparation of solid waste management plans, remaining actions are considered within the scope of the project's components. For the provision of municipal assistance, it was agreed the project would reserve up to 10% of the cost for component 2 of the Project. No additional studies are needed for the preparation of the project.

Detailed considerations for Implementation of environmental assessment and licensing of health centers (Simplified Environmental License) are presented in annex 5. Detailed considerations for Implementation
of environmental criteria in the audit of health services, according to existing guidelines in the Division de Vigilancia Sanitaria are presented in annex 6.

Table 4. Environmental Management Plan.

<table>
<thead>
<tr>
<th>Project component/activity</th>
<th>Proposed action/implementation schedule..</th>
<th>Cost (US$)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Component 1. Support for micro regions in the State of Bahía</strong></td>
<td>Implementation of existing local environmental assessment and licensing of health centers (Simplified Environmental License), see annex 5. Mandatory preparation of Medical Waste Plans in each health center of participating municipalities, as required by Division de Vigilancia Sanitaria del Estado de Bahía. Implementation of environmental criteria in the audit of health services, according to existing guidelines in the Division de Vigilancia Sanitaria. See annex 6. Monitoring and evaluation of Waste Management Plans.</td>
<td>No additional costs. Cost will be included in consulting services for the project component.</td>
</tr>
<tr>
<td>Strengthening the administrative and management capacity of micro-regional Regulation Centers. Strengthening of public health functions at the micro-regional level. Assistance with investment in equipment to support M1 level of medium complexity health care services</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Component 2. Strengthening SESAB core functions.</strong></td>
<td>Municipal technical assistance for the preparation of Solid Waste management plans, including medical wastes, with emphasis in poor participating municipalities covering over 200 beds equivalent.</td>
<td>No additional costs associated with the project. Up to 10% of project component will be reserved for municipal assistance for the preparation of solid waste management plans.</td>
</tr>
<tr>
<td>Policy development. Implementation of a High Complexity State Center.</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Component 3. Support for Basic Health</strong></td>
<td>Implementation of environmental criteria during construction and supervision of infrastructure, were needed/ where applicable. See annex 7. Incentives to municipios polo with proper solid management plans, extra points will be given when competing for the financing of subprojects. Implementation of local basic sanitation information, through the financing of information material, according to local existing guidelines</td>
<td>No additional costs. Cost will be included in consulting services for the project component.</td>
</tr>
<tr>
<td>Sub-projects for the expansion of the Family Health Program.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

5.2. EMP monitoring.

Environmental Management Plan implementation and monitoring will require close supervision, particularly during the first two years of the Project. SESAB will include in the Project’s Operation
Manual detailed procedures and criteria according to the activities and scope of the EMP. Project implementation unit will be responsible for reporting implementation of the EMP. Progress reports will include:

- Progress in the execution of each one of the activities of technical assistance and investment proposed in the plan.
- The impact indicators by component will be defined in function of the number of activities of each component performed within the framework of this environment management plan. Number of health centers with simplified environmental licenses at end of year 1, year to and year 3 plus number of municipalities with solid waste management plans at end of the project should be reported. These indicators will be applied on the evaluation phase, time at which real impact will be identified, positive as well as negative, accomplished and ones not foreseen, to finally make the necessary recommendations.
- In addition, the proposed Implementation of environmental criteria in the audit of health services, according to existing guidelines in the Division de Vigilancia Sanitaria, on years 2 and 3 of the Project, will reflect results from including the environmental criteria in the implementation of health care services.
6. Bibliography

Informacoes Gerais, Vigilancia Sanitaria e Ambiental, DIVISA, 2001
Recursos Hidricos: Legislacao basica do Estado da Bahia, Superintendencia de Recursos Hidricos, 2001
Residuos Solidos Municipales, Guia para el Diseno, Construccion, Operacion de rellenos sanitarios manuals, PAHO, 1991.
Annexes
Annex 1.
(full document available on files)

BAHIA
Nova Legislação Ambiental

Lei Estadual Nº 7.799, de 07/02/2001
Decreto Estadual Nº 7.967, de 05/06/2001
Annex 2.

Normas e Diretrizes em Vigilância Sanitária

Aspectos Normativos e Diretrizes Legais

Tendo em vista que para o desenvolvimento das ações de vigilância sanitária faz-se necessário o conhecimento amplo das normas e diretrizes legais que, aliadas ao conhecimento técnico-científico, instrumentalizam as ações na busca da garantia da qualidade de serviços e produtos, listamos a seguir as legislações específicas ao trabalho do técnico de Vigilância Sanitária, para execução de suas atividades básicas:

**Legislação Federal**

- Constituição Federal de 1988
  Título VIII - Da Ordem Social, Capítulo II - Da Seguridade Social, Seção II - Da Saúde, Art. 196 a 200.

- Lei Federal nº 8.080 de 19 de setembro de 1990
  Dispõe sobre as condições para a promoção, proteção e recuperação da saúde, a organização e o funcionamento dos serviços correspondentes e dá outras providências.

- Lei Federal nº 5.991 de 17 de dezembro de 1973
  Dispõe sobre o controle sanitário do comércio de drogas medicamentos insumos farmacêuticos e correlatos, e dá outras providências.

- Lei Federal nº 6.360 de 23 de setembro de 1976
  Dispõe sobre a vigilância sanitária a que ficam sujeitos os medicamentos, as drogas, os insumos farmacêuticos e correlatos, cosméticos, saneantes e outros produtos, e dá outras providências.

- Lei Federal nº 6.437 de 20 de agosto de 1977
  Configura infrações à legislação sanitária federal, estabelece as sanções respectivas, e dá outras providências.

- Lei Federal nº 9.782 de 26 de janeiro de 1999
  Define o Sistema Nacional de Vigilância Sanitária, cria a Agência Nacional de Vigilância Sanitária, e dá outras providências.
- Lei Federal Nº 7.802 de 11 de julho de 1989
  Dispõe sobre a pesquisa, a experimentação, a produção, a embalagem e rotulagem, o transporte, o armazenamento, a comercialização, a propaganda comercial, a utilização, a importação, a exportação, o destino final dos resíduos e embalagens, o registro, a classificação, o controle, a inspeção e a fiscalização de agrotóxicos, seus componentes e afins, e dá outras providências.

- Decreto-Lei Nº 986 de 21 de outubro de 1969
  Institui normas básicas sobre alimentos.

- Decreto Federal Nº 74.170 de 10 de junho de 1974
  Regulamenta a Lei nº 5.991 de 17 de dezembro de 1973 que dispõe sobre o controle sanitário do comércio de drogas medicamentos insumos farmacêuticos e correlatos.

- Decreto Federal Nº 77.052 de 19 de janeiro de 1976
  Dispõe sobre a fiscalização sanitária das condições de exercício de profissões e ocupações técnicas e auxiliares relacionadas diretamente com a saúde.

- Decreto Federal Nº 79.094 de 5 de janeiro de 1977
  Regulamenta a Lei nº 6.360 de 23 de setembro de 1976 que submete ao sistema de vigilância sanitária os medicamentos insumos farmacêuticos drogas correlatos cosméticos produtos de higiene saneantes e outros.

- Decreto Federal Nº 98.816 de 11 de janeiro de 1989
  Regulamenta a Lei nº 7.802 de 11 de junho de 1989

PORTARIAS:

- Portaria Federal MS Nº 1.565 de 26 de agosto de 1994
  Define o Sistema Nacional de Vigilância Sanitária e sua abrangência, esclarece a competência das três esferas de governo e estabelece as bases para a descentralização da execução de serviços e ações de vigilância em saúde no âmbito do Sistema Único de Saúde.

- Portaria Federal MS Nº 1469 de 29 de dezembro de 2000
  Estabelece os procedimentos e responsabilidades relativos ao controle e vigilância da qualidade da água para consumo humano e seu padrão de potabilidade, e dá outras providências.

- Portaria Federal MS/SNAS Nº 224 de 29 de janeiro de 1992
  Estabelece diretrizes e normas de atendimento do SUS.

09
• Portaria Federal MS Nº 1.428 de 26 de novembro de 1993
  Aprova o Regulamento Técnico para Inspeção Sanitária de Alimentos.

• Portaria Federal Nº 1.884/GM de 11 de novembro de 1994
  Estabelece normas destinadas ao exame e aprovação dos Projetos Físicos de Estabelecimentos Assistenciais de Saúde
  (em processo de revisão).

• Portaria Federal MA Nº 304 de 26 de abril de 1996
  Estabelece normas para a distribuição e comercialização de carnes.

• Portaria Federal MS/SVS Nº 326 de 30 de julho de 1997
  Aprova o Regulamento Técnico: Condições Higiénico-Sanitárias de Boas Práticas de Fabricação para Estabelecimentos Produtores / Industrializadores de Alimentos.

• Portaria Federal MS/SVS Nº 344 de 12 de maio de 1998
  Aprova o Regulamento técnico sobre substâncias e medicamentos sujeitos a controle especiais.

• Portaria Federal Nº 2.616 de 12 de maio de 1998
  Estabelece normas para prevenção e o controle das infecções hospitalares.

• Resolução CNNPA Nº 33/76
  Fixa normas gerais de higiene para assegurar as condições de pureza necessárias aos alimentos destinados ao consumo humano.

• Resolução CONAMA Nº 20 de 18 de junho de 1986
  Estabelece classificação das águas doces, salobras e salinas para todo o Território Nacional.

• Resolução CONAMA Nº 05 de 05 de agosto de 1993
  Define normas mínimas para tratamento de resíduos sólidos oriundos de serviços de saúde, portos e aeroportos, bem como a necessidade de estender tais exigências aos terminais ferroviários e rodoviários.

• Norma Operacional Básica do Sistema Único de Saúde - NOB/SUS-01/96
  Norma Operacional de Assistência à Saúde NOAS/SUS-01/2001
  Outras Resoluções específicas.
Legislação Estadual

- Lei Estadual 3.982 de 29 de dezembro de 1981
  Dispõe sobre o Subsistema de Saúde do Estado da Bahia,
  aprova a legislação básica sobre promoção, proteção e
  recuperação da saúde e dá outras providências.

- Lei Estadual Nº 4.892 de 13 de abril de 1989
  Torna obrigatória a esterilização de utensílios utilizados em
  salões de cabeleireiros e estabelecimentos congêneres e dá
  outras providências.

- Lei Estadual Nº 5.782 de 11 de abril de 1990
  Proíbe o funcionamento de Academias de Ginástica no Estado
  sem autorização da Secretaria da Educação do Estado da Bahia
  e dá outras providências.

- Lei Estadual Nº 7.797 de 07 de fevereiro de 2001
  Institui a Política Estadual de Administração dos Recursos Ambientais
  e dá outras providências.

- Lei Estadual Nº 6.455 de 25 de janeiro de 1993
  Dispõe sobre o controle da produção, da comercialização,
  do uso, do consumo, do transporte e armazenamento de agrotóxicos,
  seus componentes e afins no território do Estado da Bahia e dá outras
  providências.

- Decreto Estadual Nº 29.414 de 05 de janeiro de 1983
  Regulamenta a Lei n. 3.982, de 29 de dezembro de 1981 que
  dispõe sobre o Subsistema de Saúde do Estado da Bahia,
  aprova a legislação básica sobre promoção, proteção e recuperação da
  saúde e dá outras providências.

- Portaria Estadual Nº 4.420/90 de 12 de julho de 1990
  Estabelece as condições necessárias para o funcionamento
  de Academias de Ginástica ou similares.

- Portaria Estadual 2.101/90
  Estabelece Normas de Vigilância Sanitária (dispõe sobre os
  estabelecimentos de saúde).

- Portaria Estadual Nº 3.894 de 03 de dezembro de 1992
  Regulamenta a localização, a utilização e o funcionamento dos
  cemitérios.

- Decreto Nº 7.757 de 14/02/2000
  Aprova o Regulamento Sanitário de Estabelecimentos Promotores de Festas e Eventos Similares, realizados inclusive em estruturas provisórias, e por Entidades Carnavalescas.

- Decreto Estadual Nº 7.967 de 05 de junho de 2001
  Aprova o regulamento da Lei Nº7.799 de 07 de fevereiro de 2001 que instituiu a Política Estadual de Administração de Recursos Ambientais e dá outras providências.

- Decreto Estadual Nº 6.033 de 06 dezembro de 1996
  Aprova o regulamento da Lei Estadual Nº6.455 de 25 de janeiro de 1993.


- Outras legislações específicas.

**Legislação Municipal**

- Código de Postura dos Municípios.
Annex 3.

(please see anexo3.pdf file)
Annex 4

**Nueva Alianza, Camacari, Primary Health Center.**

Small Urban Primary Health Center. 400 patients per day (170 regular, 230 emergency care), equivalent to 40 beds per day. Services include medical attention, minor surgeries, nebulizaciones, and emergency care. Proper separation, classification and handling of medical wastes at the health post. Limited sanitary prevention information to patients, continuous supervision from Division de Vigilancia Sanitaria Municipal.

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**Camacari Hospital.**

Medium range, urban. Capacity for 176 beds, actual capacity 124. Proper separation, classification, and handling of medical wastes at the hospital. Limited sanitary prevention information to patients, continuous supervision from Division de Vigilancia Sanitaria Municipal.
Camacari Sanitary Landfill facilities, operated by Limpeca.

- 20 Hectares facility.
- 95% Municipal; 5% private.
- Operated by private sector.
- Collects medical wastes from health posts and from the Camacari Hospital.
- Medical wastes incinerated in a three-chamber bunker operated incinerator.
- Capacity to manage expected wastes for the next 20 years.

Hector Santos Hospital, Salvador regional micro region hospital.

426 beds capacity, 30,000 m² facility, 11 surgery rooms, 500-600 thousand population coverage, excellent medical waste separation, classification, and handling, excellent community participation preventing the improper collection of syringes and contact with medical wastes from favelas surrounding the hospital facilities.
Annex 5.

(please see anexo5.pdf file)
Annex 6.
Please see anexo6.pdf file)
Annex 7.

Lineamientos ambientales de construcción y Supervisión de Obras civiles para minimización de Impactos Ambientales durante la construcción y Rehabilitación de Hospitales

1. INTRODUCCION
Las especificaciones de construcción a continuación descritas pretenden complementar las actividades de mitigación 0 prevención de impactos ambientales producto de la construcción de los centros hospitalarios a ser financiados con recursos provenientes del Préstamo del Banco Mundial. Estas especificaciones forman parte integrante de los contratos de construcción de obras civiles que celebre la SESAB y los contratistas para la ejecución de obras, y por lo tanto deberán ser debidamente incluidos en las bases de licitación respectivas.

2. ASPECTOS GENERALES DE PROTECCION AMBIENTAL
2.1 Generales
El objetivo de la aplicación de las especificaciones ambientales durante la construcción de los centros hospitalarios financiados es el de prevenir cambios ambientales significativos negativos a consecuencia de la construcción de cada sub proyecto.

El Contratista y su personal deberán evitar introducir modificaciones innecesarias en hábitat, parques, áreas de recreo, 0 áreas urbanas aledañas al sitio donde se ubicara el sub proyecto. El Supervisor de la obra deberá dar fe de la aplicación satisfactoria de estas especificaciones.

2.2 Monitoreo Ambiental de las obras civiles
La construcción de las obras civiles definidas en las bases de licitación deberá ser ejecutada acorde con las especificaciones de calidad de obra y especificaciones ambientales a satisfacción de la SESAB y del RA quienes tendrán acceso libre para inspección durante la ejecución de las obras.

2.3 Responsabilidad del Contratista
1. El Contratista está obligado a construir las obras civiles acordes con los planos de diseño y especificaciones técnicas y ambientales elaboradas por el MSP AS y de acuerdo con las instrucciones que el Supervisor le indiquen durante la construcción de las obras. En caso que el Contratista ejecute, sin el consentimiento de la supervisión 0 de la Unidad de Seguimiento durante la Implementación de las modificaciones al diseño original a las obras adicionales que surjan durante la construcción, el Contratista deberá retirar del sitio de la obra 10 que haya sido construido y no aprobado, sin lugar a reclamo 0 compensación por costo 0 tiempo en relación con el contrato de servicios.

2. Cuando los trabajos sean realizados en zonas de peligro potencial para los operarios 0 los vecinos afectados por la construcción de las obras, como es el caso de zonas de deslizamiento, derrumbe, remoción de escombros, 0 áreas sensibles, el Contratista deberá adoptar las medidas necesarias para la seguridad de sus operarios y de los afectados, incluyendo la comunicación y rotulación necesaria.

3. Durante la época de invierno, el Contratista deberá evitar que la erosión de suelo producto de la escorrentía de aguas lluvias afecte el área de influencia de sus Fuentes de trabajo, así mismo, deberá dejar bien compactados, a satisfacción del Supervisor, los rellenos de material ejecutados, así como la colocación de obras que reduzcan al máximo la erosión de log suelos, taludes de corte 0 relleno.

4. Mientras la SESAB no reciba de forma definitiva las obras realizadas por el Contratista, este será responsable de proveer y disponer de las medidas de seguridad necesarias para prevenir 0 contrarrestar los daños que las lluvias, viento, 0 polvo puedan ocasionar a la obra 0 a los equipos instalados, proveyendo inclusive de la vigilancia necesaria mientras dure el proceso de recepción.

5. En relación con la protección de la propiedad privada y del Estado, el Contratista será responsable de adoptar las medidas necesarias para prevenir y evitar cualquier daño a la propiedad privada, publica, incluyendo servicios, edificaciones, cercados, senderos, arboledas ubicados dentro 0 cerca del
sitio de construcción de las obras. El Contratista será responsable de mantener informado a los vecinos afectados sobre los posibles daños que se podrían ocasionar e informar sobre las medidas que adopte para la prevención de estos.

6. Será responsabilidad el Contratista la reparación del cualquier daño atribuible a la realización de las obras 0 consecuencia de estas.

2.4 Seguridad Y Señalización
1. Durante la etapa de construcción, el Contratista deberá implementar medidas y precauciones necesarias para la circulación de equipos, maquinaria, vehículos y peatones en la zona del proyecto, disponiendo de señalización adecuada diurna y nocturna y cuando sea necesario cerrar temporalmente el tráfico.

2.5 Transporte de Materiales
1. El transporte de materiales para la obra deberá ser programado y realizado de tal manera que se eviten daños a los caminos, calles y carreteras públicas y privadas, a los servicios públicos, a las construcciones, cultivos o cualquier otro tipo de bien público o privado. Las costas de transporte para este concepto deberán estar incluidas en los respectivos precios unitarios.

2. El transporte de materiales de construcción, escombros, restos de vegetación y otros, se deberá realizar en vehículos provistos de toldo, irrigando el material de ser necesario y apropiado. El Contratista será responsable de la remoción de restos de concreto, rocas, restos de vegetación sin derecho a pago adicional pues el precio de la actividad deberá estar incluido en el valor unitario de la actividad.

3. ESPECIFICACIONES Ambientales
3.1 Control de la contaminación de cuerpos receptores de agua.
1. El Contratista deberá proteger los escurrimientos superficiales, subterráneos o cualquier cuerpo receptor de agua que se encuentre dentro del área de influencia de la obra contra derrames accidentales de aceites, carburantes o del transporte de material de construcción dentro de las obras. En caso de ocurrir accidental o premeditadamente, el Contratista deberá informar a la Supervisión y deberá tomar las medidas necesarias para contrarrestar la contaminación ocasionada.

2. El Contratista deberá colocar sedimentores de aguas de lavado de agregados y del fraguado del concreto, trampas de aceite y grasas, a cualquier otro tipo de dispositivo apropiado aguas abajo de las fuentes de producción de agua, recolectándolas antes de sean vertidas en los cuerpos receptores finales.

3. El Contratista no podrá descargar lodos o materiales de remoción de escombros en cuerpos receptores de agua; inicialmente se podrán descargar este tipo de materiales en áreas secas, no inundables.

4. El uso de equipo y maquinaria encauces naturales deberá ser aprobada por la Supervisión y por la Alcaldía respectiva.

5. El Contratista deberá mantener resguardados de forma segura cualquier elemento tóxico eliminando la posibilidad de que estos puedan interceptar o ser conducidos a las redes naturales de drenaje superficial o subterráneo.

6. El Contratista no podrá verter combustibles o lubricantes ni en el suelo ni en los cursos de agua existentes.

7. El precio unitario acordado incluirá las medidas necesarias definidas, por lo tanto no serán medidos 0 pagado durante la construcción de las obras.

3.2 Control de la contaminación por ruido

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1. El contratista será responsable de mantener niveles permisibles no mayores a los 8° db (lo que un oído humano soporta y permite expresarse sin alzar la voz), incorporando en su maquinaria y equipo silenciadores de escape, espacios cerrados para el mantenimiento de la maquinaria, 0 dispositivos de alarma 0 bocinas de sus vehículos acordes con el nivel especificado.

2. El precio unitario acordado incluirá las medidas necesarias definidas, par 10 tanto no serán medidos 0 pagado durante la construcción de las obras.

3.3 Control de la contaminación del aire
I. El Contratista será responsable de controlar la calidad de las emanaciones, olores y humos relacionados con su maquinaria y equipo, así como con el polvo, quema, y uso de productos químicos tóxicos y volátiles. Los operadores deberán mantener las tapaderas de los contenedores de combustibles, químicos, pinturas, cerrados, así mismo mantenerlos en zonas aisladas.

2. así mismo, el Contratista será responsable del mantenimiento adecuado de su maquinaria a base de carburantes a fin de controlar la emanación de gases, olores 0 humos.

3. El Contratista no podrá quemar a cielo abierto ningún tipo de desperdicios, árboles 0 arbustos, llantas, cauchos, plásticos 0 cualquier otro producto peligroso a la salud humana. Estos deberán ser depositados en el relleno sanitaria identificado durante la etapa del diseño y autorizado debidamente por el Supervisor y la Alcaldía correspondiente.

4. Para evitar la generación de polvo, el Contratista deberá rociar agua sobre los suelos superficiales expuestos al tráfico vehicular 0 peatonal, evitando la generación de charcas 0 lodos. así mismo, de ser necesario, deberá colocar lonas para mantener cubiertos los materiales de construcción.

5. El precio unitario acordado incluirá las medidas no necesarias definidas, por lo tanto no serán medidos 0 pagado durante la construcción de las obras.

3.4 Salud Ocupacional e higiene laboral
I. El Contratista deberá adoptar las medidas de seguridad ocupacional necesarias en cada uno de sus frentes de trabajo, dando a su personal accesorios necesarios como cascos protectores, mascarillas de polvo, botas de goma con punta de acero, entre otros.

2. Cuando sean cinco 0 mas trabajadores, el Contratista deberá proveer de instalaciones sanitarias adecuadas para disposición de excretas las cuales podrán ser transportables. Si será necesario construir una rosa séptica, el Contratista solicitará al Supervisor la aprobación del sitio, responsabilizando el contratista de rellenar la rosa una vez termine la obra y de restituir las condiciones originales del sitio seleccionado.

3.5 Remoción y reposición de pavimentos
1. El Contratista será responsable de depositar el pavimento removido (asfalto, empedrado, concreto hidráulico) en sitios alejados a las vías y en lugares seleccionados por el Supervisor. El pavimento restituido deberá contar con igual 0 superior calidad que el anterior.

3.6 Botaderos
2. El Contratista deberá asegurarse que el área utilizada disponga de un drenaje adecuado que impida la erosión de suelos. Antes de iniciar los trabajos de disposición de materiales, el contratista deberá retirar basuras depositadas en el sitio así como construir los canales de drenaje en los sitios necesarios que el Supervisor identifique.