

2.4 Project Idea for Technology 3: Technology for management of Healthcare Waste

The Project Idea: *'Improvement of Health Care Waste Management in all health institutions to minimize the effects of climate change related adverse health effects'*

2.4.1 Introduction/Background

The activities of the Project Idea will be implemented in the island nation of Sri Lanka located in the South Asian region. The activities of the Project Idea were developed as the ultimate result of the working-group meetings for health of the TNA Project. Initially the Technologies were identified and prioritized based on the stakeholder consultations. Three technologies were prioritized for each sector. The third priority technology identified in the health sector was 'Technology for management of Health Care waste'. Then the barrier analysis and enabling framework were developed to identify and overcome the barriers for implementation of technology. Finally Technology Action Plan was developed, which proposed the actions to achieve the objectives of the Technology-3. The Project Idea was a follow up step of the Technology Action Plan.

The World Health Organization identifies health waste care management as a measure; to reduce the burden of disease, including alternatives to incineration (WHO). Of the total amount of waste generated by health-care activities, about 80% is general waste comparable to domestic waste. The remaining 20% is considered hazardous material that may be infectious, toxic or radioactive which also can pollute water, soil and air under suitable conditions. The major sources of health-care waste include; hospitals and other health-care establishments (Public as well as private sectors); laboratories and research centres; mortuary and autopsy centres; animal research and testing laboratories; blood banks and collection services; nursing homes for the elderly.

Although Sri Lanka has impressive health indicators, the health system has certain shortcomings. A notable example is Health Care Waste Management. Estimated total health care waste produced by listed government hospitals is between 76,623 and 170,789 kg daily. It should be noted that no private sector hospital health care waste generation has been included. Thus it can be assumed that by using high income country data we are compensating for the loss of waste generation from the private sector hospitals to some degree. Using WHO estimates¹⁰ the daily hazardous waste production in the listed government hospitals in Sri Lanka between 7,662 and 42,697 kg daily. The state hospital health care waste produced at present in Sri Lanka is disposed off by the following methods: Collection by local

municipal authority, subsequent dumping and Burning in the health care facility premises, Burying in the health care facility premises, Dumping at a designated site within hospital premises or at a designated dumping site of the local authority. Sri Lanka at present is disposing general health care waste according to WHO recommendations. The point at which Sri Lanka departs from these recommendations is that we dispose hazardous waste along with the general waste into a common disposal system. Hazardous waste is not treated before releasing into the general waste disposal system to render it nonhazardous. Some major hospitals in the island are collecting waste using the internationally accepted colour coded collection system.

The management of health care waste is streamlined by the Ministry of Health by developing a policy on healthcare waste management of which the final stages has to be accomplished. At the moment the Local Government Bodies are disposing the non-clinical waste but still the stages of collection, separation storage, transportation, and disposal is unacceptable in most of the instances. Some private sector agencies also provide services to dispose expired drugs and devices through high temperature burners in cement factories. Still the diffusion of knowledge and practices to the periphery has not taken place and it is imperative to implement projects to begin with for the purpose of addressing the hazards. The Ministry of Health has prepared a policy on Health Care Waste Management (HCWM) and the guidelines to be practiced in disposing HCWM. The policy is yet to be approved by the Cabinet of Ministers.

The identified shortcomings in (HCWM) are, fact that the treatment technologies are expensive, the projects implemented stops at the end of project period due to shortage of funds and human resources, poor awareness among health workers, not being a priority area, shortage of trained personnel to carry-out duties, and poor inter sectoral coordination.

The proposed project for '*Improvement of Health Care Waste Management in all health institutions*' to be implemented to overcome the current issues in health waste care management in the country

2.4.2 Objectives

1. To identify and implement lasting (HCWM) technologies in the health care institutions
2. To create awareness on benefits of proper HCWM among health personnel
3. To expand health information system to include HCWM activities
4. To install clinical (HCWM) systems in the major hospitals
5. To improve inter-sectoral coordination for proper HCWM

2.4.3 Measurable Outputs

1. Number of stakeholders involved in (HCWM) increased and making more resources available
2. Newer, affordable and feasible HCWM technologies identified and implemented with a coverage of 40 % of institutions
3. Awareness created among 70 % of relevant health personnel through project period
4. HCWM information is included into the existing Health Information System (HIS)
5. Installation of Clinical HCWM systems in all districts (one General Hospital in each district)
6. Improved inter-sectoral coordination for HCWM.

2.4.4 Relationship to the country's development priority

The activities of the proposed project are related to the present development priorities of Sri Lanka in many ways. Firstly, it prevents environmental pollution (water, air and soil) by proper disposal of Health Care Waste; which is one target of the sustainable development is to maintain appropriate environmental conditions which are conducive to healthy living. It also prevents possible diseases outbreaks, development of resistant strains of microbes by contamination with water and soil. The proper HCWM will prevent incorporation of nuclear material and heavy metals, which are used in radiotherapy for cancer patients and in X-ray departments in general, in to the environment even in minute amounts preventing adverse health as well as environmental effects. The project activities also minimize the general nuisance created by improper disposal of the hospital waste care. The Policy on Hospital Waste Care Management has been prepared by the Ministry of Health and waiting approval by the Cabinet of Ministers. National Policy Cleaner Production for Health Sector is another step forward taken by the Ministry of Health to prevent environmental pollution due to health activities with definite policy goal to ensure sustainable socio-economic development of Sri Lanka and three others.

The country's main development policy, the *Mahinda Chintana* National Policy Framework states 'understanding good health, preserving and safeguarding of free health services would be ensured, by enhancing the health services qualitatively and quantitatively through increasing budgetary provisions. Both curative and preventive aspects of the health services would be accorded equal priority.

2.4.5 Project deliverables

1. Awareness creation among 60 % of health care personnel
2. Sustainable technologies for HCWM implemented in selected major institutions across the island
3. Information on HCWM incorporated into Health Information System (HIS) and made available to all stakeholders
4. Report on Inter-sectoral coordination

2.4.6 Project Scope & Implementation

The scope of the proposed project is confined to the health care institutions with the aim of minimizing the possibility of adverse health effects to humans through reduction of environment pollution. The activities are confined to the health sector with a special emphasis on prevention of human suffering due to climate change and related extreme events by implementing sound HCWM systems. The overall planning will be the responsibility of the Environmental and Occupational directorate of the Ministry of Health. Implementation is the responsibility of all decentralized units including provinces and the districts.

2.4.7 Project Activities

1. Establishment of a National Information Center to facilitate partnerships and to explore additional funding sources and to provide necessary information.
2. Research study to identify and to implement appropriate, sustainable and affordable technologies for HCWM
3. Awareness creation on HCWM among health workers at all levels (national, provincial, district and divisional).
4. Training of selected health personnel for HCWM activities at all levels
5. Setting up of HCWM systems in general hospitals in each district
6. Networking of health institutions and linking to other sectors for improving inter-sectoral coordination for HCWM purposes

2.4.8 Timelines for the proposed project

Table 2.5: Proposed Timelines for Implementation of project activities

Activities	Time in Years			
	1	2	3	4
1.Establishment of a national Information Center to facilitate partnerships and to explore additional funding sources and to provide necessary information	■			
2.Research study to identify and to implement appropriate, sustainable and affordable technologies for HCWM		■		
3.Awareness creation on HCWM among health workers at all levels (national, provincial, district and divisional)	■			
4.Training of selected health personnel for HCWM activities at all levels	■			
5. Setting up of HCWM systems in general hospitals in each district		■		
6.Networking of health institutions and linking to other sectors for improving inter-sectoral coordination for HCWM purposes		■		

2.4.8 Budget/ Resource requirements

Table 2.6: Approximate Budget Estimate for the Proposed Project

Activity	Budget (US \$)
1.Establishment of a national Information Center to facilitate partnerships and to explore additional funding sources to provide necessary information	15,000
2.Research study to identify and to implement appropriate, sustainable and affordable technologies for HCWM	25,000
3.Awareness creation on HCWM among health workers at all levels (national, provincial, district & divisional)	10,000
4.Training of selected health personnel for HCWM activities at all levels	12,000
5. Setting up of HCWM systems in general hospitals in each district	2,000,000
6.Networking of health institutions and linking to other sectors for improving inter-sectoral coordination for HCWM purposes	10,000
Sub-total: Total cost of activities	2,072,000
7. Administrative cost	207,200
TOTAL	2,279,200

The estimated cost of project activities would be about US \$ 2,072,000. The administrative cost will be 10% of the total cost of activities, amounting to US \$ 207,200. Total cost of the project including administrative cost would be US \$ 2,279,200. This amount will be obtained from the government sources, UN and other supporting donors as well as from the private sector. The project management and overall monitoring will be done by the Environmental & Occupational Health Directorate of the Ministry of Health.

2.4.10 Monitoring & Evaluation

Regular monitoring activities (quarterly) of the project at central level will be done by the Environmental and Occupational Health Directorate of the Ministry of Health. Activities at sub-national levels will be monitored by the staff of the decentralized unit under the supervision of the respective heads. The monitoring reports will be prepared and shared with all stakeholders to make alterations of activities if there is a need. Evaluation will be entrusted to a recognized external entity. It will be done on annual basis, end of the project to assess impact after a pre-determined period of time following the completion of project. Evaluation will be coordinated by the Environmental and Occupational Health Directorate of the Ministry of Health. The evaluation reports will be utilized to further improve or to do away with the project activities.

2.4.11 Complications and Challenges

The concept of HCWM at all health institutions is not a priority at the moment. Moreover, the understanding of the health workers is that they are doing the right thing at present. The cost of technologies is a challenge as well as a complication. Inter-sectoral collaboration, altering the attitudes of health care personnel and general public will be a challenge. Ensuring continuous financial support is also a challenge to continue project activities.

2.4.12 Responsibilities and Coordination

The overall **responsibility for implementation and coordination of project success is with the Environmental & Occupational Health Directorate of the Ministry of Health.** The heads of all decentralized units are responsible for their units. The Environmental & Occupational Directorate is selected for the purpose because, it is their mandate and mission to do the work proposed in this project. Though they are short of staff, the experts in this regard is attached to this Directorate. Additionally, the local government authorities are responsible for management of Non-clinical solid waste. They need to acquire new recruits for the project purposes if there is a real need.

2.4.13 List of References

1. Annual Health Bulletin, Ministry of Health, 2011
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3. Health Master Plan for Sri Lanka, Volume III, Project Profiles, Ministry of Health 2003
4. MAHINDA CHINTHANA, *Towards a new Sri Lanka*, 2005 and 2010
5. Ministry of Health, *National Policy and Strategy on Cleaner Production for health Sector*,:2007
6. Sri Lanka's Second National Communication on Climate Change, Ministry of Environment, 2011.[Available at: <http://www.climatechange.lk>]
7. Strategic Plan for Health Sector Disaster/ Emergency Preparedness, Disaster preparedness and Response Unit, Ministry of Health, 2011
8. WHO Fact Sheet N 281, October 2011
9. WHO, FACT SHEET NO. 253, November 2011.