INITIAL ENVIRONMENTAL EXAMINATION
OR
CATEGORICAL EXCLUSION

PROGRAM/ACTIVITY/PROJECT DATA:
Program/Activity Number: 696-006
Country/Region: Rwanda/ East Africa
Funding Begin: FY2009 **Funding End:** FY 2014 Total Funding**:** $ 1.1 billion (FY2009- FY2014)

Foreign Assistance Objective 3: **Investing in People**
Program Area 3.1: **Health**
Program Element: 3.1.1: HIV/AIDS
Program Element: 3.1.2: Tuberculosis
Program Element: 3.1.3: Malaria
Program Element: 3.1.4: Avian Influenza
Program Element: 3.1.5: Other Public Health Threats
Program Element: 3.1.6: Maternal Health and Child Health, including Nutrition
Program Element: 3.1.7: Family Planning and Reproductive Health
Program Element: 3.1.8: Clean Water and Sanitation Services
Health Systems Strengthening Activities

IEE Prepared By: Nancy Godfrey, USAID Rwanda Health Team Leader
and
David Kinyua, Regional Environmental Procedures and Policies Specialist, USAID/EA

Current Date: June 29, 2010 .

Amendment: N **Number and Date of Original IEE**: N/A

ENVIRONMENTAL ACTION RECOMMENDED: (Place X where applicable)
Categorical Exclusion: __X__ Negative Determination: ___X____
Positive Determination: _____ Deferral: _____

ADDITIONAL ELEMENTS: (Place X where applicable)
CONDITIONS ___X____ PVO/NGO: ___X_____

SUMMARY OF FINDINGS:

Rwanda is currently a focus country for both PEPFAR and the President's Malaria Initiative (PMI). Rwanda has also been identified by USAID/Washington as a high priority country to receive additional resources to enable the scale up of family planning/reproductive health and maternal, neonatal, and child health programming. Rwanda is the recipient of funding for clean water and sanitation services and consideration is being given to the provision of assistance for nutrition, pandemic influenza and tuberculosis control. To implement health assistance, USAID/Rwanda's portfolio includes bilaterally awarded contracts, cooperative agreements, grants, globally funded projects that receive field support for work in Rwanda, and core-funded activities.

The purpose of this Initial Environmental Examination (IEE) is to provide threshold determination for the activities of USAID/Rwanda's health activities.

This IEE recommends the following determinations:

a) Categorical Exclusion is recommended for some activities in all Program Elements (P. E. 3.1.1, P.E.3.1.2., P.E.3.1.3, P.E.3.1.4; P.E.3.1.5; P.E,3.1.6; P.E.3.1.7; P.E.3.1.8 and Health Systems Strengthening activities, per 22 CFR 216.2 (c)(2)(i), for all activities consisting of education, technical assistance or training programs, except to the extent such programs include activities directly affecting the environment (such as construction of facilities, etc.); 216.2 (c)(2)(iii) for analyses, studies, academic or research workshops and meetings; 216.2 (c)(2)(v) for document and information transfers; 216.2(c)(2)(viii) for programs involving nutrition, health care or population and family planning services except to the extent designed to include activities directly affecting the environment (such as construction of facilities, water supply systems, waste water treatment, and treatment of water in the households); 216.2(c)(2)(xiv) for studies, projects or programs intended to develop the capability of recipient countries to engage in development planning, except to the extent designed to result in activities directly affecting the environment (such as construction of facilities, etc.).

b) Negative Determinations:

1. A Negative Determination with Conditions recommended pursuant to 22 CFR 216.3(a)(2)(iii) for all supply and distribution of Long Lasting Insecticide Treated Nets for Malaria Control.

Conditions:

If provision of supplies will include insecticide treated bed nets (ITNs), the Team and partner organizations will be required to use reliable brands of long-lasting treated nets and adhere to other stipulations made in the USAID Africa Bureau Programmatic Environmental Assessment for Insecticide-Treated Materials in USAID Activities in Sub-Saharan Africa (ITM PEA).

2. Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for all health activities likely to involve blood testing, and have potential generation of hazardous health waste.

Conditions:

For all activities involving handling of blood, used bandages, sharps (including syringes, scalpels, etc) and other medical wastes, the Health Team must work with implementing partners to assure, to the extent possible, that the medical facilities and operations involved have adequate procedures and capacities in place to properly handle, label, treat, store, transport, and properly dispose of blood, sharps, and other medical waste. The ability of the team to assure such procedures and capacity is understood to be limited by its level of control over the management of facilities and operations of the Government of Rwanda that USAID is supporting.

The USAID Bureau for Africa's Environmental Guidelines for Small Scale Activities in Africa (EGSSAA) Chapter 8, "Healthcare Waste: Generation, Handling, Treatment and Disposal" (found at URL: http://encapafrica.org/SmallScaleGuidelines.htm) contains guidance which should inform the Team's activities to promote proper handling and disposal of medical waste, particularly in the section titled, "Minimum elements of a complete waste management program." The program is also encouraged to make use of the attached "Minimal Program Checklist and Action Plan" (Annex II) for handling healthcare waste, which was adapted from the above EGSSAA chapter and which should be further adapted for use in USAID/Rwanda health programs.

Other important references to consult in establishing a waste management program are "WHO's Safe Management of Wastes from Healthcare Activities" (http://www.who.int/water_sanitation_health/medicalwaste/wastemanag/en/) and the State Department cable "1993 State 264038: Model Guidance on Health Projects Involving HIV Screening and Handling of Blood." Additional guidance is also available via the reference section of the above EGSSAA chapter.

3. Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health commodities.

Condition:

Consignees for all pharmaceutical drugs procured under this funding will be advised to store products according to the information provided on the manufacturer's Materials Safety Data Sheet (MSDS). These are supplied by the manufacturer, and can also be found on the internet by using active ingredients and MSDS as search terms. If disposal of these pharmaceutical drugs is required, due to expiration date or other reasons, the consignee will be advised that the preferred method of disposal is to return the product(s) to the manufacturer. If this is not possible (*e.g*., if the expired or spoiled pharmaceuticals are considered hazardous and, if transferred across frontiers, become regulated and subject to the Basel Convention on the trans-frontier shipment of hazardous wastes) then follow the guidelines in the WHO document *Guidelines for Safe Disposal of Unwanted Pharmaceuticals During and After Emergencies*, (www.who.int/water_sanitation_health/medicalwaste/unwantpharm.pdf.) At the request of the Mission, implementing partners use project funds implement needed monitoring and mitigation measures to facilitate the disposal of expired drugs under this activity to mitigate the impact of medical waste.

Packaging and disposal of other public health commodities will be treated using the guidelines provided in Environmental Guidelines for Small-Scale Activities in Africa (EGSSAA) 2nd Edition, Chapter 15: Solid Waste (http://www.encapafrica.org/EGSSAA/Word_English/solidwaste.doc). The other EGSSAA chapter to consult is Chapter 6: Fisheries (http://www.encapafrica.org/EGSSAA/Word_English/fisheries.doc)

4. Negative Determination with Conditions is recommended pursuant to 22 CFR 216.3 (a) (2) (iii) for activities involving *Safe water, sanitation, and hygiene:* which include activities to integrate and promote key hygiene practices, such as household water treatment and safe storage of water at the point-of-use, hand washing with soap and safe waste disposal through various entry points.

Conditions:

Use of dilute Chlorine and other commercial products should be considered under the handling and procurement of pharmaceutical products

5. Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) potentially involving agricultural activities to strengthen food security

Conditions:

Application of appropriate guidelines and use of best practices in agriculture, including: applying the soil and water conservation technologies to protect land from degradation; and reclaim land that has been degraded and, using interventions that reduce habitat loss by increasing agricultural productivity and sustainability on already-farmed lands (using improved seed; using multiple cropping; using fertilizers, manures and irrigation and replacing old or inadequate irrigation systems; and rotating crops). Any agricultural activity that changes the land use to agricultural use requires an Environmental Assessment (per 22 CFR 216.2 (d). For further details on the agricultural best practices, see, http://www.encapafrica.org/EGSSAA/Word_English/agriculture.doc .

6. Negative Determination with Conditions, pursuant to 22 CFR 216.3 (a) (2) (iii) is recommended for activities potentially involving construction and renovation of facilities.

Conditions:

- All construction activities shall be conducted following principles for environmentally sound construction, as provided in *Chapter 3: Small Scale Construction* of the USAID Environmental Guidelines for Small-scale Activities in Africa, which can be found at www.encapafrica.org.
- For the rehabilitation of existing facilities, and for construction of facilities in which the total surface

area disturbed is less than 10,000 square feet, the condition is that these activities shall be conducted following principles for environmentally sound construction, as provided in the Small Scale Construction chapter of the USAID Environmental Guidelines for Small-scale Activities in Africa, which can be found at: www.encapafrica.org.

- For the construction of any facilities in which the total surface area disturbed exceeds 10,000 square feet (1,000 square meters), the program shall prepare a supplemental Environmental Review Report, according to the format and guidance contained in the Environmental Review Form on the ENCAP website "Compliance Forms" page (http://www.encapafrica.org/compliance.htm). Construction will not begin until such a review and report is completed and approved by the Mission Environmental Officer.

c) Environmental Responsibilities

- USAID/Rwanda is responsible for assuring that implementing partners have the human capacity necessary to incorporate environmental considerations into program planning and implementation and to take on their role in the Environmental Screening Process. Implementing partners should seek training as needed, such as through participation in the Africa Bureau's regional ENCAP training courses.
- The USAID-funded partners shall report to the Health team on progress and status of implementing the Environmental conditions, as determined under this IEE.
- USAID/ Rwanda will report to the Regional Environmental Officer (REO) and the Bureau Environmental Officer (BEO) on an annual basis on the status of implementation of mitigation and monitoring requirements. This report should draw upon implementing partners' progress and annual reports, as well as on periodic site visits by the MEO and REO.
- Periodic visits of the USAID/Rwanda, Health Team Managers or SO Team leader, with, if possible MEO, REO/REA or other specialists as appropriate, will be encouraged to ensure environmentally sound implementation, mitigation and monitoring of activities.

d). Operationalizing Provisions of the IEE

USAID/Rwanda Health Team will make clear through RFA/Ps, APSs, contracts, contracts, cooperative agreements or grants, post-award briefings, implementation work plans, etc., as may be the case that the determinations specified in this IEE need to be heeded, and that project implementing partners must put in place appropriate systems or management tools to ensure that the recommended mitigation and monitoring actions are taken in to account as required.

Monitoring and Evaluation: As required by ADS 204.3.4, the Rwanda Health Team must actively monitor ongoing activities for compliance with approved IEE recommendations, and modify or end activities that are not in compliance. If additional activities not described in this document are added to this program, an amended environmental examination must be prepared and approved. The Health Team will also ensure that provision of the IEE concerning mitigation measures and the conditions specified herein along with the requirement to monitor be incorporated in all contracts, cooperative agreements, grants, and sub-grants.

Basic mitigation is covered above by the conditions under each negative determination. One level of monitoring will be to get implementing partners put the conditions above into actions plan matrices with timelines, assigned roles/responsibilities and deadlines, and ensure they are signed by Chiefs of Party or the responsible authority. Completed and signed action plans shall be sent to USAID to show compliance.

USAID Rwanda will report to the REO and the BEO on an annual basis on the status of environmental screening and review and the implementation of mitigation and monitoring requirements. This report should draw upon implementing partners' progress and annual reports, as well as on periodic site visits by the MEO

and REO.

Further, in order to ensure compliance with 22 CFR 216 and ADS 204, the Health Team will also ensure that provision of the IEE concerning mitigation measures and the conditions specified herein along with the requirement to monitor be incorporated in all contracts, cooperative agreements, grants, and sub-grants.

All implementing partners must submit an Environment Management Plan (EMP) attached in Annex I showing how the conditions set forth in this document are to be implemented. The EMP should be submitted annually to the MEO.

APPROVAL OF ENVIRONMENTAL ACTION RECOMMENDED: (Type Name Under Signature Line)

CLEARANCE:
Acting Mission Director: _____ Date: 7/18/10
Brian Frantz

CONCURRENCE:
Bureau Environmental Officer, USAID/AFR/SD: _____ Date: 8/19/10
Brian Hirsch

Approved: X
Disapproved: _____

File No: _____ (USAID/AFR/SD)

ADDITIONAL CLEARANCES: (Type Name under Signature Line)

Mission EnvironmentalOfficer: _____cleared _____ Date: 6/29/2010
Aimee Mpumbara

Acting Health Team Leader: _____ cleared_____ Date: 7/02/2010
Janean Davis

Senior Regional Environmental Officer: ____cleared_____ Date: 6/29/2010
Walter Krausenberger

Bureau Environmental Officer GHB: _____cleared_____ Date: 8/18/2010
Teresa Bernhard

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1.0 BACKGROUND AND ACTIVITY DESCRIPTION

1.1 Purpose and Scope of this Initial Environmental Examination (IEE)

The purpose of this IEE is to cover all activities in the Health Portfolio for all funding provided between FY2009- FY 2014. The examination will provide the necessary environmental documentation, pursuant to 22 CFR 216 (Regulation 216) and ADS 204 for USAID/Rwanda's Foreign Health Assistance.

1.2 Foreign Assistance Objectives and Supporting Activities

Foreign Assistance Objective 3: **Investing in People**
Program Area 3.1: **Health**

USAID/Rwanda health programs improve the quality, availability, and use of essential health services with a view to better health, including child, maternal, and reproductive health, and reduced abortion and disease, especially HIV/AIDS, malaria, tuberculosis, and influenza. Rwanda is currently a focus country for both PEPFAR and the President's Malaria Initiative (PMI). Rwanda is also a high priority country to receive additional resources to enable the scale up of family planning/reproductive health and maternal, neonatal and child health services. Rwanda is the recipient of funding for clean water and sanitation services, and consideration is being given to the provision of assistance for nutrition, pandemic influenza and tuberculosis control. To implement health assistance, USAID/Rwanda's portfolio includes bilaterally awarded contracts, cooperative agreements, grants, globally funded projects that receive field support for work in Rwanda, and core-funded activities.

Program Element: 3.1.1: HIV/AIDS

Rwanda was one of 15 focus countries under the first phase of the President's Emergency Plan for AIDS Relief (PEPFAR). Funding for PEPFAR/Rwanda has steadily increased since its start in 2004, from almost $40 million in FY 2004 to $123 million in FY 2009 plus an additional $25 million for the new four year Partnership Framework. The United States is Rwanda's largest funder of HIV/AIDS programs. The U.S. Agency for International Development (USAID), Centers for Disease Control and Prevention (CDC), Defense Attaché's Office, and the Peace Corps are implementing the program through international and national non-governmental organizations in close collaboration with the Government of Rwanda (GOR), Rwandan civil society and international donor organizations.

PEPFAR supports voluntary counseling and testing activities, youth intervention programs, provides antiretroviral (ARV) drugs and treatment for opportunistic infections and supports education and life skills training for orphans and vulnerable children. PEPFAR not only provides a wide range of HIV/AIDS services, it also builds Rwandan partner institutional capacity to plan, manage, deliver and evaluate services.

Program Element: 3.1.2: Tuberculosis

With the goal to prevent and control tuberculosis and reduce morbidity and mortality associated with the disease, USAID/Rwanda supports the expanded use of proven and cost-effective interventions – such as the internationally recognized Directly-Observed Therapy, Short Course (DOTS) strategy – to achieve the World Health Organization (WHO) targets for TB case detection and cure rates. USAID is also addressing the emerging threat of multidrug-resistant (MDR) and extensively drug-resistant (XDR) TB by stepping up support to strengthen laboratories to improve case detection, infection control, surveillance, and training of health care providers in the diagnosis and treatment of MDR and XDR TB, all of which are key components of the Global Response Plan.

Program Element 3.1.3: Malaria

The U.S. President's Malaria Initiative (PMI) was launched in 2005 with the 5-year goal of reducing malaria-related mortality by 50 percent in target countries by reaching 85 percent of the most vulnerable groups – principally pregnant women, children under five years of age, and people living with HIV/AIDS – with lifesaving services, supplies and medicines. In Rwanda, PMI began implementation in December 2006. The program is designed to support Rwanda's National Malaria Control Program. PMI/Rwanda is led by the U.S. Agency for International Development (USAID) in collaboration with the Centers for Disease Control and Prevention (CDC). Funding for the PMI program in Rwanda is up to $20 million per year. Implemented in coordination with the Government of Rwanda and all development partners, including nongovernmental organizations, faith-based organizations, and the private sector, PMI backs five key intervention strategies to prevent and treat malaria: Indoor residual spraying (IRS); Insecticide-treated bed nets (ITNs); home based management of fever; prompt and effective case management with artemisinin-based combination therapies (ACTs); and Prevention of malaria in pregnant women with intermittent preventive treatment (IPT).

Program Element: 3.1.4: Avian Influenza

Despite the declining threat of AI, the Health Team is poised to support information, educational, and communication efforts, the provision of expert technical advice, training, the provision of drugs and supplies, and other interventions for the prevention, treatment, and control of AI.

Program Element: 3.1.5: Other Public Health Threats

USAID's global response to the H1N1 or swine flu pandemic draws upon central agreements with a number of partners, all of which are present in Rwanda. The Health Team is ready to support activities directly to prevent, treat, and control the spread and impact of pandemic influenzas.

Program Element 3.1.6: Maternal Health and Child Health, including Nutrition

USAID supports the Ministry of Health and local NGOs to deliver effective interventions targeting specific high-mortality complications along the continuum of care from pre-pregnancy through the postpartum period of pregnancy and birth – hemorrhage, hypertension, infections, anemia, and prolonged labor. Similarly, assistance covers newborn care, covering the full spectrum of community-based activities to outreach and clinic care. For example, both mother and baby benefit from interventions that address infections and nutritional deficiencies during pregnancy, hygienic practices during delivery, and birth spacing and counseling during postpartum care. Programs foster community involvement, promote evidence-based interventions (interventions that, after rigorous testing, have documented proof of their effectiveness), improve access to and quality of health services, and equip birth attendants with the knowledge, skills, drugs, and supplies to deliver lifesaving care and reduce preventable maternal and neonatal mortality. Families and communities are empowered to prepare for childbirth by using skilled birth attendants; improving self-care and nutrition; recognizing complications; and finding means to overcome barriers to care. Child health is enhanced through inexpensive, effective, lifesaving interventions such as immunizations, oral rehydration therapy (ORT) and zinc supplementation for diarrhea, antibiotics to treat respiratory infections, and antimalarial tablets.

Nutrition: Nutrition is addressed through the formulation and implementation of feeding assessments, nutrition counseling protocols, and Essential Nutrition Actions (ENA) as part of HIV/AIDS activities to prevent mother to child transmission and general newborn health promotion strategies. For infants of HIV-infected mothers, feeding materials for exposed infants are currently in use and appropriate care and/or weaning foods are provided. Hygiene messages are linked with nutrition for prevention of diarrhea (and malnutrition). At the community level, community health workers carry out continued screening for malnutrition using growth monitoring charts for children with particular emphasis on children less than two years who have been identified as the most vulnerable to malnutrition in Rwanda. Healthy food production at the household level is encouraged, such as developing home gardens, and engaging in activities that aim at preparing nutritious meals for the family and particularly for children. Longer-term strategies promote food fortification, behavior change communications, and nutritionally supported agricultural practices.

Program Element: 3.1.7: Family Planning and Reproductive Health

In the area of FP/RH, activities support government policy to stabilize population by helping couples determine the number and spacing of their children with the aim of having healthier mothers, children, and families. Interventions help reduce unintended pregnancies, address unmet needs, and promote healthy reproductive behavior of men and women. Quality of health services are improved at different levels of the health care pyramid by building local capacity and strengthening supervision of skilled workers. Support also encompasses pharmaceutical logistic and procurement of commodities, including supply chain management of contraceptives. Service delivery in the public and private sectors is facilitated as well as communication for behavior change messages to improve family health in Rwanda.

Program Element: 3.1.8: Clean Water and Sanitation Services

USAID, in collaboration with governmental and other partners, continues to support the scale-up of the point-of-use water purification treatment product, Sur'Eau. Activities promote and distribute Sur'Eau, while also promoting general safe water health and hygiene practices. Local leaders, businesses, community, and faith-based partnerships are strengthened to provide social support for Sur'Eau. Many Rwandan organizations have been trained to improve the market for Sur'Eau and to promote and distribute it. Capacity building is complemented by significant community mobilization and uptake of water promotion activities. With training, community outreach workers provide information on how to use Sur'Eau and how to provide messaging about safe water practices

Health System Strengthening Activities

USAID supports the roll-out and management of the national system of community-based health insurance by providing policy guidance, technical support, managerial training, and technical training to all persons involved in the implementation of the insurance system. The fiscal debt of the insurance system is reduced by supporting measures aimed at curbing inappropriate prescribing by health workers, rational pricing of pharmaceuticals, and rational use of health services by patients. At the community level, health programs empower village health committees and community health workers to take a greater role in service delivery. Leadership and management training is provided in all districts in Rwanda. Additional efforts at the district level include investments in improving information systems coupled with improving the enforcement capacity of districts so that gaming and misreporting is minimized, and supporting quality improvement by training district health teams to conduct supportive supervision of health facilities. The GOR is supported to develop national policies in health financing, to establish National Drug Authority (still in legislation), to streamline the insurance system, and to strengthen stewardship of the decentralization process.

2.0 COUNTRY SITUATION AND ENVIRONMENTAL INFORMATION (BASELINE INFORMATION)

The Rwandan relief is hilly and mountainous with an altitude averaging 1700 meters. The highest point on Mt Karisimbi is 4507 meters above sea level. Rwanda has volcanic mountains at the northern fringe and undulating hills in most of the central plateau. However, the eastern part of the country is relatively flat with altitudes well below 1500 meters. This relief pattern gives Rwanda a mild and cool climate that is predominantly influenced by altitude. Average annual temperatures are about 18.5^{o}C and average rainfall is about 1250mm per annum.The lowlands of the southwest in Bugarama plain with an altitude of 900m are part of the tectonic depression of the African Rift Valley.

A recent mapping inventory of forests with a surface of 0.5 hectares or higher and with coverage of more than 20% indicated that Rwanda has an estimated 240,746 ha of forests in 2007. This is approximately 10% of the surface of the national dry lands [23, 835 sq.km]. . Rwanda forests and woodlands fall into four categories: the natural forests of the Congo Nile Ridge comprised with Nyungwe National Park (NNP) Gishwati, and Mukura ; the natural forests of the Volcano National Park (VNP); the natural forests in savannah and gallery-forest of the Akagera National Park (ANP) and remnants of gallery-forests and savannahs of Bugesera, Gisaka and Umutara; and forest plantations dominated by exotic species (*Eucalyptus spp, Pinus spp, Grevillea robusta*, etc.) and trees scattered on farmlands (agroforestry) and along anti-erosion ditches.

Rwanda has four types of protected areas which includes national parks (Akagera National Park, Nyungwe National Park and Volcanoes National Park); forest reserves (Gishwati forest, Iwawa Island forest and Mukura forest); forests of cultural importance (Buhanga forest); and wetlands of global importance (Rugezi- Bulera-Ruhondo wetland complex). Besides those forests with a legal status of protected areas, there are other forests of cultural importance (Busaga forest in Muhanga district) and other remnants natural forests which are more or less protected by law. In fact the current law on forests prohibits human activities in natural forests. The

table below provides a summary of the status of major forest protected areas and other natural forests in Rwanda.

Table 1: Summary on the conservation status of major forest protected areas and other natural forest

Name	Managing authority	Area (ha)	Conservation status and threats
National Parks			
Akagera National Park	ORTPN	108,500	▪ the park has a management plan for the period 2006-2010 setting the community-based approach conservation as a priority ▪ threats includes poaching, existence of water hyacinth weed in lakes, bush fires during the dry season, illegal grazing and fishing ▪ isolation constitutes a significant threat to species with small population size such as lions, elephants and rhinoceros
Nyungwe National Park	ORTPN	101,900	▪ management plan 2006-2010 ▪ there is a need to have a management plan for harvesting trees planted in buffer zone ▪ threats includes poaching, mining, bamboo harvesting, bushfires associated with bee-keeping and the *Sericostachys scandens*
Volcanoes National Park	ORTPN	16,000	▪ management plan 2005-2009 ▪ promotion of community based conservation and eco-tourism ▪ threats include poaching, agriculture encroachment, wood cutting for firewood and construction, bamboo harvesting, water collection, medicinal plant collection and beehive placement
Forests reserves			
Gishwati Forest	MINIRENA/ NAFA Districts,	700	▪ the clear-cutting the forest has resulted in recurrent landslides and floods ▪ threats includes encroachment for farming and grazing land ▪ efforts are being made to restore the forest and the conservation efforts are focused on the restoration through enrichment with local species, demarcation of boundaries of the reserve with stones or a live fence of fast growing species and promotion of community-based conservation, ▪ natural self-rehabilitation and a natural regeneration of primary; and high value species are progressively colonizing the forestland (*Carapa grandiflora, Entandrophagrama excelsum, Symohonia globulifera*) are being observed as a result of protection efforts.
Mukura Forest	MINIRENA/ NAFA Rutsiro Districts	1600	▪ a management plan for 2007-2011prepared by a local NGO ▪ threats includes agriculture, fuel wood collection, beekeeping, collection of liana, and cattle grazing in the forest.
Other natural forests			
Busaga forest	MINIRENA/ NAFA Muhanga district	150	▪ some informal management actions taken by District authority includes a creation of a live fence of *Eucalyptus spp* around the forest between 1988 and 1999 of about 30 ha to prevent the population from encroaching to the forest; and creation of another live fence in 2002 around the forest using a thorny leguminous (*Caesalpinia spp)* over an area of about 30ha ▪ important wildlife fauna and flora biodiversity is also important (snakes, monkeys, birds, jackals, etc.).
Buhanga forests	MINIRENA/ NAFA Musanze	100	▪ the conservation of the forest is mainly due to its cultural interests which consider the forest as sacred. ▪ the forest has acquired a status of protected area in 2005 by a

Name	Managing authority	Area (ha)	Conservation status and threats
	district		Cabinet Decision and they are plans to develop eco-tourism in the forest.
Gallery Forests in Eastern Province	MINIRENA/ NAFA Districts	+/-160	▪ threats include encroachment for agriculture, bushfires, search for medicinal plants, fuel wood collection and conflicts between the population and the wildlife fauna of the forest that is damaging their crops, ▪ informal management actions for conservation are taking place including awareness raising in school, preparation of strategic plan for the management of the forest, sensitization of the local population, and research activities especially in Makera forest (74 ha in Kirehe Districts)

Note: ORTPN – The Office of Tourism and National Parks
MINIRENA – Ministry of Natural Resources

Rwanda's hydrological network includes numerous lakes and rivers and its associated wetlands. A recent inventory of marshlands in Rwanda conducted in 2008 identified shows 860 marshlands, covering a total surface of 278 536 ha, which corresponds to 10.6 per cent of the country surface, 101 lakes covering 149487 ha, and 861 rivers totalling 6462 km in length.

The major lakes include Kivu,Bulera, Ruhondo, Muhazi, Cyohoha, Sake, Kilimbi, Mirayi, Rumira, Kidogo, Mugesera, Nasho, Mpanga, Ihema, Mihindi, Rwampanga and Bisoke. The major rivers include the Akagera, Akanyaru, Base, Kagitumba, Mukungwa, Muvumba, Nyabarongo, and Ruvubu in the Nile Basin and Koko, Rubyiro, Ruhwa, Rusizi, Sebeya in the Congo Basin. Table 2 gives more information on the major lakes .

Table2: Major Lakes in Rwanda

Group	Lakes	Area (ha)	Characteristics
	Kivu	102,000	• Depth: 478 – 480 • Low oxygen content
Lakes of the north	Bulera, Ruhondo and smaller ones like Karago	5500 (Bulera), 2800 (Ruhondo)	• High altitude lakes • Relatively acidic • Deep lakes • Low biodiversity and phytoplankton
Lakes of the centre	Muhazi	3,400	Av. Depth: 3 – 5m
Lakes of Bugesera	Rweru, Cyohoha south, Cyohoha north, Kidogo, Gashanga, Rumira, Kilimbi, Gaharwa	+/- 12,000	• Av. Depth: 3-5m • High PH • High turbidity • High P and organic content.
Lakes of Gisaka	Mugesera, Birira and Sake	8,000	
Lakes of Nasho Basin	Mpanga, Cyambwe and Nasho	4,300	
Lakes of Akagera National Park	Ihema, Kivumba, Hago, Mihindi, Rwanyakizinga	+/- 14600	

The wetlands in Rwanda cover a total area of 165,000 hectares, which is about 7% of the total surface area.

The most recent inventory of wetlands was conducted in 2008 by Rwanda Environment Management A uthority (REMA) through Integrated Management of Critical Ecosystems (IMCE) project funded by GEF and World Bank. This inventory showed that Rwanda has 860 marshlands and 101 lakes covering a total surface of 278,536 ha (10.6 per cent of the country surface area), and 149,487 ha, respectively. This inventory also found 861 rivers totalling 6,462 km in length. 41 per cent of the inventoried marshlands are covered by natural vegetation, 53 per cent are under cropping, (which represents about 148 344 ha) and about 6 per cent are fallow fields. The biggest marshlands are associated with and clustered around the rivers. Rugezi and Kamiranzovu are high altitude wetlands, most of the others are low altitude.

The ETOA conducted in 2008 found that since 2004, Rwanda has made significant progress to establish a stronger foundation for its environmental activities. Some of the important changes that have impacts on the environment include:

- Passage of the Organic Law No. 04/2005;
- Establishment of the Rwanda Environmental Management Authority (REMA) under Law No. 08/2006;
- Implementation of a government Decentralization Policy and legislation;
- Development and implementation of a land reform process; and
- Provision to the public and private sectors with tools that require the environment to be an integral part of the solutions to critical economic issues with the implementation of the Economic Development and Poverty Reduction Strategy (EDPRS) following the recommendations of the 2020 Vision.

The Organic Law on environment is the most significant baseline conservation legislation since 2004. It declares Rwanda's adherence to at least 10 international conventions concerning biodiversity, endangered species and habitat, climate change, persistent pollutants, pesticides, bio-safety, etc. This law serves to:

- *Conserve the environment, people and their habitats;*
- *Set up fundamental principles related to protection of environment;*
- *Discourage any activities that may degrade the environment;*
- *Promote the social welfare of the population while considering equal distribution of the existing wealth;*
- *Consider the durability of the resources with a special emphasis on equal rights to present and future generations;*
- *Guarantee to all Rwandans sustainable development which does not harm the environment and the social welfare of the population; and*
- *Establish strategies of protecting and reducing negative effects on the environment and improving/restoring the degraded environment.*

The Rwanda Environmental Management Authority (REMA) is, since late 2005, functional, under solid leadership and with a dynamic staff. It is forging relationships and establishing roles at both the national and district levels. It oversees the compilation of State of the Environment Reports and the development and implementation of Environmental Action Plans. It has also established relationships with international organizations as it is the focal point for almost all international environment conventions that the GOR has ratified.

Decentralization of government authority and decision-making to the district levels is allowing communities and community-based organizations (CBOs) to become more active in environment conservation and has helped develop confidence in their participation and the positive impacts it is having on their livelihoods.

NGOs have continued to play important roles for conservation and protection of Rwanda's natural assets, especially in and around protected areas. They are better coordinated than they were five years ago. And they contribute substantially to raising public awareness about critical environmental issue and fostering alternative livelihoods for communities that rely on products and services from lands within the protected areas.

EDPRS has built on the foundation established by the land reform process, NGO savvy in raising awareness, and decentralization to foster better public-private partnerships that benefit the environment. The Government of Rwanda truly recognizes the importance of tourism, and ecotourism as a critical part of the nation's economic transformation and the fact that without a viable conservation and protection strategy all of the country will suffer.

Despite the important gains that have been made for protecting the environment in the past five years significant threats to their existence and well-being remain prominent. The most significant threats to the environment include:

- Population pressure;
- Institutional weaknesses and inefficiencies;
- Energy pressure;
- Degradation of wetlands and lack of clean water;
- Agricultural inefficiencies and soil erosion; and
- Waste disposal issues.

Population pressure. Rwanda's population growth over the last 4 decades has been unprecedented – from approximately 2.6 million in 1960 to 8.2 million in 2002 (National Census Service, 2005). In 2007, it was estimated at 9.3 million and is likely to reach 10.8 million in 2012. The annual population growth rate was 3.1% in 2002, one of the highest in Sub-Saharan Africa, but declined to about 2.6% in 2007. Population density is about 343 people per km2, the highest in Africa, but in some districts such as Musanze in the north and Huye in the South, it exceeds 500 people/km^2. Almost 60 percent of the population lives below the poverty line and cannot meet their basic human needs. These facts mean enormous pressure on the environment and make protecting, let alone conserving, the remaining forest and biological resources a most formidable task. Soils for cultivating, trees for fuel and shelter, biodiversity habitats for the genetic fabric of life, and water for everything are under constant pressure for their use from just about everywhere.

Institutional weaknesses and inefficiencies. It was noted above that the legal and policy framework for conservation and environmental protection has improved significantly during the past five years. There are still enormous gaps, inefficiencies, and lack of practical implementation experience. Without these important resource governance tools ecosystems remain very vulnerable to the on-going misuse of their products and services.

The institutions that are working to protect the environment and deal with the threat issues typical of a growing economy are young, and for the most part, the people working in them are inexperienced. They often come up short in terms of the professional training that is required and the knowledge that experience usually brings. There is also lack of coordination and communication as many of those charged with protecting the environment are trying to cope with an overload of responsibilities that result from understaffing and a lack of knowledge about effective management in general.

Energy pressure. The majority of Rwandans use wood for their energy needs. Factoring in the population growth rate this means more trees are needed from less land area required to grow them. And because of no comprehensive strategy to address the problem the government has been taking an unsustainable band-aid approach. Even though Rwanda has traditionally used a viable agro-forestry approach in its farming systems,

wood for fuel is continuing to come up short. If this threat is to be mitigated, more needs to be done in terms of managing and conserving remaining tree stocks outside of protected areas, tree planting, strategies for harvesting and transport, and for more effective stoves for burning the fuel.

Degradation of wetlands and lack of clean water remain significant issues. A comprehensive water and wetlands policy would do much to alleviate these problems and enable the ecosystem services dependent on soils and water to function better. A particularly significant threat is stream channelization to drain wetlands for agriculture. This causes "downcutting" of the stream beds and significant increases in erosion and sedimentation. Today, all downstream users are susceptible to more marginal water quality and greater risk from water-borne pollutants that originate from urban areas and agricultural lands. There is a government effort to curb erosion by creating bench terraces throughout the country's thousands of steep hills but it is subject to controversy due to its radical nature. Other aspects of the debate include the bench terraces high cost, their environmental effectiveness and with the continuous maintenance, their sustainability.

Agricultural inefficiencies. Historically, Rwanda has traditionally had productive farming systems coupled with complementary agroforestry techniques. Negative impacts today stem from the extreme pressure on the soils, literally wearing them out, due to the very high level of people trying to eke an existence from smaller and smaller plots of land. Education and awareness is needed today on farming systems that avoid use of chemical fertilizers and pesticides, help maintain and support crop diversification efforts, promote rational soil conservation techniques such as progressive terracing, use integrated pest management, and encourages cooperative food security planning among local and district governments and farmers.

Waste disposal issues. Medical and industrial waste also poses a threat not only to the environment but also the physical health of Rwandans. Small changes in temperature and rainfall could be devastating to flora and habitats that are important to wildlife. An erosion of any genetic diversity, or further destruction of the environment will affect not only Rwandans, but also all those downstream from Rwanda -- just about all of central and northeastern Africa that are part of the Congo and Nile Basins. Rwanda's protected areas are not only critical in terms of their flora and fauna diversity, they are also fragile and most likely vulnerable to small changes in climate. The GOR is working to address these risks and has started to develop strategies that might help them cope when change comes.

References for this section includes

- *USAID Rwanda Environmental Threats and Opportunities Assessment (ETOA) 2008 update*
- *REMA (2009): Rwanda State of Environment and Outlook Report*

3.0 EVALUATION OF PROJECT/PROGRAM ISSUES WITH RESPECT TO ENVIRONMENTAL IMPACT POTENTIAL

Many of the activities of USAID/Rwanda health program do not have direct adverse environmental impacts, as they entail information, education, communication, training, research, community mobilization, planning, management, and outreach activities. However, in the course of implementing these activities, partners should take advantage of opportunities to address environmental health issues (like hazardous and infectious waste management) with their health service delivery programs.

In this section only activities with potential environmental risk have been examined under the Health Program Elements.

(a) Procurement, Storage, Management and Disposal of Public Health Commodities

This activity includes procurement of pharmaceutical drugs and vaccines, family planning products and

condoms, personal protective gear, laboratory and medical supplies, and basic medical equipment.

Pharmaceutical drugs are chemicals used for diagnosis, treatment (cure/mitigation), alteration, or prevention of disease, health condition, or structure/function of the human body. Pharmaceuticals including vaccines have specific storage time and temperature requirements, and may expire or lose efficacy before they are able to be used, particularly in remote areas where demand is low and/or infrequent. Pharmaceutical waste may also accumulate due to inadequacies in stock management and distribution, and lack of a routine system of disposal.

The effects of pharmaceuticals in the environment are different from conventional pollutants. Drugs are designed to interact within the body at low concentrations to elicit specific biological effects in humans, and which may also cause biological responses in other organisms. There are many drug classes of concern, including antibiotics, antimicrobials, antidepressants, and estrogenic steroids. Their main pathway into the environment is through household use and excretion, and through the disposal of unused or expired pharmaceuticals.

Effects on aquatic life are a major concern in disposal of pharmaceuticals. A wide range of pharmaceuticals have been discovered in fresh and marine waters globally, and even in small quantities some of these compounds have the potential to cause harm to aquatic life. Exposure risks for aquatic organisms are much larger than those for humans, because aquatic organisms have continual (and multi-generational) exposures, explores to higher concentrations, and possible low-dose effects.

Traditional environmental toxicology focuses on acute effects of concentrated exposures rather than chronic effects of low level exposures. Measured toxicities of some tested pharmaceuticals have shown that acute effect of single substances in the aquatic environment is very unlikely. However, effects of pharmaceuticals may be subtle because they occur in the environment in low concentrations. Some tests with combinations of various pharmaceuticals have revealed stronger effects than expected from the effects measured singly. More research is need on combination effects and chronic studies are needed to assess the environmental risk of drug residues. Certainly pollution prevention (e.g., source elimination or minimization) is preferable to remediation or restoration to minimize both public cost and human/ecological exposure.

Antibiotics and undiluted disinfectants should not be disposed of into the sewage system as they may kill bacteria necessary for the treatment of sewage. Additional health risks related to disposal include burning pharmaceuticals and plastic medical supplies at low temperatures or in open containers results in release of toxic pollutants into the air, and inefficient and insecure sorting and disposal may allow drugs beyond their expiry date to be diverted for resale to the general public. In some countries scavenging in unprotected insecure landfills is a hazard.

The other commodities covered under this activity are not associated with major health risks, including packaging material, and should be disposed of as solid waste.

References for this section include:
http://www.who.int/water_sanitation_health/medicalwaste/pharmaceuticals/en/
Pharmaceuticals In The Environment: Sources, Fate, Effects And Risks (2nd ed). 2004. Klaus Kümmerer, ed (online version).

Small-Scale healthcare initiatives, such as rural health posts or clinics, mobile clinics, urban clinics and small hospitals, and community health workers provide important and often critical healthcare services to individuals and communities that would otherwise have little or no access to such services. These health workers working in these underserved contexts are the front line of defense against epidemics such as HIV, TB and a key component of any comprehensive health development program. The medical and health services they provide

improve newborn, child and maternal health, prevent disease, cure debilitating illnesses, and alleviate the suffering of the dying.

However, improper handling, storage and disposal of the waste generated in these facilities or activities can spread disease through several mechanisms. Transmission of disease through infectious waste is the greatest and most immediate threat from healthcare waste. If waste is not treated in a way that destroys the pathogenic organisms, dangerous quantities of microscopic disease-causing agents—viruses, bacteria, parasites or fungi—will be present in the waste. These agents can enter the body through punctures and other breaks in the skin, mucous membranes in the mouth, by being inhaled into the lungs, being swallowed, or being transmitted by a vector organism. Those who come in direct contact with the waste are at greatest risk. Examples include healthcare workers, cleaning staff, patients, visitors, waste collectors, disposal site staff, waste pickers, substance abusers and those who knowingly or unknowingly use "recycled" contaminated syringes and needles. Although sharps pose an inherent physical hazard of cuts and punctures, the much greater threat comes from sharps that are also infectious waste. Healthcare workers, waste handlers, waste-pickers, substance abusers and others who handle sharps have become infected with HIV and/or hepatitis B and C viruses through pricks or reuse of syringes/needles.

Contamination of water supply from untreated healthcare waste can also have devastating effects. If infectious stools or bodily fluids are not treated before being disposed of, they can create and extend epidemics. The absence of proper sterilization procedures is believed to have increased the severity and size of cholera epidemics in Africa during the last decade.

Healthcare wastes generally fall into three categories in terms of public health risk and recommended methods of disposal:

- ***General*** healthcare waste, similar or identical to domestic waste, including materials such as packaging or unwanted paper. This waste is generally harmless and needs no special handling; 75–90% of waste generated by healthcare facilities falls into this category, and it can be burned or taken to the landfill without any additional treatment.
- ***Hazardous*** healthcare wastes including infectious waste (except sharps and waste from patients with highly infectious diseases), small quantities of chemicals and pharmaceuticals, and non-recyclable pressurized containers. All blood and body fluids are potentially infectious.
- ***Highly hazardous*** healthcare wastes, which should be given special attention, includes sharps (especially hypodermic needles), highly infectious non-sharp waste such as laboratory supplies, highly infectious physiological fluids, pathological and anatomical waste, stools from cholera patients, and sputum and blood of patients with highly infectious diseases such as TB and HIV. They also include large quantities of expired or unwanted pharmaceuticals and hazardous chemicals, as well as all radioactive or genotoxic wastes.

If a project's training activities for professional health workers or community health workers involve techniques that would generate and require disposal of hazardous or highly hazardous waste, the Implementing Partners shall be required to include training in or ensure that the training curriculum covers best management practices concerning the proper handling, use, and disposal of medical waste, including blood, sputum, and sharps.

As appropriate, the implementing partners will work with facility, local, regional and/or national officials, to implement and apply appropriate best management practices which incorporate appropriate health and safety

measures and environmental safeguards, including proper disposal of medical waste in accordance with international norms as spelled out by the WHO in "WHO's Safe Management of Wastes from Healthcare Activities." National policies and laws should also be considered, though most countries follow WHO Guidelines.

References for this section include:
http://www.who.int/water_sanitation_health/medicalwaste/167to180.pdf
http://www.bchealthguide.org/healthfiles/hfile29.stm
Safe management of wastes from health-care activities, edited by A. Prüss, E. Giroult and P. Rushbrook. Geneva, WHO, 1999, http://www.who.int/water_sanitation_health/Environmental_sanit/MHCWHanbook.htm. English
EGSSAA Chapter 8, "Healthcare Waste: Generation, Handling, Treatment and Disposal" (http://www.encapafrica.org/EGSSAA/Word_English/medwaste.doc) for additional guidance on proper handling and disposal of medical waste.

(b) Water and sanitation activities

All small-scale water and sanitation activities such as the digging of wells or creation of latrines should be conducted with good design and implementation practices and with consideration of protecting human health and the surrounding environment.

Potential environmental impacts: The human health benefits of water and sanitation activities are very significant, and generally far outweigh any potential negative impacts of such activities. Still, the potential for adverse environmental impacts from water and sanitation activities exists, and it is the responsibility of program designers and implementers to avoid such impacts to the extent possible. Potential adverse impacts from water and sanitation activities can be summarized as follows

Some potential environmental impacts are possible with these interventions, and will depend on the local circumstances, including:

Water Supply

- Improper siting of facilities that damages or destroys natural ecosystems (within wetlands, protected areas, or other sensitive habitats, etc.)
- Depletion or degradation of local or downstream freshwater resources (surface and groundwater)
- Creation of stagnant (standing) water near water points that could create breeding opportunities for water-borne disease vectors
- Natural or human-caused biological or chemical contamination of water sources (surface and groundwater), causing increased human health risks, including:
- High arsenic or other mineral/chemical levels
- Poor management of water points and/or poor design of pipes leading to leakage and contamination of water with fecal matter, solid waste, etc.

Sanitation

- Increased human health risks from contamination of surface water, groundwater, soil, and food by human waste and disease pathogens
- Degradation of surface and groundwater quality and land habitats due to inappropriate sitting or construction of latrines or wastewater collection systems, or release of human waste from sanitation facilities
- Defecation around locked or unusable latrines or other sanitation facilities, potentially contaminating surface water and/or shallow groundwater sources, adversely affecting both human and ecosystem

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healthDamage to the aesthetics of the sanitation facility site (visual, smell, etc.) Water and Sanitation

Things to consider when formulating conditions:

Water supply and sanitation activities should be conducted in a manner consistent with the good design and implementation practices described in *EGSSAA Chapter 16: Water Supply and Sanitation*. Another useful reference to consult for good water and sanitation design and implementation principles is the document, "Guidelines for the Development of Small Scale Rural Water Supply and Sanitation Projects in Ethiopia," by Catholic Relief Services and USAID, July 31, 2003. For a compendium of humanitarian assistance expertise in 1) Hygiene Promotion, 2) Water Supply, 3) Excreta Disposal, 4) Vector Control, 5) Solid Waste Management and 6) Drainage, consult the Sphere Handbook (2004): Humanitarian Charter and Minimum Standards in Disaster Response, Chapter 2: Minimum Standards in Water Supply, Sanitation and Hygiene Promotion.

More specifically, the Mission shall ensure that the implementing partner develops and implements a Water Quality Assurance Plan that addresses how the partner will ensure the provision of safe drinking water to communities served under the subject activity. This Plan should be approved by the MEO and should assure that drinking water sources meet local and WHO water quality standards.

Initial water quality testing is the responsibility of the program to assure, but when feasible, the program should also set in place capacities and responsibilities to provide reasonable assurance that ongoing water quality monitoring occurs. The standards for initial and ongoing testing -- types of contaminants for which testing should be conducted, testing methods, testing frequency, and issues such as public access to results should follow any applicable USAID guidance, as well as local laws, regulations and policies. Furthermore, a response protocol should be established in the event that water quality testing detects contamination.

Among the water quality tests which must be performed are tests for the presence of arsenic. Any USAID-supported activity engaged in the provision of potable water must adhere to Guidance Cable State 98 108651, which requires arsenic testing. The USAID managing team must assure that the standards and testing procedures described in the following document are met:"Guidelines for Determining the Arsenic Content of Ground Water in USAID-Sponsored Well Programs in Sub-Saharan Africa."

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Reference for this section is
Environmental Guidelines for Small-Scale Activities in Africa
http://www.encapafrica.org/EGSSAA/Word_English/watsan.doc

(c) Agricultural activities to improve food security

Small scale gardening/farming activities should be conducted considering minimum impact to local habitat, avoiding introduction of non-native species and genetically modified organisms, and protecting human exposure to animal waste and viruses.

Some potential environmental impacts are possible with these interventions, and will depend on the local circumstances, including:

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- Ecological and Human Health-Surface water nitrification/eutrophication due to excrement flowing into streams, ponds, and other water sources which can affect the health of aquatic species and drinking water quality.
- Ecological and Human Health-introduction of non native species may cause unwanted competition, predation etc on native species. Non native or non regional species may compete with species that are naturalized (more likely to thrive) and critical to existing community food sources.
- Ecological-destruction of habitat critical to the survival of threatened and endangered species, or habitats that support those species survival.
- Human health exposure to parasites in animal excrement.
- Human health exposure to viruses such as H5N1 and others.

(d) Small-scale Rehabilitation of Health Facilities

Small-scale rehabilitation of health facilities should be conducted considering minimum impact to the physical and social environment surrounding the health facilities, use of appropriate and non-hazardous materials, and appropriate disposal of old or unused materials in the rehabilitation process. Construction of health facilities is beyond the scope of this IEE.

Some potential environmental impacts are possible with these interventions, and will depend on the local circumstances, including:

- Contamination of groundwater and surface water supplies through improper disposal of human and other biological wastes during the rehabilitation period
- Contamination of ground and surface water supplies through improper disposal or handling of toxic materials used in rehabilitation (e.g., solvents, paints, vehicle maintenance fluids (oil, coolant), and diesel fuel)
- Adverse social impacts due to displacement of local inhabitants, influx of outside workers, inequitable distribution of economic benefits of rehabilitation, etc.
- Damage to aesthetics of site/area
- Improper extraction of rehabilitation materials such as wood, stone, gravel, or clay that damages terrestrial ecosystems (e.g., wood may come from relatively intact or natural forests)
- Use of toxic materials during rehabilitation, such as lead paint.

Reference for this section is:
Small Scale Construction chapter of the USAID Environmental Guidelines for Small-Scale Activities in Africa, as the guidelines are appropriate for rehabilitation activities.
http://www.encapafrica.org/EGSSAA/Word_English/construction.doc

(e) Use of Pesticides

Use of any pesticide is of major concern because of the potential for both health and/or environmental effects. Pesticides can cause short-term adverse health effects, called acute effects, as well as chronic adverse effects that can occur months or years after exposure.

The persistence of a pesticide in the environment is determined by a number of factors including (1) the amount introduced and how it is distributed; (2) its reactivity in the environmental media; and (3) the conditions of the media. These factors help determine the concentration of pesticide in the air, soil, water, plants, and animals. Pesticides applied to enclosed areas, such as greenhouse spaces, and public and private buildings, usually break down at a slower rate than those applied outdoors. Over time, the pesticides may (1) break down, (2) be redistributed around the application site or (3) move off site. Off site movement includes

movement to groundwater, surface water, or the atmosphere, and also includes residues that remain on crops or livestock when they are removed from the site.

All pesticides react in the environment to form new chemicals but the rate at which they react and the products formed during breakdown are important. In addition to chemical reactions, all pesticides are subject to breakdown in the presence of sunlight.

The environmental media determines how fast pesticides break down. In the atmosphere, most pesticides breakdown rapidly by reaction with oxygen or free radicals, catalyzed by sunlight, or by directly absorbing sunlight. Pesticides that persist can travel long distances in the atmosphere.
In water, breakdown is usually by hydrolysis, often mediated by pH, and breakdown by microorganisms. The predominant pathway in soil is microbial degradation, but chemical degradation and plant metabolism are also important.

In distribution of long-lasting insecticide-treated bed nets, the environmental impact potential is expected to be exceedingly small. Risks presented by the use of pre-treated nets include the following: 1) potential adverse impacts on aquatic organisms if large numbers of nets (100+) are washed in a river, stream or pond at the same time; 2) the small potential for adverse health effects in net users. Regarding the latter, the only impact expected to periodically occur is skin irritation among some users when the net is new, an effect that subsides rapidly and causes no long-lasting harm. Both types of risks are very small, and were found in the Global Health Programmatic Environmental Assessment to be greatly outweighed by the malaria prevention benefits stemming from the use of insecticide-treated materials.

This document does not include IRS as part of the proposed action because independent environmental documentation is executed for IRS. The use of pesticides for indoor residual spraying is covered under a programmatic Environmental Assessment with subsequent Supplemental Environmental Assessments (SEA). The SEA is executed on a 5 year program cycle with annual letter reports updating the SEA proposed action.

(f) Provision of equipment and supplies to health and education facilities.

Providing equipment and supplies may have some potential environmental impacts, such as irresponsible logging to produce sawn timber will degrade the forest cover. Also equipment that is not certified like refrigeration equipment could be a source of hazardous products.

This activity includes supplies of chlorine and other commercial products for water treatment which have the same impacts as pharmaceutical products.

4. 0 RECOMMENDED MITIGATION ACTIONS (INCLUDING MONITORING AND EVALUATION)

4.1 Recommended Threshold Decisions and Conditions

The table 3 below summarizes the activities and recommended threshold determinations by Program Element

Table 3: Summary of activities and recommended threshold and decision

Activities	**Recommended Threshold Determination and 22 CFR Part 216 citation**
Activities not involving any biophysical intervention under all Program Elements and Health System Strengthening Activities	
Activities not involving any biophysical interventions : - education, training, technical assistance - document and information transfers - controlled experimentation exclusively for the purpose of research and field evaluation and carefully monitored; - analyses, studies, academic or research workshops and meetings - Programs involving nutrition, health care, or family planning services except to the extent designed to include activities directly affecting the environment (such as construction of facilities, water supply systems, waste water treatment, etc.) - Studies, projects or programs intended to develop the capability of recipient countries and organizations to engage in development planning	Categorical Exclusion, per - 22 CFR 216.2 (c)(2)(i), for all activities consisting of education, technical assistance or training programs, except to the extent such programs include activities directly affecting the environment (such as construction of facilities, etc.); - 216.2 (c)(2)(iii) for analyses, studies, academic or research workshops and meetings; - 216.2 (c)(2)(v) for document and information transfers; - 216.2(c)(2)(viii) for programs involving nutrition, health care or population and family planning services except to the extent designed to include activities directly affecting the environment (such as construction of facilities, water supply systems, waste water treatment, and treatment of water in the households); 216.2(c)(2)(xiv) for studies, projects or programs intended to develop the capability of recipient countries to engage in development planning, expect to the extent designed to result in activities directly affecting the environment (such as construction of facilities, etc.)
Program element 3.1.1 HIV/AIDS	
Support to the procurement, storage and disposal of public health commodities e.g. ARV's, and treatment for opportunistic infections, condoms, nutritional supplements, etc.	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health commodities
Activities involving treatment in health centers, blood testing and potential generation of hazardous medical waste	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for all the health activities likely to involve blood testing, and have potential generation of hazardous health waste.
Provision of Equipment and supplies to health and education facilities	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health

	commodities
Small-scale construction/ rehabilitation of health facilities and education centers	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities potentially involving construction and renovation activities.
Program involving agricultural activities to improve food security	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) potentially involving agricultural activities to strengthen food security
Program Element 3.1.2. Tuberculosis	
Procurement, storage and disposal of public health commodities, including pharmaceutical drugs	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health commodities
Activities involving generation, storage and disposal of hazardous or highly hazardous medical waste	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for all the health activities likely to involve blood testing, and have potential generation of hazardous health waste
Small-scale construction/ rehabilitation of health facilities and education centers	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities potentially involving construction and renovation activities.
Provision of equipment and supplies to health and education facilities	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health commodities
Program Element 3.1.3. Malaria	
Procurement, storage and disposal of public health commodities, including pharmaceutical drugs	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health commodities
Activities involving generation, storage and disposal of hazardous or highly hazardous medical waste	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for all the health activities likely to involve blood testing, and have potential generation of hazardous health waste
Small-scale construction/ rehabilitation of health facilities and education centers	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities potentially involving construction and renovation activities
Provision of equipment and supplies to health and education facilities	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health commodities
Use of pesticides in the Indoor residual spraying (IRS) and Insecticide-treated bed nets (ITNs);	A Negative Determination with Conditions recommended pursuant to 22 CFR 216.3(a)(2)(iii) for any use of Pesticides under the IRS as part of PMI and for all supply and distribution of LLITN
Program Element 3.1.4. Avian Influenza	
Procurement, storage and disposal of public health commodities, including pharmaceutical drugs	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health commodities
Activities involving generation, storage and disposal of hazardous or highly hazardous medical waste	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for all the health activities likely to involve blood testing, and have potential generation of hazardous health waste

Small-scale construction/ rehabilitation of health facilities and education centers	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities potentially involving construction and renovation activities
Provision of equipment and supplies to health and education facilities	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health commodities
Program involving agricultural activities to improve food security	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) potentially involving agricultural activities to strengthen food security
Program Element 3.1.5. Other Public Health Threats	
Procurement, storage and disposal of public health commodities, including pharmaceutical drugs	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health commodities
Activities involving generation, storage and disposal of hazardous or highly hazardous medical waste	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for all the health activities likely to involve blood testing, and have potential generation of hazardous health waste
Small-scale construction/ rehabilitation of health facilities and education centers	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities potentially involving construction and renovation activities
Provision of equipment and supplies to health and education facilities	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health commodities
Program involving agricultural activities to improve food security	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) potentially involving agricultural activities to strengthen food security
Program Element 3.16. Maternal Health and Child Health, including Nutrition	
Procurement, storage and disposal of public health commodities, including pharmaceutical drugs	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health commodities
Activities involving generation, storage and disposal of hazardous or highly hazardous medical waste	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for all the health activities likely to involve blood testing, and have potential generation of hazardous health waste
Small-scale construction/ rehabilitation of health facilities and education centers	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities potentially involving construction and renovation activities
Provision of equipment and supplies to health and education facilities	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health commodities
Program involving agricultural activities to improve food security	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) potentially

	involving agricultural activities to strengthen food security
Program Element 3.1.7. Family Planning and reproductive Health	
Procurement, storage and disposal of public health commodities, including pharmaceutical drugs	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health commodities
Activities involving generation, storage and disposal of hazardous or highly hazardous medical waste	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for all the health activities likely to involve blood testing, and have potential generation of hazardous health waste
Small-scale construction/ rehabilitation of health facilities and education centers	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities potentially involving construction and renovation activities
Provision of equipment and supplies to health and education facilities	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health commodities
Program involving agricultural activities to improve food security	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) potentially involving agricultural activities to strengthen food security
Program Element: 3.1.8: Clean Water and Sanitation Services	
Procurement, storage and disposal of public health commodities, including pharmaceutical drugs	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health commodities
Small-scale construction/ rehabilitation of health facilities and education centers	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities potentially involving construction and renovation activities
Provision of equipment and supplies to health and education facilities	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health commodities
Program involving agricultural activities to improve food security	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) potentially involving agricultural activities to strengthen food security
Water and sanitation activities	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for household water treatment and safe storage
Health System Strengthening Activities	
Procurement, storage and disposal of public health commodities,	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health

including pharmaceutical drugs	commodities
Activities involving generation, storage and disposal of hazardous or highly hazardous medical waste	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for all the health activities likely to involve blood testing, and have potential generation of hazardous health waste
Small-scale construction/ rehabilitation of health facilities and education centers	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities potentially involving construction and renovation activities
Provision of equipment and supplies to health and education facilities	Negative Determination with Conditions, 22 CFR 216.3 (a) (2) (iii) for activities involving procurement, storage, management and disposal of public health commodities

4.2. Mitigation and Monitoring Measures

Mitigation measures are required for all activities likely to have negative impacts on environment. The following conditions are associated with the threshold determination indicated above.

(a) Conditions for activities involving procurement, storage, management and disposal of public health commodities

Consignees for all pharmaceutical drugs procured under this funding will be advised to store products according to the information provided on the manufacturer's Materials Safety Data Sheet (MSDS). These are supplied by the manufacturer, and can also be found on the internet by using active ingredients and MSDS as search terms. If disposal of these pharmaceutical drugs is required, due to expiration date or other reasons, the consignee will be advised that the preferred method of disposal is to return the product(s) to the manufacturer. If this is not possible (*e.g*., if the expired or spoiled pharmaceuticals are considered hazardous and, if transferred across frontiers, become regulated and subject to the Basel Convention on the trans-frontier shipment of hazardous wastes) then follow the guidelines in the WHO document *Guidelines for Safe Disposal of Unwanted Pharmaceuticals During and After Emergencies*, (www.who.int/water_sanitation_health/medicalwaste/unwantpharm.pdf.). At the request of the Mission, subject to available funding, implementing partners will use project funds to implement the needed monitoring and mitigation measures to facilitate the disposal of expired drugs under this activity to mitigate the impact of medical waste.

Packaging and disposal of other public health commodities will be treated using the guidelines provided in Environmental Guidelines for Small-Scale Activities in Africa (EGSSAA) 2nd Edition, Chapter 15: Solid Waste (http://www.encapafrica.org/EGSSAA/Word_English/solidwaste.doc).

Another public health commodity of concern is bed nets, where the issue is the inappropriate use of bed nets as fishing gear. Used bed nets could pose threats to the sustainability of fisheries because their small mesh size makes them non-selective devices when used to harvest fish. The other EGSSAA chapter to consult is Chapter 6: Fisheries (http://www.encapafrica.org/EGSSAA/Word_English/fisheries.doc).

(b) Conditions for activities likely to involve blood testing, and have potential generation of hazardous health waste.

For all activities involving handling of blood, used bandages, sharps (including syringes, scalpels, etc) and other medical wastes, the Health Team must work with implementing partners to assure, to the extent possible, that the medical facilities and operations involved have adequate procedures and capacities in place to properly handle, label, treat, store, transport, and properly dispose of blood, sharps, and other medical waste.

The USAID/Rwanda team must work with its implementing partners to assure, to the extent possible, that the medical facilities and operations being supported have adequate procedures and capacities in place to properly handle, label, treat, store, transport and properly dispose of blood, sharps and other medical waste. The Team must work with its implementing partners to develop and implement a mitigation and monitoring plan for the following:

- Assuring safe management of medical waste generated by activities that are directly under the control of a USAID implementing partner;
- Promoting the safe management of medical waste that is generated by activities to which USAID is contributing, but which are not directly under USAID's control, e.g. when medical waste-generating activities are implemented by the host government, with support from USAID;

- Monitoring and evaluating the state of medical waste management within the geographic scope of the USAID intervention, providing actionable information appropriate to the management relationship of USAID to the medical waste-generating activity. I.e., if the intervention is at the country level, then monitoring and evaluation should be at that level. If USAID is directly managing the activity in question, more detailed and/or comprehensive information is needed; if USAID is contributing to the activity but does not control it, less detailed and/or comprehensive information is needed. Even if USAID does not control the activity, the Agency still needs to be able to highlight medical waste management problems when they exist, to influence the partner toward appropriate corrective measures and even consider changing its programmatic approach if improvement deemed necessary is not forthcoming.

The mitigation and monitoring plan needs to include measurable indicators as well as timeframes. The plan should be approved by the Mission Environmental Officer and the Regional Environmental Advisor.

The USAID Bureau for Africa's Environmental Guidelines for Small Scale Activities in Africa (EGSSAA) Chapter 8, "Healthcare Waste: Generation, Handling, Treatment and Disposal" (found at URL: http://encapafrica.org/SmallScaleGuidelines.htm) contains guidance which should inform the Team's activities to promote proper handling and disposal of medical waste, particularly in the section titled, "Minimum elements of a complete waste management program." The program is also encouraged to make use of the attached "Minimal Program Checklist and Action Plan" for handling healthcare waste, which was adapted from the above EGSSAA chapter and which should be further adapted for use in USAID/Rwanda health programs.

Other important references to consult in establishing a waste management program are "WHO's Safe Management of Wastes from Healthcare Activities" (http://www.who.int/water_sanitation_health/medicalwaste/wastemanag/en/) and the State Department cable "1993 State 264038: Model Guidance on Health Projects Involving HIV Screening and Handling of Blood." Additional guidance is also available via the reference section of the above EGSSAA chapter.

(c) Use of pesticides

The provision of insecticide treated bed nets (ITNs), will require to use reliable brands of long-lasting treated nets and adhere to other stipulations made in the USAID Africa Bureau Programmatic Environmental Assessment for Insecticide-Treated Materials in USAID Activities in Sub-Saharan Africa (ITM PEA) including consideration for the long term effects of used or discarded nets. The mission in ccordination with implementing partners should consider ways to managed the potential environmental threats (such as large solid waste effects and the effects of nets in water ways/for fishing). The mission should ensure that appropriate language that advises users on the safe use of nets (which excludes the use as fishing nets) is communicated.

Deleted: .

The use of the IRS using approved pesticides must be covered by an approved Supplemental Environmental Assessment. USAID/Rwanda Health Team is required to follow the Action Plans laid out in the amended the Supplementary Environmental Assessments (SEAs). USAID/Rwanda has an approved Pesticide Evaluation and Safer Use Action Plan (PERSUAP) report that was prepared for the Rwanda IRS program supported by USAID and implemented by the Rwanda National Malaria Control Program (PNILP) with technical support from Research Triangle Institute (RTI) International. Since the environmental documentation supported only the use of Lambda-cyhalothrin, a pyrethroid based pesticide, it was amended through a Supplementary Environmental Assessment (SEA) as required for all PMI countries that intend to open up pesticide use in IRS from a single pesticide type into a full class of pesticides that supports the use of other pesticides that are registered by the World Health Organization Pesticide Evaluation and Selection (WHOPES) and the

Government of Rwanda. Another SEA is being prepared to support the use of IRS in other districts not covered by the above PERSUAP and SEA.

(d) Conditions for activities involving construction and renovation activities

All construction activities shall be conducted following principles for environmentally sound construction, as provided in *Chapter 3: Small Scale Construction* of the USAID Environmental Guidelines for Small-scale Activities in Africa, which can be found at www.encapafrica.org.

For the rehabilitation of existing facilities, and for construction of facilities in which the total surface area disturbed is less than 10,000 square feet and not in a critical or sensitive habitat, the condition is that these activities shall be conducted following principles for environmentally sound construction, as provided in the Small Scale Construction chapter of the USAID Environmental Guidelines for Small-scale Activities in Africa, which can be found at: www.encapafrica.org.

For the construction of any facilities in which the total surface area disturbed exceeds 10,000 square feet (1,000 square meters), the program shall prepare a supplemental Environmental Assessment, Construction will not begin until such a review and report is completed and approved by the Mission Environmental Officer, mission director and Bureau Environmental Officer.

(e) Conditions for activities involving agricultural activities

Application of appropriate guidelines and use of best practices in agriculture, including: applying the soil and water conservation technologies to protect land from degradation; and reclaim land that has been degraded and, using interventions that reduce habitat loss by increasing agricultural productivity and sustainability on already-farmed lands (using improved seed; using multiple cropping; using fertilizers, manures and irrigation and replacing old or inadequate irrigation systems; and rotating crops). For further details on the agricultural best practices, see, http://www.encapafrica.org/EGSSAA/Word_English/agriculture.doc.

- Implementing partner will check to determine the extent of any threatened or endangered species in the area.
- Existing fields will have a buffer zone between the field and any wetland, stream, pond.
- Implementing partner will not remove trees nor create new agricultural land.
- Vaccines for animals will not use Genetically Modified Organism (GMO) live cultures
- GMO species (plant or animal) will not be introduced
- Pesticides (registered by the U.S. as pesticides), will not be used. Only organic, non-chemical pest management techniques will be promoted and practiced.
- When animals or plants/seeds are brought into the country from other countries or regions, appropriate quarantine controls will be enforced prior to bring the animal or plant/seeds into the region
- No raw excrement will be used as fertilizer directly on plants; only composted waste will be used.
- Animal waste will composted, decomposed in approximately 12-15 weeks and used as fertilizer. Animal waste will be stored in marked Farm yard manure (FYM) pits approximately 3 ft in depth. Length and width will be determined based on the size of the small farm or home garden. Compost pits will be marked with appropriate signage to minimize human exposure. Farms/gardens will have covered composting pits but home gardens will not (according to local customs). FYM pits will be located a minimum of 30 ft from water sources and 50 feet from households.
- Structures such as coops, fenced areas, and barns and fields will not be built in ecologically sensitive areas such as ponds, wetlands, or heavily forested areas.

- Cages, coops, and any animal housing will be set away from homes, drinking water sources, low lying or wet areas, and surface water (ponds, streams).
- Compost pits will be secured using locks, fences, and other appropriate hardware so that human exposure is minimized.
- Tools (shovels, hoes and rakes) and protective gear, as appropriate, will be used to collect and compile animal waste.

(f) Conditions for water and sanitation activities

The use of dilute Chlorine and other commercial products should be considered under the handling and procurement of pharmaceutical products (see above).

Water quality assurance and water testing is essential for determining that the water from a constructed water source is safe to drink and to determine a baseline so that any future degradation can be detected. Among the water quality tests which must be performed are tests for the presence of arsenic, nitrates, nitrites, and coliform bacteria, plus tests for any additional parameters required by the host government. Any USAID-supported activity engaged in the provision of potable water must adhere to Guidance Cable State 98 108651, which requires arsenic testing, and guidance is provided by USAID's Economic Growth, Agriculture and Trade Bureau in the document "Guidelines for Determining the Arsenic Content of Ground Water in USAID-Sponsored Well Programs in Sub-Saharan Africa" (www.usaid.gov/our_work/environment/compliance/ane/tool_shed/**arsenic_guidelines**.doc). Simple and cost-effective sample kits for *E. coli* and fecal coliforms are available through a variety of manufacturers (e.g., 3M Petrifilm, Idexx Colilert or Coliscan Easygel).

Initial water quality testing is the responsibility of the program to assure, but when feasible the program should also set in place capacities and responsibilities to provide reasonable assurance that ongoing water quality monitoring occur. The standards for initial and ongoing testing -- types of contaminants for which testing should be conducted, testing methods, testing frequency, and issues such as public access to results -- should follow any applicable USAID guidance, as well as host country laws, regulations and policies. Furthermore, a response protocol should be established in the event that water quality testing detects contamination.

An illustrative list of environmentally sound principles for water and sanitation activities includes:

- Community mobilization to ensure sustainability of the physical infrastructure
- Water sources should be located upgrade from potential sources of pollution, including latrines or toilets.
- Water sources are protection from both human and animal contamination.
- Ensure latrines are sited far away from shallow wells, cisterns, spring sources and boreholes. Latrine pits will be dug in the unsaturated zone above the water table, and latrine pits are protected against flooding and overflow due to intense rainfall. Establish and train community water and sanitation committees to manage, repair and maintain all water points and the watersheds immediately surrounding the water points, including watering of livestock, and to provide hygiene education to participating communities.
- Training in sanitation and hygiene for health workers, community health and water committees, community area based development groups, and/or municipal water board members.
- Ensure community mobilization and public awareness of human health risks associated with water-borne disease vectors.
- Relevant local community rules and best practices and procedures of promotion of better environmental health are developed and adhered to. Verification through site visits and photos should be done to assure practices are in accordance with local community rules and "best practices" through community monitoring tools and municipal water board's evaluation system.

- Take measures to minimize standing water.
- Where water supplies for drinking or washing patients or laundry are upgraded or provided, measures will be taken to ensure that drainage from laundry and bathing facilities does not affect the water supply nor pose threats for transmittal of infectious diseases.
- Provision of potable water supplies and/or latrines will follow host country or WHO standards concerning the appropriate separation of wells and latrines and measures to avoid contamination of water sources.

The table below summarizes the conditions for implementation of categories of activities

Table 4 : Conditions for Implementation of categories of activities

Activities	Mitigation conditions and/ or Proactive Interventions
Activities that involve Procurement, Storage, Management and Disposal of Public Health Commodities	Consignees for all pharmaceutical drugs and other public health commodities procured under this funding will be advised to store the product according to the information provided on the manufacturer's Materials Safety Data Sheet (MSDS). These are supplied by the manufacturer, and can also be found on the internet by using the active ingredient and MSDS as search terms. If disposal of any of these pharmaceutical drugs is required, due to expiration date or any other reason, the consignee will be advised that the preferred method of disposal is to return to the manufacturer. If this is not possible (for example if the expired or spoiled pharmaceuticals are considered hazardous and as such, if transferred across frontiers, become regulated and subject to the Basel Convention an the transfrontier shipment of hazardous wastes) then follow the guidelines in the WHO document *Guidelines for Safe Disposal of Unwanted Pharmaceuticals During and After Emergencies*, found at www.who.int/water_sanitation_health/medicalwaste/unwantpharm.pdf. At the request of the Mission, subject to available funding, the implementing partner will make all reasonable attempts to facilitate the disposal of expired drugs under this activity to mitigate the impact of medical waste. Implementing partners will work with the host country as appropriate on aspects of essential medicine supply chain management, including estimating demand, distribution, and storage issues of time and temperature. Commodities that, during use, become hazardous or highly hazardous waste are managed under the conditions in the following section "Activities that involve the collection, safe handling and disposal of hazardous and highly hazardous medical waste" Packaging and disposal of all other public health commodities will be treated using the guidelines provided in Environmental Guidelines for Small-Scale Activities in Africa (EGSSAA) 2nd Edition, Chapter 15: Solid Waste (http://www.encapafrica.org/EGSSAA/Word_English/solidwaste.doc)
Activities that involve generation, storage, handling and disposal of hazardous or highly hazardous medical waste	For activities entailing training of professional and para-professional health workers in methods that result in the generation and disposal of hazardous or highly hazardous medical waste, including blood or sputum testing, basic and emergency obstetric care techniques, and laboratory support, the implementing partner will include training in or ensure the training curriculum covers procedures to properly handle, label, treat, store, transport and properly dispose of blood, sharps and other medical waste, as applicable, and follows either WHO guidelines, in Environmental Guidelines for Small Scale Activities in Africa Chapter 8, "Healthcare Waste: Generation, Handling, Treatment and Disposal," and is consistent with national policy and procedure for medical waste. For all USAID-supported activities entailing service delivery, including blood testing and laboratory support,

	AOTRs will work with its implementing partners to assure, to the extent possible, that the medical facilities and operations involved have adequate procedures and capacities in place to properly handle, label, treat, store, transport and properly dispose of blood, sharps and other medical waste. This includes **annual completion of the Healthcare Waste Management Minimum Program Checklist and Action Plan (Annex 1)** for all facilities where implementing partners are directly providing services. Completion of this checklist should be included in the annual workplan. Healthcare waste is most appropriately identified by color-coding bags and containers. In addition, the following are well-established practices in the safe handling, storage, and transportation of health-care waste: • Sharps should be collected together (regardless of whether or not they are contaminated), and stored in puncture-proof, impermeable, and tamper-proof containers with fitted covers. If plastic or metal containers are unavailable, then containers made of dense cardboard are recommended. • Highly infectious waste should be immediately sterilized by autoclaving. • On-site collection of waste should be handled at frequent intervals to avoid accumulation, and an adequate supply of fresh collection bags/containers should be available for replacement. • Waste should be stored in an accessible room with adequate space and protection from sunlight. • In any area that produces hazardous waste - hospital wards, treatment rooms, operating theatres, laboratories, etc., three bins plus a separate sharps container will be needed to separate these types of waste. (If hazardous and highly hazardous waste will be disposed of in the same manner, they should not be collected separately.) • For hazardous waste and highly hazardous waste the use of double packaging, e.g. a plastic bag inside a holder or container is recommended for ease of cleaning. • To make separate collection possible, hospital personnel at all levels, especially nurses, support staff, and cleaners, should be trained to sort the waste they produce. See EGSSAA Chapter 8, "Healthcare Waste: Generation, Handling, Treatment and Disposal" (http://www.encapafrica.org/EGSSAA/Word_English/medwaste.doc) for additional guidance on proper handling and disposal of medical waste. Other important references to consult are "WHO's Safe Management of Wastes from Healthcare Activities" http://www.who.int/water_sanitation_health/medicalwaste/wastemanag/en/
Activities that involve small-Scale Water and Sanitation	All water supply and water quality assurance activities should be conducted in a manner consistent with the good design and implementation practices described in Environmental Guidelines for Small Scale Activities in Africa, Chapter 16: Water Supply and Sanitation (http://www.encapafrica.org/EGSSAA/Word_English/watsan.doc). For example, microbiological contamination of improved wells can often be prevented by aquifer protection measures and proper well design and maintenance. Separate wells should be used for human consumption and animal watering, or an overflow trough should be constructed well away from the protected water source. Another useful reference to consult for good water quality assurance and sanitation design and implementation principles is the document, "Guidelines for the Development of Small Scale Rural Water Supply and Sanitation

	Projects in Ethiopia," by Catholic Relief Services and USAID, July 31, 2003 (crs.org/publications/pdf/Wat0604_e/pdf). Water quality assurance and water testing is essential for determining that the water from a constructed water source is safe to drink and to determine a baseline so that any future degradation can be detected. Among the water quality tests which must be performed are tests for the presence of arsenic, nitrates, nitrites, and coliform bacteria, plus tests for any additional parameters required by the host government. Any USAID-supported activity engaged in the provision of potable water must adhere to Guidance Cable State 98 108651, which requires arsenic testing, and guidance is provided by USAID's Economic Growth, Agriculture and Trade Bureau in the document "Guidelines for Determining the Arsenic Content of Ground Water in USAID-Sponsored Well Programs in Sub-Saharan Africa" (www.usaid.gov/our_work/environment/compliance/ane/tool_shed/**arsenic_guidelines**.doc). Simple and cost-effective sample kits for *E. coli* and fecal coliforms are available through a variety of manufacturers (e.g., 3M Petrifilm, Idexx Colilert or Coliscan Easygel). Initial water quality testing is the responsibility of the program to assure, but when feasible the program should also set in place capacities and responsibilities to provide reasonable assurance that ongoing water quality monitoring occur. The standards for initial and ongoing testing -- types of contaminants for which testing should be conducted, testing methods, testing frequency, and issues such as public access to results -- should follow any applicable USAID guidance, as well as host country laws, regulations and policies. Furthermore, a response protocol should be established in the event that water quality testing detects contamination. An illustrative list of environmentally sound principles for water and sanitation activities includes: • Community mobilization to ensure sustainability of the physical infrastructure • Water sources should be located upgrade from potential sources of pollution, including latrines or toilets. • Water sources are protection from both human and animal contamination. • Ensure latrines are sited far away from shallow wells, cisterns, spring sources and boreholes. Latrine pits will be dug in the unsaturated zone above the water table, and latrine pits are protected against flooding and overflow due to intense rainfall. Establish and train community water and sanitation committees to manage, repair and maintain all water points and the watersheds immediately surrounding the water points, including watering of livestock, and to provide hygiene education to participating communities. • Training in sanitation and hygiene for health workers, community health and water committees, community area based development groups, and/or municipal water board members. • Ensure community mobilization and public awareness of human health risks associated with water-borne disease vectors. • Relevant local community rules and best practices and procedures of promotion of better environmental health are developed and adhered to. Verification through site visits and photos should

	be done to assure practices are in accordance with local community rules and "best practices" through community monitoring tools and municipal water board's evaluation system. • Take measures to minimize standing water. • Where water supplies for drinking or washing patients or laundry are upgraded or provided, measures will be taken to ensure that drainage from laundry and bathing facilities does not affect the water supply nor pose threats for transmittal of infectious diseases. • Provision of potable water supplies and/or latrines will follow host country or WHO standards concerning the appropriate separation of wells and latrines and measures to avoid contamination of water sources.
Activities that involve small-scale gardening / Farming activities	• Implementing partner will check to determine the extent of any threatened or endangered species in the area. • Existing fields will have a buffer zone between the field and any wetland, stream, pond. • Implementing partner will not remove trees nor create new agricultural land. • Vaccines for animals will not use Genetically Modified Organism (GMO) live cultures • GMO species (plant or animal) will not be introduced • Pesticides (registered by the U.S. as pesticides), will not be used. Only organic, non-chemical pest management techniques will be promoted and practiced. • When animals or plants/seeds are brought into the country from other countries or regions, appropriate quarantine controls will be enforced prior to bring the animal or plant/seeds into the region • No raw excrement will be used as fertilizer directly on plants; only composted waste will be used. • Animal waste will composted, decomposed in approximately 12-15 weeks and used as fertilizer. Animal waste will be stored in marked Farm yard manure (FYM) pits approximately 3 ft in depth. Length and width will be determined based on the size of the small farm or home garden. Compost pits will be marked with appropriate signage to minimize human exposure. Farms/gardens will have covered composting pits but home gardens will not (according to local customs). FYM pits will be located a minimum of 30 ft from water sources and 50 feet from households. • Structures such as coops, fenced areas, and barns and fields will not be built in ecologically sensitive areas such as ponds, wetlands, or heavily forested areas. • Cages, coops, and any animal housing will be set away from homes, drinking water sources, low lying or wet areas, and surface water (ponds, streams). • Compost pits will be secured using locks, fences, and other appropriate hardware so that human exposure is minimized. Tools (shovels, hoes and rakes) and protective gear, as appropriate, will be used to collect and compile animal waste.
Activities that involve small-scale rehabilitation of health posts, clinics, laboratories, hospitals or training centers	For the rehabilitation of existing facilities, these activities shall be conducted following principles for environmentally sound rehabilitation, as provided in the Small Scale Construction chapter of the USAID Environmental Guidelines for Small-Scale Activities in Africa, as the guidelines are appropriate for rehabilitation activities (http://www.encapafrica.org/EGSSAA/Word_English/construction.doc)

Notes: If rehabilitation includes water supply and/or sanitation, see also "Water Supply and Sanitation" section above.	For the construction of any facilities in which the total surface area disturbed exceeds 10,000 square feet (1,000 square meters), the program shall conduct a supplemental environmental review according to guidance in Annex G (www.encapafrica.org/EPTM/AnnexG_EPTM_Mar2005b.pdf) of the Africa Bureau Environmental Procedures Training Manual (EPTM) (http://www.encapafrica.org/eptm.htm). Construction will not begin until such a review is completed and approved by the Mission Environmental Officer. An illustrative list of environmentally sound construction principles includes: • As part of the selection/screening for potential sites, the implementer will perform Environmental Due Diligence for proposed sites to ensure that the site is free of environmental concerns including those from off-site sources. • The majority of materials used will be of local origin and will not contain any hazardous materials (e.g., asbestos or lead). • Investigate and use less toxic alternative products. • Excess materials will be recycled wherever possible and disposal of unusable material will be done in an environmentally sound manner. • Rehabilitation/construction activities will not require the use of any heavy equipment, or in the unlikely event it does, proper safeguards will be taken to prevent destruction of vegetation and soil erosion (e.g., runoff from the site which may be high in suspended solids or which may cause disruption to local drainage patterns). • No lead-based paint will be used. When (lead-free) paint is used, it will be stored properly so as to avoid accidental spills or consumption by children; empty cans will be disposed of in a environmentally safe manner away from areas where contamination of water sources might occur; and the empty cans will be broken or punctured so that they cannot be reused as drinking or food containers. • For any TB laboratories renovated under this program, provide room(s) with negative pressure to mitigate any cross contamination potential, and provide owner/operators of the renovated facility with written guidelines for proper maintenance of the facility.
Activities that involve the use of pesticides	Use conditions established in the Programmatic Environmental Assessment and country specific Supplemental Environmental Assessments

4.3. Environmental Responsibilities

- USAID/ Rwanda is responsible for monitoring and evaluation of activities after implementation with respect to environmental effects. A process will be integrated into the SO's pertinent Performance Monitoring and Evaluation Plan which will involve periodic field visits and assuring that implementing partners have the human capacity necessary to incorporate environmental considerations into program planning and implementation and to take on their role in the Environmental Screening Process. Implementing partners should seek training as needed, such as through participation in the Africa Bureau's regional ENCAP training courses.

- The USAID-funded implementing partners will provide the USAID/Rwanda Health team, as specified pursuant to the portfolio review and any conditions in their grants, sub grants or agreements, requested documentation, including, as applicable to activities, documents that demonstrate conformance with the environmental regulations, physical planning standards or building codes and construction standards;

- The USAID-funded partners shall report to the Health team on progress and status of implementing the Environmental conditions, as determined under this IEE.

- USAID/ Rwanda will report to the Regional Environmental Officer (REO) and the Bureau Environmental Officer (BEO) on an annual basis on the status of implementation of mitigation and monitoring requirements. This report should draw upon implementing partners' progress and annual reports, as well as on periodic site visits by the MEO and REO.

- Periodic visits of the USAID/Rwanda, Health Team Managers or SO Team leader, with, if possible MEO, REO/REA or other specialists as appropriate, will be encouraged to ensure environmentally sound implementation, mitigation and monitoring of activities.

Monitoring and Evaluation:

As required by ADS 204.3.4, USAID Rwanda _ Health team must actively monitor ongoing activities for compliance with approved IEE recommendations, and modify or end activities that are not in compliance. The team will monitor and evaluate whether the provisions specified herein are being implemented effectively and whether there are new or unforeseen environmental consequences arising during implementation that were not identified and reviewed in accordance with 22 CFR 216. If additional activities that are not described in this document are added to this program, an amended environmental examination must be prepared.

Basic mitigation is covered above by the conditions under each negative determination. One level of monitoring will be to get implementing partners put the conditions above into actions plan matrices with timelines, assigned roles/responsibilities and deadlines, and ensure they are signed by Chiefs of Party or the responsible authority. Completed and signed action plans shall be sent to USAID to show compliance.

Implementing partners' annual reports and, as appropriate, progress reports shall contain a brief update on mitigation and monitoring measures being implemented, results of environmental monitoring, and any other major modifications/revisions in the development activities, and mitigation and monitoring procedures.

USAID Rwanda will report to the REO and the BEO on an annual basis on the status of environmental screening and review and the implementation of mitigation and monitoring requirements. This report should draw upon implementing partners' progress and annual reports, as well as on periodic site visits by the MEO

and REO.

Further, in order to ensure compliance with 22 CFR 216 and ADS 204, the Health Team will also ensure that provision of the IEE concerning mitigative measures and the conditions specified herein along with the requirement to monitor be incorporated in all contracts, cooperative agreements, grants, and subgrants.

All implementing partners must submit an Environment Management Plan (EMP) attached in Annex I showing how the conditions set forth in this document are to be implemented. The EMP should be submitted annually to the MEO.

ANNEX I

REGULATION 216 COMPLIANCE FOR USAID/RWANDA, HEALTH PROGRAM, ENVIRONMENTAL MANAGEMENT PLAN (EMP)

The EMP must be completed by each organization carrying out activities under the USAID/Rwanda, Health Program,. It will include the organization's own report plus the EMPs of any sub-awardees, to capture the entire range of activities funded by USAID/Rwanda, Health Program, under the bi-lateral award. The prime USAID/Rwanda, Health Program, implementing partners are responsible for ensuring that each sub-awardee completes and submits the EMP to the prime in a timely fashion. The EMPs are reviewed and approved by the A/COTRs and the Mission Environmental Officer.

The EMP consists of 3 parts:

1. The Environmental Verification Form
2. The Mitigation Plan for specific environmental threats carried out by the implementer,
3. The Reporting Form

The EMP Environmental Verification Form (EVF)
This form indicates the categories of activities carried out by implementing partners (or their sub-awardees) and serves to 'trigger' USAID expectations of mitigation measures.

All implementing partners must implement the Environmental Verification Form for sub projects, sub grants and sub activities. The completed EVF should be submitted to the MEO and subsequently to the BEO for final concurrence. This form is to be used to describe sub actions/projects/grants and to assess if the activity is within the scope of this IEE. If not within the scope of this IEE then a supplemental environmental document must be submitted to the BEO via the MEO for concurrence.

The EMP Mitigation Plan
Implementing partners will use the Mitigation Plan to describe the specific actions they will undertake under each category of activity when screening reveals potential environmental threats as outlined in Section 3 of this IEE. In these cases, mitigation will be undertaken as described in Section 5, Table 4 of this IEE. The Mitigation Plan also identifies the person responsible for monitoring compliance with mitigation and the indicator, method and frequency of monitoring.

The EMP Reporting Form
This form reports on the results of applying the mitigation measures described in the Mitigation Plan and identifies outstanding issues with respect to required conditions. In some cases, digital photos will be the best way to document mitigation and should be included in the report.

USAID/Rwanda, Health Program,

EMP Part 1 of 3: Environmental Verification Form

USAID/Rwanda, Health Program, Award Name _____

Date of Screening:_____

Funding Period for this award: FY____- FY____

Name of Prime Implementing Organization:_____

Current FY Resource Levels: FY_____

Name of Sub-awardee Organization (if this EMP is for a sub): _____

This report prepared by: Name:_____ Date: _____

Geographic location of USAID-funded activities (Province, District):_____

Date of Previous EMP for this organization: _____ (if any)

Indicate which activities your organization is implementing under this funding.

	Key Elements of Program/Activities Implemented	Yes	No
1	• education, technical assistance or training; • analyses, studies, academic or research workshops and meetings • document and information transfers; • programs involving nutrition, health care, or FP services except to the extent designed to include activities directly affecting the environment (such as construction of facilities, water supply systems, waste water treatment, etc). • integrating and promotion of key hygiene practices: hand washing with soap and safe waste disposal through various entry points (except those involving any biophysical activities and purchases of water treatment chemicals)		
2	Activities involving supply and distribution of Long Lasting Insecticide Treated Nets under the Presidential Malaria Initiative		
3	Activities involving use of Pesticides under the Indoor Residual Spraying (IRS) as part of PMI		
4	Activities involving blood testing, care, treatment and have potential to generate hazardous health waste.		
5	Activities involving procurement, storage, management and disposal of public health commodities, including water treatment chemicals		
6	Activities involving construction and renovation of facilities		
7	Activities involving agricultural activities to strengthen food security		
8	Other activities that are not covered by the above categories		

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Category of Activity from Section 5 of IEE	Describe specific environmental threats of your organization's activities (based on analysis in Section 3 of the IEE)	Description of Mitigation Measures for these activities as required in Section 5 of IEE	Who is responsible for monitoring	Monitoring Indicator	Monitoring Method	Frequency of Monitoring
1. Education, technical assistance, training, etc.	No environmental impacts anticipated as a result of these activities.	Education, technical assistance and training about activities that inherently affect the environment includes discussion of prevention and mitigation of potential negative environmental effects.		Discussion of environmental impact included in education, technical assistance, training and other materials	Review of materials	Annual
2. Long Lasting Insecticide Treated Nets (LLITNs)						
3 Indoor Residual Spraying (IRS)						Annual
4. blood testing, care, treatment generation of hazardous health waste.		Completion of the Healthcare Waste Management Minimum Program Checklist and Action Plan (Annex 1)				

Category of Activity from Section 5 of IEE	Describe specific environmental threats of your organization's activities (based on analysis in Section 3 of the IEE)	Description of Mitigation Measures for these activities as required in Section 5 of IEE	Who is responsible for monitoring	Monitoring Indicator	Monitoring Method	Frequency of Monitoring
5.procurement, storage, management and disposal of public health commodities, including water treatment chemicals						
6. Activities involving construction and renovation of facilities						
7. Activities involving agricultural activities to strengthen food security						
8. Other activities that are not covered by the above categories:		Must use the Environmental Review Form (ERF) first.				

Category of Activity from Section 5 of IEE	Describe specific environmental threats of your organization's activities (based on analysis in Section 3 of the IEE)	Description of Mitigation Measures for these activities as required in Section 5 of IEE	Who is responsible for monitoring	Monitoring Indicator	Monitoring Method	Frequency of Monitoring
Describe						

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List each Mitigation Measure from column 3 in the EMP Mitigation Plan (EMP Part 2 of 3)	Status of Mitigative Measures	List any outstanding issues relating to required conditions	Remarks

Certification

I certify the completeness and the accuracy of the mitigation and monitoring plan described above for which I am responsible and its compliance with the IEE:

_____ _____

Signature Date

_____

Print Name

_____

Organization

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USAID/Rwanda, Health Program, Clearance of EMP:

Agreement / Contracting Officer's Technical Representative: _____ Date: _____

Mission Environmental Officer: _____ Date: _____

As appropriate: REA, BEO [depending on nature of activity, which potentially may require an EA]

Note: if clearance is denied, comments must be provided to applicant

Annex II. Healthcare Waste Management Minimal Program Checklist and Action Plan

Elements/Actions	*In Place?*	*Next Steps to be done*		
		What	*By Whom*	*By When*
Written plans and procedures				
1. *A written waste management plan* Describing all the practices for handling, storing, treating, and disposing of hazardous and non-hazardous waste, as well as types of worker training required.				
2. *Internal rules for generation, handling, storage, treatment, and disposal of healthcare waste.*				
3. *Clearly assigned staff responsibilities that cover all steps in the waste management process*.				
4. Staff waste handling training curricula or a list of topics covered.				
5. Waste minimization, reuse, and recycling procedures.				
Staff Training, Practices, and Protection				
6. *Staff trained in safe handling, storage, treatment, and disposal*. Do staff exhibit good hygiene, safe sharps handling, proper use of protective clothing, proper packaging and labeling of waste, and safe storage of waste? Do staff know the correct responses for spills, injury, and exposure?				
7. *Protective clothing available for workers who move and treat collected infections waste* such as surgical masks and gloves, aprons, and boots.				
8. *Good hygiene practices*. Are soap and, ideally, warm water readily available workers to use and can workers be observed regularly washing?				
9. *Workers vaccinated* against viral hepatitis B, tetanus infections, and other endemic infections for which vaccines are available?				

Handling and Storage Practices				
10. *Temporary storage containers and designated storage locations.* *11.* Are there labeled, covered, leak-proof, puncture-resistant temporary storage containers for hazardous healthcare wastes?				
12. *Minimization, reuse, and recycling procedures*. • Does the facility have good inventory practices for chemicals and pharmaceuticals? i.e.: o use the oldest batch first; o open new containers only after the last one is empty; procedures to prevent products from being thrown out during routine cleaning; and				
13. *A waste segregation system.* • Is general waste separated from infectious/hazardous waste? • Is sharp waste (needles, broken glass, etc.) collected in separate puncture-proof containers? • Are other levels of segregation being applied e.g. hazardous liquids, chemicals and pharmaceuticals, PVC plastic, and materials containing heavy metals ((these are valuable, but less essential)?				
14. *Temporary storage containers and designated storage locations.* • Are there labeled, covered, leak-proof, puncture-resistant temporary storage containers for hazardous healthcare wastes? • Is the location distant from patients or food?				
Treatment Practices				
15. Frequent removal and treatment of waste • Are wastes collected daily? • Are wastes treated with a frequency appropriate to the climate and season? o Warm season in warm climates within **24 hrs** o In the cool season in warm climates within **48 hrs**				

o In the warm season in temperate climates within **48 hrs**				
16. *Treatment mechanisms for hazardous and highly hazardous waste*. (The most important function of treatment is disinfection). • Are wastes being burned in the open air, in a drum or brick incinerator, or a single-chamber incinerator? • If not are they being buried safely (in a pit with an impermeable plastic or clay lining)? • Is the final disposal site (usually a pit) surrounded by fencing or other materials and in view of the facility to prevent accidental injury or scavenging of syringes and other medical supplies?				
17. If the waste is transported off-site, are precautions taken to ensure that it is transported and disposed of safely?				

For more detailed checklists and guidance consult: *Safe management of wastes from health-care activities*, edited by A. Prüss, E. Giroult and P. Rushbrook. Geneva, WHO, 1999, http://www.who.int/water_sanitation_health/Environmental_sanit/MHCWHanbook.htm . English.