E4058

REPUBLIC OF MADAGASCAR

EMERGENCY SUPPORT TO BASIC SERVICE DELIVERY IN HEALTH, NUTRITION, AND EDUCATION PROJECT

ENVIRONMENTAL AND SOCIAL SCREENING AND ASSESSMENT FRAMEWORK (ESSAF)

September 14, 2012

Environmental and Social Safeguards Assessment Framework

MADAGASCAR- Emergency HD Multisector Operation (P131945)

Introduction

1. As permitted under OP/BP 8.00 *Rapid Response to Crises and Emergencies*, an Environmental and Social Screening Assessment Framework (ESSAF) has been developed to support the MADAGASCAR – Emergency Support to Basic Service Delivery for Health, Nutrition, and Education Project. The ESSAF describes the basic approach to be taken during project implementation for the selection and design of proposed investments as well as key principles to be followed throughout to ensure due diligence in managing the potential adverse environmental and social impacts and risks associated with the project, including consultation and disclosure requirements. More specifically, the ESSAF addresses the following issues: (i) minimization of environmental pollution risks, (ii) protection of human health, and (iii) enhancement of positive environmental and social outcomes.

Project context

2. The proposed IDA credit to the Republic of Madagascar for an amount of US$65.00 million aims to preserve basic services in education, health and nutrition in targeted vulnerable areas. As the sector analyses pointed out, key constrains to improving education, health and nutrition outcomes include the significant supply side constraints in the public sector and a sharp increase in private costs of services, due to cuts in public financing since 2009, as well as a weak governance and management environment. The proposed operation prioritizes therefore activities that will result in facilitating access to basic education and health services through a reduction of private cost of these services and the easing of supply side constraints.

3. The project development objective (PDO) is *to preserve critical education, health and nutrition service delivery in targeted vulnerable areas in the recipient's territory*. The project design will be kept simple and built on existing activities being currently implemented by ongoing projects that can be either continued or scaled-up. The proposed operation will have the following three components:

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Component 1: Preserving Critical Education Services (US$23.5 million)

(a) Subsidies to community teacher salaries. This activity will contribute to the payment of salaries for community, non-civil servant teachers (FRAM teachers) for four months out of the year.[2] The government has been subsidizing the salary of these teachers since 2002 to reduce the direct costs of education to families. Since the crisis, it has been a

[1] The project also has an unallocated category in the amount of US$6.0 million

[2] These locally recruited teachers constituted about 67 percent of all public primary school teachers in 2010, i.e. they play a crucial role in ensuring primary education for a large share of children.

challenge for the government to continue paying the subsidy on a timely and regular basis and the gaps had to be filled by parents' contribution. To ensure the continued functioning of the system, while at the same time protecting future sustainability and government commitment for teacher salaries, donors have been contributing to the payment of these salaries for a limited number of months during the year, while the government assured the payment for the remaining months.[3] The support under this project will maintain this principle. The activity will be implemented by the PIU through well-established mechanisms and structures, i.e. financial service providers and in close coordination with the regional and local education administrative structures, who will also provide supervision of this process. This sub-component will finance salaries to community, non-civil servant teachers.

(b) Support to school grants *(Fonds catalytiques locaux, FCL*). This component will provide a top-up to the grants provided to public primary schools by the government (called *caisse ecole*) since 2002.[4] Specifically, these grants will: (i) provide schools with small annual funds for operational expenses for the maintenance of facilities, acquisition of basic learning supplies (e.g. chalk, notebooks), and (ii) fund activities of the annual school action plan, with an emphasis on activities to improve quality. The school grants will be given to school-based management committees consisting of parents, teachers, the school director and representatives from the local community. Well-functioning, existing mechanisms will be used to channel these resources directly to the committees. Training-financed under sub-component (d)-will also be provided to school management committees to increase budget transparency and strengthen capacity to manage the grants. Third party verification through unannounced spot checks will be performed in a sample of schools. This sub-component will finance transfers to school committees.

(c) School health and nutrition package. This sub-component will deliver a package of basic treatment and preventative health and nutrition interventions including deworming treatment, iron folate and treatment of neglected tropical diseases in schools in selected areas. The school health activities will be implemented at the school level twice a year by the Ministry of Education (MEN) with supervision and training supported by the local health and nutrition structures specifically trained health workers and community nutrition volunteers. These programs have a successful history on implementing school health and nutrition interventions. Supervision costs for this component will also be included in the health and nutrition components respectively. This sub-component will finance goods, services, consultancies, and operating costs.

(d) Project Management and Monitoring and Evaluation. This sub-component will finance: (i) capacity strengthening of local communities for managing their schools and enhancing local governance and accountability; (ii) capacity building of local, regional and national structures for the effective governance, implementation and supervision of the activities, and (iii) monitoring and evaluation activities in general as well as

[3] For example, the UNICEF-managed multi-donor grant of the Global Partnership for Education (to be closed in December 2012) partly paid FRAM salaries as well as the EU.

[4] Grants are currently financed through (i) the government budget; (ii) the current GPE grant, expected to close in December 2012; (iv) the planned additional EU support for 2013.

coordination, management and supervision activities of the project implementation unit. This sub-component will finance training, consultancies, operation costs, and goods.

Component 2: Preserving Critical Health Services (US$25 million)

The main objective of this component is to preserve the provision of basic health services for at least fifty percent of the most vulnerable segment of the population - Pregnant women and children under five. The proposed project will finance the following sub-components:

(i) **Critical package for pregnant women and children under five at health facility level:** *For pregnant women*, an existing cost-effective package of essential services[5] will be financed from the first trimester of the pregnancy to the postnatal consultation. Training for Health providers on Obstetric and Neonatal Emergency Care will also be financed. This subcomponent will also finance an *existing integrated package for children under five* at health facility level. This package includes IEC activities for promotion of good practices and breastfeeding and nutrition for mothers and children, Vitamin A supplementation, vaccinations, distribution of LLINs, treatment of diarrhea with oral rehydration salts and zinc, prevention and treatment of malaria and support to integrated treatment of childhood diseases (IMCI). The subcomponent will finance periodic mass treatment campaigns against Neglected Tropical Diseases (helminthiasis, bilarzia and filariasis). Health facilities will receive funding to support outreach activities by qualified health personnel to increase coverage from 5km to 15km. This component will also finance contracts with NGOs for delivery of key interventions to target groups in hard to reach areas.

(ii) **Project management and monitoring and evaluation:** This sub component will finance operational costs for the already functioning health PIU as well as supervision costs. This includes supervision costs for the school health and nutrition interventions under the Education component. The sub-component will also contribute to the financing of the joint technical coordination unit. In addition, this sub-component will finance monitoring and evaluation activities, including rapid data collection system by mobile phone, periodic surveys and assessments, and third party verification of support provided by NGOs for delivery of services. This sub-component will finance services, consultancies, training, goods, and operating costs.

Component 3: Preserving Basic Nutrition Services (US$10.5 million)

The project will finance nutrition interventions at the community level through support to the community nutrition sites , community nutrition agents (CNAs), and local NGOs selected to play a monitoring and supervision role,

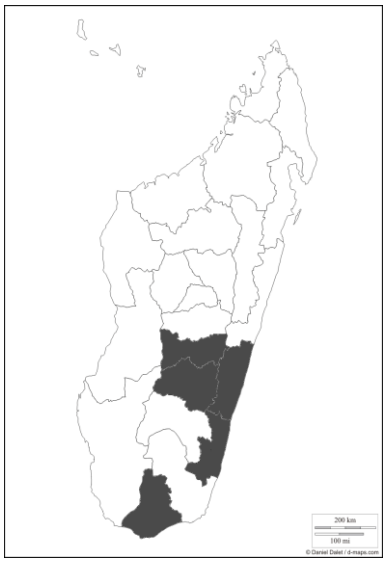
The proposed project will support the following sub-components:

[5] In line with national policy, the basic package of services includes: prevention of mother to child transmission, tracking and treatment of syphilis, HIV/AIDS prevention, treatment and prevention activities, supplementation of ironic and folic acid tetanus vaccination, intermittent preventative medication against malaria and distribution of safe delivery kits.

i. **Support basic community nutrition services:** This component will provide nutrition inputs, recruitment of NGOs to support community nutrition sites and capacity building to the CNAs. The CNAs will implement the community-based activities to improve nutrition. Activities will include growth monitoring for children under five with critical focus on children under two, nutrition awareness and education through culinary demonstrations, school health outreach activities and referral to health facilities for severely malnourished children.

ii. **Support project management and monitoring and evaluation:** This sub-component will finance the operational costs of the PIU. In addition, the project will support surveys and evaluations, including bi-annual community assessments of local malnutrition issues to encourage community involvement in ensuring effective delivery of services. Similar to the health component, the nutrition component will support the use of mobile phones for data collection.

iii. **Support project management and capacity building:** This component will continue to provide support for technical supervision by the PIU and relevant functions within the ORN and ONN related to project activities. The component will also contribute to the overall management of the project including support to the joint technical coordination unit. This component will support supervision and management costs for the school health and nutrition subcomponent under the Education component.



Intervention Zone Areas:

5. A more targeted approach focused on five of the most vulnerable regions will allow reaching out to the poorest and most vulnerable groups in the country, and will also help to maximize results as well as to adequately monitor implementation process. In order to maximize impacts of available resources and the proposed activities will be implemented in five regions (out of twenty-two), precisely Androy, Atsimo Atsinanana, Vatovavy Fitovinany, Haute Matsiatra and Amoron'i Mania (see Map). These regions have been/were selected on the basis of (i) poverty and social indicators to ensure activities reach the poor and most vulnerable groups; (ii) existence of other donor interventions so to avoid overlap; (iii) the existing IDA health operation to optimize synergies. Intervening in a limited of regions will also intensify the pace of implementation. Moreover, it will facilitate supervision and oversight by the PIUs and the Bank.

Compliance with World Bank safeguards policies

6. The Project, which for purposes of safeguards has been classified as Category B, is being prepared under OP/BP 8.00 - Rapid Response to Crises and Emergencies as an emergency operation. For this reason, preparation needs to be expedited, even as appropriate environmental and social measures are taken into consideration.

7. Activities to be supported by the Project are expected to have some relatively minimal and site specific adverse environmental and social impacts that would be easily manageable, therefore, only one safeguard policy is triggered OP/BP 4.01(Environmental Assessment).

OP/BP 4.01 - Environmental Assessment. The proposed operation will mainly support activities in targeted sectors such as the (i) *Education sector*: (a) subsidize the payment of community teachers' salaries, (b) support to school grants; (c) basic package of preventative school health and nutrition interventions (medicines) to be delivered in schools in selected areas; and (ii) *Health sector*: (a) Support the delivery of essential package like immunizations, vitamin supplementation to both pregnant women and children as well as STI/HIV services to high-risk populations with procurement and delivery of relevant health commodities (drugs) through the National Drug Agency; and, (b) delivery of essential package of equipment to health facilities to improve the service to a minimum acceptable standard. While the project does not expect to undertake civil works, the Environmental and Social Screening and Assessment Framework (ESSAF) includes measures for addressing environmental and social impacts of the repair and rehabilitation of existing facilities, should it become necessary to undertake them during project implementation. Since no major civil works will be undertaken, thus, there are no significant negative environmental and social impacts envisaged in the proposed operation. Ultimately, any improvement on the health services delivery would also improve the population access in these health services. It is therefore expected that with such great/envisioned improvements, the production of both medical and pharmaceutical waste in the various care centers and pharmacies in the country would increase. Though there is a regulation on the management of expired pharmaceutical waste (expired medicines) the matter fact is that the risk to increase expired medicines in the country would still remain higher if the management and delivery system of pharmaceutical drugs remain weak. Taken altogether, it is therefore obvious that this could involve various kinds of risks associated with the inappropriate handling and disposal of HIV and other STI infected materials that could therefore increase the environmental pollution from the medical and pharmaceutical wastes. These risks primarily affect personnel in medical facilities in charge of handling the proper disposal of medical waste, families whose basic income derive from the triage of waste, notwithstanding the general public, to the extent that waste is not disposed of on-site nor safely contained in protected areas. If not properly dealt with, preferably at early stages, it is therefore expected that all these activities may have environmental and human impacts that could then hinder the overall project outcomes. All these activities may have environmental and human impacts that need to be managed appropriately. These activities are already habitual under the previous IDA financing in the Health sector.

The Environmental and Social Screening and Assessment Framework (ESSAF) describes the basic approach to be taken during project implementation for the selection and design of proposed subprojects as well as key principles to be followed throughout to ensure due diligence in managing the potential adverse environmental and social impacts and risks associated with the project, including consultation and disclosure requirement. In light of the above, only the environmental assessment policy (OP/BP 4.01) is triggered, and a medical waste management plan (MWMP) will be developed building upon the 2007 national policy (on pharmaceutical drugs elimination guideline) currently under update to set forth the

tangible ways on how to properly handle the potential social and environmental impacts afferent with the expiry of pharmaceutical drugs.

Though the project is not expected have major negative or irreversible environmental and social impacts, ensuring tangible measures are put in place to overlook possible ancillary impacts beyond just safeguards. The project will rely upon the existing mitigations measures as well as any outstanding national experience deemed satisfactory to maximize the positive yields.

8. The following safeguards policies are not triggered:

- OP 4.04 (Natural Habitats): The project will not take place in or nearby natural habitats.
- OP 4.09 (Pest Management): The project will not support procurement of pesticides or the using of pesticides;
- OP 4.10 (Indigenous Peoples): There are no Indigenous Peoples in the project area, since targeted project activities will be in the South-Eastern region.
- OP 4.11 (Physical Cultural Resources): The project is not expected to affect any physical cultural resources;
- OP 4.12 (Involuntary Resettlement). As the project may involve repairs/rehabilitation of existing facilities within existing footprints and the management of medical waste from existing facilities, the project is not expected to lead to any land acquisition or loss of livelihood support assets that would result in the involuntary resettlements of project affected persons.
- OP 4.36 (Forests): The project is not expected to involve deforestation or illegal logging of forest resources;
- OP 4.37 (Safety of Dams): The project is not expected to support rehabilitation or construction of dams or intervene in irrigation perimeters.
- OP 7.50 (Projects on International Waterways). Madagascar is itself an Island, therefore the policy does not apply.
- OP 7.60 – There are no disputed areas in the project area.

Safeguards screening, mitigation and implementation support

9. The ESSAF developed specifically for this Project is aimed at ensuring due diligence and effective treatment and elimination of both medical waste and expired pharmaceutical drugs in the Heath sector by the Government of Madagascar (GoM) and its service providers. To tangibly address these potential impacts on the overarching environment and general public health, the Ministry of Health adopted by an interdepartmental decree No 2006-680 of the September 12, 2006 and approved by the Ministry of the Environment a National Medical Waste Management Policy that includes a Medical Waste Management Plan (MWMP) (*attachment 1*). The MWMP was approved and publicly disclosed both in-country (March 20, 2007) and at the Infoshop (March 23, 2007) respectively. The MWMP includes proper disposal of hazardous bio-medical wastes and a bio-safety training program for the staff of all hospital, health centers and community-based programs, including traditional midwifes and practitioners, who may be involved in HIV/AIDS and/or STI testing and treatment. At national level, after eighteen months of its implementation, the National Medical Waste

Management Policy (NMWMP) was updated to improve its results and its compliance with the National Health Sector Development Plan which covers the period 2007-2011. The NMWMP and its national action plans provide for five strategic objectives afferent to 51 activities. Operational activities have mainly included dissemination of tools, elaboration of medical waste management plans in the health facilities, trainings of health staffs and patients, as well as provision of incinerators to hospitals that meet the national standards.

Under the Ministry of Health, the implementation of the National Medical Waste Management Policy shows the following results: 200 small-scale burners to burn medical wastes in all 200 health centers rehabilitated under CRESANII; 61% of public hospitals (77 health centers) have been sensitized to the National Medical Waste Management Policy; 30% (or 37 health centers) have elaborated medical waste management plans, 10% of the CSB (120 health facilities) have been sensitized to develop their own medical waste management plan; 44 incinerators type-*De Montfort* have been built. Moreover, the National Policy and its tools and mechanisms have been circulated to the partners, the Direction Regional de Santé (DRS) and 120 public hospitals and health facilities. The training modules are available in CDs format. The cascade/successive/series of training processes have been led to the inter-regional and regional level into the hospital and health centers: 16 regions on 22 and 1044 (DSS and CHD) trainers have been trained. In the health sector, a coordinator unit Service d'Appui aux Genies Sanitaires (SAGS), in charge of the supervision and monitoring on the implementation of the National Medical Waste Management Policy is operational. Under the current MSPPII health project, the Ministry of Health has received support for the implementation of the Policy through Component 2, including construction of 22 incinerators health centers and training at regional, district and health center level. Supervision missions have noted the strong commitment of the Ministry of Health in the implementation of the National Medical Waste Management Policy.

To complete the National Medical Waste Management Policy, the Ministry of Health has prepared a guideline to eliminate expired medicines in September 2011(attachment 2). In fact, the expired medicines are hazardous waste that their elimination should be done correctly to avoid any risks for the environment and local population. The guideline is very detailed and clear on the characterization of expired medicines, the elimination methods and steps to be adopted following the kinds of medicine. It has also provided the criteria to constitute the elimination committee members with a sample of elimination minutes/report to be provided and disclosed within a specific timeframe. Finally, this guideline describes the institutional arrangements on the implementation, monitoring and evaluation on the elimination of expired medicine in the health sector. The institutional arrangement for the appropriate and timely management of both expired medicines and their eliminations includes the public sector and the private agencies. The Ministry of Health has conducted many specific training at different levels (national and regional) to ensure proper and wider dissemination of the guidelines.

The National Medical Waste Management Policy, after five years of implementation, is currently being updated by the Ministry of Health so to capitalize the results obtained and lessons learned from the past as well as to update the indicators to be achieved for the next five years. The Term of References (ToRs) for this revision found to be sufficient and coherent have been reviewed by the different donors and development partners in the Health sector including the World Bank. The Ministry of Health has adopted a participatory approach for this revision and the updated

National Medical Waste Management Policy is expected for Bank's approval and disclose in the country and at the Infoshop by the end of February, 2013.

Responsibilities for safeguards screening and mitigation

10. Each of the components (education, health, and nutrition) will be adequately coordinated and supervised by an existing Implementation Unit (PIU): Education (Unité d'Appui Technique Education-Pour-Tous: UAT-EPT); Health (Unité de Gestion des Programmes de Santé: UGP- Santé); and Nutrition (Unité de Gestion du Programme National de Nutrition Communautaire: UG-PNNC). The respective PIUs will be responsible for the usual day-to-day project management and implementation, including safeguards and fiduciary management, monitoring and evaluation. As the main safeguard issues for this proposed operation are under the health component, the Project will be able to draw upon successful previous experience with the ongoing health project (MSPPII). In this context, for continuing timely management of safeguards, all safeguard aspects will be led under the existing department of SAGS (*Service d'Appui au Génie Sanitaire*) - which has a Social and Environmental Focal Point (SEFP) to ensure that the MWMP is properly addressed throughout project implementation. SAGS is fully operational and has the institutional capacity to manage the safeguard aspects related to the proposed operation.

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Capacity building and monitoring of safeguard framework implementation

11. The Recipient is familiar with World Bank safeguards policies, through the implementation of other World Bank-funded projects. In the Health sector the MWMP has been implemented in the country in satisfactory manner under the current MSPPII health project. The Project therefore will be able to draw upon successful previous experience with the ongoing and available team in SAGS (department) under the Ministry of Health which is fully operational. During and throughout the project supervision, the World Bank task team will assess the appropriate implementation of the MWMP and subsequently recommend additional strengthening measures whenever required. Information sharing with the public will be part of the capacity building plan, to be accomplished with the help of local media and communication systems.

Consultation and disclosure

12. IDA funding will support a number of subprojects classified as Environment Category B to which will apply the public consultation and disclosure policy. During the preparation of the current MSPPII health project, the National Medical Waste Management Policy was prepared through a consultative and participatory process involving all stakeholders at the regional and national levels in the Health sector. The Ministry of Health includes the status of implementation of the National Medical Waste Management Policy in its annual technical report. The revision of the National Medical Waste Management Policy is currently been led in a publicly participatory and inclusive manner.

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List of Attachments

Attachment 1	National Medical Waste Management Policy
Attachment 2	Guideline to eliminate expired medicines in September 2011
Attachment 3	List of Negative Project Attributes
Attachment 4	Steps for Screening Potential Environmental and Social Impacts, Mitigation Measures, and Implementation Procedures
Attachment 5	Checklist of Possible Environmental and Social Impacts of Projects
Attachment 6	Site Characteristics
Attachment 7	Safeguards Procedures for Inclusion in the Technical Specifications of Contracts
Attachment 8	Guidelines for Preparation of Environmental and Social Management Plans
Attachment 9	General Guidelines for Preparation of Medical Waste Management Plan

Attachment 1: National Medical Waste Management Policy

Copy of the National Medical Waste Management policy is included as a separate file.

Attachment 2: Guideline to eliminate expired medicines in September 2011 Copy of the "Guideline to eliminate expired medicines" is included as a separate file.

Attachment 3: List of Negative Project Attributes

Sub-projects with any of the attributes listed below will be ineligible for support under the proposed Emergency Support To Basic Service Delivery In Health, Nutrition, And Education Project:

Attributes of Ineligible Sub-projects
Sub-projects concerning significant conversion or degradation of critical natural habitats, including, but not limited to, any activity within: (a) Wildlife reserves (b) Ecologically-sensitive marine and terrestrial ecosystems (c) Parks or sanctuaries (d) Protected areas, natural habitat areas (e) Forests and forest reserves (f) Wetlands (g) National parks or game reserves (h) Any other environmentally sensitive areas
Sub-projects requiring any land acquisition and subprojects that can result in involuntary resettlement and/or permanent or temporary loss of access to assets or loss of assets for the project affected populations.
Sub-projects requiring pesticides that fall in WHO classes IA, IB, or II.

Attachment 4: Steps for Screening Potential Environmental and Social Impacts, Mitigation Measures, and Implementation Procedures

The selection, design, contracting, monitoring and evaluation of sub-projects will be consistent with the guidelines and requirements listed below and included as attachments to this document. Screening of potential environmental and social safeguards impacts, mitigation and management measures and implementation procedures will follow these steps:

Step 1: Screening of potential environmental and social safeguards impacts, and determination of the appropriate set of safeguard instruments

During the preparation of sub-projects, the PCU will ensure that technical design can minimize or avoid environmental and social impacts, including land acquisition.

More detailed environmental and social screening criteria, i.e. list of negative sub-project attributes, is included as Attachment 3, and

A proposed checklist of likely environmental and social impacts, to be filled out for each sub-project, will be used to determine the type and scope of the environmental and social safeguards impacts (Attachment 5).

Step 2: Definition of the environmental and social safeguards instruments for the Project and for each micro-project or sub-project

The PCU, with the assistance of the consultant team, will determine and prepare appropriate instruments for mitigating environmental and social safeguards impacts identified in the screening.

Sample Environmental Safeguards enforcement procedures for inclusion in the technical specifications of construction contracts (Attachment 7).

The PCU will prepare a Safeguard Screening Summary (SSS) which includes:

- a list of micro-projects and sub-projects that are expected to have environmental and social safeguards impacts;
- the extent of the expected impacts;
- the instruments used to address the expected impacts; and
- the time line to prepare the instruments.

Step 3: Review of the Safeguards Screening Summary

The PCU will retain a copy of the Safeguards Screening Summary for possible review by the Implementing Agency and the World Bank. The review, which may be conducted on sample basis, will verify the proper application of the screening process, including the scoping of potential impacts and the choice and application of instruments.

Step 4:Preparation of safeguards instruments

The PCU will prepare the safeguards instruments, the Environmental and Social Management Plan (ESMP) / Medical Waste Management Plan (MWMP), as required. The ESMP and/or MWMP will be prepared in consultation with affected peoples and with relevant NGOs, as necessary. The ESMP and/or the MWMP will be submitted to the Implementing Agency, for review, prior to the submission to the World Bank for approval.

Step 5: Application of the safeguards instruments

Appropriate mitigation measures will be included in the bidding documents and contract documents to be prepared by the PCU. Compliance by the contractors will be monitored in the field by the project engineers, working under close supervision. The performance of the contractors will be documented and recorded for possible later review.

The PCU will supervise and monitor the overall safeguards implementation process and prepare a progress report on the application of safeguards policies during the planning, design, and construction phases of the Project. The PCU will also develop the reporting requirements and procedures to ensure compliance of the contractors; conduct public consultation and public awareness programs; and carry out periodic training for field engineers and contractors as appropriate.

Attachment 5: Checklist of Possible Environmental and Social Impacts of Projects

This Form is to be used by the PCU in screening sub-project proposals.

Note: One copy of this form and accompanying documentation will be kept in the PCU office, and one copy to be sent to the World Bank Task Team Leader.

Name of Project:
Number of sub-projects:
Proposing agency:
Sub-project location:
Sub-project objective:
Estimated cost:
Proposed date of commencement of work:
Community to be included in the sub-project location:
Relevant details:
Any environmental and social issues:
Estimated costs:
Proposed starting date of works:
Designs / plans / specifications reviewed: Yes __ No __
Other comments:
Completed by:
Date:
Reviewed by:
Date:

Site-related Issues

No	Issues	Yes	No	Comments
A.	**Zoning and Land Use Planning**			
1.	Will the sub-project affect land use zoning and planning or conflict with prevalent land use patterns?			
2.	Will the sub-project involve significant land disturbance or site clearance?			
3.	Will the sub-project land be subject to potential encroachment by urban or industrial use or located in an area intended for urban or industrial development?			
4.	Is the sub-project located in an area susceptible to landslides or erosion?			
5.	Is the sub-project located on prime agricultural land?			
B.	**Utilities and Facilities**			
6.	Will the sub-project require the setting up of ancillary production facilities?			
7.	Will the sub-project require significant levels of accommodation or service amenities to support the workforce during construction (e.g., contractor will need more than 20 workers)?			
C	**Water and Soil Contamination**			
8.	Will the sub-project require large amounts of raw materials or construction materials?			
9.	Will the sub-project generate large amounts of residual wastes, construction material waste or cause soil erosion?			
10.	Will the sub-project result in potential soil or water contamination (e.g., from oil, grease and fuel from equipment yards)?			
11.	Will the sub-project lead to contamination of ground and surface waters by herbicides for vegetation control and chemicals (e.g., calcium chloride) for dust control?			
12.	Will the sub-project lead to an increase in suspended sediments in streams affected by road cut erosion, decline in water quality and increased sedimentation downstream?			
13.	Will the sub-project involve the use of chemicals or solvents?			
14.	Will the sub-project lead to the destruction of vegetation and soil in the right-of-way, borrow pits, waste dumps, and equipment yards?			

No	Issues	Yes	No	Comments
15.	Will the sub-project lead to the creation of stagnant water bodies in borrow pits, quarries, etc., encouraging for mosquito breeding and other disease vectors?			
16.	Is the sub-project located in a polluted or contaminated area?			
D.	**Noise and Air Pollution Hazardous Substances**			
17	Will the sub-project increase the levels of harmful air emissions?			
18.	Will the sub-project increase ambient noise levels?			
19.	Will the sub-project involve the storage, handling or transport of hazardous substances?			
E.	**Fauna and Flora**			
20.	Will the sub-project involve the disturbance or modification of existing drainage channels (rivers, canals) or surface water bodies (wetlands, marshes)?			
21.	Will the sub-project lead to the destruction or damage of terrestrial or aquatic ecosystems or endangered species directly or by induced development?			
22.	Will the sub-project lead to the disruption/destruction of wildlife through interruption of migratory routes, disturbance of wildlife habitats, and noise-related problems?			
F.	**Destruction/Disruption of Land and Vegetation**			
23.	Will the sub-project lead to unplanned use of the infrastructure being developed?			
24.	Will the sub-project lead to long-term or semi-permanent destruction of soils in cleared areas not suited for agriculture?			
25.	Will the sub-project lead to the interruption of subsoil and overland drainage patterns (in areas of cuts and fills)?			
26.	Will the sub-project lead to landslides, slumps, slips and other mass movements in road cuts?			
27.	Will the sub-project lead to erosion of lands below the roadbed receiving concentrated outflow carried by covered or open drains?			
28.	Will the sub-project lead to long-term or semi-permanent destruction of soils in cleared areas not suited for agriculture?			

No	Issues	Yes	No	Comments
29.	Will the sub-project lead to health hazards and interference of plant growth adjacent to roads by dust raised and blown by vehicles?			
G.	**Physical Cultural Resources**			
30.	Will the sub-project have an impact on archaeological or historical sites, including historic urban areas?			
31.	Will the sub-project have an impact on religious monuments, structures and/or cemeteries?			
32.	Is the sub-project located in an area with designated physical cultural resources, such as archaeological, historical and/or religious sites?			
H.	**Expropriation and Social Disturbance**			
34.	Will the sub-project involve land expropriation or demolition of existing structures?			
35.	Will the sub-project lead to induced settlements by workers and others causing social and economic disruption?			
36.	Will the sub-project lead to environmental and social disturbance by construction camps?			
37.	Is the -project or sub-project located in an area from which people have been displaced?			
38.	Is the sub-project located in an area where PAPs are temporarily relocated?			
39.	Is the sub-project located in a densely populated area?			
I.	**Natural Habitats**			
40.	Does the sub-project require land acquisition? [Note: If YES, the sub-project cannot be financed]			
41.	Will the sub-project negatively impact livelihoods? [Note: Describe separately if YES]			
42.	Is the sub-project located in an area with designated natural reserves or protected areas?			
43.	Is the -project or sub-project located in an area with unique natural features?			
44.	Is the sub-project located in an area with endangered or conservation-worthy ecosystems, fauna or flora?			
45.	Is the sub-project located in an area falling within 500 m of natural forests, protected areas, wilderness areas, wetland, biodiversity, critical habitats, or sites of historical or cultural importance?			

No	Issues	Yes	No	Comments
46.	Is the sub-project located in an area which would create a barrier for the movement of conservation-worthy wildlife?			
47.	Is the sub-project located close to groundwater sources, surface water bodies, watercourses or wetlands			
J.	**Pesticides and Agricultural Chemicals**			
48.	Involve the use of pesticides or other agricultural chemicals, or increase existing use?			
49.	Cause contamination of soil by agrochemicals and pesticides?			

Attachment 6: Site Characteristics

No	Issues	Yes	No	Comments
1.	Is the sub-project located in an area with designated natural reserves?			
2.	Is the sub-project located in an area with unique natural features?			
3.	Is the -project or sub-project located in an area with endangered or conservation-worthy ecosystems, fauna or flora?			
4.	Is the sub-project located in an area falling within 500 meters of national forests, protected areas, wilderness areas, wetlands, biodiversity, critical habitats, or sites of historical or cultural importance?			
5.	Is the sub-project located in an area which would create a barrier for the movement of conservation-worthy wildlife or livestock?			
6.	Is the sub-project located close to groundwater sources, surface water bodies, water courses or wetlands?			
7.	Is the sub-project located in an area with designated cultural properties such as archaeological, historical and/or religious sites?			
8.	Is the sub-project in an area with religious monuments, structures and/or cemeteries?			
9.	Is the sub-project in a polluted or contaminated area?			
10.	Is the sub-project located in an area of high visual and landscape quality?			
11.	Is the sub-project located in an area susceptible to landslides or erosion?			
12.	Is the sub-project located in an area of seismic faults?			
13.	Is the sub-project located in a densely populated area?			
14.	Is the sub-project located on prime agricultural land?			
15.	Is the sub-project located in an area of tourist importance?			
16.	Is the sub-project located near a waste dump?			
17.	Does the sub-project have access to potable water?			
18.	Is the sub-project located far (1-2 km) from accessible roads?			
19.	Is the sub-project located in an area with a wastewater network?			
20.	Is the sub-project located in the urban plan of the city?			
21	Is the sub-project located outside the land use plan?			

Signed by Environment Specialist: Name: _____
Title: _____
Date: _____

Signed by Project Manager: Name: _____
Title: _____
Date: _____

Attachment 7: Safeguards Procedures for Inclusion in the Technical Specifications of Contracts (for rehabilitation/repairs activities)

I. General

1. The Contractor and his employees shall adhere to the mitigation measures set down and take all other measures required by the Engineer to prevent harm, and to minimize the impact of his operations on the environment.
2. Remedial actions which cannot be effectively carried out during construction should be carried out on completion of each subproject and before issuance of the "Taking over certificate":
   (i) these subproject locations should be landscaped and any necessary remedial works should be undertaken without delay, including grassing and reforestation;
   (ii) water courses should be cleared of debris and drains and culverts checked for clear flow paths; and
   (iii) borrow pits should be dressed as fish ponds, or drained and made safe, as agreed with the land owner.
3. The Contractor shall limit construction works to between 6 am and 7 pm if it is to be carried out in or near residential areas.
4. The Contractor shall avoid the use of heavy or noisy equipment in specified areas at night, or in sensitive areas such as near a hospital.
5. To prevent dust pollution during dry periods, the Contractor shall carry out regular watering of earth and gravel haul roads and shall cover material haulage trucks with tarpaulins to prevent spillage.
6. To avoid disease caused by inadequate provision of water and sanitation services, environmentally appropriate site selection led by application of the environmental and social screening form provided in this ESSAF, design and construction guidance, and a procedure for ensuring that this guidance is followed before construction is approved. Ensure engineering designs include adequate sanitary latrines and access to safe water.
7. To prevent unsustainable use of timber and wood-firing of bricks, the contractor should replace timber beams with concrete where structurally possible. In addition, the contractor should ensure fired bricks are not wood-fired. Where technically and economically feasible, substitute fired bricks with alternatives, such as sun-dried mud bricks, compressed earth bricks, or rammed earth construction.
8. The Contractor shall conduct appropriate disposal of waste materials and the protection of the workforce in the event of asbestos removal or that of other toxic materials.

<u>Prohibitions</u>

9. The following activities are prohibited on or near the project site:
   - Cutting of trees for any reason outside the approved construction area;
   - Hunting, fishing, wildlife capture, or plant collection;

- Use of unapproved toxic materials, including lead-based paints, asbestos, etc.
- Disturbance to anything with architectural or historical value;
- Building of fires;
- Use of firearms (except authorized security guards);

II. Transport

10. The Contractor shall use selected routes to the project site, as agreed with the Engineer, and appropriately sized vehicles suitable to the class of road, and shall restrict loads to prevent damage to roads and bridges used for transportation purposes. The Contractor shall be held responsible for any damage caused to the roads and bridges due to the transportation of excessive loads, and shall be required to repair such damage to the approval of the Engineer.
11. The Contractor shall not use any vehicles, either on or off road with grossly excessive, exhaust or noise emissions. In any built up areas, noise mufflers shall be installed and maintained in good condition on all motorized equipment under the control of the Contractor.
12. Adequate traffic control measures shall be maintained by the Contractor throughout the duration of the Contract and such measures shall be subject to prior approval of the Engineer.

III. Workforce

13. The Contractor should whenever possible locally recruit the majority of the workforce and shall provide appropriate training as necessary.
14. The Contractor shall install and maintain a temporary septic tank system for any residential labor camp and without causing pollution of nearby watercourses.
15. The Contractor shall establish a method and system for storing and disposing of all solid wastes generated by the labor camp and/or base camp.
16. The Contractor shall not allow the use of fuel wood for cooking or heating in any labor camp or base camp and provide alternate facilities using other fuels.
17. The Contractor shall ensure that site offices, depots, asphalt plants and workshops are located in appropriate areas as approved by the Engineer and not within 500 meters of existing residential settlements and not within 1,000 meters for asphalt plants.
18. The Contractor shall ensure that site offices, depots and particularly storage areas for diesel fuel and bitumen and asphalt plants are not located within 500 meters of watercourses, and are operated so that no pollutants enter watercourses, either overland or through groundwater seepage, especially during periods of rain. This will require lubricants to be recycled and a ditch to be constructed around the area with an approved settling pond/oil trap at the outlet.
19. The Contractor shall not use fuel wood as a means of heating during the processing or preparation of any materials forming part of the Works.

20. The Contractor shall conduct safety training for construction workers prior to beginning work. Material Safety Data Sheets should be posted for each chemical present on the worksite.

21. The Contractor shall provide personal protective equipment (PPE) and clothing (goggles, gloves, respirators, dust masks, hard hats, steel-toed and –shanked boots, etc.) for construction and pesticide handling work. Use of PPE should be enforced.

IV. Quarries and Borrow Pits

22. Operation of a new borrow area, on land, in a river, or in an existing area, shall be subject to prior approval of the Engineer, and the operation shall cease if so instructed by the Engineer. Borrow pits shall be prohibited where they might interfere with the natural or designed drainage patterns. River locations shall be prohibited if they might undermine or damage the river banks, or carry too much fine material downstream.

23. The Contractor shall ensure that all borrow pits used are left in a trim and tidy condition with stable side slopes, and are drained ensuring that no stagnant water bodies are created which could breed mosquitoes.

24. Rock or gravel taken from a river shall be far enough removed to limit the depth of material removed to one-tenth of the width of the river at any one location, and not to disrupt the river flow, or damage or undermine the river banks.

25. The location of crushing plants shall be subject to the approval of the Engineer, and not be close to environmentally sensitive areas or to existing residential settlements, and shall be operated with approved fitted dust control devices.

V. Earthworks

26. Earthworks shall be properly controlled, especially during the rainy season.

27. The Contractor shall maintain stable cut and fill slopes at all times and cause the least possible disturbance to areas outside the prescribed limits of the work.

28. The Contractor shall complete cut and fill operations to final cross-sections at any one location as soon as possible and preferably in one continuous operation to avoid partially completed earthworks, especially during the rainy season.

29. In order to protect any cut or fill slopes from erosion, in accordance with the drawings, cut off drains and toe-drains shall be provided at the top and bottom of slopes and be planted with grass or other plant cover. Cut off drains should be provided above high cuts to minimize water runoff and slope erosion.

30. Any excavated cut or unsuitable material shall be disposed of in designated tipping areas as agreed to by the Engineer.

31. Tips should not be located where they can cause future slides, interfere with agricultural land or any other properties, or cause soil from the dump to be washed into any watercourse. Drains may need to be dug within and around the tips, as directed by the Engineer.

VI. Historical and Archeological Sites

32. If the Contractor discovers archeological sites, historical sites, remains and objects, including graveyards and/or individual graves during excavation or construction, the Contractor shall:

(i) Stop the construction activities in the area of the chance find.

(ii) Delineate the discovered site or area.

(iii) Secure the site to prevent any damage or loss of removable objects. In cases of removable antiquities or sensitive remains, a night guard shall be present until the responsible local authorities and the Ministry of XXX take over.

(iv) Notify the supervisory Engineer who in turn will notify the responsible local authorities and the Ministry of Culture, Youth and Sports immediately (less than 24 hours).

(v) Contact the responsible local authorities and the Ministry of Information, Culture and Communication who would be in charge of protecting and preserving the site before deciding on the proper procedures to be carried out. This would require a preliminary evaluation of the findings to be performed by the archeologists of the relevant Ministry of Information, Culture and Communication (within 72 hours). The significance and importance of the findings should be assessed according to the various criteria relevant to cultural heritage, including the aesthetic, historic, scientific or research, social and economic values.

(vi) Ensure that decisions on how to handle the finding be taken by the responsible authorities and the Ministry of Information, Culture and Communication. This could include changes in the layout (such as when the finding is an irremovable remain of cultural or archeological importance) conservation, preservation, restoration and salvage.

(vii) Implementation for the authority decision concerning the management of the finding shall be communicated in writing by the Ministry of Information, Culture and Communication; and

(viii) Construction work will resume only after authorization is given by the responsible local authorities and the Ministry of Information, Culture and Communication concerning the safeguard of the heritage.

VII. Disposal of Construction and Vehicle Waste

33. Debris generated due to the dismantling of the existing structures shall be suitably reused, to the extent feasible, in the proposed construction (e.g. as fill materials for embankments). The disposal of remaining debris shall be carried out only at sites identified and approved by the project engineer. The contractor should ensure that these sites: (i) are not located within designated forest areas; (ii) do not impact natural drainage courses; and (iii) do not impact endangered/rare flora. Under no circumstances shall the contractor dispose of any material in environmentally sensitive areas.

34. In the event any debris or silt from the sites is deposited on adjacent land, the Contractor shall immediately remove such, debris or silt and restore the affected area to its original state to the satisfaction of the Supervisor/Engineer.

35. Bentonite slurry or similar debris generated from pile driving or other construction activities shall be disposed of to avoid overflow into the surface water bodies or form mud puddles in the area.

36. All arrangements for transportation during construction including provision, maintenance, dismantling and clearing debris, where necessary, will be considered incidental to the work and should be planned and implemented by the contractor as approved and directed by the Engineer.

37. Vehicle/machinery and equipment operations, maintenance and refueling shall be carried out to avoid spillage of fuels and lubricants and ground contamination. An oil interceptor will be provided for wash down and refueling areas. Fuel storage shall be located in proper bounded areas.

38. All spills and collected petroleum products shall be disposed of in accordance with standard environmental procedures/guidelines. Fuel storage and refilling areas shall be located at least 300m from all cross drainage structures and important water bodies or as directed by the Engineer.

Attachment 8: Guidelines for Preparation of Environmental and Social Management Plans

1. The EA process involves the identification and development of measures aimed at eliminating, offsetting and/or reducing environmental and social impacts to levels that are acceptable during implementation and operation of the projects. As an integral part of EA, ESMP provides an essential link between the impacts predicted and mitigation measures specified within the EA and implementation and operation activities. The World Bank guidelines state that detailed ESMPs are essential elements for Category 'A' projects, but for many Category 'B' projects, a simple ESMP will suffice. While there are no standard formats for ESMPs, it is recognized that the format needs to fit the circumstances in which the ESMP is being developed and the requirements, which it is designed to meet.
2. PCU is preparing a standard ESMP in a format suitable for inclusion as technical specifications in the contract documents. ESMPs should be prepared after taking into account comments and clearance conditions from both the relevant agency providing environmental clearance and WB. Given below are the important elements that constitute an ESMP.

a. Description of Mitigation Measures

3. Feasible and cost-effective measures to minimize adverse impacts to acceptable levels should be specified with reference to each impact identified. Further, the EMP should provide details on the conditions under which the mitigation measure should be implemented. The EMP should also distinguish between the type of solution proposed (structural and non-structural) and the phase in which it should become operable (design, construction and/or operation). Efforts should also be made to mainstream environmental and social aspects wherever possible.

b. Monitoring program

4. In order to ensure that the proposed mitigation measures have the intended results and comply with national standards and World Bank requirements, an environmental performance monitoring program should be included in the EMP. The monitoring program should give details of the following:
   - Monitoring indicators to be measured for evaluating the performance of each mitigation measure (for example: national standards, engineering structures, extent of area replanted, etc).
   - Monitoring mechanisms and methodologies
   - Monitoring frequency
   - Monitory locations

c. Institutional arrangements

5. Institutions/parties responsible for implementing mitigation measures and for monitoring their performance should be clearly identified. Where necessary, mechanisms for institutional coordination should be identified, as often, monitoring tends to involve more than one institution.

d. Implementing schedules

6. Timing, frequency and duration of mitigation measures with links to the overall implementation schedule of the project should be specified.

e. Reporting procedures

7. Feedback mechanisms to inform the relevant parties on the progress and effectiveness of the mitigation measures and monitoring itself should be specified. Guidelines on the type of information wanted and the presentation of feedback information should also be highlighted.

f. Cost estimates and sources of funds

8. Implementation of mitigation measures mentioned in the EMP will involve an initial investment cost as well as recurrent costs. The EMP should include cost estimates f into the sub-project design, bidding and contract documents to ensure that the contractors will comply with the mitigation measures. The costs for implementing the EMP will be included in the sub-project design, as well as in the bidding and contract documents.

Attachment 9: General Guidelines for Preparation of Medical Waste Management Plan
Based on the Health Care Waste Management Guidance Note (Johannessen, et al., May 2000)

Facility Assessment Checklist

1. General facility information
   - How many employees does the facility have?
   - How many beds does the facility have, and what is the bed occupancy rate?
   - What medical and supporting departments does the facility have? (Include pharmacy, laboratories, kitchen, general store).

2. Handling of healthcare waste
   - How much healthcare waste is generated daily by each department or at each ward/lab within the healthcare establishment? (Waste quantity may be measured using a small handheld scale).
   - How much of this is special healthcare waste? (See Attachment 7.1 for waste definitions). The answer to this question will help determine the magnitude of the problem and treatment method.
   - What is the general composition of the waste, i.e. the percentage of plastic, cotton, foodwaste, sweepings, and pathological-waste? Visit all wards, specialized departments, laboratories (including blood bank), pharmacy, kitchen, and general store to note the waste composition at each location. This can be determined visually, by glancing through the waste at the waste end-point inside the healthcare establishment.
   - How and where is the facility's healthcare waste stored before collection?
   - Does any formal or informal separation of waste take place? For example, are syringes kept separately for resale? This type of operation (resale of syringes) should not be condoned. Are plastic I.V. sets kept separately for recycling? Are x-ray films collected for extraction of silver?
   - Does the establishment generate any wastes of special concern, such as radioactive waste, cytotoxics, pathological waste, reagents, or outdated pharmaceuticals? How and in which department are each of these special wastes generated? How is their disposal handled?
   - How is liquid waste handled? Specify for cytotoxics, reagents, and used x-ray film processing liquids. If the liquid waste is discharged in the sanitation system, where does the latter discharge and what is its capacity?
3. Treatment and disposal of healthcare waste
   - What treatments (if any) are done to the waste before disposal? How efficient are the treatments and how are residuals handled?
   - Is the healthcare waste disposed of at the healthcare facility or off-site?
   - If any waste is taken off-site, how is the waste transported outside the premises of the healthcare facility? How is the waste packaged? What types of vehicles are used to transport the waste?
   - Is any of the waste taken to a dump or landfill site? If so, what happens to the waste at this facility? Is the healthcare waste buried immediately after arriving at the

landfill/dump? Is it burned on the site? Is it left unattended at any time after being unloaded?
    - If there is open access to the landfill/dump, to what extent do waste pickers, children, or others have access to the healthcare waste?
4. Management issues
    - Who is responsible for healthcare waste management at the healthcare facility?
    - What are the current operational standards for HCW and what are the applicable national, regional, and local policies?
    - How many people are involved in waste collection and are special skills required by the healthcare facility? What sort of worker safety measures are in place?
    - Is procurement of new healthcare materials reviewed to reduce the waste stream and to avoid potential treatment problems (such as PVC)?
    - What are the daily waste collection routines, including waste packaging?
    - What are the transportation needs and costs?
    - How much does HCW management cost the facility? Does the budget provision cover these costs?
5. Risks of the current waste management system
    - Does the management of the healthcare facility have concerns about the facility's current HCW practices? If so, what problems do they identify?
    - Does the assessment above indicate that the facility's current waste management practices pose any health risks to patients, nurses or doctors, other staff, or visitors? If yes, what kind of risks?
    - Does the waste pose any risk to waste collectors? If yes, what kind?
    - What are the risks for spillage of waste or for scavenging along the transportation route?
    - Does the waste disposal system pose any risk to waste-pickers or users of resold/recycled waste? If yes, what kind?

Basic Steps in Medical Waste Management

1. Raise awareness at the management level and develop an integrated waste management Plan.

The managers of the healthcare facility need to recognize the importance of good healthcare waste management, and should designate a special group with responsibility for overseeing the situation. This may be done by setting up a waste management team or by working with an existing infection control committee. A waste management team should include, at a minimum, the manager of the healthcare facility and a representative for each of the following: procurement or accountants, physicians, nurses, and waste collectors. It is important to move beyond the committee and develop a waste management plan (including healthcare waste) for the facility that is integrated into the daily operations.

2 Ensure segregation of special HCW from other waste generated at the establishment

Using the information gathered in 2.1, categorize the waste generated at the facility as either municipal solid waste or special healthcare waste (see definitions in Annex A). The first priority should be segregating sharps and pathological waste from all other waste. Sharps must be put

into rigid, puncture-proof containers, which should be available at the health worker's workplace. Pathological waste should be put into non-transparent plastic heavy-duty bags. When three-quarters full, the containers and bags should be disposed of safely. Toxic liquid and pharmaceuticals should also be separated from regular solid waste materials, and disposed of properly.

From a cost- and waste-management perspective, syringes that can be re-used (after proper cleaning and sterilization in a steam sterilizer) are preferable to disposable syringes. However, from a public health perspective, one-time use or auto-destruct needles are safer. Evaluation of local conditions are needed to make an informed decision. Badly designed needle crushers can lead to contamination of the crusher and the area around it, and/or generate many small sharps. The report entitled *Vital to Health? Briefing Document for Senior Decision-Makers* (WHO/USAID, 1998) listed in Section 6, contains more information on disposal of sharps. WHO has a new initiative devoted to the study and use of proper, safe injections (Safe Injection Global Network).

3 Determine the most appropriate treatment and disposal site for the facility's waste

Generally speaking, small healthcare facilities in urban areas should choose off-site treatment and disposal for both economic and safety reasons -- most often in the municipal landfill. Landfills must be carefully sited away from water sources, agricultural land, and land where other development might take place and should include liners to protect leaching. (Technical Guide on Solid Waste Landfills, WHO). Landfills should be protected from human and animal waste pickers. Burial of HCW and other municipal solid waste in a municipal landfill could be done by the person who delivers the waste from the healthcare facility, or by a person employed at the landfill. In either case, this person must receive specific instructions for such burial. Cytotoxics and other hazardous chemical wastes (see Annex A) should never be buried in a landfill, however. Instead, they need to be returned to the original supplier or incinerated at a central facility (see Annex D for the difference between burning and incineration). Other special HCW should also receive more intensive treatment to ensure a reduction in public health and environmental consequences.

Small, isolated facilities with limited resources and without access to centralized waste treatment and disposal may find burial of special healthcare waste their best solution. Such burial should be done only under controlled circumstances, in a secluded area following landfill principles, including liners, water diversion, groundwater monitoring, careful siting, and gas release mechanisms.

4 Develop and implement a healthcare waste management plan

Every healthcare facility should have or develop a waste management plan that includes daily routines for collection, handling, segregation, and packaging of the different categories of waste. Facility managers should ensure that this plan is in place, with adequate budget and personnel to implement it. Implementation of the healthcare waste management plan and routine monitoring should be carried out in parallel with the information/training program described below.

5 Train healthcare workers in proper HCW procedures

All healthcare staff should be aware of the facility's basic healthcare waste management plan and their role in the plan. This includes management and regulatory staff, medical doctors, nurses and nursing assistants, cleaners, waste handlers, and visitors to the facility. The waste management plan should be presented in simple terms and displayed in a diagram at all points of waste generation. Better health and environmental working conditions for waste handlers should be addressed in planning resources for waste management. This includes but is not limited to the use of protective clothing and specialized equipment to ensure worker safety as well as safety for the general public.

Hands-on staff training in the details of the waste management plan is optimal. Training should include:

Basic information about HCW and the risks of bad management of HCW.

- Basic information on the facility's waste management plan.
- Each employee's responsibility and role in healthcare waste management.
- Technical instruction on application of the practices described in the waste management plan.

For more information on conducting training programs, refer to the *Teacher's Guide: Management of Wastes from Healthcare Activities* (WHO, 1998) listed in Section 6.

Attachment 7.1: Types of Healthcare Waste

Healthcare waste (HCW): The total waste stream from healthcare facilities, research facilities, and laboratories. Can be divided into municipal solid waste and special healthcare waste.

- ***No risk healthcare waste*** includes all waste comparable to domestic waste, such as packaging materials, non-infectious bedding, building rubble/demolition waste, hotel function waste (household, kitchen, administration), and other such wastes generated from patient wards and other patient care not related to medical care.

The WHO definition for special HCW is found in the box below.

Health Care Waste* is defined as the total waste stream from a health care establishment, research facilities, laboratories, and emergency relief donations. HCW includes several different waste streams, some of which require more stringent care and disposal:

1. **Communal Waste** is all solid waste **not** including infectious, chemical, or radioactive waste. This waste stream can include items such as packaging materials and office supplies. Generally, this stream can be disposed of in a communal landfill or other such arrangement. Segregation of materials which are able to be reused or recycled will greatly reduce the impact burden of this waste stream.

2. **Special Waste** consists of several different subcategories:

- *Infectious*: Discarded materials from health-care activities on humans or animals which have the potential of transmitting infectious agents to humans. These include discarded materials or equipment from the diagnosis, treatment and prevention of disease, assessment of health status or identification purposes, that have been in contact with blood and its derivatives, tissues, tissue fluids or excreta, or wastes from infection isolation wards. Such wastes shall include, but are not limited to, cultures and stocks; tissues; dressings, swabs or other items soaked with blood; syringe needles; scalpels; diapers; blood bags. Incontinence material from nursing homes, home treatment or from specialized health-care

establishments which do not routinely treat infectious diseases (e.g. psychiatric clinics) is an exception to this definition and are is not considered as infectious health-care waste. Sharps, whether contaminated or not, should be considered as a subgroup of infectious health-care waste. Includes: Syringe needles, scalpels, infusion sets, knives, blades, broken glass.

- *Anatomic:* consists of recognizable body parts.
- *Pharmaceutical:* Consisting of/or containing pharmaceuticals, including: expired, no longer needed; containers and/or packaging, items contaminated by or containing pharmaceuticals (bottles, boxes).
- *Genotoxic:* Consisting of, or containing substances with genotoxic properties, including cytotoxic and antineoplasic drugs; genotoxic chemicals.
- *Chemical:* Consisting of, or containing chemical substances, including: laboratory chemicals; film developer; disinfectants expired or no longer needed; solvents, cleaning agents and others.
- *Heavy Metals:* Consisting of both materials and equipment with heavy metals and derivatives, including: batteries, thermometers, manometers.
- *Pressurized containers:* Consisting of full or empty containers with pressurized liquids, gas, or powdered materials, including gas containers and aerosol cans.
- *Radioactive materials:* Includes: unused liquids from radiotherapy or laboratory research; contaminated glassware, packages or absorbent paper; urine and excreta from patients treated or tested with unsealed radionuclides; sealed sources.

*Safe Management of Wastes from Health-Care Activities, WHO, 1999.