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ENVIRONMENTAL HEALTH POLICY

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FOREWORD

Rwanda's economic development is significantly improving but the required growth is still hampered by transmissible diseases that are a huge burden on the health sector. Diarrhea, parasitic diseases and malaria present the greatest health burden on the country and individual households. The leading cause of under-five mortality is diarrhea, which comprises 21%, followed by malaria at 8%. The main effects of parasitic diseases are weakening of the body thus creating a window for nutritional disorders. Other diseases are acute respiratory infections, pneumonia, scabies, conjunctivitis and oral infections, all of which can largely be prevented through improved environmental health services.

The main contributing factors to environmental health related diseases in Rwanda are inadequate and unsanitary facilities for excreta disposal, poor management of liquid and solid wastes, and inadequate practices of handwashing with soap that leads to contamination of food and water in both rural and urban areas. This is mainly due to a population, which lacks awareness, inadequate participatory hygiene education and environmental health promotion approaches in school and communities as well as uncoordinated delivery of effective environmental health services.

The negative state of environmental health conditions influences the disease burden which, in turn, contributes to poverty. The children, the elderly and the immuno-compromised individuals get sick more frequently and more resources are spent on curative services to restore their state of health, thus increasing poverty at household and community levels.

Adequate financial, human and material resources are very essential for effective EHS and the achievement of policy objectives. Budgetary allocation to EHS should be improved at all administrative units. It is important that at District and sector levels, adequate resource allocation and planning is done to enable successful implementation of the EHS.

EHS demand a diverse range of skills, i.e. environmental health specialists, sanitary engineers, food scientists, and social scientists. This wide mix of professionals proves the intersectoral and multi-disciplinary nature of Environmental Health. In order to meet the human resource challenge, capacity building should be a central theme within MINISANTE and local governments.

The policy intends to prioritize EH and ensure effective delivery of EH services in a coordinated manner by promoting EH education, capacity building at various levels and intersectoral collaboration.

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ABBREVIATIONS

1. CBD	Convention on Biological Diversity
2. CIAT	International Center for Tropical Agriculture
	Community Development and Social Affairs
3. EAC	East African Community
4. EDPRS	Economic Development and Poverty Strategy
5. EH	Environmental Health
6. EHL	Environmental Health Law
7. EHO	Environmental Health Officer
8. EHP	Environmental Health Personnel
9. EHS	Environmental Health Services
10. HACCP	Hazard Analysis Critical Control Point
11. HAMS	Hygiène et Assainissement en Milieu Scolaire
12. HECA	Healthy Environment for Children Alliance
13. SPH	School of Public Health
14. KHI	Kigali Health Institute
15. KIST	Kigali Institute of Science and Technology
16. MDGs	Millennium Development Goals
17. MIFOTRA	Ministry of Public Service, Skills Development and Labor
18. MINAGRI	Ministry of Agriculture and Animal Resources
19. MINALOC	Ministry of Local Government, Good Governance,
20. MINEDUC	Ministry of Education
21. MINICOM	Ministry of Commerce and Industries
22. MININFRA	Ministry of Infrastructure
23. MINIRENA	Ministry of Natural Resources
24. MINISANTE	Ministry of Health
25. NEPAD	New Partnership for Africans Development
26. NEPAD	New Partnership for African Development
27. OHS	Occupation Health and Safety
28. PHAST	Participatory Hygiene and Sanitation Transformation
	Promotion, Tourism and Cooperatives

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INTRODUCTION

1.1 Definition of the sector

In Africa, infectious diseases linked to poor environmental conditions are major causes of morbidity and mortality amongst children and adults[1]. Findings of the situational analysis study indicated that major contributing factors to environmental health diseases in Rwanda are contaminated food and water, low levels of hygiene and poor sanitation in both rural and urban areas. A population, which lacks awareness about factors that contribute to environmental health diseases, carries a heavier disease burden that further aggravates poverty. In particular, such a population experiences high morbidity and mortality rates for both children and adults.

When a population is exposed to environmental hazards, a relationship is established between levels of exposure and a health outcome for the exposed population. A linkage is thus created between the status of the environment and human health, hence the term *"environmental health"* currently in Rwanda known as *Public hygiene.*
WHO defines environmental health as follows:
"Environmental health comprises those aspects of human health, including quality of life that is determined by physical, biological, social and psychological factors in the environment. It also refers to the theory and practice of assessing, correcting, controlling and preventing those factors in the environment that can adversely affect the health of present and future generations". The ultimate objective is to improve the health outcome of the exposed population.

Reduction of contributing factors necessitates intersectoral collaboration. For example proper nutrition is critical especially amongst vulnerable individuals such as those infected with HIV/AIDS, children and the elderly given that a well nourished population has inbuilt immunity. In the absence of such immunity, when attacked by environmental health diseases, the victim may suffer more serious disease or even death.

In addition, good hygiene and sanitation and protection of the environment greatly contribute to reduction or elimination of environmental hazards such as microbial, chemical and physical

[1] Environmental health: a strategy for the African region (2002). WHO, Geneva

agents. Hence the need to establish the EHP to ensure proper coordination of relevant government programs with the ultimate goal of reaching the level of health protection[2] chosen for the Rwandan population.

1.2 Background

1.2.1 Prevailing environmental health conditions

The National Environmental Health Policy (EHP) is based on a situational analysis study conducted to assess the environmental health situation in Rwanda[3]. The study observes that some 85% of existing water sources are believed to contain coliform contamination levels beyond the recommended limits, while only about 0.8% of the population use hygienic latrines, a factor that contributes to coliform contamination. It is further noted that only 40% of the Rwandan rural population has access to safe water compared to 60% of the urban population.[4]

A study on the promotion of school health in Rwanda[5], notes limited awareness of the importance of promotion of hygiene as a means to the control of hygiene and sanitation related diseases. It recommends improving hygiene education in schools. Intensification of environmental health education is recommended as the best means to improve the impact of water and sanitation programs at community and household levels.

1.2.2 The burden of environmental health related diseases

Environmental health related diseases are the major causes of morbidity mortality amongst the under fives. The National Health Sector Policy (2005)[6] reports high infant mortality rate (107 deaths per 1000 live births), largely as a result of environmental health related diseases. Acute respiratory infections, pneumonia and other preventable diseases are among the top ten causes of morbidity and mortality while high levels of malnutrition and parasitic diseases such as amoebic

[2] A level of health protection is established by MINISANTE; the body responsible for public health
[3] Assessment of the environmental health situation in Rwanda (2006). MINISANTE
[4] Country Self- Assessment Report for the African Peer Review Mechanism and UNICEF (2004) GoR/NEPAD and UNICEF
[5] Promotion of school health in Rwanda (2003). MINISANTE
[6] The National Health Sector Policy (2005). MINISANTE

dysentery are frequently reported amongst infants and children. Epidemics of cholera, meningitis, bacillary dysentery and typhus regularly confront Rwanda.

The underlying causes of majority of these diseases are related to poor hygiene and sanitation at personal, household and community levels, contaminated food and water, lack of occupational health and safety at work, inadequate control of health related matters at ports of entry, lack of control of disease vectors and vermin, poor housing and settlement, inadequate handling of disaster and emergencies, a contaminated environment as a result of inadequate liquid and solid waste management, and poor methods of disposal of the dead. For purposes of this policy, environmental health will be defined in terms of the above underlying causes of a poor environmental health situation.

2.0 GENERAL ORIENTATION

The Rwanda Government is signatory to most of the international treaties and conventions related to environmental protection and is committed to the achievement MDG 7 and 4 on environmental sustainability and reduction of child mortality, both of which relate to environmental health. In addition, the policy is in harmony with the commitments made under regional initiatives such as NEPAD and the EAC.

At national level, Rwanda Government has placed environmental issues high on the political agenda. This is because of the realization that without addressing environmental issues, the country would not meet its development goals. The constitution of Rwanda article 49 entitles every citizen a healthy environment but has the duty to safeguard it.

Environmental sustainability as one of the MDGs goals is recognized as a cross cutting issue and is enshrined in the Vision 2020 as well as the EDPRS. The Vision 2020 is to guarantee the well being of the population by increasing production and reducing poverty within an environment of good governance. As part of this vision, the Government seeks to overcome the illnesses linked with poverty and ignorance, and to develop a proactive and well performing health system capable of anticipating and appropriately responding to the health needs of the population.

The environmental health concerns have also been catered for by the Millennium Development Goals that include eradication of extreme poverty and hunger, reduction of child mortality, and combating HIV/AIDS, malaria and other major diseases; most of which are preventable**.**

It is therefore important to note that the following key policy instruments have been developed to comply with international, regional and national commitments related to environmental health:

- The health sector policy
- The water and sanitation policy
- The environmental protection policy.
- The policy on science and technology
- The nutrition policy

3.0 SECTOR PRESENTATION

3.1 Environmental health problem

The state of environmental health influences the disease burden which in turn contributes to poverty. The children, the elderly and the immuno-compromised get sick more frequently from preventable diseases and more resources are spent on curative services to restore their state of health, thus increasing poverty at household and community levels. Due to the continued ill health, production is low thus contributing to inability to provide basic services such as education, nutrition, hygiene and paying Government taxes.

More specifically the impact of a poor environmental health situation is best illustrated by demonstrating the main causes of morbidity and mortality amongst infants. According to WHO, children are exposed to serious health risks from environmental hazards. Over 40% of the global burden of disease attributed to environmental factors falls on children below five years of age, who account for only about 10% of the world's population. The leading causes of death amongst children under the age of five are:

- Respiratory infections which kill almost two million children each year; 60% of respiratory infections are related to environmental conditions.

- Diarrhea diseases that claim the lives of nearly two million children every year; 80 – 90% of these diarrhea cases are related to environmental conditions, in particular contaminated food, water and inadequate sanitation.
- Malaria which killed nearly one million children under the age of five in 1998;
- 90 percent of malaria cases are attributed to environmental factors.

According to the Rwanda health sector strategic plan (2005-2009), environmental health related diseases are the major causes of morbidity and mortality amongst the under fives. The top ten causes of their death by percentage were: pneumonia 24%, neonatal 22%, diarrhea 21% AIDS 17%, malaria 8% measles 1% and others 7% while high levels of malnutrition and parasitic diseases are frequently reported amongst infants and children. Epidemics of cholera, meningitis, bacillary dysentery and typhus regularly confront Rwanda. The underlying causes of majority of these diseases are related to environmental health.

The situational analysis study noted that school children and newborns are most affected by environmental pollution. An estimated 3 million premature deaths mainly from acute and chronic respiratory infections are attributed to exposure to polluted air. Of the said deaths, 2.8 million are due to indoor air pollution exposures, primarily in developing countries. [7].

The main sources of air pollution which are man made relate to transportation, industry, combustion fuels, industrial processes and use of pesticides. More specifically the pollutants include suspended matter, sulfur dioxide, nitrogen dioxide, hydrocarbons, ozone and noise due to population growth, urbanization, industrialization and increased use of motor vehicles.

Similarly the analysis identified problems of limited capacity in terms of funding, equipment and human resources to measure, assess, control and mitigate air pollution; inadequate information on air pollution and its impacts; limited public awareness and limited enforcement of existing national, regional and international legislation

[7] Intersectoral Action for Health; Addressing Health and Environment in Sustainable Development (1997). WHO, Geneva.

3.2 Constraints and opportunities

The responsibility for environmental health services in Rwanda is currently shared between various ministries and government agencies and thus implementation of Rwanda Government's policy on environmental health is appears fragmented between various ministries. Because of the overlaps likely to arise when various government agencies are involved in similar or related activities, the EHP emphasizes the need for a harmonized institutional framework to ensure efficient coordination of shared responsibilities and effective delivery of services. In addition to a fragmented policy framework and weak coordination, the following challenges and constraints to the effective delivery of EHS have been noted:

1. Outdated public hygiene law(s).
2. Inadequate capacity of EH personnel in terms of numbers and training.
3. Weak inspection system. At the moment a combined inspection team comprised of officers from the responsible agencies, i.e. MINISANTE, MINAGRI, MINICOM, RBS, POLICE, and Kigali City carries out inspections.
4. Uncoordinated environmental health activities at national level.
5. A population that is not adequately sensitized about preventive health strategies.
6. Inadequate funding of EHS.

However the strength of Environmental Health personnel where they exist is their capacity to relate with the community towards increasing the awareness and promoting good practices for the prevention of diseases and promotion of health. The opportunity for the sub-sector is the existence of Kigali Health Institute that trains EH personnel and has the capacity to conduct continuing education in liaison with the Ministry of Health. Key components of environmental health that are critical for improving the environmental health situation in Rwanda were identified and prioritized as follows:

1. Environmental health education
2. Food and water safety
3. Personal and domestic hygiene
4. Liquid and solid waste management
5. Occupational health and safety
6. Diseases vectors and vermin control

7. Environmental pollution
8. Port health
9. Disposal of the dead
10. Proper housing and settlement
11. Disaster and emergency preparedness

4.0 PRINCIPLES TO GUIDE POLICY IMPLEMENTATION

Implementation of the National Environmental Health Policy should be guided by the following key principles that are crosscutting and crucial for the achievement of policy objectives.

4.1 Recognition of equity in environmental health interventions

Environmental health interventions should be planned and implemented on an equitable basis, with resource allocation based on the principle of “some for all” rather than “all for some”.

4.2 Recognition of the differing needs of women, men, children and the elderly

Environmental health interventions should respond to the differing needs of women, men and children. Specifically, the role of women as main users of food, water and sanitation should be recognized. Gender sensitive studies should be carried out to ensure recognition of needs for the various vulnerable people.

4.3 Placing emphasis on voluntary compliance through awareness and education

Environmental health strategies should strike an appropriate balance between promotion, education and law enforcement. Voluntary compliance through awareness and education should be emphasized more than law enforcement and prosecution. Enforcement and prosecution is not always a viable means of securing environmental health improvements, particularly improvements in environmental sanitation in poor communities.

4.4 Decentralization

The Government of Rwanda is committed to good governance and has adopted the principle of decentralization. Similarly, the constitution entitles every citizen the right to a healthy environment with his or her duty to safeguard it. This principle is a basis for empowering local administrative and political entities to manage their own development. Decentralization encourages direct financial support to the local entities through the sector wide approach mechanisms that directly finance activities planned by the community development committees themselves.

Decentralization therefore provides the means through which to ensure equitable access to environmental health services through active participation by all Rwandans. The policy will follow the current decentralized structure in delivering EHS.

4.5 Community participation

The principle of community participation recognizes that although the policy is established at the central, implementation of the policy should be effected at the levels that involve the community. The policy objectives cover the increase of awareness, change of attitude and behavior. The community will be mobilized and individually or collectively practice environmental health promotion behaviors.

4.6 Intersectoral collaboration and coordination

While the policy recognizes the advantages of having shared responsibilities, it is important that such responsibilities are clear and provided for by the EHL established to govern the delivery of EHS. In addition, the law should recognize Ministry of Health as the ministry responsible for public health and therefore having responsibility for the overall coordination of policy implementation and delivery of EHS. However success requires collaborative and coordinated efforts by the various sector agencies and all other partners. The starting point is establishing a common goal and then continuous sharing of responsibilities, information and experiences without duplicating efforts.

4.7 The precautionary principle

Successful prevention or control of environmental health diseases requires appropriate measures underpinned by scientific means. Scientific data is not always readily available or sufficient to determine the most appropriate measure. An effective policy works on the principle that "we don't need to know everything to take action". Thus, a precautionary measure can be taken to protect human health, where scientific evidence may not be available.

4.8 Risk analysis

Risk analysis is a scientific process of determining measures necessary to provide the level of health protection chosen for the population. It should therefore underpin standards and regulations established to enforce environmental health. The process comprises three separate but integrated steps of risk assessment, risk management and risk communication.

Risk assessment is the identification and characterization of environmental hazards in terms of levels of exposure to the affected population. If the hazard is known to have adverse effects on human health, it is said to be significant and the severity of its effects has to be quantified or assessed qualitatively. Depending on the level of risk, a ***risk management*** decision has to be taken to control, reduce or eliminate the hazard. ***Risk communication*** is the interactive exchange of information that takes place between risk assessors and managers.

5.0 SECTOR MISSION AND OBJECTIVES

5.1 Relevance of EH to the health sector policy

The mission statement for the health sector is to ensure and promote the health status of the Rwandans population by providing quality preventive, curative and rehabilitative services within a well performing health system. The health sector strategic plan also highlights the service areas of environmental health, control of communicable diseases, epidemics and disaster preparedness, which are components of this policy.

It is within this context that the environmental health mission is to ensure prevention of diseases and conditions related to environmental health and promotion of living and working environment. Provision of the environmental health services aim at ensuring that the preventive and promotive health sector dimensions are addressed. The sub-sector policy that is enshrined in the health sector mission is detailed in the goals of ensuring the availability of human resources, reinforcing institutional capacity and improving the quality of and demand for services in the control of disease.

Achievement of this mission will contribute to the overall vision of the Government of Rwanda that guarantees the well being of the population by increasing production and reducing poverty within an environment of good governance.

5.2 Environmental Health Policy Objectives

5.2.1 General objective

The overall objective of the Environmental Health Policy is provision of adequate environmental health services to all Rwandans with their active participation. This objective is derived from the Health Sector Policy objectives, i.e. the reduction of infant, child and adult morbidity and mortality rates by reducing and eliminating health risks associated with environmental hazards, which are the direct causes and spread of diseases and conditions related to environmental health.

5.2.2 Specific Objectives

In order to prevent environmental health diseases and promote health of all Rwandans, the policy aims at achieving the following specific objectives:

1. Promoting a legal and regulatory framework that supports voluntary compliance and facilitates policy implementation by the various actors.
2. Formulating an institutional framework that enables efficient coordination and collaboration of the various sectors and partners who have environmental health responsibilities.
3. Creating community awareness about factors that contribute to a poor environmental health situation, their prevention and means of promoting health.

4. Strengthening the capacity of environmental health personnel and community health workers so that they are efficient agents and catalysts in bringing about the desired change.
5. Promoting those practices, which ensure a healthy environment at household and community levels, whilst ensuring active participation of the population.
6. Ensure provision, sale, offer and exposure for sale food and water which is safe for human consumption

6.0 STRATEGIES TO ACHIEVE POLICY OBJECTIVES

6.1 Review of the legal and regulatory framework

An up to date law, a harmonized regulatory framework and efficient and effective inspection services are a pre-requisite to the delivery of effective EHS. The existing public hygiene law (s)[8] need to be updated and harmonized with laws already established. In particular, the statutes establishing RBS and the Organic Law determining modalities of protection, conservation and promotion of environment in Rwanda (2005) need to be consulted while updating the Environmental Health Law (EHL).

Other laws related to environmental health are those recently reviewed by MINAGRI, i.e.:

- The Law on Animal Health (2005). MINAGRI
- The Law on use of drugs for Animal Health Diseases (2005). MINAGRI
- The Law on Plant Protection

The existing inspection system should be strengthened and the role of EHOs should be clearly defined by the EHL, which should also provide for a clear coordination mechanism to ensure that roles of the various responsible agencies are clear and harmonized, particularly with regard to inspection and law enforcement.

[8] Code de Lois, Volume 3 of 1983

6.2 Formulating an institutional framework

Environmental health is shared responsibility between various government agencies, namely MINEDUC, MIFOTRA, MINALOC, MINISANTE, MINIRENA, MINAGRI, MINICOM, RBS and REMA. The policy recognizes the complimentary nature of the responsible agencies, with respect to the related multidisciplinary skills necessary to establish the scientific basis of measures chosen for environmental health protection, inspections and law enforcement. However, the EHL should clearly define their mandates and areas of responsibility.

6.3 Strengthening the capacity of EH personnel

Human capacity development will pivot around recognizing the need for an adequate number and appropriate quality of environmental health personnel with clear job descriptions. This requires recruitment of additional personnel and training the existing personnel. Proper training needs assessment should be done to establish gaps and determine a training strategy.

Government to ensure deployment of at least one Environment Health Officer for every twenty thousand population.

The Rwanda Association of Environmental Health should be supported in its role of ensuring professionally well trained EH personnel able to carry out their responsibilities in an ethical manner.

6.4 Strengthening community participation

Communities unconsciously sustain the vicious cycle of disease and poverty as a result of lack of awareness about factors that contribute to environmental health diseases. Community education that creates awareness about environmental health issues is an essential step of the behavioral change process where cultural beliefs, practices and traditions would be transformed and ultimately result into improved personal and domestic hygiene.

Participatory approaches, such as PHAST[9] methodology, HAMS[10] program should be utilized in schools and communities to ensure active participation and ownership of programs by the communities as well as behavior change and entrenchment of sustainable good practices.

6.5 Use of competitions for EH promotion

This strategy will be used especially in institutions and communities. Competitions will be held within and between institutions. For communities, home competitions will be organized between villages and the winning villages represent their respective sectors at sectoral level competitions and the winning sectors compete at District level. The EH personnel will facilitate development of assessment tools that will be used to guide the panel of judges at each level of the competitions.

6.6 Promoting a healthy environment for children

The policy recognizes the susceptibility of children to environmental risks; action needs to be taken to allow them to grow up and develop in good health, and to contribute to economic and social development because they sustain both present and future generations. Promoting the healthiest environment for children is a cross cutting issue that should be placed high on government's political agenda. The policy thus emphasizes the need to streamline this activity in all EH interventions by including appropriate indicators in the overall implementation plan.

6.7 HIV/AIDS, TB, Malaria and environmental health

A relationship exists between the major health problems of the country and environmental health. Individuals whose immunity is compromised by HIV/AIDS infection are more susceptible to environmental health diseases like tuberculosis, diarrhea and malaria. In addition contaminated medical waste could easily spread the HIV if not treated properly while other wastes are associated with the spread of diarrheal diseases.

[9] Participatory hygiene and sanitation transformation
[10] Hygiène et Assainissement en Milieu Scolaire

While ensuring that EHS are extended to all Rwandans, education and awareness programs will focus on protecting vulnerable sections of the population such as HIV/AIDS victims from EH diseases.

Care shall be taken to ensure that methods and technologies for medical waste management are able to control transmission of the HIV/AIDS virus to medical personnel. Relevant training and awareness programs aimed at controlling the spread of the virus through contaminated medical equipment and waste shall be provided to respective medical personnel and the exposed population.

The environmental methods for the control of malaria, the conditions at places of residence and work and the behaviors that favor the spread of tuberculosis will be some of the concerns for this policy implementation.

6.8 EH Information Management System

The environmental health information system should be developed with participation of the major stakeholders. It should permit information flow from communities to the central level but ensuring its use and feedback at each level of policy implementation. Accurate information is expected to be available and regularly updated by use of a national database. The district environmental health department will report to the district authority and provide a copy to the Ministry of health department of Environmental health.

6.9 Resource allocation to environmental health services

Adequate financial, human and material resources are very essential for effective EHS and the achievement of policy objectives. At the moment budgetary allocation to EHS is low compared to other health services. EHS demand a diverse range of skills, i.e. sanitary engineers, environmental scientists, food scientists, occupational hygienists and social scientists. This wide mix of professionals proves the intersectoral and multi-disciplinary nature of Environmental Health (EH).

In order to meet the human resource challenge, capacity building should be a central theme within MINISANTE and local governments.

This should involve provision of specialized training, professional and in service training, particularly at sector level where policy implementation activities take place. Emphasis should be placed on collaboration with institutions of higher learning such as KIST[11] and KHI[12]. Furthermore, partnerships should be developed between health, water and sanitation and agriculture ministries.

A detailed implementation strategy and estimated budget will provide guidance on suitable levels of funding, which should be commensurate with the challenges outlined by the policy and activities that need to be undertaken to overcome them. It is important that at District and sector levels, adequate resource allocation and planning is done to enable implementation of the EHP.

6.10 Promoting international cooperation

Environmental health challenges go beyond national borders requiring collaboration from neighboring and partner countries: the spread of food borne diseases for example, transnational air pollution or water pollution may not be solved by a single country. Environmental health problems occurring locally may well affect neighboring countries.

The policy emphasizes promotion of collaboration, establishing disease surveillance programs with neighbors and actively participating in regional and international initiatives. Effort should be made to seek international cooperation and assistance to enhance skills, capacity, and expertise and information exchange, particularly in the application of EH management tools like PHAST[13] and HACCP[14] as well as integrate environmental hygiene initiatives such as the Healthy Cities Project (HCP) and the Global Healthy Environments for Children Alliance (HECA) within national strategies and programs.

[11] Kigali Institute of Science and Technology
[12] Kigali Health Institute
[13] Participatory Hygiene and Sanitation Transformation
[14] Hazard Analysis Critical Control Point

6.11 Monitoring, evaluation and research

Monitoring and evaluation are essential steps towards the achievement of the policy results. *Monitoring* is the performance and analysis of routine measurements, aimed at detecting changes in the environment or health status of populations. *Surveillance* is the ongoing systematic collection, collation, analysis and interpretation of data followed by the dissemination of information to all those involved so that appropriate actions may be taken.

Monitoring and surveillance responsibilities should be undertaken by EH personnel to assist in identifying priorities, policy actions and evaluating the preventive and control strategies to be undertaken. Where necessary, partnerships with other agencies such as laboratories should be enhanced.

Data obtained at health facilities e.g. for food poisoning should be linked to analytical data obtained at designated laboratories. Such data should be used by EH personnel and food inspectors to trace for example a food safety problem back to the food vehicle and the source. Monitoring and surveillance data can thus be used by EH personnel to facilitate the risk analysis framework, i.e. to conduct risk assessment and take appropriate risk management actions.

As an integral part of the overall implementation plan, monitoring and evaluation should follow a participatory methodology to ensure involvement of key stakeholders at all levels of the environmental health delivery system. Operational research should be useful in determining key areas for new or improved strategies. Emphasis should be placed on collaboration with institutions of higher learning such as KHI, KIST and SPH.

7.0 PRIORITY PROGRAM INTERVENTIONS

7.1 Environmental health education

Environmental health education remains the most effective means to improve hygiene and sanitation. A training needs assessment should be conducted to cover EH personnel, communities and other users of EHS. Participatory approaches like PHAST and programmes like

HAMS should be emphasized as the best means to ensure sustainable behavior change and hygiene practices.

7.2 Promotion of food and water safety

Among the responsibilities of environmental health officers is the surveillance and assurance of the safety of food and water for human consumption. The surveillance of food safety and water quality will be carried out wherever food or water is exposed or offered for human consumption.

Collaboration with partner agencies and ministries is very critical in monitoring and surveillance programs aimed at ensuring food safety using the 'farm to fork" approach as well as the safety of drinking water. The "farm to fork" approach places responsibility for food safety on the various players and food handlers along the entire food chain. Harmonizing roles of the various agencies involved in food control should be one major step in developing the EHL. Since the primary responsibility for health protection falls under MINISANTE, it is crucial that the department responsible for Environment Health takes overall responsibility for ensuring the hygiene and safety of food handled for public consumption.

In addition to reviewing the Public Hygiene law/related regulations and formalizing the inspection system, the regulatory framework should be backed by a national monitoring and surveillance program. In order to address and manage food and water safety, it is imperative to have knowledge on the current situation and trends with regard to the occurrence and spread of pathogens in the food production chain. This knowledge needs to be updated regularly so that appropriate responses can be prepared.

7.3 Housing and settlements

The National Human Settlement Policy[15] recognizes the human right to housing for every citizen. The housing should be decent, able to protect and improve the living conditions of the occupant. Environmental health personnel should be part of the building specialist team

[15] National Human Settlement Policy (2004). Government of Rwanda

indicated by the policy as an assurance that all requirements for hygiene and sanitation were taken care of.

7.4 Promotion of liquid and solid waste management

Proper management of liquid and solid waste is crucial. While improvement on existing beliefs and practices is important, appropriateness of waste management technology with reference to particular waste has a bearing to its affordability and hence acceptability and application.

The environmental health personnel will in collaboration with other relevant Sectoral Ministries, Research and Training institutions, Private Sector, offer a range of technologies for waste management to individuals, families, communities and institutions.
This collective approach will deter any form of pollution and instead permit sustainable development and maintenance of the waste management facilities.

Medical waste should be well handled and treated separately. Incinerators to burn medical and other waste must conform to the relevant international standards.

7.5 Control of disease vectors and vermin

Malaria is a major health problem in the country. Mosquitoes and other vermin such as fleas, flies, lice, cockroaches and mice must be controlled. Where chemical control is preferred to biological means, care and control must be taken not to contaminate the environment, food or water. Collaboration with the Ministry responsible for animal health is crucial to ensure control of animal diseases spread to humans.

7.6 Control of environmental pollution

Environmental pollution is governed by the Rwanda Organic Law[16]. In carrying out their responsibilities, EH personnel should be conversant with provisions of this law and requirements

[16] Organic Law determining modalities of protection, conservation and promotion of environment in Rwanda, 1ST May 2005.

for its implementation. The team implementing the Law who should include EH personnel should focus on protecting children and ensure impact assessment of all activities that are likely to negatively affect the human health.

The policy implementation will require harmonized regulatory measures and engaging stakeholders (industry, academic institutions, NGOs, communities, media etc.) so that the most efficient technologies are used. These efforts necessitate research, human and technology capacity development so that measuring air pollution levels for forecast, alert and warning purposes are achieved through trans-boundary air pollution control efforts. The efforts should focus on protecting the exposed especially children and mothers who are mostly exposed to indoor air pollution. Clean Air Initiatives is one of the regional strategies that can be adopted with the aim of raising awareness of air pollution dangers, continuous monitoring the magnitude of the problem and collaboratively enforcing Air Quality Control measures in the most cost-effective manner.

7.7 Occupational Health and Safety (OHS)

The Government of Rwanda has a law governing occupational health and safety in work places[17]. However, the law should be translated into codes of practice to guide its implementation and enforcement. All employers should be guided to establish relevant internal Health and Safety Policies at the work place.
EH personnel should work with MIFOTRA personnel to ensure that EH inspection tools are revised to include aspects of OHS.

7.8 Promotion of Institutional Health

Authorities responsible for institutions and public places should be advised to maintain hygiene standards although provision and maintenance of adequate EHS can be very costly and challenging. It is however possible to partially privatize such services and generate revenue that

[17] Titre V1 : De la sante et de securite au lieu du travail. J.O no. 5 du 01/03/2002

could be utilized for maintenance. Health facilities and other public institutions countrywide should demonstrate best practices in hygiene and sanitation.

Public/Private sector partnerships are also encouraged where public institutions lack capacity to manage available services. In carrying out such innovations, best practices and success stories should be documented and replicated elsewhere where similar challenges exist.

7.9 School health promotion

Environmental health programs, in collaboration with other relevant stakeholders, should be established in schools and also integrate HAMS where it exist. The emphasis on schools is crucial to target the vulnerable youth at the same time a large proportion of the population whose behavior is transformable. The approaches would include incorporating environmental health in the curriculum, participating in EH promotion of school sanitation, promotion of personal hygiene, promoting and participating in EH competitions through songs, dance and drama etc.

7.10 Port health

Port health is essential in ensuring diseases are not imported into the country. Food, animal and plant diseases of public health significance must be controlled at the port of entry. In doing this, policy implementers should comply with the relevant international regulations, treaties and conventions. In addition, proper hygiene and sanitation should be maintained at ports of entry since these are first points of contacts for visitors and tourists.

7.11 Disposal of the dead

Burial grounds should be located in areas that will not contaminate water sources. Such grounds should not be near facilities developed for human habitation or areas designated for commercial and industrial purposes. The maintenance of the facilities should include maintaining records for proper identification of the deceased and cause of death as provided by the Law on Cemeteries.

7.12 Disaster and emergency preparedness

The after effects of disaster and emergency are normally of environmental health concern. Where EH personnel have specialized skills they will be involved in the planning of interventions that focus on mitigation of risks and prevention of reoccurrence of the disaster in partnership with other actors.

8.0 INSTITUTIONAL FRAMEWORK FOR POLICY IMPLEMENTATION

The Ministry of Health takes the lead role of defining policy, setting standards, regulating, mobilizing the required human and material resources and monitoring policy implementation from the central to the grass root level. This role will however be performed within the decentralized system and in collaboration with the other relevant ministries and agencies and stakeholders based on principles of multi-sectoral collaboration and coordination.

8.1 National level

Actual implementation of the policy will be guided by a five year strategic plan from which operational plans will be rolled for every three years by the environmental health department of MINISANTE and environmental health officers at the District and grass root levels. It is the role of the environmental health department at the central level to provide the necessary technical support to the Districts especially in the areas of management and capacity development. The Government will continue to promote participation of the private sector through partnership and privatization of sanitary facilities, participation in capacity development and research. The main Government and Agency partners will be those that have in their responsibility; local administration, social affairs, water, infrastructure, environment, food security, family and gender promotion, commerce, tourism, laws, standards, security and finance.

8.2 Districts level

The Districts will be responsible for the budgetary allocations for implementation and the personnel who will mobilize the respective communities for active participation in environmental health services delivery.

8.3 Sector level

Environmental health services at the Sector and community level are the responsibility of the Districts. However, according to the Government's policy the Sector level will be the key intervention level for promotion of environmental health services. The private sector and civil society should be the key partners in delivery of environmental health services.

9.0 CONCLUSIONS

1. Investing in EHS will significantly contribute to reduction of the national disease burden and thus impact positively on the broader national objectives of poverty reduction and sustainable economic growth.
2. The current commitment to joint responsibilities between the various stakeholders may not result in a sustainable delivery of environmental health services in the absence of coordination mechanism at the central and decentralized levels. It is therefore crucial that the partnership and working arrangements be clarified and formalized in the environmental health law.
3. The Environmental Health Policy (EHP) will be supported by a detailed implementation strategy and a three-year operational plan reviewed annually, focused to achieving the policy objectives.