CRS
CATHOLIC RELIEF SERVICES

GUIDELINES FOR THE DEVELOPMENT OF SMALL-SCALE RURAL WATER SUPPLY AND SANITATION PROJECTS IN EAST AFRICA

A Policy and Planning Framework for Activities Funded by USAID under the Title II (Food for Peace) Program and by Other Donors

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These guidelines are the result of inputs and suggestion of many institutions and individuals. They originated out of the concerns of CRS, other NGOs and USAID in the late-1990s to improve the environmental consequences, sustainability and general effectiveness of water supply and sanitation projects in rural Ethiopia. A major precursor to these guidelines was a USAID-funded workshop held at Dire Dawa, Ethiopia in March 2003. Through the support and encouragement of USAID and the active participation of NGOs and Ethiopian government agencies, the workshop provided the forum for the development of guidelines applicable to all Title II water and sanitation projects in Ethiopia. CRS found the Ethiopian guidelines so useful that it held its own regional workshop at Mbita, Kenya in September 2003 to adapt them to all CRS water and sanitation projects in the East African Region. Participating in the workshop were staff from CRS Headquarters and six CRS regions as well as a number of partner organizations. The workshop was organized by Dr. Carmela Green Abate (Senior Regional Advisor for Health, HIV & AIDS, and Water and Sanitation, CRS/EARO) and the lead facilitator was Dr. Dennis Warner (water and sanitation consultant, now Senior Technical Advisor for Water and Sanitation, CRS/HQ). Additional facilitation was provided by Dr. Gaye Burpee (Senior Agricultural Advisor, CRS/HQ), Dr. Tom Remington (Deputy Regional Director for Program Quality CRS/EARO), Mr. Kinyanjui Kiniaru (Head of Community Health Unit, CRS/Kenya), and Mr. Bekele Abaire (Water and Sanitation Officer, CRS/Ethiopia). Review of the regional guidelines adopted at the workshop was provided by, among others, Ms. Kathy Robinson (Deputy Regional Director for Management Quality, CRS/EARO) and Dr. Mayling Simpson-Hebert (Regional Technical Advisor for Health, CRS/EARO). USAID assisted in the printing of this document under its Institutional Capacity Building grant No. AFP-A-00-03-00015-00.

ACRONYMS

CFR	Code of Federal Regulations
CS	Cooperating Sponsor
DAP	Development Activity Proposal
ESR	Environmental Status Report
IEE	Initial Environmental Examination
PAA	Previously Approved Activity
TAP	Transitional Activity Proposal
USAID	United States Agency for International Development
WHO	World Health Organization

FORWARD

In order to respond to the growing needs for safe drinking water and appropriate means of household sanitation, Catholic Relief Services is determined to provide the best possible technical, social and economic support to rural communities of East Africa. These guidelines are the result of the combined efforts of many individuals, both within CRS and other organizations, to assist in the planning and implementation of CRS country programs in water and sanitation in the region. Based on field experiences, current understanding of rural development concepts, national policies within East Africa, and the availability of CRS resources, these guidelines are intended to provide guidance, within the framework of CRS principles and policies, to CRS staff responsible for the development of water and sanitation programs and projects in East Africa. A companion CRS document, Water Supply and Sanitation Strategy: Developed in East Africa, provides the principles that underline the CRS approach to development and the overall objectives and strategic considerations that are used to direct the formulation of regional water and sanitation programs. Both the above regional strategy and these regional guidelines are unique in CRS, as they represent the first major effort of CRS to develop both policy and planning guidance for water and sanitation at a regional level. It is our hope that these guidelines will not only assist project development in East Africa but also prove to be a model for water and sanitation guidance documents in other CRS regions.

Jean-Marie Adrian

CRS Regional Director, East Africa

PART I: BACKGROUND

Introduction

This document constitutes general guidelines for the planning and implementation of small-scale water supply and sanitation activities in rural East Africa, which includes both projects funded under the USAID Title II (Food for Peace) Program and projects funded by other donors. It is intended to assist CRS and its partners in improving the effectiveness, environmental protection and long-term sustainability of water and sanitation activities in the rural, and often food-insecure, areas of East Africa.

The origin of these guidelines was a cooperative effort between the USAID Mission to Ethiopia and the non-governmental organizations (Cooperating Sponsors) participating in the Title II (Food For Peace) Program to improve water and sanitation project planning in Ethiopia. As a result of a 1999 USAID-funded field study of Title II water and sanitation projects in Ethiopia, many weaknesses in environmental protection and project sustainability were identified. To address these weaknesses, USAID sponsored a March 2003 workshop, organized by CRS/Ethiopia and attended by all Cooperating Sponsors, to formulate guidelines for the development of rural water and sanitation projects in Ethiopia. The resulting guidelines were approved by USAID for use in Ethiopia by all NGOs working under the Title II program[1].

Upon completion of the Ethiopian guidelines, CRS/EARO decided that the availability of relevant guidelines for all of East Africa would be beneficial to the development of CRS water and sanitation projects in the region. A CRS/EARO regional workshop to review the Ethiopian guidelines and adapt them to a regional framework was held in September 2003 for CRS staff and partner organizations. The regional guidelines resulting from this workshop were designed to be appropriate for all CRS rural water and sanitation projects in East Africa, including both those funded by USAID under Title II and those funded from other sources.

[1] USAID and CRS (2003). **Guidelines for the Development of Small-Scale Rural Water Supply and Sanitation Projects in Ethiopia: A Policy and Planning Framework for Activities Funded under the Title II (Food for Peace) Program.** Addis Ababa: CRS/Ethiopia.

It is expected that the regional guidelines presented here will be used by CRS country offices and revised, as needed, to account for conditions and requirements specific to each country. CRS country offices are encouraged to modify these guidelines to suit country-specific needs. At the same time, it is recommended that any modifications remain within the parameters set by the Title II program, since USAID is expected to continue as a major source of funds for CRS water and sanitation projects. And finally, the guidelines are not intended to be restrictive but rather to encourage development that is likely to be sustainable and have potential for enhanced health benefits in the project communities.

The Need for Water Supply and Sanitation

The need for good water and sanitation is widely recognized as an essential component of social and economic development. The provision of water supply and sanitation services addresses some of the most critical needs of people. Safe water and good sanitation are essential to the protection of community health by limiting the transmission of infectious diseases and by assisting in the maintenance of a sanitary home environment. At the same time, they contribute greatly to the enhancement of human dignity and economic opportunity by freeing people, mainly women and young children, from the drudgery of water carrying and providing more time for them to engage in other activities.

CRS is particularly concerned with the poor and marginalized populations living in rural settlements and peri-urban slums. These areas have urgent and immediate needs for safe drinking water, appropriate forms of sanitation and excreta disposal, and access to water for agricultural and other domestic purposes. The common factor in all of these needs is health – its maintenance, its protection, and its improvement.

Available information paints a grim picture of the water and sanitation conditions in much of the developing world. Out of a global population exceeding six billion people, over two-thirds, perhaps four billion people, live in developing countries. In 2002, the latest year for which information is available, one-sixth (1.1 billion) of the world's population lacked access to improved water supply, while more than two-fifths (2.6 billion) were without access to improved sanitation[2]. The great majority of these people live in the poorer countries of Asia and Africa.

[2] WHO and UNICEF (2004). **Meeting the MGD Drinking Water and Sanitation Target: A Mid-Term Assessment of Progress.** WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation. Geneva: WHO and New York: UNICEF.

In Africa, Asia and even in the relatively prosperous region of Latin America, over one-half of the rural inhabitants are without improved sanitation, meaning sanitary forms of excreta disposal. The statistics for rural water supply are only slightly better: one-half of Africans, one-third of Latin Americans and one-quarter of Asians lack improved water systems. In the East Africa Region of CRS, several countries have particularly acute needs for water and sanitation. Approximately 97% of rural dwellers in Eritrea, 96% in Ethiopia and 76% in Sudan have no access to improved sanitation. Similarly, 89% of rural people in Ethiopia, 54% in Kenya and 48% in Uganda are forced to live without improved water supplies[3].

Water supply and sanitation services are strongly correlated with health statistics for morbidity and mortality. WHO global data for 1996 shows that poor environmental sanitation, which includes the control of both human excreta and other household wastes and the hygienic aspects of domestic water supply, was associated with nearly five billion cases of illness and over three million deaths[4]. The great majority of these cases were attributed to diarrhea and dysentery, but significant tolls on health were taken by typhoid, dengue, helminths (worms) and cholera. For 2000, WHO estimated that environmental risks, meaning unsafe water, sanitation and hygiene, caused 1.7 million deaths and a total of 49 million years of lost life[5]. All of these diseases are related to either unsanitary excreta disposal, poor personal hygiene and/or contaminated water supplies.

The influence of water and sanitation upon health is shown very dramatically in the case of under-5 child mortality rates. In 2002, approximately 126 children out of every 1,000 live births in the developing countries died before their fifth birthday[6]. In Sub-Saharan Africa the average child mortality rate stood at 174 per 1,000, but in several East African countries the child mortality rates were much higher – 208 in Burundi and 203 in Rwanda. By contrast, child mortality rates in the industrialized countries, where water and sanitation services approach universal coverage, typically average less than 10 per 1,000 live births. Clearly, the availability of safe drinking water and good environmental sanitation can be a major influence upon both the control of diseases and the reduction of infant mortality.

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[3] All statistics drawn from WHO and UNICEF (2004). **Meeting the MGD Drinking Water and Sanitation Target: A Mid-Term Assessment of Progress.**

[4] WHO (1997). **The World Health Report 1997: Conquering Suffering, Enriching Humanity.** Report of the Director-General. Geneva: WHO.

[5] WHO 2002). **The World Health Report 2002: Reducing Risks, Promoting Health Life.** Geneva: WHO.

[6] World Bank (2004). **World Development Report 2005: A Better Investment Climate for Everyone.** New York: Oxford University Press.

While health may be the primary rationale in water and sanitation, it is by no means the only reason to invest in these services. Water is needed for a wide variety of domestic, agricultural, commercial and industrial uses. In rural communities, available water must be allocated to irrigation, livestock watering, food processing, beer brewing and other commercial activities supporting the livelihoods of the residents. Water is indeed the element around which much of rural life in the developing countries revolves. At the same time, the indiscriminate disposal of human excreta and other wastes may seriously degrade the quality of groundwater and surface water, affecting not only the immediate community, but also communities in other parts of the watershed. Thus, the misuse of water sources and the contamination of the environment with wastes can lead to disease transmission, economic hardship and intercommunal conflict rather than life and health, which in the end are the goals of water and sanitation.

The Need for Guidelines

Guidelines are used to direct project development efforts so that positive outcomes are maximized and negative outcomes are minimized. In East Africa, the need for guidance in the planning and implementation of water and sanitation projects has become increasingly evident to CRS in recent years. These guidelines are the result of several major policy changes in USAID and a number of initiatives taken by USAID/Ethiopia, CRS/Ethiopia, and CRS/EARO. The first change was the new global emphasis put on environmental protection by USAID in the late 1990s. Due to growing concerns over the cumulative impact of development activities upon the environment and the health-related effects of toxic contaminants, especially arsenic, in water, small water supply and sanitation projects were made subject to the USAID environmental regulations, most notably 22 CFR 216[7]. These regulations require the Agency to make threshold decisions concerning the significance of environmental impacts that various types of actions, including water and sanitation activities, may have. In addition to this regulatory role, USAID also became concerned about the effects of adverse environmental consequences upon the sustainability of development activities.

The second change was the decision of USAID/Ethiopia to take the initiative in reviewing the environmental consequences of small irrigation and of potable water and sanitation projects funded under the P.L. 480 Title II (Food for Peace) account. This program is used in Ethiopia, as well as in several other East African countries, to address food security issues affecting highly vulnerable rural households. Food-assisted programs are directed at marginal communities to strengthen their economic and social base and to move them from dependence

[7] U.S. Government Code of federal regulations. **Agency Environmental Procedures.** 22 CFR 216.

on external food resources to food security and, increasingly, to sustainable development activities. These programs provide not only food but also improve rural infrastructure through the provision of health facilities, drinking water sources, latrines, small-scale irrigation schemes and agricultural training. Water and sanitation projects funded under the Title II account are generally implemented by non-governmental organizations, termed Cooperating Sponsors.

The USAID Title II program in East Africa incorporates a variety of potable water and sanitation activities, including the construction of ponds, wells, springs, boreholes, latrines, cattle troughs and washing facilities. These activities are subject to an environmental review, typically under an Initial Environmental Examination (IEE), which usually results in a finding that they do not have significant effects on the environment and hence a formal Environmental Assessment is not required[8]. Despite such a finding, water and sanitation activities function within the natural environment and cumulatively may have significant harmful effects upon it and the welfare of the people they serve.

USAID's concerns with the environmental effects of Title II-funded activities in Ethiopia led it to commission a Programmatic Environmental Assessment of small-scale irrigation activities in 1998 and an environmental study of potable water and sanitation activities in 1999. The report of the water and sanitation study, completed in March 2000[9], concluded that water supply and sanitation activities within the Title II program in Ethiopia were subject to various weaknesses in both environmental protection and project sustainability. The major concerns arising from this study were:

- Sanitation was lacking in most projects.
- The number of water and sanitation projects being implemented was insufficient to bring about a significant developmental effect.
- Inappropriate technologies for water systems were sometimes used.
- Technical design of water systems was sometimes sub-standard.
- Water quality monitoring was rarely done and never on a regular basis.
- The integration of Title II projects in community-wide development efforts rarely occurred.
- Community participation was inadequate to fully involve communities in all aspects of the projects.

[8] Warner, Dennis (2002). Environmental Guidelines for Small-Scale Water Supply and Sanitation Projects: The Application of USAID Regulations under Title II. Regulation 216. Atlanta: CARE.

[9] Warner, Dennis et al (March 2000). Water and Food-Aid in Environmentally Sustainable Development: An Environmental Study of Potable Water and Sanitation Activities Within the Title II Program in Ethiopia. Prepared for USAID/Ethiopia by Winrock International. Task Order Contract No. PCE-1-00-96-00002-00.

- Water and sanitation committees were generally weak and unable to properly manage the systems.
- Women did not fully participate in project development or have responsible leadership roles.
- Health and hygiene education was inadequate for raising awareness or changing health-related behaviors.

It was noted by the March 2000 report that neither USAID nor the Government of Ethiopia had technical guidelines for the design, construction, operation and maintenance of water and sanitation schemes. To correct these weaknesses, the report recommended a number of improvements in program development and project implementation. These improvements were to be undertaken by both USAID, which was the source of Title II funds, and by the Cooperating Sponsors, the implementers of Title II activities.

In March 2003, CRS/EARO organized a USAID-financed workshop in Dire Dawa, Ethiopia to review the 1999 environmental study of potable water and sanitation projects and to formulate guidelines for future project development in Ethiopia[10]. The resulting guidelines, which were approved by USAID in July 2003, were prepared with inputs from the Cooperating Sponsors that were recipients of Title II funds in Ethiopia, as well as representatives of the Government of Ethiopia and USAID[11].

It was in the preparation of these planning guidelines for Ethiopia that CRS/EARO decided to move ahead with the development of a regional strategy for water supply and sanitation in East Africa. Such a strategy was initially recommended in a CRS/EARO regional workshop held August 2001 in Dira Dawa, Ethiopia. Recent difficulties in program and project preparation and the heightened concerns of USAID for environmental protection and project sustainability underlined the need for CRS/EARO to have a comprehensive regional strategy for the development of water supply and sanitation activities. As a result, CRS/EARO decided to hold a regional workshop for its regional and country staff and partner organizations to develop a draft regional strategy for water and sanitation and to adapt the Ethiopian water and sanitation guidelines for use by CRS programs in other countries of East Africa.

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[10] CRS/Ethiopia (2003). **Proceedings of the USAID/Ethiopia Training Workshop on the Multiple Uses of Water Supply and Sanitation in the Title II Program.** Dira Dawa, Ethiopia, March 17-22, 2003.

[11] CRS/Ethiopia (2003). **Guidelines for the development of Small Scale Rural Water Supply and Sanitation Projects in Ethiopia: A Policy and Planning Framework for Activities Funded by USAID under the Title II (Food for Peace) Program.** USAID/Ethiopia and CRS/Ethiopia. July 31, 2003.

The workshop on regional strategy was held September 8-13, 2003 at Mbita, Kenya and was attended by staff from CRS country offices and partner organizations in East Africa, as well as CRS staff from Headquarters and five other CRS regions[12]. One output of this workshop was the first-ever CRS strategy for water supply and sanitation[13]. Although the strategy was specifically developed for East Africa, it was strongly supported at the workshop by participating staff from CRS offices and partner organizations outside the region. A second output was agreement on the elements necessary to adapt the Ethiopian water and sanitation guidelines into a regional guidance document applicable to CRS projects throughout East Africa. These elements were used to revise the Ethiopian guidelines for use throughout the region.

This document contains general guidelines that incorporate and build upon the recommendations found in the March 2000 report on environmental and sustainability problems in Ethiopia, the March 2003 workshop on guidelines for Ethiopia and the September 2003 workshop on a strategy and guidelines for East Africa. It is not an engineering manual, but rather a policy and planning framework within which CRS water and sanitation projects, and especially those funded by Title II, should be implemented. Although the regional guidelines were formulated by CRS staff for CRS projects in East Africa, they are based upon procedures and guidelines established by CRS, Cooperating Sponsors, Government of Ethiopia, and USAID. As such, these guidelines represent a broad consensus on the approach that water and sanitation activities should follow in East Africa generally and, in particular, under the Title II program.

USAID Regulations

As of 1998, all PVO/NGOs submitting a new Development Activity Proposal (DAP) or a Previously Approved Activity (PAA) proposal for Title II funds are required to submit environmental documentation for each program. As of 1999, all new Transitional Activity Proposals (TAPs) also need to include environmental documentation. These USAID environmental procedures are included under the Foreign Assistance Act, Section 117, Title 22, Code of Federal Regulations, Part 216, also known as CFR 216 (Regulation 216). The objective of Reg. 216 is to ensure that all U.S. government funded projects under USAID undergo an environmental review to avoid or lessen any potential adverse impact on the environment. For water and sanitation projects, further reference should be made to the current status of arsenic testing and allowable limits for arsenic in drinking water.

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[12] CRS/EARO (September 2003). **Proceedings of the CRS Regional Workshop on Multiple Use of Water and Sanitation.**
Mbita, Kenya. September 8-13, 2003.

[13] CRS/EARO (2004). **Water Supply & Sanitation Strategy – developed in East Africa.** Nairobi: CRS.

The preparation of USAID-funded water and sanitation projects should be based upon the following regulatory and guidance materials:

- 22 CFR 216 (USAID environmental regulations).
- Guidelines For Determining The Arsenic Content Of Ground Water in USAID-Sponsored Well Programs in Sub-Saharan Africa (USAID Bureau for Economic Growth, Agriculture and Trade, June 12, 2002, draft).
- Arsenic Testing in Potable Water – IEE/EA Needs (USAID, State Cable no. 051298, May 12, 1998).

National and International Regulations

In addition to USAID regulations, water and sanitation projects in East Africa need to take into consideration current national legislation, wherever it may be appropriate, plus international norms and guidelines in situations where they may be relevant. At the national level, each country in the region has specific laws and regulations dealing with water supply and sanitation, environmental protection, water resources development and public health. It is the responsibility of each CRS country office to ensure that the adoption of regional guidelines for water and sanitation is in harmony with national policies, legislation and standards. Where national rules are absent or deficient, the regional guidelines may over time act as a catalyst for raising national practices.

At the international level, there are no mandatory standards for water and sanitation development, since standards are a national responsibility. There are many agency-specific guidelines, but only a few are recognized on a broad international scale. Two of the most widely-accepted international guidelines are:

- WHO (2004). Guidelines for Drinking-Water Quality. Third Edition: Vol I-Recommendations. Geneva: WHO.
- The Sphere Project (2004). Humanitarian Charter and Minimum Standards in Disaster Response. Oxford (UK): Oxfam Publishing.

USAID has no official guidelines for the development of water and sanitation projects. The Ethiopian guidelines, which were sponsored by USAID for use in the Title II program in Ethiopia, represent the farthest that USAID has gone in preparing guidance materials in water supply and sanitation.

Indicators and Guideline Statements

The development of guidelines starts with the identification of one or more indicators, which are issues, concepts or actions that can be defined and then measured. In effect,

indicators are the general variables that provide the structure, or framework, for guidelines. For example, an important indicator for sustainable projects is a water supply and sanitation committee. By itself, this indicator is only a term that describes a group of people in the community with responsibilities for water and sanitation project development. However, there are a number of different characteristics this committee should have in order to contribute to project sustainability. Guideline statements are used to indicate what these characteristics are and how the committee should operate.

To illustrate how guidelines are related to an indicator, consider the indicator of the water supply committee. The committee should have the following: (1) it should define and manage the operations of the project; (2) it should have a legal basis and be authorized to administer financial accounts; (3) it should have input into project planning; and so forth. These characteristics can be formulated as guideline statements, as follows: (1) a water supply and sanitation committee should be established to define and manage the operations of the project; (2) where appropriate, the committee should have a legal basis and be authorized to administer financial accounts; (3) project planning should reflect committee inputs. These three statements, in fact, are included as guidelines within the planning phase of project development.

Thus, indicators are the general concepts from which more specific guideline statements are drawn. The guidelines may be qualitative and show how an activity is to occur, as demonstrated above, or they may be quantitative and show a limit of acceptability, as in the case of water quality (maximum arsenic concentrations of 0.05 mg/l) or water quantity (minimum water supply of 20 liters of water per person per day). The guideline statements, therefore, set out limits and areas of acceptable action.

Part II of this document contains the indicators and guideline statements for environmentally sound and sustainable water and sanitation projects. They also meet the requirements for Title II-funded projects. There are a total of 23 indicators and 57 guideline statements. Most of the guideline statements are qualitative in nature describing what should happen rather than how much or how fast it should happen. A few guideline statements have quantitative limits, most notably water quality and water quantity. Together, they define the general framework within which water supply and sanitation projects in general and Title II projects in particular should be developed without unnecessarily restricting the flexibility of Cooperating Sponsors to seek the best possible project solution.

Part III consists of a brief statement emphasizing the advisory nature of the indicators and guideline statements presented in Part II. CRS country offices are urged to periodically revise the guidelines, as appropriate, on the basis of field experience.

Part IV of this document contains a checklist that should be completed during the appropriate phase of project development (planning, implementation, sustainability) as well as on an annual basis as part of an Environmental Status Report.

PART II: GUIDELINES FOR WATER SUPPLY AND SANITATION PROJECTS

Policy Requirements

As stated in the CRS Water Supply and Sanitation Strategy for East Africa, water and sanitation projects are expected to be developed in accordance with CRS guiding principles and to contribute to the fulfillment of overall CRS goals and objectives[14]. The guidelines used to plan and implement projects, therefore, must be fully consistent with the strategy used to define the approach to program and project development. The guidelines contained in this document meet this condition. They represent a key link in the chain of development activities starting with basic CRS principles and continuing with strategies, guidelines and finally ending with projects.

The guidelines presented here constitute two general types of directives. The first are policy statements signaling major new directions in the development of CRS water and sanitation programs. These changes are now reflected in the new CRS Water Supply and Sanitation Strategy for East Africa. The second type of directives consists of guideline statements specifically addressed to project planning and implementation.

New Directions in CRS Water Supply and Sanitation Programs

All new CRS water supply and sanitation programs in East Africa, and especially those funded under Title II, must conform to the following policy directives:

1. Sanitation must be linked to water supply.

This policy requires that sanitation be considered an essential aspect of potable water supply improvements in East Africa. It is based upon the conclusion that the potential health benefits of improvements in water supplies will not be fully realized unless they are supported by sanitation improvements. Moreover, USAID Title II funds will no longer support improvements in potable water supply systems unless they are accompanied by appropriate components of sanitation. Relevant sanitation investments may include latrines, washing basins, showers/bathing houses, refuse disposal pits, and household drainage, as well as hygiene education and training for sanitation sustainability.

[14] CRS/EARO (2004). **Water Supply & Sanitation Strategy – developed in East Africa.** Nairobi: CRS.

2. Water quality monitoring must occur in all potable water systems.

Potable water systems are intended to improve the availability, access and quality of drinking water in East African communities. Without regular monitoring of the quality of water in the supported schemes, there is no acceptable way to determine whether a system is free of harmful pathogenic constituents, or indeed whether the system is providing water of better quality than before the project. Of particular importance to this policy is the monitoring of fecal coliforms, arsenic, fluorides, and nitrates.

3. Planning, design, implementation, operation and maintenance of potable water and sanitation projects must be in conformance with these technical guidelines.

Earlier difficulties with environmental protection and project sustainability in Title II water and sanitation projects arose partly from the absence of guidelines for program development and implementation on the part of the Cooperating Sponsors. These Guidelines are intended to provide essential guidance in the formulation and implementation of water and sanitation projects and to encourage information sharing among all stakeholders, including CRS partners, USAID, the Governments of the East African Region, other NGOs, and communities, while at the same time allowing adequate flexibility for innovative program and project development.

Guideline Statements

To assist in the overall formulation of Title II water and sanitation activities, guideline indicators and values are described below in terms of the phases of project development in which they occur. There are three phases that occur in most programs: planning, implementation, and sustainability. The planning phase constitutes activities leading up to the approval of project funding; the implementation phase represents activities involving the creation of the project in the field under the direction of CRS and its partners; and the sustainability phase consists of the activities carried out by the community and the local government to operate and maintain the water and sanitation system over the long term.

A. PLANNING PHASE

A.1. Community participation

CRS and its partners should begin working with the community as the first step in project development.

Project development must begin with the community and with their concerns and needs. To obtain the essential trust and support for a sustainable project, CRS and its partners should be prepared to work with the community for 6 to 12 months before starting any project implementation activities in the field.

CRS and its partners should build upon traditional community structures, where available.

It is better to work with traditional patterns of community leadership and organization that have proven to be effective in the past than to set up procedures and rules for project development that are imported from outside the community. The key is to identify successful traditional approaches and adopt them in project planning where possible.

CRS and its partners should use participatory methods in working with the community.

Participatory methods should be the basis for all contacts between CRS and its partners and the community. They provide the only reasonable foundation for generating full involvement and a sense of ownership in the community.

CRS and its partners should encourage communities to contribute labor and local materials during project implementation.

Community contributions of labor and materials are an accepted practice in the East African Region for small-scale development projects. Such contributions help develop a sense of community ownership of the project, enhance local responsibility for long-term operation, maintenance and sustainability, and reduce overall project costs

CRS and its partners should assist the community to establish effective links with local government technical bureaus and the private sector involved in the provision of maintenance and repair services and the supply of spare parts.

Local government technical bureaus are the natural partners for the community in maintaining sustainable water and sanitation activities. However, some East African governments are neither capable nor expected to cover the maintenance requirements of each water point. The involvement of local artisans and spare part vendors can enhance the capacity of the community to access these essential services. Partnerships with government technical bureaus and the private sector should be established as early as possible in the planning phase.

A.2. Needs Assessments

Projects should be based on needs identified by the community.

The community should identify its own water and sanitation needs and corresponding project solutions through a process of internal discussion and external negotiation. CRS and its partners should assist this process with information and technical guidance.

A.3. Water Source Identification

All potential water sources should be considered.

The most obvious water source may not be the best in terms of quantity available, social acceptance, cost, community health and project sustainability over the expected service period. CRS and its partners should use their technical expertise to assess all potential water sources in order to identify an optimal solution subject to concurrence of the community in question.

All projects should draw water from protected sources.

Unprotected water sources are subject to contamination and thereby pose risks to the health of the users. Wherever possible, protected sources should be utilized. If protected sources are not available, some form of water treatment may be required. (See guideline A.5. Water Quality.)

Groundwater sources are generally preferable to surface water sources.

Surface water is more likely than groundwater to be contaminated with microbiological pathogens from human and animal excreta, which is the most common cause of water pollution in the rural East African Region. Groundwater, however, is more likely to contain hazardous chemical contaminants, such as arsenic, fluorides and nitrates. Groundwater tends to be safer and less in need of costly water treatment than surface water. In general,

the determination of an optimal source of water for a given project should be made on a case-by-case basis, taking all the above factors into consideration.

> ***Whenever surface water sources, especially rivers and streams, are considered for development, the communities immediately upstream and downstream should be consulted and involved in the decision-making process prior to implementation.***

The quality and quantity of surface water is affected by how it is used upstream of the community. In turn, how the community uses the water will affect the water for the downstream users. Because all communities have interests in maintaining good quality and adequate quantities of water, it is important that proposed surface water developments be discussed with and approved by both the upstream and downstream communities.

> ***Where possible, projects should use water sources that will remain reliable to meet the demand throughout the year and for the design life of the project.***

Water sources that are intermittent or seasonal can be very disruptive to community life and often pose health risks to the users. CRS and its partners should give priority to sources that provide a reliable supply at all times and for the life of the project.

A.4. Watershed considerations

> ***All projects should be considered in the context of the overall watershed.***

Water supply and sanitation activities should not be considered in isolation from the overall watershed. Environmental and sustainability issues elsewhere in the watershed, both upstream and downstream, may have an influence on the viability of a proposed water and sanitation project.

> ***Where possible, projects should be part of an integrated watershed management approach and support multiple uses of water.***

Multiple uses of water should be considered in all drinking water supply projects. Moreover, Title II-funded projects often are implemented in water-short areas. Wherever possible, these projects should be incorporated into existing watershed management plans and should promote multiple uses of water as a means of conserving and using efficiently this scarce resource.

A.5. Water quality

Water quality should be a primary concern in all water projects.

Since the improvement of health is the major expected benefit of CRS drinking water projects in East Africa, the quality of drinking water must be uppermost in the planning and implementation of water and sanitation activities. Concerns for water quality are integral to all aspects of project development, from source selection through choice of technology to maintenance of completed systems.

A continuous effort should be made to maintain drinking water quality at the highest practical level.

Projects should draw water from the best available sources, as it is easier to maintain high quality water than to provide treatment to low quality sources. In addition, water quality should not be allowed to deteriorate between the source and the ultimate user. The maintenance of water quality may require a combination of hardware (source improvement, technical design, construction, etc.) and software (education, rules for system usage, monitoring and testing, etc.).

All water sources should have acceptable water quality.

CRS projects should provide water that is safe and protective of health. Of particular concern are the microbiological contaminants, represented by fecal coliforms, and the toxic chemical contaminants, notably arsenic, fluorides and nitrates. While it is recognized that some project locations may not have available water sources that are free of substances in concentrations hazardous to health, every effort must be taken to ensure that project users are not supplied with water whose quality is worse than the water used before the project was implemented. It is also recognized that because of cost and resource limitations, and the small scale of most CRS projects, international guidelines and national standards for water quality may be difficult to apply in rural East Africa. For these reasons, each country must set its own national standards, which may include provisional standards for specific contaminants. The international guidelines for fecal coliforms, arsenic, fluoride and nitrate are shown below, alongside the provisional standards followed in Ethiopia as an example.

Organism or Chemical	International Guidelines[1] Maximum Desirable Level	Title II Projects (Ethiopia) Maximum Allowable Level
Fecal (E. coli) Coliforms	Nil	50 FC per 100 ml
Arsenic	0.01 mg/l	0.05 mg/l
Fluoride	1.5 mg/l	3.0 mg/l
Nitrate as NO_3	50 mg/l	50 mg/l

[1] WHO (2004). **Guidelines for Drinking-Water Quality. Third Edition: Vol I – Recommendations.** Geneva: WHO.

It should be noted that the proposed guideline values for fecal coliforms, arsenic and fluoride in Title II projects in Ethiopia allow higher levels of contaminants than the current international guidelines recommended by WHO. Because water quality monitoring is not yet uniformly practiced in Title II projects, it is believed that the initial application of less restrictive guideline values will encourage greater compliance with the new monitoring requirements. The initial guideline values can be made more restrictive at a later time if (a) water analyses show high levels of contaminants, (b) testing equipment is readily available, and (c) all parties are cooperating with these guidelines. In the case of arsenic, USAID has drafted proposed guidelines for the adoption of the USEPA standard of 0.01 mg/l for drinking water, but this regulation has not yet been adopted.

CRS and its partners are encouraged to work with the national government agencies in East Africa to establish appropriate national standards for small rural water supply projects. In cases where such standards do not yet exist, the Ethiopian Title II standards should be used as provisional guidelines.

If a water supply intended for drinking and other consumptive uses exceeds the above maximum allowable levels, a different source or additional treatment, such as disinfection, may be required. In extreme situations, where alternative water sources are not available and treatment is not feasible, CRS and its partners must justify why it proposes to use water failing to meet these guidelines and provide information on additional measures the community may take. CRS and its partners should justify any proposal for the use of an unprotected source and indicate measures it intends to take to protect the health of the users.

All water sources/water systems should be regularly monitored for water quality.

Water quality monitoring in the form of sampling, testing and reporting is an essential aspect of maintaining water quality at the highest practical level. Water sources should be tested before project approval, if possible, and then at project completion. In addition, annual testing of all water systems should be performed to monitor the safety of drinking water.

The use of field test kits should be encouraged.

Portable kits are available for testing water quality in the field. Because of the time-sensitive limitations for testing microbiological contaminants in water, these kits are especially useful in determining the presence and concentration of fecal coliforms in water samples in the field. CRS and its partners should procure and use such kits in its water quality monitoring program.

A.6. Water quantity

Projects should have the capability of supplying at least 20 liters of water per person per day to the service population.

Title II projects should provide sufficient quantities of water to meet essential health-related household and personal needs, including drinking, cooking, personal hygiene, clothes washing and cleaning. The amount of water available has to be based upon existing and potential downstream demands during the lifespan of the project, taking technical and hydro-geological parameters into consideration. Although actual water usage in East African rural communities is often very low even when water is plentiful, projects should be designed to supply a minimum of 20 liters per person per day. If this system capability cannot be achieved, for reasons of inadequate water sources or high costs, CRS and its partners must justify why they propose to supply a lesser quantity of water.

A.7. Sanitary surveys

Project approval must include a sanitary survey assessing health risks.

Before any new water source or modification to an existing source is approved, CRS and its partners must submit a sanitary survey showing that the risks to health of the proposed works are either negligible or can be controlled with specific mitigating actions. This sanitary survey will be part of the baseline information for the water source and its associated water system.

A.8. Water supply and sanitation committee

A water supply and sanitation committee should be established at the onset of the project to define and manage its operations.

Water and sanitation activities need a dedicated group at the community level to oversee and be responsible for project implementation as well as system operation and long-term sustainability. CRS and its partners should assist the community to set up and support a water supply and sanitation committee to take on these tasks.

Where appropriate, the committee should have a legal basis and be authorized to administer financial accounts.

In some communities, water and sanitation activities may require committees to collect water fees, hire caretakers, and oversee operations and repairs. CRS and its partners in such situations should ensure that the establishment of the committee is in accordance with local laws and financial regulations.

Project planning should reflect committee inputs.

The committee should be closely involved in the planning and implementation of water and sanitation activities. CRS and its partners should introduce participatory methods as a means of ensuring the relevance of committee inputs in the planning process.

The committee should be representative of the community.

If the committee is to carry out its responsibilities on behalf of the entire community, the members of the committee should be representative of all the main interest groups, including women, ethnic minorities, the poor and the weak. CRS and its partners should assist the community to understand the need for a representative committee.

Women should be fully represented on the committee.

Women often have the most to gain from improvements in water supplies and sanitation. They usually have to carry the water, maintain the water points, clean the latrines, wash clothes and prepare meals. Their membership on the committee should reflect their daily involvement with water and sanitation tasks. In most cases, women should constitute at least half of the members of the committee.

Women should be encouraged to take on leadership roles on the committee.

Committee membership is not sufficient if the women members have no functional roles. In some countries of East Africa, women rarely are allowed to take on leadership roles in rural communities. CRS and its partners have a special responsibility to ensure that women are encouraged to take key leadership positions and are given the training and support to assist them to do so.

A.9. Project design

Projects should reflect generally accepted engineering practices.

CRS projects are generally built in poor rural areas and should be implemented within the experience and technical skills of their host communities. If they are designed and constructed beyond the understanding of the users, they are not likely to be properly operated and maintained and the sustainability of the resulting water and sanitation system will be in doubt. Using locally accepted engineering practices also may allow more people to become involved in overall project development.

Project design should be supported by appropriate technical data.

All projects, no matter how simple or complex, require accurate technical data, such as survey information, water flows, water demands, soil characteristics, etc. Such data are needed for both immediate planning and implementation and for subsequent review in the event of operational problems or project expansion. CRS and its partners should ensure that appropriate data and information is collected, used and saved for future reference.

The choice of technology should reflect costs, community preferences and considerations of long-term sustainability.

The technologies used to improve water and sanitation should be chosen by the community in light of its expressed needs and capacities. Unless the community believes that it can influence the choice of technology and how it is used, it will not develop a sense of ownership towards the resulting water and sanitation system. CRS and its partners should assist the community to understand the available technological options and help them to select the technology best suited for their needs.

A.10. Project appraisal

Final project approval should include agreement by the water supply and sanitation committee, local government and, where appropriate, USAID.

There should be no unilateral decision-making in the selection and approval of projects. CRS and its partners should ensure that all major stakeholders agree with the project plan before it is submitted for approval and funding.

B. Implementation Phase

B.1. Community involvement

CRS and its partners should ensure that the community remains fully involved during project implementation.

Community involvement in the project does not end with planning but must continue through the implementation and sustainability phases. CRS and its partners should encourage the community to remain engaged in decision-making and in the various implementation activities. It also should remain patient with the level of community interest and involvement and not accelerate implementation faster than the rate at which the community is willing to progress.

CRS and its partners should remain sensitive to the changing needs and preferences of the community.

As projects evolve, communities sometimes change their minds about the design, location and operation of the proposed system. CRS and its partners should recognize the right of a community to request project modifications. Changes in community preferences should be seen as a reflection of greater understanding of the project's potential on the part of the community.

CRS and its partners should encourage local government to be involved in program implementation.

As a key stakeholder in long-term project sustainability, the local government through its technical bureaus should be involved in overall program implementation, especially during project construction. CRS and its partners should act as a channel to keep the technical bureaus of local government informed of project progress and actively engaged in major decisions and tasks of project implementation.

B.2. Construction

Projects should use local materials and practices wherever possible.

The use of local materials and practices, including traditional system designs, construction methods and labor practices, should be encouraged, where appropriate, as communities

are familiar with them and can immediately contribute to them. This is an important element in helping the community to develop a sense of ownership towards the project.

Projects should use generally accepted construction practices.

As stated in the planning phase, construction practices that are familiar can be more readily supported by the community than practices that are different or unnecessarily complex. In all cases appropriate safety procedures should be followed.

B.3. Health/hygiene education

All projects should have a hygiene education component that promotes behavioral change.

Since the health benefits of improved water supply and sanitation rarely occur without some form of behavioral change, the project should have an educational component that helps the community to understand the need for health and hygiene-related changes in behavior. The most important health-related behavioral changes are (1) washing hands after using the latrine and before preparing meals or feeding babies, (2) protecting water supplies at the source and in the home, and (3) disposing of human excreta so that it does not contaminate water supplies, food, people or animals.

Wherever possible, water and sanitation projects should be integrated with community health projects.

Personal and community health are the major beneficiaries of improved water supplies and sanitation. These benefits can be enhanced if water and sanitation projects are part of community health projects, such as primary health care, community integrated management of childhood illnesses and healthy village projects. CRS and its partners should seek opportunities to link water and sanitation activities with new or ongoing health projects.

B.4. Training

CRS and its partners should ensure that its personnel are adequately trained to plan, develop and support water supply and sanitation projects.

Personnel responsible for project development should be properly trained and have relevant experience to carry out their responsibilities. It is essential for CRS and its partners to ensure that their staffs are adequately trained and have the appropriate technical references to plan, implement and support water and sanitation activities.

CRS and its partners should be capable of working with communities on a participatory basis.

Since participatory methods are supposed to be the basis for all contacts between CRS and the community, it is essential that the field personnel of CRS and its partners are knowledgeable of these methods and capable of using them when working with the communities.

CRS and its partners should assist the community to develop the skills necessary to manage and maintain the project.

Many rural communities do not have the skills required to manage a water and sanitation system. CRS and its partners should see the task of training and advising the community, perhaps through the water supply and sanitation committee, as a top priority of project development and sustainability. Appropriate interventions could include training on village management, committee organization, operation and maintenance, finance and monitoring.

CRS and its partners should share experiences and best practices among themselves.

There is inadequate sharing of project experiences among CRS and its partners and with other NGOs. Efforts should be made to have a regular forum to exchange information about project designs, best practices, new technologies, participatory methods, cost sharing and water quality monitoring, among others.

CRS and its partners should encourage the sharing of experiences between communities.

Successful activities and approaches in one community should be shared with other communities, especially among neighboring villages. CRS and its partners should consider ways in which communities can exchange ideas and experiences.

B.5. Monitoring

CRS and its partners should work with the water supply and sanitation committee to monitor the implementation of the project.

The committee should be assisted by CRS and its partners to understand the critical aspects of project implementation and the need for regular and accurate monitoring of project implementation.

CRS and its partners should assist the water supply and sanitation committee to develop a plan for the future monitoring of the system.

Long-term sustainability of the water and sanitation system is dependent upon a continuous flow of accurate information regarding operations, water quality, maintenance and financial status. CRS and its partners should work with the community in developing a long-term monitoring plan.

CRS and its partners should encourage local government technical bureaus to monitor project implementation.

The involvement of local government technical bureaus in long-term sustainability of the system is best assured by encouraging them to assist in the monitoring of project implementation. This should help to develop a working relationship between the community and the local government bureaus.

B.6. Reporting

CRS and its partners should ensure that all reports and records are available to the water supply and sanitation committee, local government agencies and relevant donors, as appropriate.

A record of project development activities must be maintained as an aid to future maintenance, trouble-shooting, system modification and evaluation. Since CRS and its partners will not maintain a permanent presence in the community, it is important that records of all essential information (e.g. surveys, well logs, water quality tests, system designs, expenditures and fee collections) be made available to the water supply and sanitation committee, as well as government technical agencies and relevant donors.

CRS and its partners should maintain a basic set of technical reference documents in its country office.

To carry out basic technical design, monitoring and operations of the water and sanitation activities supported by Title II, CRS and its partners should obtain and keep a core set of reference documents to guide project development. The list of reference documents considered essential for this purpose is found in Annex A.

B.7. Exit strategy

CRS and its partners should develop a handing over plan for the transfer of their responsibilities at the completion of the project to the water supply and sanitation committee and local government technical bureaus, as appropriate.

There are several points at which CRS and its partners terminate their responsibilities to a project. The first is at the completion of project implementation, when the community becomes responsible for on-going operation and maintenance of the system. The second is when CRS and its partners are no longer able to provide periodic technical advice and assistance. To help the community understand and be prepared for these transitions, CRS and its partners should work with the community to prepare a plan for transferring responsibilities to the water supply and sanitation committee.

CRS and its partners should assist the community to establish an agreement with local government technical bureaus for major technical repairs that may be required in the future.

Although the community is expected to undertake routine maintenance and repairs on its water and sanitation system, it probably will need technical and financial assistance for major technical problems and repairs. If appropriate, CRS and its partners should help set up an agreement with the local government technical bureaus that have been involved throughout the project development cycle for assistance in the event that major interventions are needed in the future.

C. Sustainability Phase

C.1. Operations

The community should be fully responsible for the continued operations of the water supply and sanitation system.

Responsibility for the continuing management and operation of the water and sanitation system will be with the community, most likely through the water supply and sanitation committee. CRS and its partners should ensure that the community understands that, unless it accepts this responsibility long-term, sustainability of the system is not possible.

CRS and its partners should continue to assist the community for an appropriate period of time following completion of project implementation.

The community and its water supply and sanitation committee will probably need technical and advisory assistance for some time following implementation of the project. CRS and its partners should be prepared to provide minor levels of assistance for perhaps a year or more, as may be needed, depending on the type of the scheme, the level of awareness of the committee, accessibility to major towns, etc.

C.2. Maintenance

The community should have a plan to support and carry out routine maintenance and repairs.

A plan outlining routine maintenance and repairs should be prepared and accepted by the community before the departure of CRS and its partners.

The water supply and sanitation committee should be responsible for carrying out the maintenance plan.

Management and maintenance of the system should be the primary continuing responsibility of the water supply and sanitation committee.

C.3. Community Management

The community should ensure that the water supply and sanitation committee reports regularly on the status of the water and sanitation system.

Reporting on system status and operations is an essential part of long-term sustainability. The water supply and sanitation committee should report to the community (and possibly to the local government technical bureaus and CRS and its partners) annually and preferably more often. CRS and its partners may, in turn, need to report to a donor agency.

C.4. Institutional links

CRS and its partners should assist the community to maintain effective links with local government technical bureaus.

In the event that the community is unable to establish or maintain the necessary close working relationships with the local government technical bureaus, CRS and its partners should assist this process with all appropriate measures.

C.5. Monitoring

The community should have a plan for the routine monitoring of system operations and community sanitation and hygiene practices.

As in the case of routine maintenance and repairs, the community should have a plan for carrying out monitoring of system operations, water quality, sanitation activities and the adoption of hygiene and behavioral change practices. CRS and its partners should help the community to prepare this plan and provide minor amounts of assistance in carrying it out.

The water supply and sanitation committee should be responsible for carrying out the monitoring plan.

The actual monitoring of the water and sanitation system and the community sanitation and hygiene practices is another important priority for the water supply and sanitation committee.

C.6. Program evaluation

CRS and its partners should carry out an external evaluation of projects at the completion of the overall program.

An external evaluation should be commissioned by CRS at program completion or at some other appropriate point. If necessary, a mid-term evaluation may also be required.

PART III: REVIEW AND REVISION OF GUIDELINES

The indicator measures and related guideline values contained here should be seen as advisory and intended to encourage the planning and implementation of water and sanitation projects that improve health, protect the environment, and lead to long-term sustainability. These guidelines, however, are not infallible or expected to be permanent. They should be periodically reviewed and revised on the basis of field experience and their contribution to the development of CRS water and sanitation activities as well as those funded by other donors. Over time, as experience with the use of guidelines in programming accumulates and CRS and its partners find that the guidelines contribute to better water and sanitation activities, the various guideline values can be strengthened to promote even better projects. In this manner, the guidelines can be employed as a constantly evolving tool serving to "pull" water and sanitation activities to higher levels of service and effectiveness.

PART IV: PROJECT DEVELOPMENT CHECKLIST

The purpose of the following checklist is to ensure that CRS and its partners actively consider the indicators and guideline statements in the development and implementation of water supply and sanitation projects. The checklist should be initially completed during the appropriate phase of project development (planning, implementation, sustainability) as well as on an annual basis as part of an annual status review. Each guideline statement should be checked off when the condition described by the statement is either achieved or is being implemented. Guideline statements that are not checked off should be noted by CRS and its partners and an explanation given why it was not achieved. For USAID-funded Title II projects, the initial assessment and annual review correspond to the Development Activity Proposal (DAP) and Environmental Status Report (ESR) of USAID.

A. Planning Phase:	Initial Assessment	Annual Review
A.1. Community participation		
o CRS and its partners should begin working with the community as the first step in project development.	[ ]	
o CRS and its partners should build upon traditional community structures, where available.	[ ]	[ ]
o CRS and its partners should use participatory methods in working with the community.	[ ]	[ ]
o CRS and its partners should encourage communities to contribute labor and local materials during project implementation.	[ ]	[ ]
o CRS and its partners should assist the community to establish effective links with the local government technical bureaus and the private sector.	[ ]	[ ]
A.2. Needs assessments		
o Projects should be based on needs identified by the community.	[ ]	
A.3. Water source identification		
o All potential water sources should be considered.	[ ]	[ ]
o All projects should draw water from protected sources.	[ ]	
o Groundwater sources are generally preferable to surface water sources.	[ ]	
o Whenever surface water sources are considered for development, the communities immediately upstream and downstream should be consulted.	[ ]	[ ]
o Where possible, projects should use water sources that will remain reliable to meet demand throughout the year.	[ ]	[ ]

A. Planning Phase:	Initial Assessment	Annual Review
A.4. Watershed considerations		
o All projects should be considered in the context of the overall watershed.	[ ]	
o Where possible, projects should be part of an integrated watershed management approach and support multiple uses of water.	[ ]	[ ]
A.5. Water quality		
o Water quality should be a primary concern in all water projects.	[ ]	[ ]
o A continuous effort should be made to maintain drinking water quality at the highest practical level.	[ ]	[ ]
o All water sources should have acceptable water quality.	[ ]	[ ]
o All water sources/water systems should be regularly monitored for water quality.	[ ]	[ ]
o The use of field test kits should be encouraged.	[ ]	[ ]
A.6. Water quantity		
o Projects should have the capability of supplying at least 20 liters of water per person per day to the service population.	[ ]	[ ]
A.7. Sanitary surveys		
o Project approval must include a sanitary survey assessing health risks.	[ ]	[ ]

A. Planning Phase:	Initial Assessment	Annual Review
A.8. Water supply and sanitation committee		
o A water supply and sanitation committee should be established to define and manage the operations of the project.	[ ]	[ ]
o Where appropriate, the committee should have a legal basis and be authorized to administer financial accounts.	[ ]	[ ]
o Project planning should reflect committee inputs.	[ ]	[ ]
o The committee should be representative of the community.	[ ]	[ ]
o Women should be fully represented on the committee.	[ ]	[ ]
o Women should be encouraged to take on leadership roles on the committee.	[ ]	[ ]
A.9. Project design		
o Projects should reflect generally accepted engineering practices.	[ ]	[ ]
o Project design should be supported by appropriate technical data.	[ ]	[ ]
o The choice of technology should reflect costs, community preferences and considerations of long-term sustainability.	[ ]	[ ]
A.10. Project appraisal		
o Final project approval should include agreement by the water supply and sanitation committee, local government and, where appropriate, USAID.	[ ]	

B. Implementation Phase:	Initial Assessment	Annual Review
B.1. Community involvement		
o CRS and its partners should ensure that the community remains fully involved during project implementation.	[ ]	[ ]
o CRS and its partners should remain sensitive to the changing needs and preferences of the community.	[ ]	[ ]
o CRS and its partners should encourage local government to be involved in program implementation.	[ ]	[ ]
B.2. Construction		
o Projects should use local materials and practices wherever possible.	[ ]	[ ]
o Projects should use generally accepted construction practices.	[ ]	[ ]
B.3. Health/hygiene education		
o All projects should have a hygiene education component that promotes behavioral change.	[ ]	[ ]
o Wherever possible, water and sanitation projects should be integrated with community health projects.	[ ]	[ ]

B. Implementation Phase:	Initial Assessment	Annual Review
B.4. Training		
o CRS and its partners should ensure that its personnel are adequately trained to plan, develop, and support water supply and sanitation projects.	[ ]	[ ]
o CRS and its partners should be capable of working with communities on a participatory basis.	[ ]	[ ]
o CRS and its partners should assist the community to develop the skills necessary to manage and maintain the project.	[ ]	[ ]
o CRS and its partners should share experiences and best practices among themselves.	[ ]	[ ]
o CRS and its partners should encourage the sharing of experiences among communities.	[ ]	[ ]
B.5. Monitoring		
o CRS and its partners should work with the water supply and sanitation committee to monitor the implementation of the project.	[ ]	[ ]
o CRS and its partners should assist the water supply and sanitation committee to develop a plan for the future monitoring of the system.	[ ]	[ ]
o CRS and its partners should encourage local government technical bureaus to monitor project implementation.	[ ]	[ ]

B. Implementation Phase:	Initial Assessment	Annual Review
B.6. Reporting		
o CRS and its partners should ensure that all reports and records are available to the water supply and sanitation committee, local government agencies and relevant donors.	[ ]	[ ]
o CRS and its partners should maintain a basic set of technical reference documents in its country office.	[ ]	[ ]
B.7. Exit strategy		
o CRS and its partners should develop a handing over plan for the transfer of their responsibilities to the water supply and sanitation committee and local government technical bureaus.	[ ]	[ ]
o CRS and its partners should assist the community to establish an agreement with local government technical bureaus for major technical repairs that may be required in the future.	[ ]	[ ]

C. Sustainability Phase:	Initial Assessment	Annual Review
C.1. Operations		
o The community should be fully responsible for the continued operations of the water supply and sanitation system.	[ ]	[ ]
o CRS and its partners should continue to assist the community for an appropriate period of time following completion of project implementation.	[ ]	[ ]
C.2. Maintenance		
o The community should have a plan to support and carry out routine maintenance and repairs.	[ ]	[ ]
o The water supply and sanitation committee should be responsible for carrying out the maintenance plan.	[ ]	[ ]
C.3. Community management		
o The community should ensure that the water supply and sanitation committee reports regularly on the status of the water and sanitation system.	[ ]	[ ]
C.4. Institutional links		
o CRS and its partners should assist the community to maintain effective links with local government technical bureaus.	[ ]	[ ]

C. Sustainability Phase:	Initial Assessment	Annual Review
C.5. Monitoring		
o The community should have a plan for the routine monitoring of system operations and community sanitation and hygiene practices.	[ ]	[ ]
o The water supply and sanitation committee should be responsible for carrying out the monitoring plan.	[ ]	[ ]
C.6. Program evaluation		
o CRS and its partners should carry out an external evaluation of projects at the completion of the overall program.	[ ]	[ ]

ANNEXES

Annex A: Core Technical Reference Documents

Burpee, Gaye et al (February 2000). **A Cooperating Sponsor's Field Guide to USAID Environmental Compliance Procedures.** Baltimore: Catholic Relief Services (Program Quality and Support Department). (http://www.foodaidmanagement.org/pdfdocs/usaiddoc/FldGuide2000Text1.PDF)

CRS/EARO (2004). **Water Supply & Sanitation Strategy – developed in East Africa.** Nairobi: CRS. (http://www.catholicrelief.org/publications/pdf/Wat0704_e.pdf)

Fisher, Weston and Mark Stoughton (March 2002). **USAID Environmental Procedures Training Manual for USAID Environmental Officers and USAID Mission Partners.** AFR Edition. USAID Bureau for Asia and the Near East, Bureau for Africa/Office of Sustainable Development, and REDSO/ESA. (http://www.encapafrica.org/EPTM.htm)

Lloyd, Barry and Richard Helmer (1991). **Surveillance of Drinking Water Quality in Rural Areas.** Essex (UK): Longman Scientific and Technical.

Simpson-Hebert, Mayling, Ron Sawyer and Lucy Clarke (1997). **The PHAST Initiative: Participatory Hygiene and Sanitation Transformation: A New Approach to Working with Communities.** WHO/EOS/96.11. Geneva. (http://whqlibdoc.who.int/hq/1996/WHO_EOS_96.11.pdf)

The Sphere Project (2004). **Humanitarian Charter and Minimum Standards in Disaster Response.** Oxford (UK): Oxfam Publishing. (http://www.sphereproject.org/handbook/hdbkpdf/hdbk_full.pdf)

USAID (May 12, 1998). **Arsenic Testing in Potable Water – IEE/EA Needs.** State cable 051298.

USAID (June 12, 2002). **Guidelines for Determining the Arsenic Content of Ground Water in USAID-Sponsored Well Programs in Sub-Saharan Africa (draft).** USAID Bureau for Economic Growth, Agriculture and Trade. (http://www.encapafrica.org/MEO_Course/Module9--Special_Topics/Water_Resources_Pollution_Waste/Arsenic_testing_guidelines_AFR_Dec2003.pdf)

U.S. Government Code of Federal Regulations. **Agency Environmental Procedures.** 22 CFR 216. (http://www.usaid.gov/environment/22cfr216.htm)

Warner, Dennis et al (March 2000). **Water and Food-Aid in Environmentally Sustainable Development: An Environmental Study of Potable Water and Sanitation Activities Within the Title II Program in Ethiopia.** Prepared for USAID/Ethiopia by Winrock International. Task Order Contract No. PCE-1-00-96-00002-00. (http://www.encapafrica.org/resources.htm#Resources-ENCAPpubs)

Warner, Dennis (2002). **Environmental Guidelines for Small-Scale Water Supply and Sanitation Projects: The Application of USAID Regulations under Title II, Regulation 216.** Atlanta: CARE.

WHO (1996). **Fact Sheets on Environmental Sanitation: Cholera and other epidemic Diarrheal Diseases Control.** WHO/EOS/96.4. Prepared by the Robens Institute, University of Surrey. (http://whqlibdoc.who.int/hq/1996/WHO_EOS_96.4_1.p1-52.pdf)

WHO (2001). **Arsenic in Drinking Water.** Fact Sheet No. 210 (revised). Geneva: WHO. (http:/www.who.int/inf-fs/en/fact210.html)

WHO (2004). **Guidelines for Drinking-Water Quality. Third Edition: Vol I – Recommendations.** Geneva: WHO. (http://www.who.int/water_sanitation_health/dwq/gdwq3/en/)

WHO and UNICEF (2004). **Meeting the MGD Drinking Water and Sanitation Target: A Mid-Term Assessment of Progress.** WHO/UNICEF Joint Monitoring Programme for Water Supply and Sanitation. Geneva: WHO and New York: UNICEF. (http://www.who.int/water_sanitation_health/monitoring/jmp2004/en/)

Wyatt, Alan et al (1992). **Environmental Guidelines for PVOs and NGOs: Potable Water and Sanitation Projects.** WASH Task No. 383. Water and Sanitation for Health Project. Washington D.C.: USAID.

Annex B: Draft USAID Guidelines for Arsenic in Drinking Water

GUIDELINES FOR DETERMINING THE ARSENIC CONTENT OF GROUND WATER IN USAID-SPONSORED WELL PROGRAMS IN SUB-SAHARAN AFRICA (June 12, 2002 DRAFT)

Note: These guidelines are derived from draft Agency-wide guidelines prepared by the Bureau for Economic Growth, Agriculture and Trade in 2001. As of the date of this document, the Agency-wide guidelines were still in draft form.

1. Background

Over the last few years, considerable information has been shared about arsenic problems in the Ganges basin of Bangladesh and India (see WHO Fact Sheet attached as Annex A). This resulted in a cable being sent out by the U.S. Agency for International Development (USAID) in 1998 (cable attached as Annex B). Subsequently, USAID has evaluated approaches in the Agency's ground water development efforts to prevent similar consequences arising in USAID development activities.

In order to protect the beneficiaries of USAID-sponsored well drilling programs from long-term arsenic ingestion, all contractors, grantees, or cooperative agreement groups must follow the protocol below in assuring that safe water is being supplied, and meeting U.S. Environmental Protection Agency (USEPA) standards.

2. USEPA standard for arsenic in drinking water

On January 22, 2001, the USEPA adopted a new standard for arsenic in drinking water at 10 ppb (10 micrograms per liter), replacing the old standard of 50 ppb. The rule became effective on February 22, 2002. USEPA regulations on arsenic are available at the following URL: http://www.epa.gov/safewater/arsenic.html

3. Criteria for selecting which wells to test in a common aquifer.

One cannot usually be sure of a homogeneous structure within an aquifer. Aquifers often consist of separate geologic units with different geochemical properties. Thus, USAID requires that each well be tested.

4. Timing and extent of sampling required

After installation is completed, the well should be pumped and tested. Samples for arsenic analysis should be taken once water that is representative of the aquifer is found, i.e., once equilibrium conditions have been established (rather than stagnant water around the well, or water that has been affected by drilling). A suggested time for the first sample would be when the temperature, pH, and conductivity measurements are stable (as determined by field probes). New wells should be sampled initially and each quarter for a total of 4 quarters. At this point USAID would turn over any

additional sampling and analysis results to the local authority. Should the funds in the project terminate before all required sampling has been completed and samples analyzed, it will be the responsibility of the USAID Mission to assure that sampling and analysis is completed.

5. Analysis of samples

At the present time there is one field kit that USAID will accept for use in measuring arsenic in the field, the Hach Arsenic Kit, which appears to be reliable in measuring arsenic down to the U.S. standard of 10 ppb (see Annex C for information about this kit). If a sample should show >10 ppb by the field kit test, USAID will require that a qualified laboratory conduct an analysis on this well. The laboratory selected must be one approved by at least one of the following persons: the Bureau Environmental Officer, the Regional Environmental Officer (or Advisor), the country Mission Environmental Officer, or the country Food for Peace Officer.

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