AS/A 14-94

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ENVIRONMENTAL COMPLIANCE FACESHEET FOR THE INITIAL ENVIRONMENTAL EXAMINATION (IEE)
Amendment No. 1

Objective:	Objective 3/ Investing in People
Program Areas:	3.1 Health
Program Elements:	3.1.1 HIV, 3.1.2 Tuberculosis, 3.1.5 Other Public Health Threats, 3.1.6 Maternal and Child Health, 3.1.7 Family Planning and Reproductive Health
Country/Region:	Bangladesh/AME
Country Code:	388
Funding Period:	FY2013 – FY2019
Resource Levels/Amount(s):	Estimated $612 million
Statement Prepared by:	Mohammad Shahidul Islam, Education Team Leader, OPHNE, USAID/Bangladesh
Date:	**February 26, 2014**

IEE Amendment? Yes ☒ **No** ☐ **Asia 13-66, 3/11/2014**

Environmental Media and/or Human Health Potentially Impacted (check all that apply):
None ☐ Air ☒ Water ☒ Land ☒ Biodiversity ☒ Human health ☒ Other ☐

Environmental Action(s) Recommended (check all that apply):
☒ ***Categorical Exclusions (CE)***
☒ ***Initial Environmental Examination:***
Negative Determination (ND): no significant adverse effects expected regarding the proposed activities, which are well defined over life of activity.

IEE prepared:

☒ With conditions (NDC): no special mitigation measures needed; normal good practices will be used. For the possible limited procurement of equipment, the proposed action is that the implementer is required to ensure that equipment, commodities (also see ADS 312) and materials are procured from certified retailers; environmental safety and quality certificates conforming with national and/or international standards are available; equipment and materials are used in an environmentally sound and safe manner, properly disposed of when applicable at the end of their useful life in a manner consistent with best management practices according to United States Government (USG), European Union or equivalent standards acceptable to USAID.

☒ With conditions (special mitigation measures specified to prevent unintended impact for activities listed in Facesheet Tables).

USAID APPROVAL OF ENVIRONMENTAL ACTION(S) RECOMMENDED:

Clearance:

Mission Director: for JJaruzelski Date: 4/7/2014
Janina Jaruzelski

Deputy Mission Director: Date: 3/30/2014
Paul Sabatine

Regional Environmental Adviser: Concurred by e-mail Date: 03/18/2014
(Asia, Mid-East, & OAPA) **Andrei Barannik**

Mission Environmental Officer Date: 3/18/2014
Jeff deGraffenried

Director/Program Office: Date: 3/29/14
Thomas Kress

Director/PHNE Office: for MAJ Date: 03/18/2014
Melissa Jones

Concurrence:

ANE Bureau Environmental Officer Date: 4/14/2014
Mary Melnyk

Approved: X

Disapproved: _____

Summary of Findings:

The purpose of this document is to replace, by way of amendment, Initial Environmental Examination (IEE), "Asia 13-66", in its entirety. This Amendment No. 1 to "Asia 13-66" (IEE Amendment) covers all health activities programmed under the USAID/Bangladesh Country Development Cooperation Strategy (CDCS) Development Objective 3 (DO3): Health Status Improved. Activities under this IEE Amendment are funded from the following sources: Program Elements 3.1.1 HIV, 3.1.2 Tuberculosis, 3.1.5 Other Public Health Threats, 3.1.6 Maternal and Child Health, 3.1.7 Family Planning and Reproductive Health. The period of this IEE Amendment is Fiscal Year (FY) 2013-2019. The activities covered in this IEE Amendment are managed by the Office of Population, Health, Nutrition and Education (PHNE).

"Asia 13-66" was approved by the Bureau Environment Office (BEO) on May 23, 2013. This Amendment No. 1 reflects the following changes to accommodate programmatic needs: (1) an increased IEE estimated resource level from $208.51 million to $612 million, (2) an extended IEE funding period from FY2017 to FY2019 to accommodate current award end dates, and (3) the incorporation of new activities under development by PHNE.

This IEE Amendment covers all current activities (defined as awarded, under design or under procurement) for DO3 as described above. For activities under design, they will be covered under this IEE Amendment as written so long as the nature of the activities and their associated environmental impacts remain as described herein.

For activities originally covered under "Asia 13-66", and for which there is no substantial change in the scope, time or funding levels, previously approved award documentation related to environmental compliance under 22 CFR 216 remains valid.

The following bilateral (Facesheet Table 1) and Field Support (Facesheet Table 2) activities will be covered under this IEE Amendment.

Facesheet Table 1. Bilateral Activities in the Health Portfolio

Objective 3: Investing in People
Program Area: 3.1 Health

Program Element	On-going and planned activities under the Program Element.	Types of Activities with Environmental Implications	Threshold Determination
3.1.9	USAID SHIKHA Implementer: FHI 360 LOP: June 2013 – May 2016 LOP Budget: $9 million Agreement # 388-A-13-00003	This activity trains frontline health workers and government health workers on nutrition and hygiene. The activity may purchase equipment, which could include electronics, mobile phones, and vehicles (motorcycles and a car).	CE NDC
3.1.9	Food Security and Nutrition Surveillance Project (FSNSP) Helen Keller Intl	This is a surveillance study. Activity equipment purchases may include electronics.	CE NDC

Program Element	On-going and planned activities under the Program Element.	Types of Activities with Environmental Implications	Threshold Determination
	LOP: March 2013 – February 2014 LOP Budget: $150,000. AID-388-0-13-00022		
3.1.7	Mayer Hashi II Activity EngenderHealth LOP: Oct 1, 2013 – September 30, 2017 LOP Budget: $20 million 388-LA-13-00002	This activity addresses the need for family planning through expanding contraceptive choices with an emphasis on long acting and permanent methods. The activity focuses mainly on training, capacity building and policy advocacy. However, blood and body fluid type biohazard medical waste may be produced. The activity may purchase equipment and electronics.	CE NDC
3.1.7	Marketing Innovation for Health Activity Social Marketing Company (SMC) LOP: July, 2012 – July, 2016 LOP Budget: $15 million AID-388-A-12-00003	SMC distributes short term and long acting family planning products (pills, condoms, injectables, implants and Inter-Uterine Devices), oral rehydration salts, a micro-nutrition powder, dispersible zinc tablets and safe delivery kits throughout the country. Equipment purchases include electronics and vehicles. Biohazard medical waste may be produced.	NDC NDC
3.1.1	Modhumita FHI360 LOP: October 1, 2009 – September 30, 2014 LOP Budget: $13.9 million 388-A-00-09-0123-00	The objective of the Modhumita Activity is to support an effective HIV/AIDS prevention strategy through improved prevention, care and treatment services for the most-at-risk populations (sex workers, injecting drug users, clients of sex workers, migrants, and people living with HIV). The activity produces some biohazard medical waste.	CE NDC
3.1.6	Developing the Next Generation of Public Health Experts in Bangladesh James P. Grant School of Public Health , BRAC University LOP: September 2012 – June 2015 LOP Budget: $3 million	This activity provides scholarships, internships, and training for public health degree candidates and participants. It also aims to strengthen the capacity of public health teachers by improving their training and delivery skills. Equipment purchases may include electronics.	CE NDC

Program Element	On-going and planned activities under the Program Element.	Types of Activities with Environmental Implications	Threshold Determination
	AID-388-F-12-00001		
3.1.6 **3.1.7**	Integrated Safe Motherhood, Newborn Care and Family Planning Project (MaMoni) Jhpiego Corporation and Save the Children, USA LOP: August 2009 – January 2014 LOP Budget: $13.5 million 388-A-00-09-0104-00	The MaMoni activity improves maternal and newborn health, increases access to family planning services, and strengthens Government of Bangladesh (GOB) service delivery systems. Equipment purchases may include electronics and vehicles. Biohazard and contaminated medical waste may be produced.	CE NDC
3.1.6 **3.1.7**	NGO HEALTH SERVICE DELIVERY PROJECT (NHSDP) Pathfinder LOP: December 10, 2012 - December 9, 2016 LOP Budget: $82.74 million AID-388-C-13-00002	USAID NGO NHSDP activity provides integrated family planning and health service coverage through a clinical network. This activity will purchase electronics and vehicles. Chemical and/or Biohazard contaminated medical waste may be produced.	CE NDC
3.1.5 **3.1.6** **3.1.7**	Bangladesh Health Sector Development Program World Bank LOP: 2012 to 2016 LOP Budget: $40 million AID-388-IO-12-00001	This is a pooled grant that includes money from USAID, the Centers for Disease Control, Department of Defense, and the Embassy to support the GOB in implementing the new Bangladesh Health, Population & Nutrition Sector Development Program.	CE
3.1.6 **3.1.7** **3.1.9**	MaMoni Health Systems Strengthening (MMHSS) Implementer: Jhpiego LOP: 2013-2017 LOP Budget: $50 million AID-338-LA-13-00004	The MMHSS activity provides health systems strengthening, and provides Family Planning and Reproductive Health products, equipment, and logistical support for GOB health facilities. There could be small scale construction/renovation to install medical and laboratory equipment. Biohazard and/or chemically contaminated medical waste will	CE NDC

Program Element	On-going and planned activities under the Program Element.	Types of Activities with Environmental Implications	Threshold Determination
		be produced in the GOB facilities supported by the activity.	
3.1.6 **3.1.7**	NGO Graduate 1 Implementer: TBD LOP: 2015-2018 LOP budget: $18 million Agreement: TBD	NGO Graduate 1 will provide integrated family planning and health service coverage through a clinical network. This activity will purchase electronics and vehicles. Chemical and/or Biohazard medical waste may be produced.	CE NDC
3.1.6 **3.1.7**	NGO Graduate 2 Implementer: TBD LOP: 2015-2018 LOP budget: $10 million Agreement: TBD	NGO Graduate 2 will provide integrated family planning and health service coverage through a clinical network. This activity will purchase electronics and vehicles. Chemical and/or Biohazard medical waste may be produced.	CE NDC
3.1.6 **3.1.7**	UNDP-CHTDF PIO Implementer: UNDP LOP: 2014-2016 LOP Budget: $3 million Agreement: TBD	UNDP-CHTDF PIO grant will provide integrated family planning and health service coverage through a clinical network. This activity will purchase electronics and vehicles. Chemical and/or Biohazard medical waste may be produced.	CE NDC
3.1.6 **3.1.7**	Tuberculosis (TB) activity Implementer: TBD LOP: TBD ($26.25 million) Agreement: TBD	This activity proposes to provide holistic support to GOB's national TB activity including integrating TB services effectively in facility and community based activities. This activity will purchase electronics and vehicles. Chemical and/or Biohazard medical waste may be produced.	CE NDC
3.1.6	mSTAR Implementer: FHI360 LOP: $800,000 (health funds) LOP Budget: $800,000 (health funds) Agreement # TBD	This activity provides technical assistance to providers of mobile banking services. No electronic equipment will be purchased.	CE
3.1.6, **3.1.7,** **3.1.9**	Adolescent Reproductive Health Activity Implementer: TBD	This activity will provide technical assistance in the form of education and training to public sector youth clubs; schools; and public, private and health service delivery points to	CE

Program Element	On-going and planned activities under the Program Element.	Types of Activities with Environmental Implications	Threshold Determination
	LOP: TBD LOP Budget: $2,000,000 Agreement #TBD	improve adolescents' knowledge of family planning and reproductive health, nutrition and use of health services. The activity will purchase electronics.	NDC
3.1.6, 3.1.7	Pictorial Partograph Activity Implementer: TBD LOP: TBD LOP Budget: $500,000 Agreement #TBD	This activity will conduct a research study testing the use of simple innovation to encourage pregnant women and their families to come to a facility for childbirth. Pictorial Partograph production may produce chemical waste.	CE NDC

CE= Categorical Exclusion, NDC = Negative Determination w/Conditions

Facesheet Table 2. Field Support Activities in the Health Portfolio

Objective 3: Investing in People
Program Area: 3.1 Health

Program Element	On-going and planned Field Support activities under the Program Element	Types of Activities with Environmental Implications	Threshold Decision
3.1.6 3.1.7	*Bangladesh Knowledge Management Initiative (BKMI)* Implementer: Johns Hopkins Bloomberg School of Public Health Activity number: GPO-A-00-09-0007-00 LOP: September 2012 - September 2017 LOP Budget: $1 million IEE: GH-12-026-RFA, signed 5/20/2012 valid through September, 2017.	This activity supports the GOB to create and manage effective social and behavior change communication in the health sector. USAID Bangladesh activities are limited to Behavior Change Communication and do not include any activities affecting the environment. BKMI/K4H (ending in February, 2014) and BKMI/HC3 (ending in 2017)	CE

Program Element	On-going and planned Field Support activities under the Program Element	Types of Activities with Environmental Implications	Threshold Decision
3.1.7	*Central Contraceptive Procurement (CCP)Activity* Activity number: AID-936-3057 USAID/Washington LOP: 9 years (2007 - 2015) LOP Budget: IEE number is unavailable in Global database. IEE approved by Global Health BEO on April 15, 2008 and is valid through 12/31/2013 (mentioned in action memo).	From Washington DC, this activity procures contraceptives, particularly long-acting and reversible methods, including inter-uterine devices and implants which are distributed to partner countries and entities such as the GOB and Social Marketing Company. The Global IEE for this activity has expired. However, other USAID activities similar to CCP were determined to be a CE. Therefore, CCP Bangladesh activities are covered by this Mission IEE (Asia 13-66 Amendment 1). The Mission requested a copy of the Global IEE and tracking number from the AOR.	NDC
3.1.6 3.1.7	*Translating Research into Action (TRAction)* Activity number: AID: 936-3116 5 years (2009 - 2014) Budget: $13 million IEE: GH-2003-001, signed on 12/30/2002 valid through 09/30/2013	TRAction supports research on maternal health, newborn and child health; population, family planning and reproductive health; nutrition and food security; and TB. TRAction researches are limited to survey, observation and data collection from programs implemented by GOB and/or NGOs. USAID/Bangladesh activities will be limited to research and do not include any activities affecting the environment A pervious IEE (GH-2003-001) provided a CE for TRAction. However, this IEE has expired (9/30/2013), and as such, activities undertaken in Bangladesh will comply with this Mission IEE (Asia 13-66 Amendment 1). Also, the Activity will comply with the Global IEE once valid.	CE
3.1.2	*TB Care-II* Partner: University Research Corporation (URC) Activity Number: AAD-936-3100 Duration: 5 years (2010-2015) Budget: $ 4.3 million	This activity works to improve the case finding and management of TB and improves diagnostic capacity through laboratory strengthening. An NDC is recommended for all TB CARE II activities; the Global IEE Table	NDC

Program Element	On-going and planned Field Support activities under the Program Element	Types of Activities with Environmental Implications	Threshold Decision
	IEE file number: GH-2010-004, signed 02/16/2010 and valid through September, 2014.	1 under section 3 specified NDC (Global IEE pp.21, 23-30).	
3.1.6 3.1.7	*Fistula Care Plus activity* Partner: EngenderHealth Activity Number: AID-OAA-A-14-00013 Duration: 5 years (December 2013-December 2018) Budget: $1 million IEE: GH- 13-18, 1/31/2013 - 09/30/2018.	This activity institutionalizes fistula prevention, treatment rehabilitation and reintegration in the public and private sectors. It has the potential for a negative effect from the activities directly affecting the environment. An NDC is recommended for Fistula Care activities; Section 4 of IEE GH-13-18 has specific information on CE and NDC (pages 16-19).	NDC
3.1.2	*STOP TB Partnership* Partner: Support to NTP Activity number: AAD 936-3100 Duration: 2013-2015 Budget: $1.5 million IEE: GH-2010-004, 02/16/2010 through September, 2012	This activity supports the procurement of second- line TB medications for Multi-Drug Resistant-TB patients in Bangladesh, and procurement through the Global TB Drug Facility mechanism. Activities have the potential for a negative effect the environment. The Global IEE recommends a NDC for any TB CARE activity (Table 1 in Section 3, and Table 2 in Section 4, pages 21, 23-30).	NDC
3.1.6 3.1.7	*Health Finance and Governance Project* Contractor(s)/Grantee(s): Abt Associates Duration: 5 years (2012 - 2017) Budget: TBD IEE: GH-12-016, 2/29/2012 – September, 2017.	This activity provides behavior change communication training to health and family planning service providers with a focus on girls and young women. USAID/Bangladesh activities will be limited to training on implementation monitoring, and financial analysis of the Health Sector Program and do not include any activities affecting the environment.	CE

Program Element	On-going and planned Field Support activities under the Program Element	Types of Activities with Environmental Implications	Threshold Decision
3.1.2	*TB Task Order 2015 (Public-Private Mix to Support Tuberculosis Control in Bangladesh)* Partner: PATH Duration: 2013-2014 Budget: $1 million Activity number: AAD-936-3100 IEE: GH-2010-004, (02/16/2010 and valid through September 30, 2014).	This activity supports strengthening referral linkages from private health sector to the national TB activity, improving capacity of private health care providers, and increasing TB case notification by private sector providers. It has the potential to negatively affect the environment. The Global IEE has recommended that an NDC is recommended for any TB CARE activities; See IEE Table 1 under Section 3 (page 21) and Table 2, Section 4 (page 23-30).	NDC
3.1.2	*National TB Prevalence Survey* Partner: World Health Organization (WHO) Duration: September 2009-September 2014 Budget: $ 4.3 million Activity number: AAD-936-3100 WHO IEE: No number available, Dale Gibbs signed 7/19/2010 and is valid through September 30, 2014.	This activity supports the national survey to measure current TB prevalence of drug sensitive and drug resistant TB. It has the potential to negatively affect the environment. An NDC is recommended in the Global IEE for this activity. See IEE Table 1, Section 3 (page 21) and Table 2 Section 4 (pp.23-30).	NDC
3.1.7	*SHOPS Bangladesh* Partner: Abt Associates Duration: November 2011 – March 2014 Budget: $1.2 million Activity number: GPO-A-00-09-00007-00 IEE: 0042, signed by BEO 08/03/2011 and valid through September 30, 2014.	This activity supports establishing long-acting and permanent methods of family planning as a viable service market among selected private sector facilities in Dhaka and Chittagong. An NDC is recommended in the Global IEE for SHOPS activities; See IEE Section 3.	NDC
3.1.2 3.1.6	*Centers for Disease Control Interagency Agreement (CDC-IAA)* Partner: Centers for Disease Control (CDC) Duration: 9/1/2009- 9/30/2014 Budget: $ 1.2 million IEE: GH-09-020, signed 09/09/2009 valid through September 30, 2014	The CDC-IAA provides the GOB with strategic research and surveillance support related to TB and immunizations, thus strengthening the national capacity in disease management and control. Overall the Global IEE's TD for activities under this activity is NDC. A CE is recommended for the activities	CE

Program Element	On-going and planned Field Support activities under the Program Element	Types of Activities with Environmental Implications	Threshold Decision
		presented in the Global IEE Section 3. A CE is recommended because no environment impacts are expected. These activities include education, training, technical assistance or training, analysis, studies, academic or research workshops, information transfers, nutrition, etc. An NDC is recommended (See Table 2, Section 3). This includes the procurement, storage, management and disposal of public health commodities, including drugs, immunizations and nutritional supplements, lab supplies and reagents, etc.	NDC
3.1.2 3.1.6 3.1.7	*Dhaka Reporting Center (Interagency Agreement VOA)* Partner: Voice of America (VOA) Duration: May 2013- September 2016 Budget: $ 0. 6 million AAD: 04/30/2001- 09/30/2008 IEE expired in 2012. VOA (AAD signed on April 30, 2001) was folded under the Maternal Child Health AAD (936-3096). A new Global IEE is being developed.	This activity supports a media initiative to produce features, interviews, and documentaries on health and education issues. No effect on environment since the activity deals only with mass media. This activity will fall under the Mission's IEE (Asia 13-66 Amendment 1). The Mission will follow the Global IEE once completed. The Mission IEE provides a CE for this type of activities. When the Global IEE is available, the Mission will review and ensure the consistency of approved Threshold Decision and Conditions.	CE
3.1.9	*Global Alliance for Improved Nutrition (GAIN)* Duration: September 11, 2006- September 29, 2015 Budget: 0.5 million Activity number: GCD2011000372 IEE: GH-11-072, 8/24/2011 - 09/29/2015	This activity conducts feasibility studies on value chains to determine if further investments and time will yield improved nutritional outcomes. The activity conducts only studies on improved nutritional outcomes in Bangladesh.	CE

Program Element	On-going and planned Field Support activities under the Program Element	Types of Activities with Environmental Implications	Threshold Decision
3.1.6 3.1.7 3.1.9	*Maternal and Child Health Integrated Program (MCHIP)* Duration: September 2008-September 2014 Budget: $ 11.7 million (based on FY 14 exercise) Activity number: 936-4000.01 Partner: Save the Children, D-Net IEE approved by Global Health Bureau Environmental officer on August 13, 2008 – through FY17 IEE number is unavailable in Global database.	This activity supports the introduction, scale-up and further development of high-impact Maternal, Neonatal, and Child Health interventions, including the program approaches to effectively deliver those interventions, to achieve measurable reductions in under-five and maternal mortality and morbidity. Some activities have the potential for a negative effect on the environment. An NDC is recommended; please see the Global IEE Table 2, Section 3.	NDC
3.1.6	*WHO - Immunization and Vaccine Support* Contractor(s)/Grantee(s): World Health Organization Duration: 10 years (2012 - 2022) Budget: $ 0.7 million Activity number: 936-3080 IEE was approved by Global Health Bureau Environmental Officer on June 13, 2007 and valid through 9/30/2013 Original IEE number is unavailable in Global IEE database provided a CE for activities. The Mission requested a copy of the IEE and tracking number from the AOR.	This activity provides technical assistance and training to GOB to eradicate poliomyelitis and strengthen routine immunization with focus on surveillance activities. Original IEE (dated 6/30/07) provided a CE for activities. Activities shall be implemented under the conditions established in this IEE (Amendment No. 1).	CE
3.1.2 3.1.6 3.1.7	*Systems for Improved Access to Pharmaceuticals and Services (SIAPS)* Grantee: Management Sciences for Health (MSH) Duration: 5 years (2011 - 2015) Budget: $ 2.2 million IEE: GH-11-023, April 5, 2011 through 9/30/ 2015	This activity provides technical assistance to establish and manage a central procurement cell within the Ministry of Health & Family Welfare of the GOB to improve the transparency, efficiency, and credibility of the procurement process across all units. NDC is designated by the Global IEE (GH-11-023); please see the Global IEE Section 4, Table 4a and 4b, page 41.	

Program Element	On-going and planned Field Support activities under the Program Element	Types of Activities with Environmental Implications	Threshold Decision
			NDC
3.1.6 3.1.7	*MEASURE DHS* Grantee: Macro International, Inc. Duration: 6 years (2008 - 2013) Budget: $0.6 million IEE: GH-2006-003, July 16, 2007 through 9/30/2018 (end of activity)	This activity supports the Bangladesh Demographic and Health Survey for monitoring the program performance in the health sector. The activity also designs tools and methods to monitor and evaluate USAID-funded activities for strengthening health systems. The Global IEE's (GH -2006-003) Threshold Decision is a CE for this activity.	CE
3.1.6 3.1.7	*Measure U.S. Census Bureau* Partner: U.S. Census Bureau Activity number: 936-3083.05 Duration: 6 years (2008 - 2016) Budget: IEE: GH-2006-003, 12/02/2011-09/30/2018 (end of activity)	The Measure U.S. Census Bureau activity provides technical assistance for the implementation of the Bangladesh Population and Housing Census through the U.S. Census Bureau to the Bangladesh Bureau of Statistics in the Ministry of Planning. The Global IEE provided a CE.	CE
3.1.6 3.1.7	*Measure Evaluation Phase III* Contractor(s)/Grantee(s):University of North Carolina at Chapel Hill Activity number: 936-3083.10 **Duration**: 7 years (2008 - 2015) Budget: $ 2.8 million IEE: GH-2006-003, 7/17/2007 - 09/30/2018 (end of activity)	The Measure Evaluation Phase III activity provides technical assistance to the public and NGO sectors to establish effective monitoring and evaluation (M&E) systems. The Global IEE provided a CE since there is no effect on the environment as the activity establishes M&E systems.	CE

Program Element	On-going and planned Field Support activities under the Program Element	Types of Activities with Environmental Implications	Threshold Decision
3.1.9	*Integrated Agriculture and Health Based Interventions Project* Grantee: FAO and UNICEF Activity number: GH AAD 936-3080 HERS Duration: 3 years (2012 - 2015) Budget: $ 1.25 million This activity is covered under the UNICEF MCH Umbrella Grant IEE valid from June 26, 2007 through 09/30/2015 IEE number is unavailable in global database.	This activity improves household food security and nutritional status, especially with mothers and young children in selected Upazilas of Khulna and Barisal, Bangladesh. The IEE establishes this activity with a NDC. The Global IEE Table 1, pages 6-8 identified potential environmental impacts and Table 2 (pages 14 -16) provides a summary of activities, determinations, and conditions. The Mission will ensure a proper mitigation plan is in place for activities that have a NDC.	NDC
3.1.2	*Tuberculosis Prevalence Survey in Bangladesh* Grantee: World Health Organization Duration: 2 years (2013 - 2015) Budget: $ 4.3 million Program number: AAD 936-3100 IEE: GH-2010-004, 02/16/2010 – September, 2014.	This activity provides national TB program with updated and more accurate information on the current tuberculosis burden and measures change in prevalence. An NDC is recommended for any TB CARE activities; The Global IEE Table 1, Section 3 and Table 2, Section 4 have specified NDC (See IEE page 21, 23 - 30).	NDC
3.1.6 3.1.8 3.1.9	*Strengthening Partnerships, Results, and Innovations in Nutrition Globally (SPRING)* Grantee: JSI Research & Training Institute, Inc. Duration:5 years (2012 - 2017) Budget: $ 4.5 million Activity Number: AID-OAA-A-II-00031 LOP Budget: $19 million IEE: GH-12-045, 10/10/2012 - 2017	The SPRING activity utilizes social and behavior change communication and homestead food production to improve nutrition among pregnant and lactating women and children under two. SPRING also promotes improved hygiene practices aimed at diarrheal disease reduction. The Bangladesh part of this field support activity includes training and behavior change communications. It does not deal with any activities that may have any effect on the environment. Original IEE (GH-12-045) recommended NDC (Section 3c; pages 28-29 and Table 4a, page 31). To fulfill the conditions, SPRING has an Environmental	NDC

Program Element	On-going and planned Field Support activities under the Program Element	Types of Activities with Environmental Implications	Threshold Decision
		Mitigation and Monitoring Plan (EMMP) in place (page 45 of the IEE is the EMMP certification).	
3.1.6 3.1.7 3.1.9	*Health System 20/20 (HS 20/20)* Contractor(s)/Grantee(s): Abt Associates Duration: 3 years (2010 - 2013) Budget: $ 1million (obligated till December 2012) IEE: GH-11-019, signed on 04/03/2011 and valid through March, 2016	The Health Systems 20/20 activity aims to improve health financing, governance and operations, and to build sustainable developing country institutional capacity in these areas. No effect since the activity includes only training on fiscal planning for the ministry of health of the Government of Bangladesh and monitoring fiscal expenditures. Original IEE (GH-11-019) provided a CE.	CE
3.1.6	*Health Research Challenge for Impact (HRCI)* Grantee: Johns Hopkins Bloomberg School of Public Health Duration: 9/09 - 9/14 Budget: 1.5 million Activity Number: GHS-A-00-09-00004 IEE: GH-2003-001, signed on 12/30/2002 valid through 09/30/2013 (end of activity)	HRCI is developing a leadership and management curriculum for health managers and documenting best practices in maternal and child health in Bangladesh The activity is limited to classroom-based training and documentation; therefore, no effect on the environment. The Global IEE provided a CE for activities in Bangladesh.	CE

CE= Categorical Exclusion, NDC = Negative Determination w/Conditions

It is anticipated that in various activities the following actions may take place: procurement of electric and electronic equipment including computers, electronic devices; small-scale construction or minor renovation activities related to sanitation and hygiene and drinking water supply; and disposal of special medical waste. All of these actions will require monitoring and screening and application of various mitigation measures as described in IEE Table 3.

Facesheet Table 3 presents the results of environmental screening and recommends threshold determinations for the main types of activities under all Program Elements.

Facesheet Table 3. Proposed Health Activities, Recommended Threshold Decisions and required Reg.216 actions

Sec.	Activities	Effect on Natural or Physical Environment	Threshold Decisions and required Reg. 216 actions
I	**All actions expected to have no effect on the natural or physical environment** This includes: education, technical assistance, training activities except to the extent such activities include actions directly affecting the environment (such as construction of facilities, etc.); consultations, participant training, document transfers and information dissemination, analysis, studies, conferences workshops, study tours, curriculum development, training and developing information networks	No effect	**Categorical Exclusion (CE)** no actions required. While these actions are considered to have no impact on the environment, environmental health and quality considerations should be incorporated into all relevant steps along the healthcare continuum, as part of quality assurance and infection prevention approaches. See IEE Tables 1 and 2 for more details.
II	**All actions regarding which no significant adverse effects are expected** No special mitigation measures are needed; activities are implemented with conditions that normal good practices, engineering methods and standard instructions are followed. This includes procurement of office furniture, electric and electronic equipment and materials (no bio-hazardous or low-radiological materials will be used for testing in this equipment).	no significant adverse effect	**Negative Determination with Conditions (NDC)** The implementer is required to ensure that equipment, commodities (also see ADS 312) and materials are procured from certified retailers; environmental safety and quality certificates conforming with national and/or international standards are available; equipment and materials are used in an environmentally sound and safe manner, properly disposed of when applicable at the end of their useful life in a manner consistent with best management practices according to USG, European Union or equivalent standards acceptable to USAID. See IEE Tables 1 and 2 for

Sec.	Activities	Effect on Natural or Physical Environment	Threshold Decisions and required Reg. 216 actions
			more details.
III	**Actions that normally do not have a significant effect on the environment if special mitigation measures are specified to prevent unintended impact** Examples include: - Medical laboratories and centers upgrade; equipment procurement and installation; HIV and TB testing; - Procurement and use of medical kits, supplies, and chemical reagents; - Procurement and use of pharmaceutical drugs; - Immunization campaigns including TA and vaccination; - Small-scale construction/renovation of sanitation and health facilities; - Small-scale water supply, water testing, and water quality improvement activities (may include application of disinfectants that are registered as pesticides); - Improved nutrition and feeding; and - Generation, storage and disposal of special medical wastes as part of various activities;	Potential for a significant adverse effect of one or more activities	**Negative Determination with Conditions (NDC);** An Environmental Due Diligence Review (EDD) in form of Environmental Review and Assessment Checklist (IEE Annex 1) is required to identify environmental effects, develop Environmental Manual and Mitigation and Monitoring Plans when applicable, confirm /neglect and mitigate a potentially significant adverse effect. If significant adverse effects are expected, a Scoping Statement (SS) and Environmental Assessment (EA) shall be conducted by the implementer prior to the start of activities. The SOW/Terms of Reference (TOR) for the SS and EA report must be reviewed by Mission Environmental Officer (MEO) and approved by the Asia BEO. For details, please see Section "Implementer Procedures" and IEE Section 4.

Note: EDD - Environmental Due Diligence Review

OPHNE's future activities will fall under the following Program Elements under the Health Program Area 3.1:

3.1.1 HIV/AIDS
3.1.2 Tuberculosis
3.1.6 Maternal and Child Health
3.1.7 Family Planning and Reproductive Health
3.1.8 Water and Sanitation
3.1.9 Nutrition

This IEE covers health activities which are similar in scope but not yet fully defined. The duration of all covered activities will be within the lifetime of this IEE and the nature of the activities and potential

environmental impacts will remain same as described herein. If there are deviations either in terms of budget, life of activities, or nature OPHNE will initiate an amendment of this IEE if not otherwise advised by the MEO.

Facesheet Table 4: Allocation of Resources at the Program Element level for future Health Activities:

Program Area	Scope of Intended Activities	Estimated Budget
3.1.1 HIV/AIDS	The HIV/AIDS activities will support effective HIV/AIDS prevention strategy through improved prevention, care and treatment services for most-at-risk populations (sex workers, injecting drug users, clients of sex workers, migrants, people living with HIV). The activity may produce Bio-hazardous Medical Waste.	5,500,000
3.1.2 Tuberculosis	Tuberculosis activities work to reduce the disease burden by increasing case findings of both drug sensitive and drug resistant cases. Capacity building of human resources, laboratory infrastructure and equipment, hospital facilities are all components of USAID activities. Equipment and commodity purchases include GeneXpert machines, LED microscopes, reagents, and second-line TB drugs. Some building renovations for laboratory upgrades and hospital facilities are included. Bio-hazardous Medical Waste is produced.	37,000,000
3.1.6 Maternal and Child Health	Maternal and Child Health Activities will improve maternal and newborn health (MNH), increase access to family planning (FP) services for youth, and strengthen GOB service delivery systems. Equipment purchases may include electronics and vehicles. Medical Waste may be produced.	86,000,000
3.1.7 Family Planning and Reproductive Health	Activities under Family Planning and Reproductive Health will include expanding contraceptive choices with an emphasis on long acting reversible contraception and permanent methods, improving services including postpartum family planning and strengthening service delivery systems. Purchases include contraceptive commodities, electronics and vehicles. Medical Waste may be produced.	85,000,000
3.1.8 Water and Sanitation	Water and Sanitation activities will provide assistance to improve access to water supply and sanitation. Activities will promote appropriate technologies for hand washing stations to reduce diarrheal and other water borne diseases.	2,500,000

Program Area	Scope of Intended Activities	Estimated Budget
3.1.9 Nutrition	Nutrition activities will provide technical assistance to GOB and local entities to collectively determine priorities, integrate nutrition education and community based management of acute malnutrition services into the overall health care delivery services. Nutrition services will be provided at both communities and health facilities. Nutrition activities will also promote production of food sources at the community and household level that add diversity to prevailing diets in Bangladesh.	18,000,000

Under the Global Health Initiative (GHI), USAID helps Bangladesh adopt and scale-up proven interventions to increase the use of long-term family planning methods; reduce maternal, neonatal and child mortality; and improve nutrition. We are also working to reduce the burden of TB, keep HIV/AIDS prevalence below 1%, and strengthen health systems. Likewise, GHI is helping to foster a country-led process to help Bangladesh achieve its Millennium Development Goals, thereby contributing to the host government's Health, Population and Nutrition Sector Development Program for 2011-2016.

The overall environmental determination for 90% of USAID/Bangladesh health programming is ***Categorical Exclusion*** for activities that were found to present no risk according to 22 CFR 216 guidelines, and is ***Negative Determination with Conditions*** for the remaining 10%.

a) Recommended Action: ***Categorical Exclusion*** (about 90% of funding, or $551 million)
Pursuant to 22 CFR 216.2(c)(2)(i), the originator of the activities has determined that all of the activities consist of types of interventions entirely within the categories listed in paragraph (c)(2), "Categorical Exclusions," of Section 216.2, "Applicability of Procedures," of Title 22 CFR Part 216, "AID Environmental Procedures", and therefore are categorically excluded from further environmental review requirements (see Facesheet Table 3). The proposed activities are fully within the following classes of actions:

a. Education, technical assistance, or training activities except to the extent such activity includes activities directly affecting the environment (such as construction of facilities, etc.) [22 CFR 216.2(c)(2)(i)];
b. Analyses, studies, academic or research workshops and meetings. [22 CFR 216.2(c)(2)(iii)];
c. Document and information transfers. [22 CFR 216.2(c)(2)(v)]; and
d. Studies, projects or activities 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.) [22 CFR 216.2(c)(2)(xiv)].

b) Recommended Action: Pursuant to 22 CFR216.3(a)(2)(iii), a ***Negative Determination with Conditions*** (about 10% of funding, or $61 million) is recommended for any Health Care activities that have the potential for adverse impact on the environment in the following categories, as presented in Facesheet Table 3 of this document:

a. Procurement, storage, management and/or disposal of public health commodities, including pharmaceutical drugs, medical kits, supplies and/or chemical reagents;

b. Generation, storage and disposal of chemical and/or biohazard Medical Wastes, e.g. HIV testing, TB testing and laboratory-related activities;
c. Small-scale construction/rehabilitation of health facilities;
d. Small-scale water and water quality assurance activities;
e. Immunization campaigns (might include procurement of vaccine and its administration thereof, storage, distribution, and chemical and/or medical waste disposal); and
f. Improved nutrition and feeding

For each of these activities an implementer will conduct an Environmental Due Diligence (EDD) assessment as part of the Environmental Review and Assessment Checklist (Annex 1) to document existing environmental concerns and foreseeable environmental effects resulting from the activity and develop an Environmental Manual (EM) and Framework Environmental Mitigation and Monitoring Plan (FEMMP) when applicable and commensurate with the scope and nature of the activities. Individual activities and projects may adapt previously developed and approved Environmental Manuals (EM), which cover activities of similar scope and nature. The adapted EMs shall be reviewed and approved by A/COR and MEO in consultation with the Regional Environmental Advisor (REA) for Central and South Asia and OAPA. The Standard Conditions List in Annex 3 and IEE Table 3 may be used as a guide in adapting an EM, FEMMP, and Environmental Mitigation and Monitoring Plan (EMMP) along with other references listed in the Implementer's Procedures section below.

Implementer Procedures:

4.1 Implementer's Procedures:

Implementing partners shall comply with the following procedures for all relevant activities and will demonstrate their compliance in their quarterly and annual performance reports, or as appropriate and approved by the relevant A/COR. As part of its initial Work Plan, and all Annual Work Plans thereafter, the implementer, in collaboration with the USAID A/COR and MEO, shall review all ongoing and planned activities under the award to determine if they are within the scope of the approved IEE; and classify them in accordance with Table 3.

- The Mission in collaboration with the REO and BEO/Asia will develop its Health Programmatic Pesticide Evaluation Report and Save-Use Action Plan (PERSUAP). The IEE shall be amended to reflect on the findings and recommendations ("SUAP") of the PERSUAP. Implementing Partners will comply with PERSUAP requirements.
- The implementer shall have sufficient resources to implement environmental compliance measures and have to budget for those in applications for grants or contract proposals.
- All activities will seek to raise environmental awareness, promote regional and national environmentally and socially sustainable development, biodiversity conservation, adaptation to climate change, foster the culture of environmental compliance and governance, public participation in decision-making
- The implementer shall include environment compliance considerations into all aspects of program implementation and should promote and train local counterparts on environmental requirements and standards across all of the activities. Such proposed activities should be included into annual work plans, and results should be reported in annual performance reports (reporting will include photographic documentation and site visit reports which fully document that all proposed mitigation procedures were followed throughout implementation of the subject work)

- Prior to the launch of each activity that received NDC determination in this IEE (Facesheet Table 1, 2 & 3) the implementer should recruit a qualified Environmental Impact Professional (EIP) concurred to by the relevant A/COR and MEO, who should ensure implementation of an EM, when warranted, conduct an EDD review described below and develop other required environmental compliance documentation, recommend environmental actions to be taken by the activity, train personnel (including sub-grantees and sub-contractors), coordinate implementation of mitigation measures, monitoring, and reporting. Should the EIP lack special technical knowledge to identify any special environmental impact, the implementer will consult with a specialist in the relevant area. (See Annex 8 for sample TOR for the EIP)
- Prior to the launch of each activity that received NDC determination in this IEE (Facesheet Table 1, 2 & 3) including sub-grants and sub-contracts, the implementer's EIP will conduct an EDD review with the Environmental Review and Assessment Checklist (ER Checklist) (Annex 1) and Leopold Matrix (Annex 2) as an inherent part of the EDD. The EDD must be conducted by the MEO approved environmental expert. The EDD process will document existing environmental concerns and foreseeable environmental effects resulting from the activities. If the EDD results in a finding of potential significant environmental impact, a SOW for Scoping Statement (SS), SS and EA shall be done by the implementer prior to start of activities. The TOR for the PERSUAP, the SS and EA Report must be reviewed by MEO and approved by the Asia BEO. The detailed EA process will be established on a case-by-case basis in accordance with 22 CFR 216. Based on the EDD results and mitigation measures from Environmental Guidelines for small-scale Activities; International Finance Corporation Environmental, Health, and Safety Guidelines; and other documents as referenced below, the implementer will develop Program EM and EMMP for activities that may have a negative environmental impact (Annex 4). The EM will establish criteria for eligibility, selection and screening against potential environmental risk (low, moderate, and high). The EM should have sub-activities/grants (where applicable) environmental screening, selection and eligibility criteria, environmental forms, and reference to environmental compliance guidelines at www.usaidgems.org. The EM will be approved by the A/COR and MEO, in consultation with the REA/Asia. If there is an already approved EM, it should be adapted to individual activities and approved by A/COR and MEO.
- Host country laws and regulations for environmental protection and management will be followed in implementing the activities unless otherwise directed in writing by USAID. In the case of a conflict between the host country regulations and USAID regulations, the latter shall govern. For activities categorized as "potential risks"' or "definite risks" of adverse environmental impact, the implementing partner will be required to obtain a letter from the local or regional office for environmental protection stating that the office: a) has been contacted by the implementing partner concerning the activities; b) will maintain contact with the activity; and c) will be aware of the potential environmental impacts of the activity to help ensure that no detrimental impact will result from this activity.
- If the EDD review determines that small scale construction activities can follow best practices and standard conditions and that no further assessment is required, each small scale construction activity should be conducted in a manner consistent with good design and implementation practices described in: a) USAID Environmental Guidelines for Small-Scale Activities at: http://www.usaidgems.org/; b) IFC Environmental, Health and Safety Guidelines as provided at: http://www.ifc.org/ifcext/sustainability.nsf/Content/EnvironmentalGuidelines; c) World Health Organization guidelines as provided at http://www.who.int/publications/guidelines/environmental_health/en/index.html; and d) Standard Conditions for Small-Scale Construction, Small-Scale Road Rehabilitation, Small- Scale Water and Wastewater Activities (Annex 3); Standard Conditions for Medical Waste Disposal (Annex 5); Safe Management of Wastes from Health-care Activities (Annex 6); and Negative Environmental Impacts

of Public Health Commodities Procurement; and Generation, Storage and Disposal of Medical Waste (Annex 7).

- For activities categorized as "potential risks"' or "definite risks" of adverse environmental impact prior to their implementation, the implementer will conduct public consultations and will seek concurrence from the national duly authorized environmental agency on EMMPs (Ministry of Environment and Forest, or other depending on the scope of the activity).
- Sub-contracts or grants from the implementing partner to other organizations must incorporate contract/agreement provisions stipulating compliance with 22 CFR 216 and ADS 204 and the IEE. Monitoring will be conducted during the activity (beginning with a baseline) to determine the environmental impact (positive and/or negative) of all activities. The implementer shall use only qualified staff for overseeing the mitigation and monitoring work. Monitoring shall occur as defined in the IEE and EMMP and on an as-needed basis. The implementer will ensure that the environmental procedures are implemented, potential impacts mitigated, and indirect and cumulative effects are considered for each activity. If negative environmental impacts are discovered, immediate actions will be taken to rectify the situation.
- Environmental Mitigation and Monitoring reports will be submitted to the A/COR and MEO at the completion of each activity that was reviewed and EM&M measures were developed for under the EMMP, and not at the end of the activity or not on a semi-annual or annual basis. Reporting will include photographic documentation and site visit reports which fully document that all proposed mitigation procedures were followed throughout implementation of the subject work.
- The implementer's performance reports to USAID shall contain a section specific to environmental compliance and include activity summaries along with environmental impacts, success or failure of mitigation measures being implemented, results of environmental monitoring, and any major modifications/revisions to the activity, mitigation measures or monitoring procedures. If the activities implemented do not impact the environment, this should be documented as well. The implementer's annual report will include an annex containing a table indicating the title, date of award, description and threshold determination of each sub-contract and/or sub-grant activity.
- As part of its initial Work Plan, and all Annual Work Plans thereafter, the implementer, in collaboration with the USAID A/COR and MEO shall review all ongoing and planned activities under this award to determine if they are within the scope of the approved IEE; and classify them in accordance with Facesheet Table 3.

Resource Allocation, Training and Reporting requirements:

- The DO3 AOR/CORs and activity managers will work with the USAID contracting office to include budgets and environmental compliance requirements specified in this IEE into RFA/RFPs to ensure that applicants and bidders budget for appropriate resources, staff, mitigation and monitoring, and reporting procedures. The IEE will be included in the RFA/RFP package.
- The agreement/contract with the implementing partner will include environmental compliance and reporting language per the IEE.
- A/CORs together with MEO or his designee will explain all environmental conditions to the implementers at the post-award conference.
- The A/COR of each activity, in consultation with the MEO or REA and corresponding implementing partner(s), will actively monitor and evaluate whether environmental consequences not foreseen by this IEE arise during implementation, and will modify or halt activities as appropriate. If additional components or sub activities are added to an activity but are not described in this IEE, an amended IEE must be prepared.

- It is A/COR responsibility to ensure that Implementing Partners follow the environmental compliance requirements specified in this IEE.

Limitations of the IEE:

1. All reagents, disinfectants and other chemicals, registered by the U.S. EPA, as pesticides shall be procured, used or recommended for use only in accordance with BEO-approved programmatic Pesticide Evaluation Report and Safe use Action Plans (PERSUAPs) for Bangladesh. If any additional chemicals are proposed, relevant Programmatic PERSUAPs shall be amended and approved by the BEO/Asia. The IEE shall be amended to reflect on the recommendations of the Programmatic PERSUAP, and approved by the BEO/Asia. For Bangladesh, the implementer will request the BEO/Asia approval to extend validity of relevant Programmatic PERSUAP sections to stipulate compliance with relevant legislation. As an interim arrangement, Bangladesh Health activities will comply with relevant sections of the OAPA-13-May-PAK-0015 PERSUAP. USAID Bangladesh will develop its own programmatic PERSUAP within six months from the approval date of this IEE amendment. Bangladesh programmatic activities will refer to and comply with the relevant sections of the USAID Bangladesh PERSUAP once completed.

2. No procurement or use of Asbestos, Lead and Mercury Containing Materials (ALMCM) (i.e. piping, roofing, batteries, etc.), Polychlorinated Biphenyls (PCBs) or other toxic/hazardous materials prohibited by US EPA as provided at: http://www.epa.gov/asbestos and/or under international environmental agreements and conventions, e.g. Stockholm Convention on Persistent Organic Pollutants as provided at: http://chm.pops.int.

3. GDA and DCA – please keep as warranted; note ADS 204 requirement for GDA and ADS 249 for DCA

4. This IEE does not cover activities involving:

    a. support to wood processing, agro-processing, industrial enterprises, and/or regulatory permitting;
    b. assistance, procurement and/or use of genetically modified organisms (GMOs), which would require preparation of biosafety assessment (review) in accordance with ADS 201.3.12.2(b) in an amendment to the IEE approved by Asia BEO; or

Any of these actions would require an amendment to the IEE duly approved by Asia BEO.

Revisions:

Pursuant to 22CFR216.3(a)(9), if new information becomes available which indicates that activities to be funded by the project might be "major" and the project's effect "significant," any Negative Determination with Conditions will be reviewed and revised by the originator of the activity and submitted to the BEO for approval and, if appropriate, an environmental assessment or other relevant documentation will be prepared. It is the responsibility of the USAID COR/AOR to keep the MEOUSAID/Bangladesh, and the BEO/Asia informed of any new information or changes in the scope and/or nature of the activity that might require revision of the IEE.

USAID APPROVAL OF ENVIRONMENTAL ACTION(S) RECOMMENDED:

Clearance:

Mission Director: _____ Date: _____
Janina Jaruzelski

Deputy Mission Director: _____ Date: _____
Paul Sabatine

Regional Environmental Adviser: _____ Date: _____
(Asia, Mid-East, & OAPA) **Andrei Barannik**

Mission Environmental Officer _____ Date: _____
Jeff deGraffenried

Director/Program Office: _____ Date: _____
Thomas Kress

Director/PHNE Office: _____ Date: _____
Melissa Jones

Concurrence:

ANE Bureau Environmental Officer _____ Date: _____
Mary Melnyk

Approved: _____

Disapproved: _____

ANNEX 1

ENVIRONMENTAL REVIEW & ASSESSMENT CHECKLIST (ER Checklist)

The purpose of this *Environmental Review and Assessment Checklist (ER Checklist)* is to determine whether the proposed action (scope of work) encompasses the potential for environmental pollution or concern and, if so, to determine the scope and extent of additional environmental evaluation, mitigation, and monitoring necessary to fulfill federal U.S. environmental requirements. The *ER Checklist* is intended to be used in conjunction with the Leopold Matrix by the Agreement/Contracting Officer's Representative (A/COR) to ensure that environmental consequences are taken into account by USAID and the host country.

Date of Review: **DCN of triggering IEE:**
Name of reviewer: *(must be qualified environmental professional approved by the MEO)*

Name of Project/Activity:
Type of Project/Activity:

Location: (*Attach a location map as well as site photos in color*)

Project/Activity Description: *(Provide detailed description for environmental impact analysis)*

Baseline Environmental Conditions: ***This section will serve as EDD*** *(Provide site specific environmental conditions due to onsite & offsite sources details for impact analysis;* *Note: This portion covers only the baseline conditions, any impacts resulting from reconstruction/ construction/rehab will be covered under sections A through D.)*

A. CHECKLIST FOR ENVIRONMENTAL CONSEQUENCES: Check appropriate column as Yes (Y), Maybe (M), No (N) or Beneficial (B). Briefly explain Y, M and B checks in next Section, "Explanations". A "Y" response does not necessarily indicate a significant effect, but rather an issue that requires focused consideration.

Y. M. N or B

1. **Earth Resources**
   a. grading, trenching, or excavation in cubic meters or hectare ___
   b. geologic hazards (faults, landslides, liquefaction, un-engineered fill, etc.) ___
   c. contaminated soils or ground water on the site ___
   d. offsite overburden/waste disposal or borrow pits required in cubic meters or tons ___
   e. loss of high-quality farmlands in hectares ___

2. **Agricultural and Agrochemical**
   a. impacts of inputs such as seeds and fertilizers ___
   b. impact of production process on human health and environment ___
   c. other adverse impacts ___

3. **Industries**
   a. impacts of run-off and run-on water ___
   b. impact of farming such as intensification or extensification ___
   c. impact of other factors ___

4. **Air Quality**
   a. substantial increase in onsite air pollutant emissions (construction/operation) ___
   b. violation of applicable air pollutant emissions or ambient concentration standards ___
   c. substantial increase in vehicle traffic during construction or operation ___
   d. Demolition or blasting for construction ___
   e. substantial increase in odor during construction or operation ___
   f. substantial alteration of microclimate ___

5. **Water Resources and Quality**
   a. river, stream or lake onsite or within 30 meters of construction ___
   b. withdrawals from or discharges to surface or ground water ___
   c. excavation or placing of fill, removing gravel from, a river, stream or lake ___
   d. onsite storage of liquid fuels or hazardous materials in bulk quantities ___

6. **Cultural Resources**
   a. prehistoric, historic, or paleontological resources within 30 meters of construction ___
   b. site/facility with unique cultural or ethnic values ___

7. **Biological Resources**
   a. vegetation removal or construction in wetlands or riparian areas in hectare ___
   b. use of pesticides/rodenticides, insecticides, or herbicides in hectare ___
   c. Construction in or adjacent to a designated wildlife refuge ___

8. **Planning and Land Use**
   a. potential conflict with adjacent land uses ___
   b. non-compliance with existing codes, plans, permits or design factors ___

c. construction in national park or designated recreational area ___
d. create substantially annoying source of light or glare ___
e. relocation of >10 individuals for +6 months ___
f. interrupt necessary utility or municipal service > 10 individuals for +6 months ___
g. substantial loss of inefficient use of mineral or non-renewable resources ___
h increase existing noise levels >5 decibels for +3 months ___

9. Traffic, Transportation and Circulation

a. increase vehicle trips >20% or cause substantial congestion ___
b. design features cause or contribute to safety hazards ___
c. inadequate access or emergency access for anticipated volume of people or traffic___

10. Hazards

a. substantially increase risk of fire, explosion, or hazardous chemical release ___
b. bulk quantities of hazardous materials or fuels stored on site +3 months ___
c. create or substantially contribute to human health hazard ___

11. Other Issues (to be used for categories not captured under1 through 10 above)

a. Substantial adverse impact ___
b. Adverse impact ___
c. Minimal impact ___

B. EXPLANATION OF ENVIRONMENTAL CONSEQUENCES: explain Y, M and B responses

C. RECOMMENDED ACTION (Highlight Appropriate Action):

1. The activity has no potential for substantial adverse environmental effects. No further environmental review is required.
2. The activity has little potential for substantial adverse environmental effects; however the recommended mitigation measures will be developed and incorporated in the activity design and/or construction, operation and maintenance phases. No further environmental review is required.
3. The activity has substantial but mitigatable adverse environmental effects and required measures to mitigate environmental effects. Mitigation and Monitoring (M&M) Plan must be developed and approved by the BEO and/or REO prior to implementation. M&M Plan is to be attached to the Scope of Work.
4. The activity has potentially substantial adverse environmental effects, but requires more analysis to form a conclusion. **A Scoping Statement must be prepared and be submitted to the BEO for approval. Following BEO approval an Environmental Assessment (EA) will be conducted. Activity may not be implemented until the BEO approves the final EA.**
5. The activity has potentially substantial adverse environmental effects, and revisions to the activity design or location or the development of new alternatives is required.
6. The activity has substantial and unmitigatable adverse environmental effects. Mitigation is insufficient to eliminate these effects and alternatives are not feasible. The activity is not recommended for funding.

Leopold Matrix – *Insert Activity Type* Potential Impacts **Name of Reviewer:** **Date:**

Activity Component \ Environmental component		PHYSICAL ENVIRONMENT										BIOLOGICAL ENVIRONMENT										SOCIAL ENVIRONMENT									
		Agricultural Land	Soil Erosion	Slope Stability	Energy/Mineral	Surface Water	Surface Water	Ground Water	Ground Water	Air Quality	Noise	Aquatic Ecosystems	Wetland Ecosystems	Terrestrial	Endangered Species	Migratory Species	Beneficial Plants	Beneficial Animals	Pest Plants	Pest Animals	Disease Vectors	Public Health	Resource/Land Use	Distribution Systems	Employment	At Risk Population	Migrant Population	Community Stability	Cultural/Religious	Tourism/Recreation	Nutrition
PLANNING & DESIGN																															
Construction																															
Operation																															

KEY: **Beneficial: O - High; O – Medium; O – Low** **Adverse: ■ - High; ■ – Medium; ■ – Low**

ANNEX 3

General Conditions for Small-Scale Construction

(May be used as one of the guidance documents to develop site specific Mitigation and Monitoring Plan, i.e., M&M Plan)

Small-scale construction activities occur in association with a wide variety of development activities financed by USAID. Construction activities include demolition; site clearing; soil grading, leveling and compaction; excavation; pipe and equipment installation; and the erection of physical structures. These activities have the potential to result in significant adverse environmental impacts, but most of those impacts can be mitigated down to acceptable levels through the use of good construction management practices.

These standard conditions have been developed by USAID to ensure that small-scale construction activities do not result in significant adverse environmental impact. When adherence to these conditions is a condition of small-scale construction contracts, no significant adverse environmental impact is presumed to result from activity implementation.

Contract/Agreement Officers, Agreement/Contract Officer Representatives (A/CORs), Activity mangers, Program Officers, MEOs, and implementing organizations must be aware that these standard conditions are generic in nature, and that additional potentially significant adverse environmental impacts may be associated with small-scale construction activities. ***It is the responsibility of the individual USAID missions, and/or their implementing contractors and grantees, to monitor construction and to ensure that significant adverse environmental impacts do not result from these activities.***

For the purposes of this general guidance, "small-scale" construction activities are defined here as those that cost less than $100,000 per construction activity. Because of the exceptionally diverse physical conditions under which Bureau construction activities take place, and the very broad kinds of construction that take place, the following conditions are to be followed "as practicable and appropriate."

General Conditions for Small-Scale Construction Activities

- Establish and adhere to construction timetables that minimize disruption to the normal activities of the construction area.
- Coordinate truck and other construction activity to minimize noise, traffic disruption and dust.
- Develop and implement appropriate human health and worker safety measures during construction.
- Post construction timetables and traffic diversion schedules at the activity site.
- Where significant environmental impacts may occur, document and photograph pre-construction and post-construction conditions.
- Avoid subsidence and building stabilization problems through proper foundation excavation, fill placement and borrow pit management.
- Fill should avoid pockets of segregated materials, it should use well-graded materials, and it should be compacted to recognized standards.
- Backfill and/or restore borrow areas and quarries before abandonment unless alternative uses for those sites are planned.

- Control runoff into borrow pits.
- Provide temporary sanitation at the construction site.
- Recover and replant topsoil and plants as practicable.
- Set protocols for vehicle maintenance to control contamination by grease, oil and fuels.
- Install temporary erosion control and sediment retention measures when permanent ones either are not feasible or are delayed.
- Avoid pollution of waterways with stockpiled construction materials.
- Cover stockpiled construction materials, as practicable.
- Place solvents, lubricants, oils, and other semi-hazardous and hazardous liquids over a lined area with appropriate secondary containment in order to contain spillage. Test the integrity of bulk storage tanks and drums, and secure valves on oil and fuel supplies.
- Build appropriate containment structures around bulk storage tanks and materials stores to prevent spillage entering watercourses.
- Handle, store, use and process branded materials in accordance with manufacturer's instructions and recommendations.
- Take waste materials to appropriate, designated local disposal areas.
- Avoid the use of cement; paper; board; sealant and glazing formulations; piping; roofing material; or other materials containing asbestos.
- Do not use PCBs in electric transformers.
- Avoid sealant and glazing formulations that use lead as a drying agent.
- Use lead-free paint, primers, varnishes and stains..
- Minimize the use of solvent-based paints, or replace with water-based materials.
- Minimize burning of waste materials.
- Employ techniques to minimize dust and vapor emissions as practicable (e.g., road speed limits, air extraction equipment, scaffolding covers, road spray).
- Recycle wastewater to the extent practicable.
- Build tanks or other separators for silt-laden material prior to allowing significant outflow into watercourses.
- Build collection channels leading to oil and/or silt traps, particularly around areas used for vehicle washing or fuelling.
- Seal or remove abandoned drains to minimize water contamination.
- Segregate waste which can be salvaged, re-used or recycled.
- Introduce measures to control and minimize the volume of waste on site.
- Employ sensitive strategies with regard to trees, watercourses, plant or animal species or habitats, and important historical and archaeological features.
- As practicable, landscape construction sites in a way that is appropriate to local conditions.
- Minimize the disturbance of, and reduce the spread of, ground contaminants.
- Do not build structures in sensitive areas such as wetlands.
- If waste will be buried on site, avoid siting burial pits up-gradient from drinking water sources such as wells. Pits should be lined with impermeable material (e.g., clay or polyethylene).
- If waste will be buried on site, avoid siting waste pits where water tables are high or underlying geology makes contamination of groundwater likely. If no alternative site is available, ensure that pits are lined with impermeable material.
- Provide for the safe disposal of gray water from bathing and washing.

<u>Additional Conditions to Minimize Impact of Parking Facility Construction</u>

- Compact substrate materials appropriately.
- Where applicable, apply sealant at earliest possible time to limit runoff from unsealed asphalt.
- Provide adequate drainage for the surface area to be paved.
- Return unpaved areas to original or improved contours following construction.
- Re-vegetate areas where vegetation was removed or destroyed during construction.
- Provide vegetation strips within parking lot where possible, including shade trees.
- Retain tree(s) along parking facility and adjacent roadsides.

General Conditions for Small-Scale Irrigation Activities

USAID finances, directly or indirectly, a range of small-scale irrigation activities. These include the maintenance and rehabilitation of irrigation infrastructure, construction of weirs, improved water management, and improved irrigation system operations and management. Small-scale irrigation activities have the potential to result in significant adverse environmental impacts, but most of those impacts can be mitigated down to acceptable levels through the use of good siting, design, construction, operations and maintenance practices.

These general conditions have been developed by USAID to ensure that small-scale irrigation activities financed by the Agency do not result in significant adverse environmental impact. When adherence to these conditions is a condition of activity implementation, no significant adverse environmental impact is presumed to result.

Contract/Agreement Officers, Agreement/Contract Officer Representatives (A/CORs), Activity mangers, Program Officers, MEOs, and implementing organizations must be aware that these conditions are generic in nature, and that additional potentially significant adverse environmental impacts may be associated with small-scale irrigation activities. ***It is the responsibility of the individual USAID missions, and/or their implementing contractors and grantees, to monitor irrigation activities and to ensure that significant adverse environmental impacts do not result.***

For the purposes of this guidance, "small-scale irrigation activities" are defined as activities that: (1) cost less than $100,000 per individual activity; (2) do not bring significant areas of currently un-irrigated land under irrigation; (3) do not involve the construction of new dams, trunk canals, or river training works; and (4) do not involve rehabilitation of existing dams over fifty feet in height.

Because of the exceptionally diverse physical, biological and social environments in which Agency irrigation activities take place, and the broad kinds of irrigation activities that are financed, these General Conditions should be followed "as practicable and appropriate."

General Conditions for Small-Scale Irrigation Activities

IRRIGATION SYSTEM IMPROVEMENTS

As a general rule, small-scale irrigation activities should be designed to achieve or promote some or all of the following objectives:

- Better water management, including better water use efficiency and lower water losses
- Better water quality
- Lower sediment loading
- Less erosion
- Less waterlogging and soil salinization
- Improved irrigation system operations and maintenance
- Healthier conditions for irrigation workers.

Specific actions that can be used to avoid or reduce adverse environmental impacts on small-scale irrigation activities are as follows:

Water Use Efficiency

- Improve water control through good canal and weir design
- Keep canals, headworks, flow regulators, modules and water courses free of debris
- Add water storage capacity where water is seasonally scarce
- Improve water depth consistency through improved land leveling
- Ensure the suitability of crops to available water supply
- Monitor groundwater tables when irrigating from groundwater
- Train farmers and system operators in how to improve water use efficiency.

Water Loss

- Use drip irrigation where practicable.
- Use piping where practicable, instead of canals.
- When using canals, employ design standards that limit evaporative loss.
- Design canals that are relatively narrow and deep.
- Cover open canals.
- Line canals to limit water loss through percolation.
- Reduce evapotranspiration by keeping canals clear of vegetation.
- Monitor and repair leaks from cracked canal and containment structures, broken pipes, faulty valves and similar infrastructure.
- Reduce evaporation on center pivot and sprinkler systems by irrigating at the coolest time of day.
- Train farmers and system operators in how to reduce water loss.

Water Quality

- Use design standards that lower sediment loads in irrigation water
- Identify and monitor water quality parameters with adverse crop and human health impacts
- Train farmers and system operators in how to improve water quality.

Erosion

- Use erosion and sediment control best management practices such as vegetative cover, terracing and similar soil conservation techniques to reduce land surface erosion.
- Plan for devices that can protect against scour where water scour potential is an issue (e.g., culverts, drops, chutes, control structures)
- Train farmers on how to reduce land and facility erosion.

Waterlogging and Salinization

- Monitor groundwater levels and salinity
- Use sprinkler or drip irrigation systems where possible
- Improve system drainage
- Train farmers to recognize waterlogging and salinization problems.

Operations and Maintenance

- As a rule, financing for irrigation infrastructure improvements should not be provided unless appropriate operations and maintenance (O&M) provisions are in place.
- Establish an appropriate maintenance schedule for inspection and reporting performance conditions.
- Periodically review system components to verify that they meet the original design criteria for efficient operations and uniform distribution of water.
- Where appropriate, prepare an O&M Manual before the irrigation system starts operations.
- O&M plans should address, *inter alia*, financial and system power issues.

Human Health

- Understand what water-related disease vectors occur in association with the irrigation system, and design system improvements to reduce those vectors.
- Don't use irrigation water as a potable water source.
- Line canals and ditches to prevent soil erosion and water loss.
- Cover or pipe water where possible.
- Prevent backwaters or slow-moving water where vegetation and disease vectors are more easily established.
- Use application rates that avoid generating areas of standing water.
- Keep canals and ditches free of weeds, sediment, trash and animals, such as snails
- Actively control disease vectors.
- Train farmers and system operators to recognize and deal with system characteristics with the potential to adversely affect human health.

Other Irrigation System Conditions

- Design canals to maintain appropriate flow velocities
- Plan for access of canals to facilitate cleaning, sediment removal and vector control
- Design appropriate canal crossing structures at appropriate intervals
- Plan for gates at the lower end of canals to they can be flushed to the nearest drain
- Do not use materials containing asbestos on USAID funded activities.
- Replace lead pipes and joints in delivery system.

STANDARD CONSTRUCTION CONDITIONS

- Establish and adhere to construction timetables that minimize exposed land surface and disruption to the normal activities of the construction area.
- Post construction timetables and traffic diversion schedules at the activity site.
- Coordinate truck and other construction activity to minimize noise, traffic disruption and dust.
- Where environmental impacts may occur, document and photograph pre-construction and post-construction conditions.
- Earth fill material should avoid pockets of segregated materials, it should consist of well-graded earthen materials, and it should be compacted to USG or international standards
- Install temporary erosion control and sediment retention measures until permanent ones can be constructed.
- Use proper bedding materials for pipes, and backfill appropriately for the pipeline

- Use vegetative soil cover and appropriately selected geotextile materials to prevent erosion of drainage structures and at the outfall according to established best practice standards. If no other measure is available, riprap (cobbled stone), gravel, or concrete can be used to augment erosion and sediment control measures.
- Do not allow people or animals to drink directly from water sources.
- In coastal areas, maintain water withdrawals within safe yield limits to avoid salt water intrusion and well contamination.
- Ensure that spilled water and rainwater drain to a soakway or equivalent structure.
- Re-vegetate areas damaged during construction. Do not remove erosion control measures until construction and re-vegetation activities are completed.
- As practicable, landscape construction sites in a way that is appropriate to local conditions.

EXCAVATION AND BORROW PITS

- Use material from the required excavations first, since it produces a fairly durable aggregate for both surface stabilization and erosion control and is very cost effective.
- Place fences around borrow pit excavations, as necessary.
- Ensure excavation is accompanied by well-engineered drainage to control runoff into the pit.
- Develop specific procedures for storing topsoil, and for phased closure and reshaping and restoration of the pit when extraction has been completed. Include plans for segregating gravel and quarry materials by quality and grade for possible future uses. Where appropriate, include reseeding or re-vegetation to reduce soil erosion, prevent gullying and minimize visual impacts.
- Discuss with local communities the option of retaining quarry pits as water collection ponds to water cattle, irrigate crops or for similar uses. Issues of disease transmission, and prohibiting the use of pit water for human consumption, bathing, and clothes washing, should be highlighted.
- Decommission/restore areas so that they are suitable for sustainable use after extraction is completed.
- Backfill and/or restore borrow areas and quarries before abandonment if alternative uses for those sites are not planned.

MATERIAL STORAGE AND HANDLING

- Identify sites for temporary/permanent storage of excavated material and construction materials.
- Avoid pollution of waterways with stockpiled construction materials.
- Set protocols for vehicle maintenance to control contamination by grease, oil and fuels.
- Build collection channels leading to oil and/or silt traps, particularly around areas used for vehicle washing or fuelling.
- Build appropriate containment structures around bulk storage tanks and materials stores to prevent spillage entering watercourses.
- Build tanks or other separators for silt-laden material prior to allowing significant outflow into watercourses.
- Cover stockpiled construction materials, as practicable.
- Minimize the disturbance of, and reduce the spread of, ground contaminants.

- Handle, store, use and process branded materials in accordance with manufacturer's instructions and recommendations.
- Segregate construction waste that can be salvaged, re-used or recycled.
- Take construction waste materials to appropriate, designated local disposal areas.
- Minimize burning of waste materials.
- If construction waste will be buried on site, avoid siting burial pits up-gradient from drinking water sources such as wells. Pits should be lined with impermeable material (e.g., clay or polyethylene).
- If construction waste will be buried on site, avoid siting waste pits where water tables are high or underlying geology makes contamination of groundwater likely. If no alternative site is available, ensure that pits are lined with impermeable material.

HUMAN HEALTH AND WORKER SAFETY DURING CONSTRUCTION

- Provide workers with appropriate safety equipment.
- Protect workers from injury by flying or falling rock, slope failures and avalanche.
- Explore off-site accommodation for crew.
- Keep camp sizes to a minimum.
- Provide temporary sanitation facilities on construction sites.
- Maintain good first aid capabilities on site.

General Conditions for Small-Scale Road Rehabilitation and Maintenance Activities

Road rehabilitation and maintenance activities occur in conjunction with a variety of community infrastructure and rural development activities financed by USAID. Road rehabilitation and maintenance activities include excavation; soil grading and leveling; fill placement and compaction; placement of base course and road surface materials; and construction of culverts, bridges and surface drainage structures. These activities have the potential to result in significant adverse environmental impacts, but most of those impacts can be mitigated down to acceptable levels through the use of good design and construction practices.

These general conditions have been developed by USAID to ensure that small-scale road rehabilitation and reconstruction activities do not result in significant adverse environmental impact. When adherence to these conditions, as practicable and appropriate, is a condition of road rehabilitation and maintenance contracts, no significant adverse environmental impact is presumed to result from activity implementation.

Contract/Agreement Officers, Agreement/Contract Officer Representatives (A/CORs), Activity mangers, Program Officers, MEOs, and implementing organizations must be aware that these conditions are generic in nature, and that additional potentially significant adverse environmental impacts may be associated with road rehabilitation and maintenance activities. ***It is the responsibility of the individual USAID missions, and/or their implementing contractors and grantees, to monitor road rehabilitation and maintenance activities and to ensure that significant adverse environmental impacts do not result.***

This guidance applies only to road rehabilitation and maintenance activities that (1) cost less than $250,000 per individual activity and (2) do not involve realignment of a road outside of its existing right of way (ROW). Because of the exceptionally diverse physical, biological and social environments in which Bureau road rehabilitation and maintenance activities take place, and the broad kinds of rehabilitation and maintenance activities that are financed, these standard conditions are to be followed "as practicable and appropriate."

Standard Conditions for Road Rehabilitation and Maintenance Activities

Noise, Traffic Disruption and Dust

- Establish and adhere to construction timetables that minimize disruption to the normal activities of the construction area. Post construction timetables and traffic diversion schedules at the activity site, as appropriate.
- Coordinate truck and other construction activity to minimize noise, traffic disruption and dust.

Human Health and Worker Safety

- Develop and implement appropriate human health and worker safety measures during construction.
- Provide workers with appropriate safety equipment.
- Take safety precautions to protect workers and others from injury by flying or falling rock, slope failures and avalanche.
- Explore off-site accommodation for crew.
- Keep camp size to a minimum.
- Provide temporary sanitation on construction sites.

Ecological and Historical Considerations

- Identify and avoid areas in the activity impact zone that may contain important ecological, archeological, paleontological, historic, religious or cultural resources, including forests, wetlands and areas of high biological diversity or threatened species habitat.
- Have construction crews and supervisors be alert for buried historic, religious, and cultural objects, and provide them with procedures to follow if such objects are discovered. Provide incentives for recovery of objects and disincentives for their destruction.
- If impact to sensitive areas cannot be avoided during road reconstruction, involve ecologists, archeologists and engineers in evaluating alternatives and minimizing impacts.
- Where significant environmental impacts may occur, document and photograph pre-construction and post-construction conditions.

Activity Design

- Use established design standards for each facet of construction and related activities, e.g., road bed, road surface, drainage, erosion control, re-vegetation, stream crossing, sensitive areas, steep slopes, material extraction, transport and storage, construction camps, decommissioning, etc.
- Minimize use of vertical road cuts even though they are easier to construct, and require less space than flatter slopes. The majority of road cuts should have no more than a ¾:1 to 1:1 slope to promote plant growth. Vertical cuts are acceptable in rocky material and in well-cemented soils, if such cuts are stable according to established slope stability criteria.
- Water the road prior to compaction to strengthen the road surface.
- When possible, delay compaction activities until the beginning of the wet season or when more water is available.
- Use water from settling basins and retention ponds for road maintenance.
- Drive roads after moderate rains to identify areas that collect or gully water. Mark and redesign/rehabilitate as necessary.
- Reshape eroded or culled surfaces so that water will no longer follow the course of the roadway.
- Conduct periodic independent inspection of work to see that it conforms to original plan and design specifications. Provide incentives and disincentives to ensure conformance.

Excavation/Borrow Pits

- Use material from local road cuts first, since it produces a fairly durable aggregate for both surface stabilization and erosion control and is very cost effective.
- Place fence around borrow pit excavations, as necessary.
- Ensure excavation is accompanied by well-engineered drainage to control runoff into the pit.
- Develop specific procedures for storing topsoil and for phased closure and reshaping and restoration of the pit when extraction has been completed. Include plans for segregating gravel and quarry materials by quality and grade for possible future uses. Where appropriate, include reseeding or re-vegetation to reduce soil erosion, prevent gullying and minimize visual impacts.
- Discuss with local communities the option of retaining quarry pits as water collection ponds to water cattle, irrigate crops or for similar uses. Issues of disease transmission, and prohibiting the use of pit water for human consumption, bathing, and clothes washing, should be highlighted.
- Decommission/restore area so it is suitable for sustainable use after extraction is completed.

- Backfill and/or restore borrow areas and quarries before abandonment if alternative uses for those sites are not planned.

Vegetation Clearing and Revegetation

- Carry out earth moving and removal of vegetation only during dry periods.
- If vegetation must be removed during wet periods, wait until just before actual construction.
- Store topsoil and preserve removed plants for later use.
- Re-vegetate with recovered plants and other appropriate local flora immediately after equipment is removed from a section of the site.

Material Storage

- Identify sites for temporary/permanent storage of excavated material and construction materials.
- Avoid pollution of waterways with stockpiled construction materials.
- Cover stockpiled construction materials, as practicable.

Fill and Grade

- Minimize the volume of fill required.
- Raise road surfaces with stable and durable fill material. Grade with inslope, outslope or cambered shape. Install sufficient cross-drains, ditches and settling ponds.
- Use appropriate road surface materials (e.g., asphalt, concrete, gravel) following fill placement, or excavation to design grade.
- Do not fill the flow-line of natural creeks and drainages. Especially in arid areas, design culverts to handle rare high rainfall events.
- Minimize cuts and fills in wetlands.

Drainage and Erosion Control

- Install drainage structures during, instead of after construction. Most erosion associated with roads occurs in the first year after construction. Delaying installation of the drainage features greatly increases the extent of erosion and damage during that time.
- Use outside ditches to control surface water when necessary, but avoid general use as they concentrate water flow and require the road to be at least a meter wider. Install frequent structures, berms or trenches, to divert water upslope of roads into stream channels.
- Install frequent diversion structures, such as water bars, to move water off the road and minimize concentration of water.
- Install drainage crossings to pass water from the uphill to the downhill side of the road. If using culvert pipes, follow accepted sizing and design standards. Where flows are difficult to determine, use structures such as fords, rolling dips, and overflow dips that can accommodate any flow volume and are not susceptible to plugging.
- Stabilize outlet ditches (inside and outside) with small-stone riprap, and/ or vegetative barriers placed on contour to dissipate energy and to prevent the creation or enlargement of gullies.
- Install drainage turnouts at frequent intervals, and extend turnout drains far enough to allow water to dissipate evenly into the ground.
- Install drainage ditches or berms on up-hill slopes to divert water away from the road.
- Visually spot check for drainage problems, including accumulation of water on road surfaces, especially after the first heavy rains following rehabilitation and at the end of the rainy season.

- Monitor and maintain drainage structures and ditches including culverts. Clean out culverts and side channels/runouts when they begin to fill with sediment.
- Install temporary erosion control features when permanent ones will be delayed. Use erosion control measures such as hay bales, berms, straw or fabric barriers.
- Stabilize slopes by planting vegetation. Work with agronomists to identify native species with the best erosion control properties, root strength, site adaptability, and other socially useful properties. Set up nurseries in activity areas to supply necessary plants. Do not use non-native plants. Use soil stabilizing chemicals or geo-textiles (fabrics) where feasible and appropriate.

Material Disposal

- Break up old road surface material. Remove and dispose of surface material (e.g. asphalt) if necessary, and loosen soil of previous track to accelerate regeneration of vegetation.
- Segregate waste which can be salvaged, re-used or recycled.
- Take waste materials to appropriate, designated local disposal areas.
- Minimize burning of waste materials.
- If waste will be buried on site, avoid siting burial pits up-gradient of drinking water sources such as wells. Pits should be lined with impermeable material (e.g., clay or polyethylene).
- If waste will be buried on site, avoid siting waste pits where water tables are high or underlying geology makes contamination of groundwater likely. If no alternative site is available, ensure that pits are lined with impermeable material.

Hazardous Materials

- Do not use asbestos materials on USAID-funded activities.
- Do not use herbicides on USAID-funded activities without prior written approval.
- Place solvents, lubricants, oils, and other semi-hazardous and hazardous liquids over a lined area with appropriate secondary containment in order to contain spillage. Test the integrity of bulk storage tanks and drums, and secure valves on oil and fuel supplies.
- Build appropriate containment structures around bulk storage tanks and materials stores to prevent spillage entering watercourses.
- Handle, store, use and process branded materials in accordance with manufacturer's instructions and recommendations.
- Set protocols for vehicle maintenance such as requiring that repairs and fueling occur elsewhere or over impervious surface such as plastic sheeting. Prevent dumping of hazardous materials. Capture leaks or spills with drop cloths or wood shavings. Burn waste oil that is not reusable/readily recyclable, that does not contain heavy metals, and that is flammable.
- Take special precautions to prevent release/dumping of debris, oil, fuel, sand cement, and similar harmful materials.
- Install concrete pads, drains and oil/water separators in areas where vehicle and equipment maintenance and fueling will occur regularly.
- Prevent fuel tank leaks by monitoring and cross-checking fuel levels, deliveries and use; checking pipes and joints for leaks; tightening generator fuel lines; and preventing over-filling of main storage and vehicle tanks.

General Conditions for Small-Scale
Water and Wastewater Activities

USAID finances, directly or indirectly, a large number of water and wastewater activities. These occur in both rural and urban areas, and in association with residential, commercial, industrial and medical facilities. Water and wastewater activities have the potential to result in significant adverse environmental impacts, but most of those impacts can be mitigated down to acceptable levels through the use of good siting, design, construction, operations and maintenance practices.

These general conditions for small-scale water and wastewater activities have been developed by USAID to ensure that water and wastewater activities financed by the Agency do not result in significant adverse environmental impact. When adherence to general conditions such as these, as practical and appropriate, is a condition of water and wastewater contracts, no significant adverse environmental impact is presumed to result from activity implementation.

Contract/Agreement Officers, Agreement/Contract Officer Representatives (A/CORs), Activity mangers, Program Officers, MEOs, and implementing organizations must be aware that these standard conditions are generic in nature, and that additional potentially significant adverse environmental impacts may be associated with water and wastewater activities. ***It is the responsibility of the individual USAID missions, and/or their implementing contractors and grantees, to monitor water and wastewater activities and to ensure that significant adverse environmental impacts do not result.***

For the purposes of this guidance, "small-scale" water and wastewater activities are defined as those that cost less than $200,000 per individual construction activity. Because of the exceptionally diverse physical, biological and social environments under which USAID water and wastewater activities take place, and the broad kinds of water and wastewater activities that are financed, these standard conditions are to be followed "as practicable and appropriate."

Standard Conditions for Water and Wastewater Activities

Standard Siting Conditions

- Site water supply facilities in a way that minimizes the potential for contamination, taking into account existing and likely future land use patterns in the water supply—i.e., wellhead protection, or upper watershed—area.
- Site wastewater facilities in a way that minimizes their potential for contaminating water supply sources, or for exposing human populations to water-borne contaminants.
- Avoid siting water supply and wastewater facilities in flood-prone areas.
- Do not site water and wastewater facilities on active faults or other areas where ground stability problems such as soil creep occur.
- Locate wastewater facilities downwind of local population.
- Build latrines and similar sanitation facilities down gradient of water supply wells. As necessary, evaluate depth to water table including seasonal fluctuations. Pit latrines should not be installed where the water table is shallow or the composition of the overlying deposits make groundwater vulnerable to contamination.
- Employ sensitive siting strategies that take into appropriate consideration impact on trees, wetlands and watercourses, important plant and animal habitat, and significant historical and archaeological resources. Avoid or mitigate adverse impacts to these resources.

Standard Design Conditions

- In general, design water supply facilities to protect water quality, minimize the potential for contamination, and minimize operation and maintenance costs.
- In general, design wastewater facilities to avoid contamination of water supplies and human exposure, and minimize operation and maintenance costs.
- In general, do not construct new wastewater pipelines unless treatment is provided at the outfall.
- Where latrines are installed, use improved ventilated pit designs that reduce insect vectors.

Standard Construction Conditions

- Establish and adhere to construction timetables that minimize disruption to the normal activities of the construction area.
- Post construction timetables and traffic diversion schedules at the activity site.
- Coordinate truck and other construction activity to minimize noise, traffic disruption and dust.
- Develop and implement appropriate human health and worker safety measures during construction as well as during operation and maintenance phases.
- Where significant environmental impacts may occur, document and photograph pre-construction and post-construction conditions.
- Avoid subsidence and building stabilization problems through proper foundation excavation, fill placement and borrow pit management.
- Fill should avoid pockets of segregated materials, it should use well-graded materials, and it should be compacted to recognized standards.
- Backfill and/or restore borrow areas and quarries before abandonment unless alternative uses for those sites are planned.
- Control runoff into borrow pits.
- Install temporary erosion control and sediment retention measures when permanent ones either are not feasible or are delayed.
- Provide temporary sanitation at the construction site.
- Set protocols for vehicle maintenance to control contamination by grease, oil and fuels.
- Build collection channels leading to oil and/or silt traps, particularly around areas used for vehicle washing or fuelling.
- Build appropriate containment structures around bulk storage tanks and materials stores to prevent spillage entering watercourses.
- Build tanks or other separators for silt-laden material prior to allowing significant outflow into watercourses.
- Avoid pollution of waterways with stockpiled construction materials.
- Cover stockpiled construction materials, as practicable.
- Minimize the disturbance of, and reduce the spread of, ground contaminants.
- Handle, store, use and process branded materials in accordance with manufacturer's instructions and recommendations.
- Use lead-free paint, primers, varnishes and stains.
- Minimize the use of solvent-based paints.
- Introduce measures to control and minimize the volume of waste on site.
- Segregate waste that can be salvaged, re-used or recycled.
- Take waste materials to appropriate, designated local disposal areas.
- Minimize burning of waste materials.

- If waste will be buried on site, avoid siting burial pits up-gradient from drinking water sources such as wells. Pits should be lined with impermeable material (e.g., clay or polyethylene).
- If waste will be buried on site, avoid siting waste pits where water tables are high or underlying geology makes contamination of groundwater likely. If no alternative site is available, ensure that pits are lined with impermeable material.
- Provide for the safe disposal of gray water from bathing and washing.
- Recycle wastewater to the extent practicable.
- Seal or remove abandoned drains to minimize water contamination.
- Use proper bedding materials for pipes, and backfill appropriately for the pipeline.
- Use riprap (cobbled stone), gravel, or concrete as needed to prevent erosion of drainage structures at the outfall of sanitation activities according to established standards.
- Monitor and repair leaks from cracked containment structures, broken pipes, faulty valves and similar structures.
- Do not use piping containing asbestos.
- Replace lead pipes and joints in drinking water delivery system.
- Provide proper wellhead protection against contaminant sources.
- Keep livestock from grazing immediately up-gradient of water supplies.
- Do not allow animals to drink directly from water sources, unless those sources are subsequently treated.
- In coastal areas, maintain withdrawals within safe yield limits to avoid salt water intrusion and well contamination.
- Ensure that spilled water and rainwater drain to a soakway or equivalent structure.
- Monitor drains and soakways and keep clear of debris.
- Collect and dispose of sludge from wastewater treatment facilities at appropriate frequencies.
- Dispose of sludge in areas designated by local authorities.
- Test sludge for metals, pathogens and other appropriate constituents prior to use as fertilizer.
- Recover and replant topsoil and plants as practicable.
- Re-vegetate areas damaged during construction. Do not remove erosion control measures until re-vegetation is completed.
- As practicable, landscape construction sites in a way that is appropriate to local conditions.

Standard Operations and Maintenance Conditions

- As a rule, financing for water and wastewater infrastructure improvements should not be provided unless appropriate operations and maintenance (O&M) provisions are in place.
- On larger activities, an O&M Manual should be prepared before water or wastewater system operations begin.
- Address financial and system power issues in O&M plans.

Additional Standard Conditions for Slaughterhouses

- Separate solid and liquid (wastewater, blood and other liquids) wastes prior to disposal.

- Recycle any wastes that can appropriately be recycled.
- Collect solid waste in containers for disposal to an approved treatment storage and disposal facility, if practicable.
- Treat liquid effluent with either anaerobic or aerobic pond systems, or discharge to a wastewater treatment facility that is able to handle these special materials.

Additional Standard Conditions for Health Clinics and Medical Facilities

- Do not dispose of hazardous and chemical wastes to sewer systems.
- Collect and segregate waste from patients treated with cytotoxic drugs.
- Separate and disinfect stools from cholera patients prior to discharge.
- Disinfect blood before discharge to sewers unless there is an adequate wastewater treatment facility.
- Water-soluble, relatively mild pharmaceutical mixtures, such as vitamin solutions, cough syrups, intravenous solutions, eye drops, etc.—but not antibiotics—may be diluted with large amounts of water and then discharged to sewer systems that can handle them.
- Avoid burial of chemical wastes where there is potential for groundwater contamination.

EMMP Template with Monitoring Log and Budgeting Information
(To use, complete areas with the green highlight. Delete explanatory comments in yellow highlight and then complete with activity specific information as appropriate.)

EMMP for Activity XXX

Person Responsible for Overseeing completion of and compliance with the EMMP:
[name, title, contact information]

Activity 1: [name of activity] **[briefly describe activity & summarize potential adverse environmental impacts—from IEE]**								
IEE/EA Condition	**Specific Mitigation Measures**	**How monitored**	**Timing & Responsible Parties**	**Estimated Costs**	**Monitoring Log**			
						Date	**Result**	**Follow-up**
(reproduced from the IEE or EA)	Specific action to be taken to comply with the condition. (if an IEE or EA condition is already specific to the project/ activity and implementation actions self-evident, this "translation step" can be omitted)	How will the activity verify that the mitigation action is being implemented and is both effective and sufficient?	Who is responsible for mitigation, monitoring, reporting? Timing/frequency of these actions	Estimated costs of mitigation and monitoring, or budget notes that allow such an estimate to be made. Pass on to the activity budgeting team.	1			
					2			
					3			
					4			
	A single IEE/EA condition may require multiple mitigation actions to implement—add rows as necessary				1			
					2			
					3			
					1			
					2			
					3			

[add rows as needed for additional conditions]
[repeat table as needed for additional activities]

ANNEX 5

STANDARD CONDITIONS FOR MEDICAL WASTE DISPOSAL

Medical waste disposal activities occur in association with a wide variety of development activities financed by USAID. Medical waste is Uncontaminated or Bio-hazardous. Uncontaminated waste
means there is no bio-hazardous, chemical or radioactive contamination. Bio-hazardous waste includes the following: primary human cell lines and tissue cultures: organisms with recombinant DNA; cultures and stocks of infectious agents; potentially infectious bacteria, viruses, and spores, toxins; live and attenuated vaccines; blood and blood products. If bio-hazardous waste is also contaminated with chemical and/or radioactive materials, it should not be disposed as medical waste, and requires special procedures. Both uncontaminated and/or bio-hazardous medical waste should be sorted in various types of containers. Containers for medical waste include: Sharp containers; Biohazard containers; Pathological containers; Trash containers (blue lined); and Cardboard containers.

1. For Uncontaminated or Contaminated Only With Bio-hazardous Waste: Disposal in Sharps Container

Waste includes:

Uncontaminated:

- Needles.
- Needles w/syringes.
- Needles w/attached tubing.
- Blades (razors, scalpels, ets).

Biohazardous:

- Broken glass.
- Pasteur pipettes.
- Other glass pipettes.
- Microscope slides
- Other contaminated sharps items

Disposal procedures include:

- Closing the Sharps container when 2/3 full.
- Disposing in either a biohazards container or grey biohazard pickup container.

Both containers need red biohazards bags before disposing harps container.

Filling out Medical Waste Accumulation Log.

2. For Uncontaminated or Contaminated only With Bio-hazardous Waste: Disposal in Biohazard Container.

Waste includes:

- Uncontaminated:
  - Plastic syringes w/out needles.
- Bio-hazardous:
  - Plastic pipettes
  - Pipette tips
  - Culture dishes
  - Plastic centrifuge tubes
  - Eppendorf tubes
  - Glass vials
  - Vacutainers

- Disposable gloves
- Wipes
- Surgical drapes
- Other contaminated nonsharps items

Disposal procedures include:

- Closing the red biohazard bag
- Keeping the bag secondarily contained during transportation
- Disposing bag into a grey biohazard pickup container
- Filling out Medical Waste Accumulation Log
- Transferring all bio-hazardous waste to the pickup

3. For Uncontaminated or Contaminated only With Bio-hazardous Waste: Disposal in Pathological Container Waste includes:

- Uncontaminated and/or Bio-hazardous:
  - Large tissue specimens
  - Animal carcasses
  - Other recognizable human or animal body parts and tissues
- Disposal procedures include:
  - Closing the red biohazard bags
  - Keeping the bag in a red Pathological Waste container (or freezer until pickup time)
  - Filling out Medical Waste Accumulation Log
  - Transferring all pathological waste to the pickup site

4. For Disposal of Uncontaminated Medical Waste: Medical Waste Disposal in Trash Container Waste includes:

- Uncontaminated:
  - Plastic pipettes
  - Pipette tips
  - Culture dishes
  - Plastic centrifuge tubes
  - Eppendorf tubes
  - Disposable gloves
  - Wipes
  - Surgical drapes
  - Reagent bottles (intact)
  - Other uncontaminated nonglass items
- Disposal procedures: The janitors will dispose.

5. For Disposal of Uncontaminated Medical Waste: Disposal in Cardboard Box Container Waste includes:

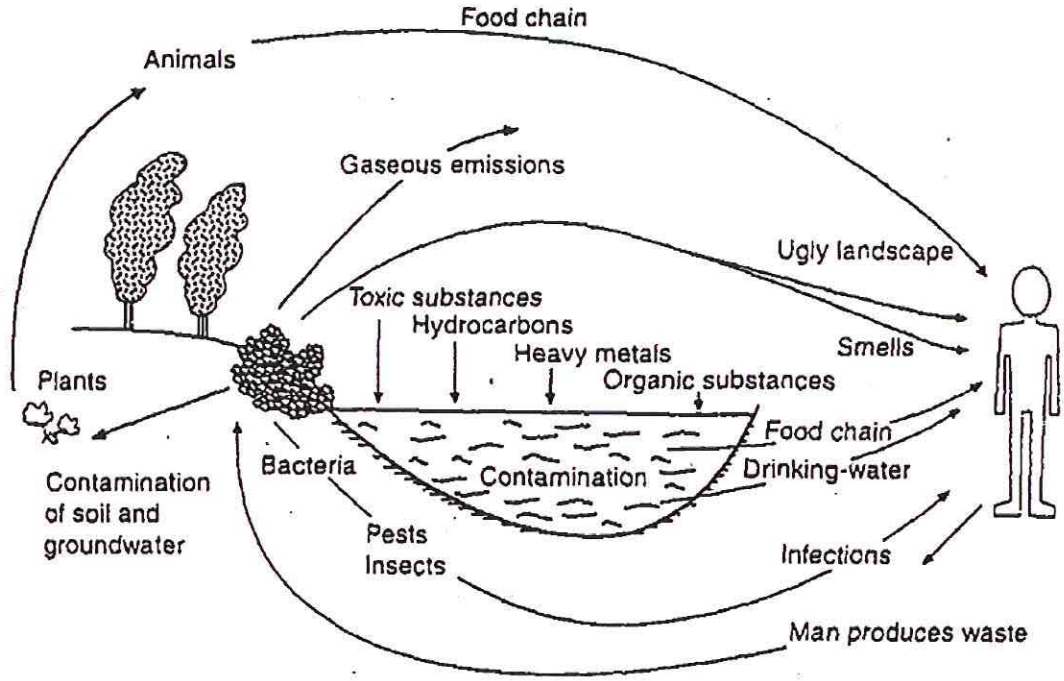
- Uncontaminated:
  - Broken glass.
  - Pasteur pipettes.
  - Other glass pipettes.
  - Microscope slides.
  - Glass vials.
  - Vacutainers
  - Other uncontaminated glass items
- Disposal procedures include:

- Sealing box closed and labeled "Broken Glass"
- Setting out for janitorial pickup

6. Bio hazardous Waste, Pathological Waste, and Full Sharps Containers cannot accumulate onsite for more than 7 days above 32F (0C)

SAFE MANAGEMENT OF WASTES FROM HEALTH-CARE ACTIVITIES

Figure 1. Routes of exposure to hazards caused by open dumping



Land disposal

Municipal disposal sites

If a municipality or medical authority genuinely lacks the means to treat wastes before disposal, the use of a landfill has to be regarded as an acceptable disposal route. Allowing health-care waste to accumulate at hospitals or elsewhere constitutes a far higher risk of the transmission of infection than careful disposal in a municipal landfill, even if the site is not designed to the standard used in higher-income countries. The primary objections to landfill disposal of hazardous health-care waste especially untreated waste may be cultural or religious or based on a perceived risk of the release of pathogens to air and water or on the risk of access by scavengers.

There are two distinct types of waste disposal to land -- *open dumps* and sanitary landfills.

- Open dumps are characterized by the uncontrolled and scattered deposit of wastes at a site; this leads to acute pollution problems, fires, higher risks of disease transmission, and open access to scavengers and animals. Healthcare waste should not be deposited on or around open dumps. The risk of either people or animals coming into contact with infectious pathogens is obvious, with the further risk of subsequent disease transmission, either directly through wounds, inhalation, or ingestion, or indirectly through the food chain or a pathogenic host species (see Fig. 1).
- Sanitary landfills are designed to have at least four advantages over open dumps: geological isolation of wastes from the environment, appropriate engineering

preparations before the site is ready to accept wastes, staff present on site to control operations, and organized deposit and daily coverage of waste. Some of the rules applicable to sanitary landfills are listed in Box 1. Disposing of certain types of health-care waste (infectious waste and small quantities of pharmaceutical waste) in sanitary landfills is acceptable; sanitary landfill prevents contamination of soil and of surface water and groundwater, and limits air pollution, smells, and direct contact with the public.

Upgrading from open dumping directly to sophisticated sanitary landfills may be technically and financially difficult for many municipalities. It has often been found impossible to sustain such efforts from the available local resources. However this is no reason for municipal authorities to abandon the move towards safer land disposal techniques, perhaps by a gradual approach, such as that outlined in Box 2. In the absence of sanitary landfills; any site from a controlled dump upwards could accept health-care waste and avoid any measurable increase in infection risk. The minimal requirements would be the following:

- an established system for rational and organized deposit of wastes which could be used to dispose of health-care wastes;
- some engineering work already completed to prepare the site to retain its wastes more effectively;
- rapid burial of the health-care waste, so that as much human or animal contact as possible is avoided.

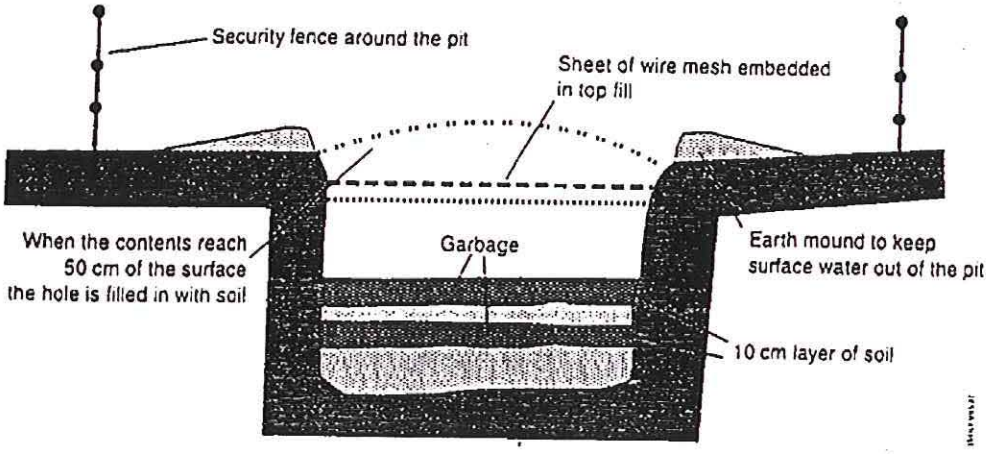
It is further recommended that health-care waste be deposited in one of the two following ways:

- In a shallow hollow excavated in mature municipal waste in the layer below the base of the working face, and immediately covered by a 2-metre layer of fresh municipal waste. Scavenging in this part of the site must be prevented. The same method is often used for hazardous solid industrial wastes; it is specifically intended to prevent animals and scavengers from re-excavating the deposited healthcare waste.
- In a deeper (1-2m) pit excavated in mature municipal waste (i.e. waste covered at least 3 months previously). The pit is then backfilled with the mature municipal waste that was removed. Scavenging in this part of the site must be prevented.

Alternatively, a special *small burial pit* could be prepared to receive health-care waste only. The pit should be 2m deep and filled to a depth of 1-l.5m. After each waste load, the waste should be covered with a soil layer 10-l5cm deep. If coverage with soil is not possible, lime may be deposited over the waste. In case of outbreak of an especially virulent infection (such as Ebola virus), both lime and soil cover may be added. Access to this dedicated disposal area should be restricted, and the use of a pit would make supervision by landfill staff easier and thus prevent scavenging. A typical example of pit design for health-care waste is shown in Fig. 2.

Before health-care wastes are sent for disposal, it is prudent to inspect Landfill sites to ensure that there is sensible control of waste deposition.

Figure 2. Example of a small burial pit for health-care waste



Encapsulation

Disposal of health-care waste in municipal landfills is less advisable if it is untreated than if it is pretreated. One option for pretreatment is encapsulation, which involves filling containers with waste, adding an immobilizing material, and sealing the containers. The process uses either cubic boxes made of high density polyethylene or metallic drums, which are three-quarters filled with sharps and chemical or pharmaceutical residues. The containers or boxes are then filled up with a medium such as plastic foam, bituminous sand, cement mortar, or clay material. After the medium has dried, the containers are sealed and disposed of in landfill sites.

This process is relatively cheap, safe, and particularly appropriate for establishments that practice **minimal activities** for the disposal of sharps and chemical or pharmaceutical residues. Encapsulation alone is not recommended for non-sharp infectious waste, but may be used in combination with burning of such waste. The main advantage of the process is that it is very effective in reducing the risk of scavengers gaining access to the hazardous health-care waste.

Safe burial on hospital premises

In health-care establishments that use minimal activities for healthcare waste management, particularly in remote locations, in temporary refugee encampments, or in areas experiencing exceptional hardship, the safe burial of waste on hospital premises may be the only viable option available at the time. However, certain basic rules should still be established by the hospital management:

- Access to the disposal site should be restricted to authorized personnel only.
- The burial site should be lined with a material of low permeability, such as clay, if available to prevent pollution of any shallow groundwater that may subsequently reach nearby wells.
- Only hazardous health-care waste should be buried. If general hospital waste were also buried on the premises, available space would be quickly filled up.
- Large quantities (>1 kg) of chemical wastes should not be buried at one time. Burying smaller quantities avoids serious problems of environmental pollution.
- The burial site should he managed as a landfill, with each layer of waste being covered with a layer of earth to prevent odors, as well as to prevent rodents and insects proliferating.

The safety of waste burial depends critically on rational operational practices. The design and use of the burial pit are described in the previous section and illustrated in Fig. 2. The bottom of the pit should be at least 1.5 meters higher than the groundwater level.

Land disposal of residues

After disinfection or incineration, infectious health-care waste becomes non-risk waste and may be finally disposed of in landfill sites. However, certain types of health-care waste, such as anatomical waste, will still have an offensive visual impact after disinfection, and this is culturally unacceptable in many countries. Such wastes should therefore be made unrecognizable before disposal, for example by incineration. If this is not possible, these wastes should be placed in containers before disposal.

Inertization

The process of "inertization" involves mixing waste with cement and other substances before disposal in order to minimize the risk of toxic substances contained in the waste migrating into surface water or groundwater. It is especially suitable, for pharmaceuticals and for incineration ashes with a high metal content (in this case the process is also called "stabilization").
For the inertization of pharmaceutical waste, the packaging should be removed, the pharmaceuticals ground, and a mixture of water, lime, and cement added. A homogeneous mass is formed and cubes (e.g. of 1m3) or pellets are produced on site and then can be transported to a suitable storage site. Alternatively, the homogeneous mixture can be transported in liquid state to a landfill and poured into municipal waste.
The following are typical proportions for the mixture:

- 65% pharmaceutical waste
- 15% lime
- 15% cement
- 5% water

The process is reasonably inexpensive and can be performed using relatively unsophisticated equipment. Other than personnel, the main requirements are a grinder or road roller to crush the pharmaceuticals, a concrete mixer, and supplies of cement, lime, and water. The main advantages and disadvantages of the various treatment and disposal options addressed in this handbooks are outlined in Table 1.

Table 1. Summary of main advantages and disadvantages of treatment and disposal options.

Treatment/disposal methods	Advantages	Disadvantages
Rotary kiln	• Adequate for all infectious waste, most chemical waste and pharmaceutical waste.	• High investment and operating costs.
Pyrolylic incineration	• Very high disinfection efficiency. • Adequate for all infectious waste and most pharmaceutical and chemical waste.	• Relatively high investment and operating costs.

Single-chamber incineration	• Good disinfection efficiency • Drastic reduction of weight and volume of waste. • The residues may be disposed of in landfills. No need for highly trained operators. • Relatively low investment and operating costs.	• Significant emissions of atmospheric pollutants. • Need for periodic removal of slag and soot. • Inefficiency in destroying thermally resistant chemicals and drugs such as cytotoxins.
Drum or brick incineration	• Drastic reduction of weight and volume of waste. • Very low investment and operating costs.	• Destroys only 99% of microorganisms. • No destruction of many chemicals and pharmaceuticals. • Massive emission of black smoke, fly ash, toxic flue gas, and odors.
Chemical disinfection*	• Highly efficient disinfection under good operating conditions. • Some chemical disinfectants are relatively inexpensive. • Drastic reduction on waste volume	• Requires highly qualified technicians for operation of the process. • Uses hazardous substances that require comprehensive safety measures. • Inadequate for pharmaceutical, chemical and some types of infectious waste.
Wet thermal treatment*	• Environmentally sound • Drastic reduction in waste volume.	• Shredders are subject to frequent breakdowns and poor functioning. • Operation requires qualified technicians. • Inadequate for anatomical, pharmaceutical and chemical waste and waste that is not readily stream permeable.
Microwave irradiation	• Good disinfection efficiency under appropriate operating conditions. • Drastic reduction in waste volume. • Environmentally sound	• Relatively high investment and operating costs • Potential operation and maintenance problems.
Encapsulation	• Simple, low-cost, and safe • May also be applied to • Pharmaceuticals.	• Not recommended for non-sharp infectious waste.

Safe burying	• Low costs. • Relatively safe if access to site is restricted and where natural infiltration is limited.	• Safe only if access to site is limited and certain precautions are taken.
Inertization	• Relatively inexpensive.	• Not applicable to infectious waste.

* May not apply to more sophisticated, self-contained, commercial methods.

It should be kept in mind that safe on-site burial is practicable only for relatively limited periods, say 1-2 years, and for relatively small quantities of waste, say up to 5 or 10 tons in total. Where these conditions are exceeded, a longer-term solution, probably involving disposal at a municipal solid waste landfill, will need to be found.

Negative Environmental Impacts of Public Health Commodities Procurement; and Generation, Storage and Highly Medical Waste

Procurement, Storage, Management and Disposal of Public Health Commodities
Bangladesh/Health activities may include the procurement of limited pharmaceutical drugs and vaccines, personal protective gear, laboratory and medical supplies, and basic medical equipment, distribution of condoms procured by the Global Fund to Fight AIDS, Tuberculosis and Malaria. Additionally, some public health commodities not procured by USAID are distributed by USAID-supported activities or their outreach workers as part of USAID-supported activities, such as STI test kits procured by UNFPA or condoms or HIV test kits procured by the Global Fund to Fight AIDS, Tuberculosis and Malaria. If appropriate training is not given to recipients at the point of distribution, these commodities have the potential to pollute the environment and transmit infectious disease.

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 routing system of disposal. The effects of pharmaceuticals on 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 (such as fish and marine 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 (waste water), and through the disposal of unused or expired pharmaceuticals (on land or into waterways).

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 Bangladesh/HEO activities are not associated with major health risks, including packaging material, and should be disposed of as solid waste.

Additional information can be found at:
http://www.ameliaww.com/fpin/ProductsEnv.htm
http://www.who.int/water_sanitation_health/medicalwaste/pharmaceuticals/en/
Pharmaceuticals in the Environment: Sources, Fate, Effects and Risks (2nd ed.). 2004. Klaus Kummerer, ed (online version).

Generation, Storage and Disposal of Medical Waste

Small-scale healthcare facilities, such as rural health posts, immunization posts, reproductive health posts, mobile and emergency healthcare activities, and urban clinics and small hospitals provide important and often critical healthcare services to individuals and communities that would otherwise have little or no access to such services. They are the front line of defense against epidemics such as AIDS, TB and a key component of any comprehensive development program. The medical and health services they provide improve family planning, nurture child and adult 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 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.

People who come in contact with the waste are at greatest risk. Examples include healthcare workers, cleaning staff, patients, visitors, waste collectors, disposal site staff, waste pickers, drug addicts and those who knowingly or unknowingly use "recycled" contaminated syringes and needles.

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 buried or taken to the landfill without any additional treatment.*
- **Infectious** *waste include waste contaminated with blood and its by-products, cultures and stocks of infectious agents, waste from patients in isolation wards, discarded diagnostic samples containing blood and body fluids, infected animals from laboratories, and contaminated materials (swabs, bandages) and equipment (such as disposable medical devices).*
- **Pathological** wastes contain recognizable body parts and contaminated animal carcasses.

Other medical waste categories include:

Sharps: syringes, needles, disposable scalpels and blades, etc.
Chemicals: for example Mercury, solvents and disinfectants;
Pharmaceuticals: expired, unused and contaminated drugs, vaccines and sera;
Genotoxic waste: hazardous, mutagenic, teratogenic or carcinogenic, such as cytotoxic drugs used in cancer treatment and their metabolites;
Radioactive waste: such as glassware contaminated with radioactive diagnostic material or radio therapeutic materials.
Heavy metals waste: such as broken mercury thermometers.

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 a controlled but accessible room with adequate space and protection from sunlight.
- In any area that produces hazardous waste including hazardous medical waste, heavy metals and chlorinated compounds, in areas such as 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, must be trained to sort the waste they produce.

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, drug addicts and others who handle sharps have become infected with HIV/AIDS and 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.

Standard conditions for medical waste disposal can be found in Annex 5 and safe management of wastes from health-care activities including the typical treatment and disposal methods for medical waste can be found in Annex 6.

Additional information can be found at:
http://www.who.int/water_sanitation_health/medicalwaste/167to180.pdf
http://wwbchealthguide.org/healthfiles/hfile29.stm
http://www.who.int/mediacentre/factsheets/fs253/en/#

ANNEX 8

TERMS OF REFERENCE / JOB DESCRIPTION

POSITION TITLE: Environmental Impact Specialist, [INSERT ACTIVITY NAME]

LOCATION: Dhaka, Bangladesh

REPORTS TO: [INSERT THE POSITION, CHIEF OF PARTY or OTHER]

PERFORMANCE PERIOD: [INSERT PERIOD, SPECIFY WHETHER IT IS A FULL OR PART TIME POSITION]

ELIGIBILITY: [US or LOCAL HIRE]

ACTIVITY SUMMARY:

[INSERT ACTIVITY SUMMARY]

POSITION SUMMARY:

USAID policy requires implementing organizations to ensure their activities do not have a negative impact on the environment. This is done primarily through detailed analyses of activities to identify potential impacts, and the development and implementation of mitigation and monitoring measures to minimize and monitor these risks.

[ACTIVITY X] is required to follow environmental determinations specified in the USAID approved IEE [INSERT IEE DCN NUMBER], which outlines the activities with the potential for negative environmental impacts, and specifies actions to minimize the risk of these activities. The Environmental Impact Specialist will be responsible to ensure that the IEE requirements are implemented by the activity team, including sub-contractors and grantees if applicable, and that all environmental impact analyses are completed as required by the IEE.

ESSENTIAL RESPONSIBILITIES [THIS IS AN ILLUSTRATIVE LIST, IT SHOULD BE COMPLETED BASED ON THE REQUIREMENTS OF THE IEE]:

- Work with activity staff to implement the measures outlined in the [ACTIVITY X] IEE [INCLUDE ALL APPLICABLE], that includes develop, implement, monitor, report on, and update, as appropriate, the:
    - Environmental Due Diligence report (EDD)
    - Environmental Monitoring and Mitigation Plan (EMMP) and Environmental Manual (EM)
    - Pesticide Evaluation Report and Safe Use Action Plan (PERSUAP)
    - Scoping Statement (SS) and Environmental Assessment (EA)

- Ensure that all activities consider potential environmental impact and address any environmental concerns;
- Conduct evaluation of potential environmental impacts in …[e.g. construction], and ensure detailed engineering studies are completed for structures address environmental concerns;

- Coordinate as necessary with the GOB to process all documents required to obtain required environmental clearances and ensure compliance with relevant GOB environmental protection regulations;
- Work with the [ACTIVITY X] grant and contracts team to incorporate required environmental mitigation measures into grant and sub-contract documentation and activity implementation;
- Assist [ACTIVITY X] staff in monitoring the implementation of [INSERT EMMP, PERSUAP or EA] during operation of the activity, including regular visits to …[hazardous waste management, rehabilitation and/or construction sites];
- Report on the implementation of [EMMP, PERSUAP, EA] as part of activity quarterly reports, and as otherwise appropriate;
- Ensure timely completion of all EMMP related deliverables and periodic reporting required by the EMMP;
- Develop training materials and provide training to and build the capacity of local implementing partners (including sub-contractors, grantees, community based organizations, activity staff, and GOB counterparts, as necessary) on the requirements of the [EMMP, PERSUAP, EA] and national environmental regulations and how to comply with mitigation measures specified;
- Lead the inclusion of environmental compliance tasks, e.g. training, monitoring, reporting, updates, etc., in the annual implementation plan; and,
- Carry out other tasks as designated by COP.

QUALIFICATIONS AND REQUIREMENTS:

Education: Bachelor's degree in Environmental Science and/or Management or Environmental Engineering or related field. Master's degree preferred.

Experience:

- At least 5 years of experience working as environmental specialist, with a focus on regulatory compliance, environmental monitoring methods, impact analysis and assessment;
- Experience in conducting trainings;
- Experience in writing Environmental Impact Assessment(s) (EIA);
- Experience working in ….[e.g. parks or protected area infrastructure; conducting environmental assessments in the health sector; and/or natural resource management];
- Knowledge of biological, water sciences, and/or the earth-sciences ;
- Knowledge of Bangladesh environmental regulations required;
- Previous experience with donor funded activities preferred;
- Familiarity with USAID environmental guidelines is preferred

Skills:

- Proficiency with Microsoft Office;
- Should have strong analytical skills, be gender sensitive, and possess a proven track record of working successfully in a variety of cultural contexts;
- Excellent interpersonal and community consultation skills;
- Excellent writing skills;
- Fluent Bangla and English language skills [speak, read, write]