Environmental Mitigation Plan and Report (EMPR)

USAID HAITI MISSION SO and Title: The Development Objective (DO) of the current health strategy is "Health and Nutrition Status of the Haitian Population Improved

Title of IP Activity: SDSH II

IP Name: Management Sciences for Health - MSH

Funding Period: 08/01/2012 – 07/31/2013

Resource Levels (US$): US $19,997,826

Associated IEE: LAC-IEE-11-03

Report Prepared by: Name: Laurence Pierre/ Kathy Kantengwa Date: August 26, 2012

Date of Previous EMPR: N/A

Status of Fulfilling Mitigation Measures and Monitoring:

Yes Initial EMPR describing mitigation plan is attached (Yes or No)

_No_ Annual EMPR describing status of mitigation measures is established and attached (Yes or No).

_No_ Certain mitigation conditions could not be satisfied and remedial action has been provided within the EMPR (Yes or No).

USAID Haiti Clearance of EMPR:

Contracting Officer's Representative: _____ Date: _____
(Judy Chang)

Mission Environmental Officer: _____ Date: _____
(Robert Clausen)

Regional Environmental Advisor: _____ Date: _____
(Joe Torres)

Monitoring and Mitigation Plan

Country: Haiti

Activity Title: SDSH II

Activity Number: 521-C-00-00008

Environmental Mitigation Plan and Report

I. Background

Haiti is a country with a population of about 10 million and annual growth rate of 1.7%. Events of the past several decades have resulted in a complex environment, which has affected the ability of the Ministry of Health (MOH) to ensure access to quality healthcare. In the past few years, Haiti has been devastated by a number of natural disasters, most notably by tropical storms in August and September of 2008, and the earthquake on January 12, 2010. The country has also had to contend with political unrest due to high food and fuel prices (in April 2008) and election uncertainty (2010-11 Presidential election crisis). Furthermore, on October 21, 2010, cholera was confirmed in the Artibonite region of Haiti for the first time in generations. Cholera has now spread to all departments in Haiti and will likely become endemic in Haiti for at least the medium-term future.

Haiti's health indicators clearly reveal the weaknesses in the country's health system. While the last Demographic and Health Survey (DHS) in 2005 suggested that trends in mortality and morbidity were improving, they are still worrisome. Deficiencies in the Haitian health system pre-earthquake continue to exist, directly contributing too many of Haiti's poor health outcomes. There are shortages of community health workers, low retention of doctors and nurses, and low skill level and knowledge base at all levels. Inequalities and low coverage characterize a full range of health indicators. For example, health indicators, most closely associated with facility based service delivery or regular access to health services demonstrate the widest disparities, e.g. availability of skilled birth attendants or DPT 3 coverage. There are other indicators with the same poor outcomes across the population regardless of income level, e.g. childhood anemia, childhood and maternal mortality. It will be impossible to sustainably address Haiti's health problems without also tackling issues in other sectors such as education and economic growth that contribute to these poor health outcomes.

The proposed project aims to continue service delivery activities that are currently implemented as part of the Santé pour le Développement et Stabilité d'Haïti (SDSH) project under a one-year contract that will serve as a bridge to a new model of contracting service delivery managed directly by the Ministry of Health.

This Environmental Mitigation Plan and Report (EMPR) addresses the activities to be implemented under USAID/Haiti's SDSH II Project, which consists of initiatives in reproductive health, family planning, infectious diseases (TB), child and maternal health, and HIV/AIDS treatment and prevention. Management Sciences for Health (MSH) is the implementing partner.

II. Program Description

The overall purpose of this project is to continue, and in some instances expand, the provision of health services to people living in targeted zones currently supported by USAID SDSH, as well as to provide targeted assistance at the departmental level. This will be achieved through the delivery of a "package" of

primary healthcare services which will be based on the Government of Haiti (GOH)-defined basic package and which will include four program elements: 1) HIV/AIDS; 2) Tuberculosis (TB); 3) Maternal and Child Health (MCH) (including Water, Sanitation and Hygiene (WASH) and Nutrition); and 4) Family Planning (FP). In addition, targeted health systems strengthening (HSS) assistance will increase the capacity (financial, information, governance) of Departmental Ministry of Health (MOH) personnel to manage service delivery. This work will build on previous USAID/Haiti investments and link to current and future activities in health to support decentralization, strengthen public sector capacity in managing and contracting service delivery, and support NGO service delivery.

Health system strengthening activities will focus its efforts on strengthening GOH departmental capacity to manage and monitor the delivery of health services. The project will create and achieve benchmarks that clearly describe progress towards the transition of management of USAID-financed health services to the Departmental level of the MOH.

Specific activities that will be implemented that have potential of a negative impact on the environment include:

- Generation of medical wastes (hazardous and non hazardous) from the implementation of health service delivery and training.
- Sharps and medical bandages/gauzes that are blood stained would be generated during the implementation of hands on medical training programs and implementation of medical services at clinics and hospitals.

Under SDSH II, MSH will not be involved with new large-scale construction activities. However, in some cases, rehabilitation of facilities might be required to assure satisfactory service delivery. Rehabilitation needs will be determined during the field visits in collaboration with local authorities. The minor renovations/small scale construction less than 10,000 sq. ft. will be supervised by the project throughout the contract period and they will consist of:

- Rehabilitation of clinics to improve patient flow
- Rehabilitation of hydraulic systems for the elimination of liquid wastes such as wastewater from laboratories and toilets. No new constructions are budgeted under this program
- Renovation of waste disposal systems for the health delivery sites
- Renovation and construction of a limited number of appropriately designed cement/block incinerators for the safe disposal of medical hazardous waste and the medical waste.

PPE and USAID health and safety guidelines will be applied in all activities that involve construction and/or rehabilitation, regardless of the size of the activity.

III. Description of Environmental Impact

In addition to the provision of service delivery through performance based financing, the primary components of this program consist of health services delivery, training, technical assistance, education, infrastructure rehabilitation, and other institutional capacity-building activities focused on the departmental level of the MSPP . Infrastructure renovation shall vary with the needs determined during field visits. Given the limited budget for renovation, priorities will be identified during the work planning period and after a needs assessment for renovations thirty days subsequent to that period.

The majority of the activities conducted under this program will not have negative impacts on the physical environment or pose any significant risks to the welfare of target populations or surrounding communities. However, direct negative environmental impacts could result from medical waste, sanitary

waste disposal, and rehabilitation activities (detailed below) if these activities are not implemented using appropriate Best Management Practices (BMPs). Direct impacts on construction workers, medical staff and beneficiaries could also result from accidents and or exposure to hazardous materials (e.g. asbestos) .

a. Medical Waste

The amount and type of waste generated at SDSH II supported clinics varies according to the size of the clinics and the types of services provided. Services involving education and consultation clearly create less waste than clinical services and vaccinations. The service provided and associated potential medical wastes are listed below:

Service Provided	**Contaminated Medical Waste**
Surgical Contraception, e.g., tubal ligations, vasectomies	Human tissue (small segments of fallopian tubes and vas deferens), bandages, sutures, gauze, cotton, rubber gloves, scalpel blades, needles/syringes
Gynecological Examination, can include IUD insertion, contraceptive pill prescription, or Depo Provera injection	Swabs, gauze, cotton, rubber gloves, needles/syringes (for Depo Provera)
Obstetrical Services, i.e., sonograms, vaginal births	Human tissue (placentas), gauze, cotton, rubber gloves, needles/syringes
Pediatric Services, e.g., well baby clinics and immunizations	Gauze, cotton, tongue depressors, needles/syringes
Lab Services, e.g., pap smears, Solid and liquid wastes from laboratories, laundry and restrooms from clinics blood tests	Gauze, cotton, lancets, rubber gloves, needles/syringes, culture slides
X- Ray Machines	x-ray film development solution

The medical waste produced by these clinics is classified into **three categories**:

- hazardous medical waste: sharps, blades, x- ray waste, materials with blood (human tissue bandages with blood, sutures, cotton, gauze with blood, etc… that go into the bins with red plastic bags)
- Other medical non toxic/hazardous waste: non sharps, gauzes and bandages without blood (rubber gloves, tongue depressors, and swabs).
- sanitary waste-liquid wastes: liquid wastes from laboratories, laundry and restrooms from clinics



b. Sanitary Waste

Sanitary waste is non-medical solid and liquid waste from laundries and restrooms. When improperly disposed they can contaminate ground water, surface water, soil and other parts of the surrounding environment and result in exposure to bacterial diseases.

c. Rehabilitation

The rehabilitation of clinics under this program will not involve large earth-moving equipment or large purchases of chemicals nor construction of toilets.

IV. Description of Mitigation Measures

During the implementation of SDSH II, MSH proposes the following steps:

Step One: During the project, MSH must certified that: 1) training has been conducted for implementing partners on standards for the handling and disposal of medical wastes as defined in the MOH Waste Management Strategy; and 2) waste management educational materials have been disseminated and the following guides developed: waste management manual, waste management disposal leaflet, poster and pamphlet, hand washing poster, etc.

Step Two: MSH will continue to implement USAID's IEE recommendation that each facility maintain or construct (at a minimum) an incinerator for the medical waste. The incombustible and ash material can then be buried in a landfill area that must be identified by each clinic (only low volumes are anticipated).

Step Three: MSH will conduct site visits to ensure compliance with BMP plans which will be developed by the Waste Management Advisor during the first month of the project and will specify additional mitigation measures to be implemented. The site visits will be conducted by the MSH waste management designated representative. Any situations of non-compliance must be brought to the attention of the COR within 30 days.

Note: The USAID/Haiti MEO will be contacted to provide advice on any situation that is complicated and requires special technical assistance.

Below are recommendations for handling various types of medical waste. These recommendations were obtained from "Infection Prevention for Family Planning Service Programs" by Linda Tietjen, Wendy Cronin, and Noel McIntosh, JHPIEGO, 1992, and the approved IEE. (LAC-IEE-11-03)

Disposal of hazardous medical waste:

These are sharp objects, materials with blood (needles, razors and scalpel blades), and other (outdated medicines, etc.)

Step One: Wear thick, household gloves.

Step Two: If possible, place the lancets and blades inside the cap of a glass bottle filled with a chlorine solution.

Step Three: Dispose of all sharp items in a puncture-resistant container. Puncture-resistant containers can be made of easily available objects such as a heavy cardboard box, a tin can with a lid, or a heavy plastic bottle.

Note: Place the containers close to the area where it will be used so that workers minimize the distance object are carried before disposal. Avoid accidental needle sticks; do not bend or break needles prior to disposal. Needles should not be recapped routinely; if necessary, a one-handed recap method should be used:

(1) Place cap on a hard, flat surface, then remove hand.
(2) With one hand, hold syringe and use needle to "scoop-up" cap.
(3) When cap covers needle completely, use other hand to secure cap on needle.

Step Four: When the container is 3/4 full; cap, plug or tape it tightly closed. Seal and label the container to indicate danger.

Step Five: Place all containers in an appropriately marked red bin in a secure storage area while awaiting local incineration or transport to an off-site incinerator.

Step Six: 1st Choice: All syringes, needles and other disposable implements should be well secured and covered before being transported to a nearby hospital to assure that they reach their destination for incineration. 2nd Choice: When transportation to a hospital is not possible, plans will be made for construction of a local incinerator. Until local incinerators are constructed, waste materials will be burned in a safety box to decrease likelihood of scavenging and to reduce the risk of infection. Needles and other sharp objects may not be destroyed by burning, and may later cause injuries which can lead to a serious infection. Therefore, when the container/ safety box is 3/4 full, incineration must be followed by final disposal in a municipal site and premises for such purposes.

Step Six: Wash hands after handling containers and decontaminate and wash gloves.

Note: According to the norms of the Ministry of Public Health and Population (MOH), expired drugs must be returned to the Directorate of Pharmacy that handles their elimination.

Disposal of other medical non toxic/ non-hazardous waste

Step One: Wear thick household (utility) gloves, coveralls, face mask, and boots when handling and transporting wastes.

Step Two: Dispose of solid wastes in non-corrosive washable containers (plastic or galvanized metal) with tight fitting covers. Use containers that are clearly marked as dangerous to human health both in graphic and written form. If possible, use red, reinforced garbage bags.

Step Three: Collect the waste containers on a regular basis and transport the combustible ones to the nearest incinerator. If incineration is not available, burn or bury in a controlled area, where scavenging would not occur.

Step Four: Wash hands after handling wastes. Decontaminate and wash gloves in a chlorine solution prior to reuse or disposal.

Note: Incineration is the best method to kill microorganisms. If an incinerator has not yet been constructed for a health service center, the closest medical incinerator will be used.

Disposal of sanitary waste-

Or liquid wastes from laboratories, laundry and restrooms from clinics (blood, feces, urine and other body fluids)

Step One: Wear thick household (utility) gloves when, handling and transporting wastes.

Step Two: Carefully pour wastes down a utility sink drain or into a flushable toilet. Liquid wastes can also be poured into properly designed latrines. Avoid splashing.
Note: Please determine where are the sink or toilet drains before choosing to pour the waste down the sink or drain. The ultimate disposal location for untreated waste should meet the criteria for latrines.

Step Three: Rinse the toilet or sink carefully and thoroughly with water to remove residual wastes. Avoid splashing.

Step Four: Decontaminate specimen container with 0.5% chlorine solution or other locally available and approved disinfectant, by soaking for 10 minutes before washing.

Step Five: Wash hands after handling liquid wastes and decontaminate and wash

gloves.

Disposal of used chemical containers

Step One: Rinse glass containers thoroughly with water. Glass containers may be washed with detergent, rinsed, and reused.

Step Two: For public containers which contained toxic substances rinse three times with water, puncture and dispose by burial. Do not reuse these containers for other purposes.

Note: Tips for handling waste containers

(1) Use non-corrosive washable containers (plastic or galvanized metal) with covers for contaminated wastes.
(2) Place waste containers at convenient places for use (carrying waste from place to place increases the risk of infection for handlers).
(3) Do not use equipment to hold and transport wastes for other purpose in the clinic on health care facility; contaminated waste containers should be marked as dangerous.
(4) Wash all waste containers with a disinfectant cleaning solution (0.5% chlorine solution) and rinse with water.
(5) When possible, use separate containers for combustible and non-combustible wastes to avoid workers from having to handle and separate wastes by hand later. Combustible wastes include paper, cardboard, and contaminated wastes such as used dressings and gauze. Non-combustible wastes include glass, metals and plastics.
(6) If available, use heavy work gloves when handling wastes.
(7) Wash hands after handling wastes.

Building an incinerator for waste disposal

Note: Open burning is not recommended because it results in scattering of the waste which is dangerous and unsightly.

Step One: Select a site downwind from the clinic and away from any homes or public buildings, especially schools. Build a simple incinerator using local materials (mud or stone). The project will allocate funds for construction of appropriately designed cement/block incinerators for the safe disposal of medical hazardous waste and the medical waste.

Step Two: The size of the incinerator will depend upon the amount of Waste that is collected per day in a specific health facility. If burning in a local incinerator is the only choice, the area will be fenced off so that kids, animals, and scavengers don't go near this area

Step Three: Place the incinerator on hardened earth or a concrete base.

Step Four: Ensure that the incinerator has sufficient air inlets underneath for good combustion, an adequate opening for adding fresh refuse and removing ashes, and a chimney that is sufficiently long to allow for good draught

and evacuation of smoke.

Step Five: Burn all combustible wastes, such as paper and cardboard, as well as used dressing materials and other contaminated wastes.

Step Six: Ash from incinerated material can be treated as non-contaminated waste.

Mitigation Measures for Rehabilitation/renovation

The project will realize the renovation work at some sites; renovations needs will be determined during field visits in collaboration with local authorities to improve service delivery. When carrying out such work, MSH will ensure that:

- The workplace is protected and marked
- Site visitors are not disturbed
- Environment is not destroyed or contaminated
- All workers use PPEs'
- Take special precautions when handling hazardous materials (for asbestos, see USAID guidelines on the handling of asbestos).

General Renovation guideline

- Only rehabilitation is authorized as part of this project occurring only within the footprint of the present structures.
- To the extent that dwellings are located nearby, measures will be taken to keep dust and concentrated noisiest work to a minimum.
- Avoid renovation in sites prone to flooding where possible.
- Only non-lead based paints should be purchased under this project. It may be necessary to call the manufacturer of the paint to determine whether or not the paint contains lead if the Material Safety Data Sheet cannot be supplied by the vendor. The MEO can provide assistance, if necessary.
- Avoid any site which is close to a wetland, stream, river, or well. Provisions should be made to include elements such as hand washing facilities and a plastic/clay lined pit for safe burial of waste. Do not site pit where water table is high or underlying geology makes groundwater contamination likely.
- Only minimal vegetative clearing should occur for rehabilitation activities; forested areas must be avoided.
- Where there is any question regarding the potential impact of rehabilitation activities on the environment, the MEO shall be contacted. After the site visit, he or she can designate additional site-specific mitigation measures, if necessary.

III-A. Environmental Screening Form (Table 1)

Name of Activity: SDSH II Type of Activity: Health Services Grantee: Management Sciences for Health Date: July 31, 2012		Column A	Column B	Col C	
		Yes	No	If answered yes to Col. A. is it a--?	
				High Risk	Medium-Risk
IMPACT ON NATURAL RESOURCES & COMMUNITIES					
1	Will the project involve construction[1] of any type of structure (building, check dam, walls, etc.)?		x		
2	Will the project involve the construction[2] or repair of roads or trails?		x		
3	Will the project involve the use, involve plans to use or training in the use of any chemical compounds such as pesticides[3] (including neem), herbicides, paint, varnish, lead-based products, etc?	x			
4	Involve the construction of repair of irrigation systems?		x		
5	Involve the construction or repair of fish ponds?		x		
6	Involve the disposal of used engine oil?		x		
7	Will the project involve implementation of timber management[4] or extraction of forest products?		x		
8	Are there any potentially sensitive terrestrial or aquatic areas near the project site, including protected areas?		X		
9	Does the activity impact upon wildlife, forest resources, or wetlands?		x		
10	Will the activities proposed generate airborne gases, liquids, or solids (i.e. discharge pollutants)		x		
11	Will the waste generated during or after the project impact on neighboring surface or ground water?		x		
12	Will the activity result in clearing of forest cover?		x		
13	Will the activity contribute to erosion?		x		
14	Is the activity incompatible with existing land use in the vicinity?		x		
15	Will the activity contribute to displace housing?		x		
16	Will the activity affect unique geologic or physical features?		x		
17	Will the activity contribute to change in the amount of surface water in any body?		x		
18	Will the activity deal with mangroves and coral reefs?		x		
19	Will the activity expose people or property to flooding?		x		
20	Will the activity contribute substantial reduction in the amount of ground water otherwise available for public water supplies?		x		
21	Will the activity create objectionable odors?		x		
22	Will the activity violate air standard?		x		
ENVIRONMENT & HEALTH					
23	Will the project activities create conditions encouraging an increase of waterborne diseases or populations of disease carrying vectors?		x		
24	For road rehabilitation as well as water and sanitation grants, has a maintenance plan been submitted?		x		
25	Will the activity generate hazards or barriers for pedestrians, motorists or persons with disabilities?		x		
26	Will the activity increase existing noise levels?		x		

27	Will the project involve the disposal of syringes, gauzes, gloves and other biohazard medical waste?	x			x
28	the activity incompatible with existing land use?		x		
LOCAL PLANNING PERMITS					
29	Does the activity e.g. infrastructure improvements, require local planning permission(s)?			N/A	N/A
30	Does the activity meet the national building code (e.g. infrastructure improvements)?			N/A	N/A
GENDER[5]					
31	Do men and women benefit disproportionately or are involved unequally in the project's activities?		x		
32	Does the project activity inhibit the equal involvement of men and women?		x		
33	Are there factors that prevent women's participation in the project?		x		

RECOMMENDED ACTION *(Check Appropriate Action)*:	*(Check)*
(a) The project has no potential for substantial adverse environmental effects. No further environmental review is required (Categorical Exclusion). No EMPR required.	
(b) The project has potential for minimal to medium adverse environmental effects, but mitigable environmental effects. Measures to mitigate environmental effects will be incorporated (Negative Determination with Conditions). EMPR Required.	x
(c) The project has potentially substantial or significant adverse environmental effects, but requires more analysis to form a conclusion. An Environmental Assessment will be prepared (Positive Determination). No EMPR required.	
(d) The project has potentially substantial adverse environmental effects, and revisions to the project design or location or the development of new alternatives is required (Deferral).	
(e) The project has substantial and unmitigable adverse environmental effects. Mitigation is insufficient to eliminate these effects and alternatives are not feasible. The project is not recommended for funding.	

[1] Construction projects need to be reviewed for scale, planned use, building code needs and maintenance. Some small construction projects, such as building an entrance sign to a park, may require simple mitigations whereas larger buildings will require more extensive review and monitoring.
[2] New construction of roads and trails will require a full environmental assessment of the planned construction, i.e. a Positive Determination.
[3] The planned involvement of pesticides will trigger the need to develop a Supplemental Initial Environmental Examination that meets USAID pesticide procedures (Pesticide Evaluation Report and Safer Use Action Plan or "PERSUAP") for the project.
[4] Any activities the involve harvesting trees or converting forests will require a full environmental assessment of the activity (i.e. Positive Determination).
[5]A positive response to gender questions require follow up only when there are other positive responses on questions 1 – 30, and an EMPR is developed.

III-B. Identification of Mitigation Plan (Table 2)

→ Row #27: Will the project involve the disposal of syringes, gauzes, gloves and other biohazard medical waste? **YES**

#	Sub-activity or component	Description of Impact	Mitigation Measures
Component 1.	**Generation and disposal medical waste**		
	a)Generation of hazardous medical waste	Regular activities during health service delivery at clinics supported by SDSH II will generate sharps, blades, x- ray waste, materials with blood (human tissue bandages with blood, sutures, cotton, gauze with blood, etc These materials may pose human health and safety risks if sharp items fall out of the puncture-resistant containers or ground contamination with used sharp items	<u>Handling of hazardous medical waste</u>: • Wear thick, household gloves before handling hazardous waste • safety boxes are available and well used • Disinfect sharps (chlorine) - Dispose of all sharp items in a puncture-resistant red container marked Hazardous Waste. - Place the container close to the area where it will be used so that workers minimize the distance objects are carried before disposal. Avoid accidental needle sticks; - When the container is 3/4 full; cap, plug or tape it tightly <u>Collection and disposal of hazardous waste</u>

			• Partners' institutions will define the circuits of hazardous waste disposal at their specific sites in accordance with the Ministry of Health (MOH) and WHO standards provided during the training to be respected by the persons involved in waste management. Seal and label the container to indicate danger. When the container is 3/4 full; cap, plug or tape it tightly closed. Seal and label the container to indicate danger. - - 1st Choice: All syringes, needles and other disposable implements should be well secured and covered before being transported to a nearby hospital to assure that they reach their destination for incineration. - 2nd Choice: Burn waste materials in a container to decrease likelihood of scavenging and to reduce the risk of infection. - Place all containers in an appropriately marked red bin in a secure storage area while awaiting local incineration or transport to an off-site incinerator and ensure that storage sites are well marked and protected • Wash hands after handling containers and

			decontaminate and wash gloves.
	b) **Non hazardous/toxic waste**	These are contaminated materials that still pose a human health and safety risk if not handled according to BPM: non sharps, gauzes and bandages without blood (rubber gloves, tongue depressors, and swabs).	Collection and disposal of non hazardous waste • Wear thick household (utility) gloves, coveralls, face mask, and boots when handling and transporting wastes. • Dispose of solid wastes in non-corrosive washable containers (plastic or galvanized metal) with tight fitting covers. Use containers that are clearly marked as dangerous to human health both in graphic and written form. • Collect the waste containers on a regular basis and transport the combustible ones to the incinerator. If incineration is not available, burn or bury in a controlled area, where scavenging would not occur. • Wash hands after handling wastes. Decontaminate and wash gloves in a chlorine solution prior to reuse or disposal. NB. Incineration is the best method to kill microorganisms. If an incinerator has not yet been constructed for a health service center, the closest medical incinerator will be used.
	c)Sanitary waste (liquid wastes from	Sanitary waste is non-medical solid and liquid waste from laundries and restrooms. When improperly disposed they can contaminate	Handling and disposal of sanitary wastes

	laboratories, laundry and restrooms from clinics)	ground water, surface water, soil and other parts of the surrounding environment and result in exposure to bacterial diseases	• Wear thick household (utility) gloves when, handling and transporting wastes • Carefully pour wastes down a utility sink drain or into a flushable toilet. Liquid wastes can also be poured into properly designed toilets. Avoid splashing. • Determine where are the sink or toilet drains **before** choosing to pour the waste down the sink or drain. The ultimate disposal location for untreated waste should meet the criteria for latrines. • Rinse the toilet or sink carefully and thoroughly with water to remove residual wastes. Avoid splashing. • Decontaminate specimen container with 0.5% chlorine solution or other locally available and approved disinfectant, by soaking for 10 minutes before washing. • Wash hands after handling liquid wastes and decontaminate and wash gloves.
Component 2.	**Disposal of used chemical containers**		
	Disposal of used chemical containers		Step One: Rinse glass containers thoroughly with water. Glass containers may be washed with detergent, rinsed, and reused. Step Two: For public containers which contained

			toxic substances rinse three times with water, puncture and dispose by burial. Do not reuse these containers for other purposes. <u>Handling and disposal of waste containers</u> • Use non-corrosive washable containers (plastic or galvanized metal) with covers for contaminated wastes. • Place waste containers at convenient places for use (carrying waste from place to place increases the risk of infection for handlers). • Do not use equipment to hold and transport wastes for other purpose in the clinic on health care facility; contaminated waste containers should be marked as dangerous. • Wash all waste containers with a disinfectant cleaning solution (0.5% chlorine solution) and rinse with water. • When possible, use separate containers for combustible and non-combustible wastes to avoid workers from having to handle and separate wastes by hand later. Combustible wastes include paper, cardboard, and contaminated wastes such as used dressings and gauze. Non-combustible wastes include glass, metals and plastics.

			• Use heavy work gloves when handling wastes. • Wash hands after handling wastes. • Rinse glass containers thoroughly with water. Glass containers may be washed with detergent, rinsed, and reused. • Non glass containers which contained toxic substances: rinse three times with water, puncture and dispose by burial. Do not reuse these containers for other purposes.
Component 3.	**Small scale building construction**		
	a)renovation of health facilities	Waste generated by small scale renovations of health facilities under SDSH II will be effectively disposed of far from any wetland. Construction/rehabilitation activities will not negatively affect the surrounding area.	• When a minor renovation has been decided, avoid any site which is close to a wetland, stream, and river. All construction building waste will be collected each day and disposed of an official landfill or recycled for other use. - For rehabilitation activities, only minimal vegetative clearing will be occurred; and forested areas will be avoided - All building designs and implementation will be approved by a certified engineer • Avoid construction in sites prone to flooding where possible. • To the extent that dwellings are located nearby, concentrated noisiest work and take measures to keep dust to a minimum • make recommendations to the institutions to ensure latrines or toilets are not built up hill

			from a water source • check that buildings meet MOH standards • Non-lead based paints will be purchased under SDSH II. • avoid painting during working hours • Schedule work to be completed during hours of least distraction to patients and neighbors when possible
	b) construction /renovation and location of incinerators	Waste generated by incinerators and final waste disposal under SDSH II will be effectively disposed of far from any wetland Smoke from incinerators and the smells from final waste storage sites may cause discomfort	• Locate new incinerators away from populated areas and from clinics. • Burn in the incinerator only during non rainy times. Burn during windy days to dissipate smoke particles. • Ensure that incinerators are equipped with filters and that filters are inspected/cleaned and/or replaced. • ensure that the incinerators are functional and used properly • realize training sessions for staff involve in waste management • assure that storage sites are well maintained - regularly clean the storage sites - Expose `fiche technique 'for the maintenance of waste storage sites. • Waste shall be disposed of (burnt, brought to landfill, or buried in a lined hole depending on the type of waste) at least twice a week to avoid having the waste sit and cause odors.

* provide overview of measures used from the USAID LAC Environmental Guidelines or other pertinent guidelines, details on exact monitoring plan are illustrated in Table 3, Environmental Monitoring and Evaluation Tracking Table.

III-C. Environmental Monitoring and Evaluation Tracking Table (Table 3).

Type of Project: Health and Nutrition	
Project Name: SDSH II	
Implementing Organization: Management Sciences for Health	
Location Name: Nationwide	
Project Size: National (see Project partners list)	
Nearby Communities: See Project map	
Senior Project Manager: Kathy Kantengwa- COP	**Date: revised October 31, 2012**
Monitoring Period: August 2012-July 2013	

#	Description of Mitigation Measure	Responsible Party	Monitoring Methods			Estimated Cost US$	Results			Recommended Adjustments
			Indicators	Methods	Frequency		Dates Monitored	Problems Encountered	Mitigation Effectiveness	
1	**Handling of hazardous medical waste** **Collection and disposal of hazardous waste**	MSH/ waste management advisor and heads of Institutions	- least one person trained in handling hazardous medical waste per partner institution -safety equipment	-Training registers of representatives from clinical sites by MSH -regular spot visits by MSH	Monthly reports by health facility Quarterly visits/observations per site by MSH	158,480 (staff LOE, per diem and workshops in all 10 departments)	1 2 3 4			

#	Description of Mitigation Measure	Responsible Party	Monitoring Methods			Estimated Cost US$	Results			Recommended Adjustments
			Indicators	Methods	Frequency		Dates Monitored	Problems Encountered	Mitigation Effectiveness	
	-Wear thick, household gloves before handling hazardous waste -safety boxes are available and well used: Disinfect sharps (chlorine) Dispose of all sharp items in a puncture-resistant red container marked Hazardous Waste. -Place the container close to the area where it will be used so that workers minimize the distance objects are carried before disposal. Avoid accidental needle sticks; -When the container is 3/4 full; cap, plug or tape it tightly	In charge of Health facilities MSH/ WMA	available at all sites (gloves, safety boxes) -Puncture resistant containers are available and used appropriately in all sites	representative -MSH/ WMA use the written waste management protocol to report on the status of waste management at each site with an improvement plan where needed	representative Once a quarter per site					

#	Description of Mitigation Measure	Responsible Party	Monitoring Methods			Estimated Cost US$	Results			Recommended Adjustments
			Indicators	Methods	Frequency		Dates Monitored	Problems Encountered	Mitigation Effectiveness	
			- at least 85% of sites visited are							

#	Description of Mitigation Measure	Responsible Party	Monitoring Methods			Estimated Cost US$	Results			Recommended Adjustments
			Indicators	Methods	Frequency		Dates Monitored	Problems Encountered	Mitigation Effectiveness	
			compliant							
2	-Partners' institutions will define the circuits of hazardous waste disposal at their specific sites in accordance with the Ministry of Health (MOH) standards provided during the training to be respected by the persons involved in waste management. -Seal and label the container to indicate danger. - 1st Choice: All syringes, needles and other disposable implements should be well secured and covered before being transported to a nearby hospital to assure that they reach their destination for incineration. - 2nd Choice: Burn waste materials in a container to decrease likelihood of scavenging and to reduce the risk of infection. - Place all containers in an appropriately marked	Institution and MSH/ waste management advisor Institution Institutions	- Each site has guidelines for waste management hang in a visible location in the health facility - Puncture resistant containers are available and used in all sites full safety boxes are stored in a secure area prior to incineration/transport hazardous waste is	-Sites visits/observation -verify the circuits of hazardous waste disposal for compliance with MOH norms Spot visit to verify if waste is well disposed off : syringes, needles and other disposable implements have been well secured and	Monthly reports by health facility Quarterly visits/observations per site by MSH representative Quarterly visits/observations per site by MSH representative					

#	Description of Mitigation Measure	Responsible Party	Monitoring Methods			Estimated Cost US$	Results			Recommended Adjustments
			Indicators	Methods	Frequency		Dates Monitored	Problems Encountered	Mitigation Effectiveness	
	red bin in a secure storage area while awaiting local incineration or transport to an off-site incinerator and ensure that storage sites are well marked and protected -Wash hands after handling containers and decontaminate and wash gloves.	Institutions Institutions	not found on facility grounds, except in appropriately marked and secured areas/receptacles - at least 85% of sites visited are compliant	covered before being transported to a nearby site for incineration						
3	**Collection and disposal of non hazardous/toxic medical waste:** •Wear thick household (utility) gloves, coveralls, face mask, and boots when handling and transporting wastes.	Institutions (clinics)	Safety gloves, masks, boots available and utilized at all health facilities supported	Spot sites visits by MSH to observe safety disposal of materials when handling waste **NB: MSH will adapt**	Quarterly visits/observations per site by MSH representative	No additional cost,	1 2 3 4			

#	Description of Mitigation Measure	Responsible Party	Monitoring Methods			Estimated Cost US$	Results			Recommended Adjustments
			Indicators	Methods	Frequency		Dates Monitored	Problems Encountered	Mitigation Effectiveness	
	•Dispose of solid wastes in non-corrosive washable containers (plastic or galvanized metal) with tight fitting covers. Use containers that are clearly marked as dangerous to human health both in graphic and written form. •Collect the waste containers on a regular basis and transport the combustible ones to the incinerator. If incineration is not available, burn or bury in a controlled area, where scavenging would not occur. •Wash hands after handling wastes. Decontaminate and wash gloves in a chlorine solution prior to reuse or disposal.	Institutions/ departemental directorates/ MSH Institutions	by SDSH II non-corrosive washable containers (plastic or galvanized metal) with tight fitting covers available at 95% sites . Maintenance records indicate at least 2 transport of waste per week Available clean water and chlorine solution near the circuit of waste handling	**an evaluation tool/checklist that will comprise all elements to be reviewed on a quarterly basis.** Waste management registers verification Spot visits observations	Quarterly visits/observations per site by MSH representative Quarterly visits/observations per site by MSH representative					

#	Description of Mitigation Measure	Responsible Party	Monitoring Methods			Estimated Cost US$	Results			Recommended Adjustments
			Indicators	Methods	Frequency		Dates Monitored	Problems Encountered	Mitigation Effectiveness	
4	**Handling and disposal of sanitary wastes** •Wear thick household (utility) gloves when, handling and transporting wastes •Carefully pour wastes down a utility sink drain or into a flushable toilet. Liquid wastes can also be poured into latrines that do not drain uphill from a water source. Avoid splashing. •Rinse the toilet or sink carefully and thoroughly with water to remove residual wastes. Avoid splashing. •Decontaminate specimen container with 0.5% chlorine solution or other locally available and approved disinfectant, by soaking	Institutions Institutions Institutions	Safety gloves, masks, boots available at the health facility and utilized Specific drainage facility for sanitary waste available and utilized Sink	Spot visits to see if safety measure are respected Review of the drainage system during field visits and propose remedial measures if necessary to the institutions	Quarterly visits/observations per site by MSH representative 1 visit for assessment of drainage system by MSH consultant Quarterly spot visits to observe cleanliness of the facility		1 2 3 4			

#	Description of Mitigation Measure	Responsible Party	Monitoring Methods			Estimated Cost US$	Results			Recommended Adjustments
			Indicators	Methods	Frequency		Dates Monitored	Problems Encountered	Mitigation Effectiveness	
	for 10 minutes before washing. •Wash hands after handling liquid wastes and decontaminate and wash gloves.	Institutions Institutions	drain/toilets are available and clean built Available clean water and chlorine solution near the circuit of waste handling	Spot visits to observe how waste handling areas are managed, if they are clean with no splash around	Quarterly spot visits to observe cleanliness of the facility					
5	**Handling and disposal of waste containers** Rinse glass containers thoroughly with water. Glass containers may be washed with detergent, rinsed, and reused. For public containers which contained toxic	Institutions/ MSH/WMA Institutions/ Institutions	non-corrosive washable containers (plastic or galvanized metal) with covers for contaminated wastes are used in all sites Waste containers are regularly	Spot visit to observe the use of non-corrosive washable containers with covers Spot visit	Quarterly spot visits to observe cleanliness of the facility Quarterly spot visits to		1 2 3 4			

#	Description of Mitigation Measure	Responsible Party	Monitoring Methods			Estimated Cost US$	Results			Recommended Adjustments
			Indicators	Methods	Frequency		Dates Monitored	Problems Encountered	Mitigation Effectiveness	
	substances rinse three times with water, puncture and dispose by burial. Do not reuse these containers for other purposes. •Use non-corrosive washable containers (plastic or galvanized metal) with covers for contaminated wastes. •Place waste containers at convenient places for use (carrying waste from place to place increases the risk of infection for handlers). •Wash all waste containers with a disinfectant cleaning solution (0.5% chlorine solution) and rinse with water. •When possible, use separate containers for	Institutions	disinfected at all sites use of separate containers for combustible and non-combustible wastes at 50% of sites Heavy gloves and masks available at all clinics Glass containers are separated from non glass containers	Spot visit/visual observation of separation of waste Spot visit/visual observation of separation of waste Spot visit/ visual observation of separation of waste	observe cleanliness of the facility Quarterly spot visits to observe cleanliness of the facility Quarterly spot visits to observe cleanliness of the facility Quarterly spot visits to					

#	Description of Mitigation Measure	Responsible Party	Monitoring Methods			Estimated Cost US$	Results			Recommended Adjustments
			Indicators	Methods	Frequency		Dates Monitored	Problems Encountered	Mitigation Effectiveness	
	combustible and non-combustible wastes to avoid workers from having to handle and separate wastes by hand later. Combustible wastes include paper, cardboard, and contaminated wastes such as used dressings and gauze. Non-combustible wastes include glass, metals and plastics. •Use heavy work gloves when handling wastes. • Glass containers: rinse thoroughly with water. Glass containers may be washed with detergent, rinsed, and reused.		, rinsed thoroughly and reused Non glass containers are punctured and disposed off for incineration	and treatment of containers	observe cleanliness of the facility					

#	Description of Mitigation Measure	Responsible Party	Monitoring Methods			Estimated Cost US$	Results			Recommended Adjustments
			Indicators	Methods	Frequency		Dates Monitored	Problems Encountered	Mitigation Effectiveness	
	•Non glass containers which contained toxic substances: rinse three times with water, puncture and dispose by burial. Do not reuse these containers for other purposes.									
6	**Small scale construction/rehabilitation of buildings** When a minor renovation has been decided, avoid any site which is close to a wetland, stream, and river. All construction building waste will be collected each day and disposed of an official landfill or recycled for other use. -For rehabilitation activities, only minimal vegetative clearing will be occurred; and forested areas will be avoided -All building designs and implementation will be approved by a certified engineer •Avoid construction in	MSH/Engineer MSH/WMA Institutions MSH/Engineer MSH/Engineer MSH/Engine	Renovation plan takes into account environmental assessment recommendations prior to construction Certification from a certified engineer Same as	Environmental assessment report Environmental assessment report Same as	As needed As needed	50,000 (LOE for the year)	1 2 3 4			

#	Description of Mitigation Measure	Responsible Party	Monitoring Methods			Estimated Cost US$	Results			Recommended Adjustments
			Indicators	Methods	Frequency		Dates Monitored	Problems Encountered	Mitigation Effectiveness	
	sites prone to flooding where possible. •Cover construction site to keep dust and concentrated noisiest work to a minimum, if the dwellings are located nearby •make recommendations to the institutions to ensure latrines or toilets are not built up hill from a water source •check that small rehabilitation buildings meet MOH standards •Non-lead based paints will be purchased under SDSH II. •avoid painting during working hours •Schedule work to be completed during hours	er MSH/Engineer MSH/Engineer MSH/Engineer MSH/Engineer Head of institution	above Construction site covered with sheets that protect visitors of the health center from injury, noise and dust A report is available that certifies the compliance to MOH norms and standards Schedule of work	above Site visit Review report before construction begin Review planning of painting work	Same as above Monthly for active construction on sites Before purchasing paint.					

#	Description of Mitigation Measure	Responsible Party	Monitoring Methods			Estimated Cost US$	Results			Recommended Adjustments
			Indicators	Methods	Frequency		Dates Monitored	Problems Encountered	Mitigation Effectiveness	
	of least distraction to patients and neighbors when possible									
7	**Small scale construction/rehabilitation of incinerators** •Locate new incinerators away from populated areas and from clinics •Burn in the incinerator only during non rainy times. Burn during windy days to dissipate smoke particles. •Ensure that incinerators are equipped with filters and that filters are inspected/cleaned and/or replaced. •ensure that the incinerators are functional and used properly realize training sessions for staff involve in waste management assure that storage sites are well		Incinerators located away from public areas and are burning waste cleanly and completely	Reports on construction of incinerators Site visit to construction Visual observation	Pre construction visit to incinerators to observe location Spot visits to see if waste is being burnt completely and cleanly		1 2 3 4			

#	Description of Mitigation Measure	Responsible Party	Monitoring Methods			Estimated Cost US$	Results			Recommended Adjustments
			Indicators	Methods	Frequency		Dates Monitored	Problems Encountered	Mitigation Effectiveness	
	maintained regularly clean the storage sites Expose `fiche technique 'for the maintenance of waste storage sites. Waste shall be disposed of (burnt, brought to landfill, or buried in a lined hole depending on the type of waste) at least twice a week to avoid having the waste sit and cause odors.									
	Gender participation in all activities. Whenever possible, gender based differences in roles, attitudes and concerns will be documented.	MSH and Partners		Training list and field visits	Continuously	N/A	1			
							2			
							3			
							4			
							5			

SDSH II Project

Waste Management and Environmental compliance

Level of Effort

Staff Names	Positions	LOE %
Alex Duréna	Waste Management Advisor	20
Patrick Pascal Saint Firmin	Tech Advisor/Strengthening Health decentralization Unit	10
TBD	Engineer (Sanitary Infrastructure Specialist - **TBD – MSH employee**	10
Ermane Robin	Technical Director Infectious diseases Unit	3
Kathy Kantengwa	COP	3
Elsie Jean- Francois	CCC Advisor	5
Elsie Jean- Francois	Community Mobilization Advisor	5
Martha Telfort	Training Advisor	6
Patrick Dimanche	PSPI Technical Advisor	5
10 Departmental Staff @ 3%	Departmental Advisors	30
Bernateau Desmangles	Performance Monitoring Advisor	3
	TOTAL	**100**

Attachment 1:

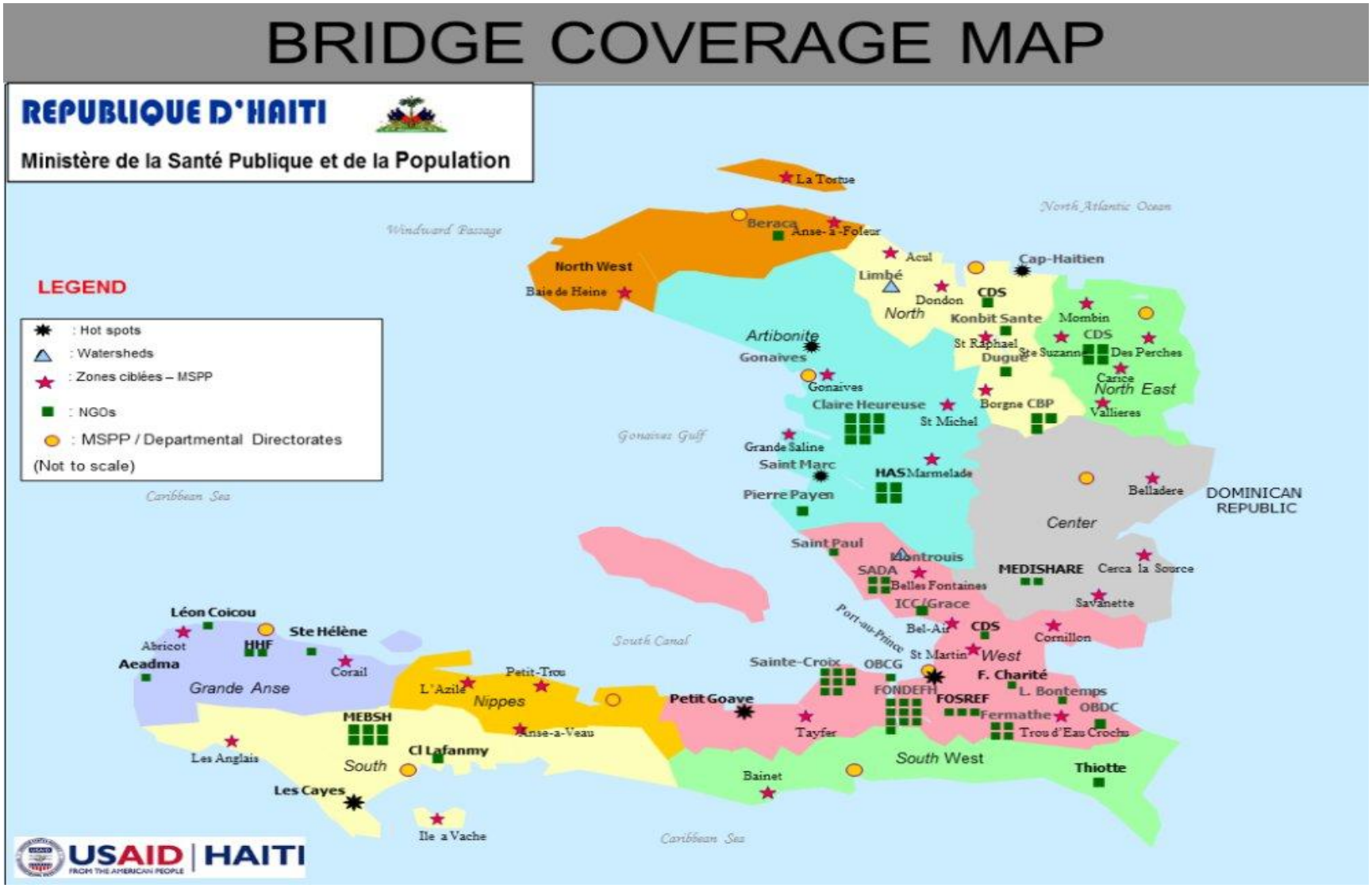
I- SERVICE DELIVERY / NGO / FBO SECTOR

Institutions	Type	Departments
1- Hopital Albert Scheweitzer	ONG	Artibonite
2- Hopital Claire Heureuse	ONG	Artibonite
3- Centre de Santé de Pierre Payen	ONG	Artibonite
4- Medishare	ONG	Centre
5- AEADMA	ONG	Grande-Anse
6- Centre de Sante de Sainte Helene	ONG	Grande-Anse
7- Centre de Sante Léon Coicou	FBO	Grande-Anse
8- Haitian Health Foundation	FBO	Grande-Anse
9- Comité de Bienfaisance de Pignon	ONG	North
10- Clinique Medico Chirurgicale Dugué	ONG	North
11- Kombit Santé	ONG	North
12- Centres pour le Développement et la Santé	ONG	North/North'East / West
13- Centre Medical BERACA	ONG	North'West
14- Clinique La Fanmiy	ONG	South
15- Mission Evangélique Baptiste d'Haiti	FBO	South
16- Centre de Sante Sacré Coeur de Thiotte	FBO	South'East
17- Centre de Sante Lucelia Bontemps	FBO	West
18- Centre de Santé et de Nutrition Rosalie Rendu	FBO	West
19- Clinique Saint Paul	FBO	West
20- OBDC	ONG	West
21- FONDEFH	ONG	West
22- FOSREF	ONG	West
23- Hopital de Fermathe	ONG	West
24- Hopital Sainte Croix	FBO	West
25- International Child Care / Grace Children Hospital	ONG	West
26- Oeuvre de Bienfaisance de Carrefour et de Gressier	ONG	West
27- Service And Development Agency	ONG	West

II- SERVICE DELIVERY / PUBLIC SECTOR

Departments	Communes/Targeted Zones	
Artibonite	1	Gonaives
	2	St Michel de l'Attalaye
	3	Marmelade
	4	Grande Saline
Centre	5	Belladere
	6	Cerca la Source
	7	Savanette
Grande Anse	8	Abricots
	9	Corail
Nippes	10	L'Azile
	11	Petit Trou de Nippes
	12	Anse a Veau
North	13	Acul du Nord
	14	Borgne
	15	Dondon
	16	Saint Raphael
North'East	17	Carice
	18	Mombin Crochu
	19	Perche
	20	Ste Suzanne
	21	Vallieres
North'West	22	La Tortue
	23	Anse A Foleur
	24	Baie de Henne
South	25	Les Anglais
	26	Ile A Vache
South'East	27	Bainet
West	28	Belles Fontaines
	29	Cornillon

	30	Bel-Air
	31	St Martin
	32	Thomazeau
	33	Tayfer


BRIDGE COVERAGE MAP
REPUBLIQUE D'HAITI
Ministère de la Santé Publique et de la Population
LEGEND
: Hot spots
: Watersheds
: Zones ciblées – MSPP
: NGOs
: MSPP / Departmental Directorates
(Not to scale)
La Tortue
Windward Passage
North Atlantic Ocean
Beraca
Anse-à-Foleur
North West
Baie de Heine
Acul
Cap-Haitien
Limbé
Dondon
CDS
North
Konbit Sante
Mombin
CDS
Artibonite
Gonaives
St Raphael
Ste Suzanne
Des Perches
Dugue
Carice
Gonaives
North East
Claire Heureuse
St Michel
Borgne CBP
Vallieres
Gonaives Gulf
Grande Saline
Saint Marc
HAS Marmelade
Belladere
DOMINICAN REPUBLIC
Pierre Payen
Center
Caribbean Sea
Saint Paul
Montrouis
SADA
Belles Fontaines
MEDISHARE
Cerca la Source
ICC/Grace
Savanette
Port-au-Prince
Léon Coicou
Ste Hélène
Bel-Air
CDS
Cornillon
Abricot
HHF
South Canal
St Martin
West
Aeadma
Corail
Sainte-Croix
OBCG
F. Charité
Grande Anse
L'Azile
Petit-Trou
FONDEFH
L. Bontemps
Nippes
Petit Goave
FOSREF
OBDC
Fermathe
Tayfer
Trou d'Eau Crochu
MEBSH
Anse-a-Veau
Les Anglais
Cl Lafanmy
South
South West
Thiotte
Bainet
Les Cayes
Ile a Vache
Caribbean Sea
USAID | HAITI
FROM THE AMERICAN PEOPLE