**National Five-year Strategic Plan on Water Supply,**

**Sanitation and Hygiene**

**(20XX-20XX)**

Outcome of Two Consultation meetings for Development of

Five-year Strategic Plan on WASH held on (01-02-20XX) and

(8-2-20XX) to (9-2-20XX)

Environmental Sanitation Division

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Department of Health

**Executive Summary**

 Currently, around 82.3% of the population in the Republic of the Union of Myanmar have use of improved water supply, while 84.6% have access to improved sanitation (sanitary means of excreta disposal). However, there are wide disparities in coverage between different States or Regions of the Republic of Union of Myanmar, and similarly between rural and urban areas in both uses to improved water supply and access to improved sanitation. On average only 53% of rural schools have a water supply, and in some townships this coverage figure is as low as 10%. It is also the case that improved water supply does not necessarily imply improved water supply. The continued sporadic outbreak of diarrhoeal disease which significantly contribute to infant and under-five mortality rates indicate that not enough promoting good hygiene practices or ensuring the safety of the water supply chain. Diarrhoea is major leading cause of death among under five children. Overall, 6.7% of the under-five had diarrhoea, second only to ARI.

 Among the main water supply, sanitation and hygiene issues identified in this document and in other sector literature, include the inadequate monitoring and management of water quality; the inequality of access when comparing rural and urban contexts and also between certain States and Regions; the lack of effective sector coordination, and need for participative hygiene promotion methods over didactic approaches. It is encouraging that there is high level commitment to the importance of water supply and sanitation and recognition that development in rural areas needs to be accelerated. Ambitious targets have been set for the sector, though there is no reason to consider them unrealistic assuming that the necessary resources are made available. For rural areas the target is for very village to have access to at least one improved source of drinking water by 2015.The programme known as National Sanitation Week will continue until there is 100% coverage of improved sanitation.

 The MOH has the qualified and diverse human resource base that has potential to be much more effective as an agent of change for the sector. The professional skill base is further complemented by an extensive preventive health care network that can be harnessed to instigate change from the grass-roots level upwards. However, it is inevitable that the overall level of resources available to the sector will continue to be among the principal determinants of progress in increasing coverage. All agencies involved in the sector must advocate for a greater commitment of human and material resources so that the health status of the population, especially young children, is safeguarded from infectious water and sanitation-related disease. This represents nothing less than an investment in Myanmar’s future and describes the goal of work plan.

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**Acronyms and Abbreviations**

AFT Area Focused Townships

ARI Acute Respiratory Infection

BHS Basic Health Staff

CB Community Based

CBO Community Based Organisation

CE Community Empowerment

CLTS Community-Led Total Sanitation

DBE Department of Basic Education

DDA Department of Development Affairs

DEPT Department of Educational Planning and Training

DHP Department of Health Planning

DOH Department of Health

ESD Environmental Sanitation Division

FDA Food and Drug Administration

GDP Gross Domestic Product

HEB Health Education Bureau

HMIS Health Management Information System

ICRC International Committee of Red Cross

IFRC International Federation of Red Cross

IMR Infant Mortality Rate

KAP Knowledge Attitudes and Practices

MCDC Mandalay City Development Committee

MDG Millennium Development Goals

MICS Multiple Indicator Cluster Survey

MOH Ministry of Health

MSTRD Myanmar Science and Technology Research Department

NDC Nay Pyi Taw Development Committee

NHL National Health Laboratory

NHP National Health Plan/ National Health Policy

NSW National Sanitation Week

ODF Open Defecation Free

OHD Occupational Health Division

PHAST Participatory Hygiene and Sanitation Transformation

PHS (1)/ (2) Public Health Supervisor (1)/(2)

NDWQS (D) National Drinking Water Quality Standards (Draft)

PHAST Participatory Hygiene and Sanitation Transformation

PPP Purchasing Power Parity

RUM the Republic of the Union of Myanmar

R & D Research & Development

SHD School Health Division

SSHE School Sanitation and Hygiene Education

U5MR Under-Five Mortality Rate

UNICEF United Nations Children’ (Emergency) Fund

WASH Water, Sanitation and Hygiene

WHO World Health Organization

WRUD Water Resources Utilisation Department

YCDC Yangon City Development Committee

**NGOs Non-Governmental Organizations**

MMCWA Myanmar Maternal and Child Welfare Association

MWF Myanmar Women Federation

MRCS Myanmar Red Cross Society

**INGOs International Non-Governmental Organizations**

ACF Action Contra la Fiam

ADRA Adventist Development and Relief Agency

AMI Aide Medical Internationale

BAJ Bridge Asia Japan

CDA Community Development Association

IOM International Organization of Migrants

Malteser Malteser (Germany)

MSF Médecins Sans Frontières – Holland

PSI Population Services International

SC Save the Children

TDH Terra De Homes (Italy)

WVM World Vision Myanmar

**Introduction**

* 1. **Background**

 The background to this Five-year Strategic Plan on Water Supply, Sanitation and Hygiene (WASH) needs to be understood in the context of both global and regional policy development. The Millennium Development Goals (MDG) have established the policy backdrop for development progress in general. More specifically, under the goal to *“Ensure Environmental Sustainability”* an important target was set, namely to: *“Halve, by 2015, the proportion of people without sustainable access to safe water supply and improved sanitation.”*

While the overarching aim of the MDG is to reduce poverty, improving health is central to achieving this aim. In fact, a direct link can be made between improving use to safe water supply and access to sanitation, and health-related goals, particularly as concerns child mortality. Water and sanitation related diseases contribute significantly to under-five mortality. In addition, providing use to improved water and access to sanitation can positively impact on maternal health, HIV/AIDS patients, and carers, enabling access to education for girls, and poverty alleviation in general through better health and freeing-up time for more productive purposes. The World Summit on Sustainable Development (Johannesburg, 2002) endorsed a sanitation target to complement that of improved water supply so that by 2015 the number of people without access to basic sanitation would be halved. Sanitation is given a broad interpretation, and it is worth citing the exact phrasing used at the Summit:

“…*access to basic sanitation…include[s] actions at all levels to: develop and implement efficient household sanitation systems; improve sanitation in public institutions, especially schools; promote safe hygiene practices; promote education and outreach focused on children, as agents of behavioural change; promote affordable and socially and culturally acceptable technologies and practices; develop innovative financing and partnership mechanisms; integrate sanitation into water resources management strategies.”*

Within the United Nations system, WHO and UNICEF share responsibility for reporting on health-related goals including child mortality, maternal health, childhood nutritional status, malaria prevention measures and access to clean water. However, at country level, WHO is the lead authority for the health content of the MDG within the UN Country Team.

**1.2 Policy framework**

**1.2.1 National Health Policy**

 The National Health Policy was developed with initiation and guidance

of the National Health Committee in 1993. The National Health Policy has placed the health for all goal as a prime objective using Primary Health Care approach. The National Health Policy is designated as follows.

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| --- | --- |
| 1. | To raise level of health of the country and promote the physical and mental wellbeing of the people with the objective of achieving “Health for all” goal, using primary health care approach. |
| 2. | To follows the guidelines of population policy formulated in the country. |
| 3. | To produce sufficient as well as efficient human resources for health locally in the context of broad framework of long term health development plan. |
| 4. | To strictly abide by the rules and regulations mentioned in the drug laws and by laws which are promulgated in the country. |
| 5. | To augment the role of the co-operative, joint ventures, private sectors and non-government organizations in delivering of health care in view of the changing economic system |
| 6. | To explore and develop alternative health care financing system |
| 7. | To implement health activities in close collaboration and also in an integrated manner with related conditions as and when necessary. |
| 8. | To promulgate new rules and regulations in accord with the prevailing health and health related conditions as and when necessary. |
| **9.** | **To intensify and expand environmental health activities including prevention and control of air and water pollution.** |
| 10. | To promote national physical fitness through the expansion of sports and physical education activities by encouraging community participation, supporting outstanding athletes and reviving traditional sports. |
| 11. | To encourage conduct of medical research activities not only on prevailing health problems but also giving due attention in conducting health system research. |
| 12. | To expand the health service activities not only to rural but also to border areas to meet overall health needs of the country. |
| 13. | To foresee any emerging health problem that poses a threat to the health and well-being of the people of Myanmar, so that preventive and curative measure can be initiated. |
| 14. | To reinforce the services and research activities of indigenous medicine to international level and to involve in community health care activities. |
| 15. | To strengthen collaboration with other countries for national health development. |

**1.2.2 National Health Plan (20XX – 20XX)**

 The National Health Plan forms integral part of the National Development Plan and is in tandem with the national economic development plan. The plan will ensure effective implementation of the National Health Policy. It covers the second 5 years period of Myanmar Health Vision 2030.

Country’s health problems were identified, and priority diseases and health conditions were identified and ranked while the National Health Plan (20XX – 20XX) was formulated.

**1.2.2.1 Country’s Health Problems**

(a) Need for improvement in rural health care coverage and public health services

(b) Persistence of disease burden.

(c) Persistence of maternal, infant and child mortality that needs further reduction.

(d) Need of financial mechanism that ensures adequacy, equality, and efficiency.

(e) Requirement of systematic plan for human resources for health.

(f) Need for strengthening organization and management of health services.

(g) Under-utilization of health research.

(h) Need of quality data for National Health Information System.

**1.2.2.2 Objectives of National Health Plan (2012 - 2016)**

(a) To facilities the successful implementation of the social objective, “uplift of

 health, fitness, and education standards of the entire nation.”

(b) To implementation the National Health Policy

(c) To strive for the development of a health system, that will be in conformity

 with political, economic, and social evolutions in the country as well as global

 changes.

(d) To enhance the quality of the health care and coverage.

(e) To accelerate rural health development activities.

**1.2.2.3 Main Components of the Plan**

(1) Community Health Care

(2) Disease Control

(3) Hospital Care

**(4) Environmental Health**

(5)Health System Development

(6) Human Resources for Health

(7) Health research

(8) Traditional Medicine

(9) Food and Drug Administration

(10) Laboratory Service

(11) Health Promotion

**2. Water supply, sanitation and hygiene sector in Myanmar**

* 1. **Improved water supply and sanitation**

The definitions of use of improved water supply and access to sanitation as applied in Myanmar are summarised in Table 1. It is important to keep these definitions in mind when reviewing coverage figures particularly in the case of water supply as the safety of sources such as protected ponds and dug wells is questionable. For example, although ponds may be protected by preventing access by livestock, they remain vulnerable to pollution by runoff, and rodents and birds. Protected dug wells may have adequate headwall and drainage facilities but unless they are fitted with hand-pumps drawing water with a bucket can lead to contamination. In general, shallow groundwater is vulnerable to pollution where geological and geographical conditions permit rapid penetration of contaminants.

**Table 1: Definitions of improved water supply and sanitation in Myanmar**

|  |  |
| --- | --- |
| **Use of improved water supply** | **Access to improved sanitation** |
| **General definition**: Sufficient, wholesome, palatable, and potable water available with hand washing facilities and within reasonable access. | **General definition**: Proper and systematic disposal of excreta through providing adequacy and privacy and avoiding health hazard and environmental pollution |
| **Criteria**Access: Within 50 metres of dwellingQuantity: Minimum of 35 plc., year-round supplyQuality: Free from objectionable taste and odour, free from colour, free from pathogenic organisms and bacteria, free from chemicals injurious to health | **Criteria**Access: Within 30 metres of dwellingQuantity: Minimum one facility per householdQuality: Fly proof, inaccessible by insects, rodents, and animals, reasonably free from foul odour, privacy for users, avoiding undue pollution especially to groundwater |
| **Sources considered as safe**:Tube wells, piped supplies including public taps, protected sources including springs, dug wells and ponds, impounding reservoirs, rainwater collection, treated water.  | **Facilities considered as sanitary**:Central sewerage system, septic tanks, pour-flush latrines, VIP latrines, simple covered pit latrines. |
| **Sources considered unsafe**:All unprotected sources, vendor water (except bottled drinking water) | **Facilities considered unsanitary**:Uncovered pit or trench latrines, bucket latrines of night soil collection systems, surface latrines, hanging latrines. |

Source: Report on Country-level assessment of water supply and sanitation 2000 in Myanmar, DOH-MOH in collaboration with WHO, Myanmar

Source: Report on Consultation meeting for Development of Five-year Strategic Plan on water supply and sanitation (2012-2016) in Myanmar, held in (1-2-2012) and (8-2-2012 to 9-2-2012) on DOH meeting room, DOH-MOH in collaboration with Stakeholders including WHO, UNICEF,WVM,SC,ACF and MMCWA and MWF in Myanmar

**2.2**  **Use of improved water supply**

According to the most recent MICS survey (2009-2010), the overall access to improved water supply in Myanmar is 93.2% in urban areas and 77.6% in rural areas. However, there is considerable variation between the best and worst served states and regions. Not surprisingly Yangon Division has the highest coverage at 92.6%, as compared to Kayin and Rakhine States which have 51.1% and 57.7% respectively. In Shan (East), 99 % of the population get their drinking water from an improved source. However, these coverage figures represent the combined average of rural and urban areas, thus potentially obscure very low rural access. Among the poorest households 66.8% use an improved water source, while in the richest households the percentage rises to 95. In Rakhine State a very substantial proportion of the served population, 18.3%, depend on protected ponds for their drinking water. If this source type were to be discounted, given the doubts about the bacteriological quality of such supplies, this would significantly reduce the level of use of drinking water in Rakhine State.

The highest level of service, household pipe connections (piped into dwelling 10.4% in urban and1.5% in rural whereas piped into yard/plot 9.7% in urban and 1.7% in rural), are available to 20.1% of the urban population but only 3.2% in rural areas. The most common supply type in urban and rural areas are a tube well with pump 30.2% and 32.0%, whereas it is a protected dug well in urban 16.7% and in rural 31.7%, and protected spring in urban and rural 0.9% and 4.0%. Other water supply types are public tap/stands pipe serving 4.8% of the urban and 5.3% of rural population, and rainwater harvesting systems for 0.6% urban and 0.7% of the rural population. Even among rural communities that have been provided with an improved water supply, problems of access continue to occur in the dry season. For example, ponds dry up forcing people to return to less protected sources that are often more distant from the community. In other areas where it has been necessary to drill deep wells and install motorised pumps, these are typically only used in the driest two to three months when other sources are unavailable because communities are unable to afford the fuel and maintenance costs. Often traditional, unprotected sources are used for the remainder of the year which significantly reduces the benefits of a generally safe supply. In coastal and delta regions there have been problems of saline water intrusion in groundwater source. The ESD has addressed this problem with the installation of rainwater roof catchment systems in several rural schools and health centres since 2000 (DOH-MOH, 2000). Many INGOs have driven the construction activities of rainwater harvesting tanks for school and community water supply. During the period of disaster-affected, all protected water sources become contaminated due to over flooding (for example; in the disaster-prone areas of Rakhine State and Ayeyarwady Region, and some seasonally-flooded areas in Bago (East), Sanguine and Yangon).

Concerning with household water treatment, highest % of ‘without any form of water treatment’ is 35.5 in Kachin and the lowest is 4.1% in Ayeyarwady. The highest % of ‘boiling’ is 84.2 in Keyah and the lowest is 9.2% in Bago(west). The highest usage in ‘add bleaching/chlorine’ is 2.4% in Yangon and ‘non-add bleach/chlorine’ is in Chin, Rakhine, Bago(west). The highest usage in ‘strain through

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a cloth’ is 92.3% in Bago(west) and the lowest is 2.9% in Chin. The highest usage in ‘filter’ treatment is 7.6% in Kachin and the lowest is 0.00% in Keyah, Kayin, Chin and Bago (west). The highest % of ‘SODIS’ is 1.4% in Bago (East) and none of SODIS is Keyah, Chin, Rakhine, Shan (North), Shan(East), Shan(South), Ayeyarwady, Bago(west), Mandalay, Sagging, Tanintharyi. The highest % of ‘let it stand and settle’ is Bago(west) and the lowest is 0.3% in Shan (East). Similarly, The highest % of any other treatment is 2.8% in Ayeyarwady Region and none of any other except above-mentioned treatment is in Keyah, Chin, Mon, Rakhine and Shan(East).Moreover, The highest % of using the appropriate water treatment method for all drinking water sources, for improved drinking water sources and for unimproved drinking water sources are 83.2% in Chin, 94.5% in Chin and 64.3% in Bago(East) and the lowest are 9.2 Bago(west), 9.1% Bago(west) and 10.7% in Rakhine. The main source of drinking water is tube well/bore hole and its highest is 61.4% in Bago(West) and its lowest is 0.00% in Chin. Although tube wells are the most common source, many towns depend on river water which is commonly distributed by pipe and vendors without any form of treatment. In mountainous regions, small town supplies are often gravity-fed spring or stream supplies often providing substantially less polluted water.

The capital city of Myanmar, Nay Pyi Taw, comprises of seven townships such as Pyinmanar, Lewe, Tatkone, Zabuthiri, Zayathiri, Oaktayathiri and Pokpathiri, which are covered by piped water into dwelling network. The prime source of water supply is impounding reservoirs. The water before being distributed into main pipes, was treated by sedimentation and rapid sand filter at the point of reservoirs. The enlargement of catchment areas and renovation of reservoirs were done to meet water consumption. The pipe network system was developed by WEG water engineering group and other private companies. Now, maintenance and extension works are carried out by NDC. The majority of people in Nay Pyi Taw uses the purified drinking bottle water that are produced by private sectors and Myanmar Holding Company.

In Yangon city, the water supply comes from three impounding reservoirs and 217 tube wells. Some 75% of tube well water is pumped directly into the main distribution network, the remainder serving smaller residential networks. Poor communities are served through communal tanks, and there are around 245 stand pipes in four outer-fringe townships. There is only one water treatment plant located at one of the reservoirs. Water from the other two reservoirs is chlorinated but receives no other treatment. Much of the distribution network is old and in deteriorated condition, and low or negative pressures signify a considerable threat of contamination.

The third city, Mandalay, consists of seven townships of which four are served by the piped network, the fifth depends on hand pump supplies. The main source of supply is groundwater coming from 26 tube wells installed on the banks of the Ayeyarwady River. Water is store in five thousand capacity tank in Malon quarter and chlorinated before its collection in four main distribution reservoirs.

* 1. **Access to improved sanitation**

Access to sanitary means of excreta disposal exhibits similar trends to that of access to water supply. Taking the data from the recent MICS survey (2003), urban coverage is 92.6%; in contrast rural coverage is only 70.8%. Again there is enormous variation among the states and divisions. For example, the highest reported coverage is in Kachin State (79.8%), followed by Sagaing (76.3%), and Yangon Divisions (73.4%). The lowest coverage by far is found in Rakhine State (21.6%), Kayin and East and North Shan States also have low coverage of only 46.3%, 52.7% and 53.9% respectively.

Septic tanks or sewerage systems are available to 19.1% of the urban population, compared to 1.1% in rural areas. The remaining proportion of the population with access to “sanitary means” depend on improved pit latrines. Yangon city has a sewerage system that serves six townships in central Yangon, and the treatment plant was already constructed. Waste water treatment has been developed for certain industries, hospitals and universities, and in some of the residential areas there are septic tank systems.

Although access to sanitation still needs to be substantially increased, considerable improvement has been achieved in recent years. The (2009-2010) MICS survey indicated that overall sanitation coverage was 45% in 1997, while the 2000 MICS survey puts coverage at 63% in 1999. This increase compares favourable when it is set against sanitation coverage in 1990 of just 36%. This improvement can be largely attributed to a high level commitment from government beginning with the “Sanitation for All by 2000” aim, which was set out in the National Health Policy in 1993. An annual programme of Social Mobilisation for Sanitation and Hygiene was initiated in 1996, which targeted between 25 and 35 townships with low sanitation coverage. The social mobilisation programme was expanded further in 1997 to include the participation of the school network. The introduction of social mobilisation activities was in recognition of the need to adopt more of a demand-driven approach to water supply and sanitation instead of supply-driven policies.

However, the greatest impetus to increasing sanitation coverage has been the introduction of National Sanitation Week (NSW) in 1998. In the first year a target to construct one million latrines was set, and almost reached with over 930,000 built. This achievement was replicated in 1999 with a further 900,000 latrines built during NSW. Evidence of “campaign fatigue” was apparent in 2000, as a reduced number (630,000) of latrines were built, though this may also be due to the difficulty of increasing access in more remote regions. The Government’s intention is to continue with the NSW until 100% coverage is reached. Nowadays, 84.6% in improved sanitation was achieved in 2010.

Research commissioned by UNICEF (2002) identified several barriers to expanding sanitation coverage in certain regions and population sectors. For example, in coastal areas it has proved difficult to excavate a stable pit in swampy ground conditions. In the delta region, annual floods damage or even wash latrines away, and salt water quickly rots bamboo structures. In some parts of the hilly region, hard rocky ground conditions mean pit excavation is difficult. Aside from construction difficulties, other problems reported have been that the poorest households are unable to meet the costs of building a latrine, concerns that water availability is too limited to make proper use of a sanitary latrine, and in schools the latrine design is not user friendly for the youngest children and in general latrines are poorly maintained. Beginning in 2003, sanitation coverage is nearly constant and constructed latrines were damaged due to without proper maintenance and not given priority activity of BHS. In 2011, UNICEF initiates Community-Led Total Sanitation (CLTS) approach to trigger the community for the translation of knowledge to practice on proper latrine construction In July of 2011, UNICEF(Myanmar) jointed with Mr Kamel Kar, CLTS professional from India, conducted TOT training on CLTS as a first time in Pyay of Bago Region (East). As a second time, TOT training on CLTS was conducted on November 2012 in same venue. At the CLTS TOT training, the responsible persons from DOH (ESD), DDA, DEPT, DBE, BHS, INGOs and NGOs were attended. ESD was already done CLTS pilot project with the support of WHO on November 2012 in Tatkone Township of Nay Pyi Taw region. The Community-Led Total Sanitation (CLTS) approach is firstly focus on Open Defecation Free (ODF). Later, it will promote to construct the sanitary latrine through sanitation ladder and sanitation marketing of CLTS.

**2.4 Drinking-water quality issues**

Microbiological water quality issues are of priority concern in Myanmar in both rural and urban areas. Although use of improved water supply has increased significantly over the last decade, the service level is such that it is vulnerable to contamination at source or recontamination during handling, distribution and storage. For example, intermittent piped supplies can experience negative pressure and subsequent contamination. Furthermore, the situation of ageing networks, absence of chlorination facilities and supplies means that recontamination during distribution is quite probable. Surface water and shallow groundwater supplies are also vulnerable to pollution. Communal systems such as public taps/stand pipes and wells necessitate the collection, handling, transport, storage and unhygienic behaviour of water before end point of use which presents further opportunity for contamination as a result of poor hygiene practices.

In 2003.Save the Children carried out in rural communities in Ayeyarwady Region and Kayin State provides an insight into typical household practices and knowledge with respect to drinking-water quality. Water is mostly collected in traditional clay pots, buckets and aluminium pots all of which are prone to hand contamination through wide openings and are uncovered. In the home most households store drinking water in clay containers that are dipped with a cup or beaker to draw water. The most common means of household water treatment was filtering water through a cloth following its collection (55%). Ten percent of respondents said they boiled water, 3% added alum or chlorine, while 39% did not practice any method of treatment. There is clearly potential for stored drinking-water to become contaminated by hand contact when a cup is dipped or a dirty utensil is used. The use of a cloth to filter drinking-water can also lead to microbiological contamination.

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Most respondents demonstrated understanding of the link between contaminated water and disease but defined good quality drinking-water in terms of turbidity, smell and taste. In Lewe township of Nay Pyi Taw, RHC and Sub-centres have demonstrated a filtration treatment by means of rapid sand earthen pot and majority of people traditional use this type of filter treatment.

Although microbiological quality is seen as the priority concern, chemical quality issues are also a problem in some parts of the country, especially heavy metals. For example, iron and chloride in groundwater are particular problems in the delta region, leading to a widespread preference for surface water and to a lesser extent rainwater. In Ayeyarwady Region, salty water intrudes into the groundwater aquifer and surface water sources at beginning of December, a time being declined fresh water in the rivers. In addition there are indications that arsenic and fluoride are present at levels considerably higher than WHO drinking water-quality guidelines and National Drinking-Water Quality Standards in Myanmar (Draft) (2011). Although no cases of arsenicosis have been reported, water samples from ( ) townships exhibit levels above 50 μg/l, and there are a further ( ) townships where arsenic has been detected but not in excess of 50 μg/l.[[1]](#footnote-1) The estimated population at risk is about ( ) million. UNICEF has proposed a programme of arsenic mitigation in those townships where high levels of arsenic have been observed. However, an expanded programme of testing and retesting of sites for confirmation of the extent of the arsenic problem has been proposed and funding is currently being sought to support this initiative. During 2001 a limited assessment of the fluoride situation in drinking-water was carried by the Water Resources Utilization Department (WRUD) with assistance from UNICEF. Fluoride levels above the WHO guideline value and National Drinking-Water Quality Standards in Myanmar (Draft) (2011) of 1.5 mg/l were found in ( %) of samples, which implies that around ( ) million people are at risk of dental and skeletal fluorosis. Bago, Mandalay and Sagaine Regions appear to be the most seriously affected where levels of fluoride above 3 mg/l were detected. During 2002 a small-scale health survey on assessment of arsenic content in ground water and the prevalence of arsenicosis in two townships of Ayeyarwady Region , was conducted by Department of Medical Research DMR(lower Myanmar)with collaboration of DOH. Several national institutions get involved in water quality testing, including the National Health Laboratory (NHL), the Food and Drug Administration (FDA) and Occupational Health Division (OH) – all part of the Department of Health, the Myanmar Science and Technology Research Department (MSTRD), and the Water Resources Utilisation Department (WRUD). However, there appears to be little coordination among these institutions and no single authority has been assigned the overall responsibility for drinking-water quality surveillance. Other than in Yangon City, no regular surveillance occurs. During source development that is intended for human consumption, agencies implementing or managing projects send water samples to the NHL for testing. Bottled water is tested by the FDA, and some of the other authorities mentioned above carry out testing in their own laboratories. However, even when microbiological water quality is found to be unsatisfactory institutional procedures are not in place to instigate remedial action except in emergencies.

A task force composed of representatives from Government, UN agencies and NGOs was established to coordinate a water quality surveillance programme in June 2000. Ten basic water quality parameters were selected for surveillance: to follow Thermotolerant Coliforms (E. Coli); turbidity, pH, electrical conductivity (EC), Hardness, Arsenic, Iron, Manganese, Nitrate and Fluoride In line with practising of drinking water quality surveillance replaced by water safety plan, eleven water quality parameters were reselected an additional chloride parameter. In a related initiative, UNICEF has provided portable water test kits to WRUD, OH, and the Department of Development Affairs (DDA). Similarly, WHO has provided portable water test kits to the ESD to carry out a pilot project of routine surveillance in a limited number of townships. This has focused on advocacy, training and planning for surveillance through community-based approach. The findings of this pilot project were presented at a national workshop which recommended an expansion of the surveillance programme. In 2007, instead of water quality surveillance programme, water safety plan had been substituted and implemented as a pilot project in Pantanaw Township. Up to now, water safety plan project was already implemented in (10) Townships.

A further weakness in the management of water quality in Myanmar is the lack of legislated national drinking-water quality standards in Myanmar. In July,2006, the stakeholder agencies had involved in water supply development and developed use of the ‘ Revised Proposed National Drinking Water Quality Standard’ (PNDWQS) to assess whether a source is fit for human consumption. This ‘standards’ are based on WHO Guidelines published in 2004.Moreover, in 2011 , with active participation of multi- discipline stakeholders, INGOs and private purified drinking water producers, National Drinking Water Quality Standards in Myanmar (2012)(Draft) was developed under leadership of MOH. Thus, a multi- disciplines workshop will be needed to be conduct at least towards the development of legislated National Drinking Water Quality Standards in Myanmar.

**2.5** **Hygiene promotion**

The Health Education Bureau (HEB), a division of DOH, is the lead institution in hygiene promotion activities, though ESD is also involved in specific areas. HEB has began working with UNICEF on hygiene education in community water supply and sanitation projects since 1986. The strategy approach up until 1995 was community-based hygiene education but this evolved into the social mobilisation programme focusing on the training of trainers and advocacy for self-help latrine construction. Again, in 2012, three Cleans was moved up Four ones by additional one Clean, Clean food. The “Four” Cleans” campaign was launched and carried out in 174 townships between 1996 and 2000. The ‘three cleans’ is defined as follows:

‘Clean toilet’, constructing fly-proof latrines, upgrading latrines from unsanitary to sanitary and proper disposal of children’s faeces;

‘Clean water’, prevent contamination of sources, proper utilisation and storage, build capacity and create enabling environments to make water safe from contaminants; and,

‘Clean hands’, hand washing with soap and water before handling food, after toilet, after cleansing children’s faeces.

‘Clean food’, through preventing fly contact, dirty handling and using clean water for washing food and utensils. Carrying green meat, fish and vegetables with the leaf and cloth packs, Systematic storing green food before cooking.

From 1997 onwards the social mobilisation activities involved the school network to further broaden the reach of the programme. The strategy was revised again in 2001 and since 2002 the school network project has been developed into a School Sanitation and Hygiene Education (SSHE) programme. This incorporates hygiene education into the ‘life skills’ curriculum in schools. It also encourages students to observe what happens in their own homes and communities and to practice what they learn in class. The aim is to facilitate child-to-child and child-to-parent communication for improving hygiene behaviour. At the same time a fourth ‘Clean’ was added, namely ‘Clean food’, through preventing fly contact, dirty handling and using clean water for washing food and utensils. HEB has decided to give top priority to ‘Clean food’ among the ‘four cleans’ with the stated aim of reducing diarrhoea morbidity.

The ESD role in hygiene promotion focuses more on the training Basic Health Staff[[2]](#footnote-2) (BHS) of the DOH and, community leaders, different volunteers health workers and persons from INGOs and NGOs in issues of improved water handling, water source protection, hygienic practice on from water fetching to water consumption to mouth, household water treatment including chlorine disinfection, filtering and small SODIS, and also in the construction of fly-proof latrines. Additionally, village health volunteers, community leaders and NGO staff have also been involved in training activities.

The impact of these hygiene promotion activities has been comprehensively assessed by studies implemented by UNICEF (2002), and on a more limited scale by Save the Children (2003). UNICEF reports that the increase in hand washing after toilet has been negligible, from 46% in 1996 to 48% in 2001. However, the increase in using soap or ash to wash hands after toilet has been significant from 18% to 43% over the same period. UNICEF notes that there is strong correlation between ownership of a sanitary latrine and hand washing with soap after defecation. However, data presented in the Save the Children study suggest that only 13% of households practice hand washing with soap after defecation. After cleaning a child’s bottom, hand washing with soap was slightly more common at 15%, though nearly a fifth (18%) did not wash their hands at all. Regardless of the apparent discrepancy in practice levels, it is clear much greater attention to motivating hand washing at critical times is needed, and this is highlighted in both reports. There is also agreement in the finding that among householders without a latrine there is strong interest to build one but financial constraints, lack of space and time were given as the main reasons for not doing so.

Save the Children identified another hygiene issue of concern which relates to the disposal of children’s faeces. Households with children under three years of age were asked how they disposed of children’s faeces. Forty-three percent said they threw it outside the yard, 28% leave the excreta on the ground and only 5% dispose of it in a latrine. In households with older children, 3-12 years it was reported that 63% practice open defecation in or around the house. Given the normally high pathogen loads in children’s faeces, this area of hygiene behaviour must also be given greater priority. WHO confirms that construction and utilization of sanitary latrine help reduce the diarrhoea in 34%, by use of improved water supply in 36% and hand washing practice help reduce diarrhoea in 40%.

 In 2003 UNICEF had been developing the training materials for the introduction of the Participatory Hygiene and Sanitation Transformation (PHAST) methodology of hygiene promotion in Myanmar. PHAST was originally developed by WHO in 1993 and has become one of the most widely used participatory tools for promoting safe hygiene practices. Using a series of simple participative techniques facilitators help people to understand the mechanisms of disease transmission; PHAST aims to bring about improvements in hygiene behaviour thus preventing diarrhoeal disease. In so doing it increases the self-esteem of community members and empowers them to manage water and sanitation facilities.

 There continues to be a need to maintain a high commitment to hygiene promotion efforts. It is also necessary that such programmes need to be further scaled-up and better resourced in order to include the rural communities in the more inaccessible parts of the country. It is widely accepted that hygiene behaviour change is a long-term process and will require a concerted effort to achieve the goal of preventing water and sanitation related disease.

**2.6** **National sector institutions**

Current and historical development of institutional responsibility for water supply and sanitation over the last 10 to 20 years is summarised in Table 4.

**Table 2.1: Summary of institutional responsibility for water supply and sanitation**

|  |  |  |
| --- | --- | --- |
| **Sub-sector** | **Period** | **Responsible Institution** |
| Urban water supply (excludes Yangon & Mandalay) | Until 1985 | Planning & design by NHB; construction by Public Works, both under Ministry of Construction |
| City water supply |  |  |
|  | 1986-1993 | Planning, design & construction by Urban Water Supply Division of General Affairs, Ministry of Home Affairs |
|  | 1994 to date | Township Development Committees, responsible to DDA |
| Rural water supplyAnd Agricultural water supply | Until 2000 | Planning, design & construction by Rural Water Supply Division, later re-designated as Water Resources Utilisation Department (WRUD), Ministry of Agriculture & Irrigation |
|  | 2001 to date | DDA takes over from WRUD |
| Urban sanitation | To date | Township Development Committees, responsible to DDA |
|  | 1998 to date | ESD provides support during National Sanitation Week and Community-Led Total Sanitation |
| Rural sanitation | To date | ESD is lead agency |
|  | 1994 to date | DDA also has responsibility according to the Development Committee Law of 1993 and By-law |

Source: Report on Country-level assessment of water supply and sanitation 2000 in

Myanmar, DOH-MOH in collaboration with WHO, Myanmar and Consultation meeting for Five-year Strategic Plan on WASH(8/9-2-2012)

Further useful background information concerning institutional responsibility includes the following points:

* Both Yangon, Mandalay and Nay Pyi Taw have their own City Development Committees which are responsible for their respective water supply and sanitation services in their own administrative development areas.
* Township Development Committees (TDC), number 330 in total, not including sub-townships and are directly responsible to the DDA.
* Since 2001, WRUD has focused its activities on the irrigation sector.
* Between 1982 and 1995, ESD was involved in water supply activity for rural schools, health institutions and nearby communities, but now, only in health institutions.
* HEB is responsible for health education relating to community water supply and sanitation and works through or jointly with ESD and Basic Health Staff.
* Water quality analysis is carried out by NHL, FDA, OH, ESD and DDA in some large towns microbiological water quality is tested in the regional reference laboratories which are attached to state and divisional hospitals. Water quality surveillance ( Now, water safety plan) had been undertaken by ESD and DDA in the project townships. However, there is no centralisation of authority or data, nor any coordination among the different institutions.
	1. **Sector policies and targets**

High political commitment has been given to increasing access to safe water supply and sanitation in Myanmar. The National Health Policy developed in 1993 makes specific reference among its stated objectives: *“to intensify and expand environmental health activities including prevention and control of air and water pollution.”* The launching of the National Sanitation Week in 1998 with the aim of building one million latrines every year is intended to continue until 100% coverage is achieved. The Rural Development Plan for the period 2001-06 calls for the establishing at least one safe drinking-water source in every village by 2010, and the National Health Plan 2001-06 also places emphasis on developing community water supply and sanitation systems.

 The DDA, now viewed as the agency with overall responsibility for rural and urban water supply and sanitation activities, has drawn-up a ten-year plan to 2010 designed to provide safe drinking water to all villages in the dry zone area of Sagaing, Magway and Mandalay Divisions. YCDC has plans to replace deteriorated pipelines in the distribution network, and increase distribution capacity through utilising water from the as yet unused Ngamoyeik reservoir following completion of the conduit to the city network. MCDC has also developed a five-year plan to expand its service level by drilling new wells and extending the distribution network. The private sector, which is already extensively involved in drilling wells, has developed capacity to manufacture HDPE and PVC pipes and fittings, and increase production of plastic latrine pans.

**2.8 International organisations and NGOs**

Many international organisations are active in the water supply and sanitation sector in Myanmar. The UN agencies that are active in the sector are WHO, UNICEF, and UNDP. The various programmes of the UN agencies are aimed both at strengthening national institutional capacity as well as direct implementation. For example, WHO is providing technical support to ESD for water quality monitoring, and recently assisted in producing the comprehensive country-level assessment for water supply and sanitation completed in 2003. However, WHO has focused most effort on providing support to the MOH for developing policy and planning, and implementing pilot projects. For example, the National workshop on the development of a five-year strategic plan for water supply, sanitation and health in June 2003, together with the country-level assessment formed the basis of the present strategy document. The ESD has been supplied with water test kits and technical support and training to carry out a pilot-scale water quality surveillance programme ( now. Water

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safety plan) UNICEF is closely involved in providing support to social mobilisation activities, developing the SSHE project and currently is preparing to introduce PHAST. In 21 townships known as the Area Focused Townships (AFT), UNICEF is constructing water and sanitation systems for schools and health institutions, and additionally in a few under-served communities. Capacity building of managerial and technical staff, extension workers and community leaders is also an important activity area.UNICEF and WHO are both involved in advocacy aimed at securing commitments from high-level decision-makers for effective policy guidelines and greater commitment of increased human and financial resources to the sector.

The UNDP implemented its “Human Development Initiative” (HDI) project from 1994 to 2000 that focused on rural communities in 11 townships and built small community water supplies and sanitation facilities. Also included was a programme of hygiene promotion. In 2002 the UNDP commenced operations on the “Integrated

Community Development Programme” (ICDP) which takes a more holistic approach to community development, though water supply, sanitation and hygiene continue to be important components.

 There are also at least 26 international NGOs that include water and sanitation activities as part of their development programmes in Myanmar including: Action Contre la Faim(ACF), Adventist Development and Relief Agency(ADRA), Aide Medicale Internationale(AMI), Medecins Sans Frontieres – Holland(MSF), Bridge Asia Japan(BAJ), CARE Myanmar, International Committee of the Red Cross(ICRC), International Federation of the Red Cross(IFRC) and Red Crescent Society(RCS), , Malteser Germany, Partners (International Solidarity Organisation), Save the Children , and World Concern, IOM,.[[3]](#footnote-3) Most recently Population Services International (PSI),CESVI, International Organization for Migrants(IOM),World Vision Myanmar(WVM), Community Development Association(CDA),Myanmar Red Cross Society(MRCS)has commenced a pilot project to introduce point-of-use disinfection with the cooperation and support of UNICEF, WHO and DOH.

**3. Challenges and Constraints**

* 1. **Resource limitations**

Only scant information has been found as concerns the material and financial resources available to the sector. During the period 1991-95, local investment in water and sanitation was approximately 856 million Kyats (US$?), and around US$ 14 million of international aid for the rural water and sanitation sector was provided by UNDP, UNICEF and WHO. The level of investment by international NGOs is unknown.

The DDA has 15 operational drilling rigs and some limited water quality testing facilities. Various other institutions have laboratory facilities for testing water quality including the National Health Laboratory, Occupational Health Division, Food and Drug Administration Division, Myanmar Science and Technology Research Department, and the Water Resources Utilisation Department. ESD has an excellent training facility that can be used for demonstrating hand-pump installation and operation, latrine design, and water distribution and storage methods. However, it has fallen into disrepair and now requires modernising.

The sector has a fairly well qualified human resource base with sanitary engineering being taught in at least one University in Yangon. A few senior members of staff have studied to postgraduate level in Europe or North America. However, it seems that opportunities for continued professional development, and technician level courses in community water supply and sanitation are limited or non-existent. Nevertheless, many institutions point out that they are understaffed and are only operating in a limited geographical area. This problem is exacerbated by the shortage of transport which limits the proportion of time that can be spent on field-based activities.

**3.2** **Inter-agency coordination and cooperation**

There is ongoing coordination of programme activities between the MOH, UNICEF and WHO. UNICEF is also working with DDA to improve the water supply and sanitation coverage in rural areas. There is both an Intersectoral Committee on Drinking Water Supply and Sanitation which has been in existence since 1993, and a National Water Supply and Sanitation Committee at Ministerial level formed in 1994. However, there is an absence of an effective coordination mechanism for the sector at a more practical level of coordination, problem solving and prioritisation of activities.

**3.3** **Private sector participation**

The private sector has been involved in the construction of tube wells and in the manufacture of plastic latrine pans and PVC pipe fittings (For example; Popular Co: Ltd). Since 1990 there has been a substantial increase in the number of tube wells and UNICEF estimates that there could be more than 400,000 in total. The private sector has provided many of these wells using the sludging or jetting methods. These technologies are now widely known and accepted and household wells built by local tube well drillers are common. But, now – a- day, arsenic and fluoride contamination are mostly found in these kinds of shallow tube wells. Hand-pump production and spares are manufactured locally and available through retailers. As a consequence of National Sanitation Week and with technical support from UNICEF, there has been a significant increase in the supply of plastic latrine pans and water pipes by the private sector.

* 1. **Capacity of Ministry of Health**

Perhaps the greatest strength of the MOH is the extensive network of health manpower and representation. This is evident at the highest levels of Government in the form of the National Health Committee, which is chaired by the Minister for Health, and at every level of the administration down to villages there are health committees. There is at least one voluntary health worker, either an auxiliary midwife or community health worker in every village. The importance of rural health is recognised in its own right having a dedicated Rural Health Development Plan which makes special reference to the aims to provide full coverage of safe water and sanitary latrines. There are approximately 1,565 rural health centres and sub centres 7,227that are staffed by 1,767 health assistants, 1,702lady health visitors, 16,243 midwives, 529 PHS-1, and 1,339 PHS-2. The PHS are trained in water and environmental sanitation issues and are involved in social mobilisation and NSW activities. School health has also been given higher priority since 1998. One of the objectives of the National Health Plan aim is to have health promoting school programmes in all 330 townships by 2012. An ongoing school de- worming program is a helminthiasis control programme. The MOH is working in close cooperation with WHO, UNICEF and UNDP in carrying out various health care activities. Recently, WHO has been providing technical support to the MOH in the development of strategic plans for tuberculosis control, malaria prevention and control, child health development, and the present document ‘Five-Year Strategic Plan for Water Supply, Sanitation and Hygiene’. There will always be a demand for greater resource allocation from health ministries in every country. However, Myanmar’s health spending is relatively low compared to the regional average. According to the UNDP human development report (2003), only( ) of GDP was allocated to health which is equivalent to US$( )per capita based on purchasing power parity). Another area of concern relates to the degree of coordination and cooperation among institutions and ministries. This requires further strengthening and common agreement on how to achieve the Millennium Development Goals particularly with respect to sustainable access to safe water supply and sanitation.

**4. Five-Year Work Plan**

 The foundations of the present strategic plan can be traced back to the very significant outputs achieved at the “National Workshop on Development of a five-year strategic plan for water supply, sanitation and health” held in June 2003. The national workshop identified an overall goal, a set of four objectives and nine strategies. Through ongoing consultation and discussion with the workshop participants, the workshop outputs have been further developed into a much more detailed strategic plan that identifies specific outputs and activities. The nine strategies identified in the national workshop are now integrated under four strategic objectives as indicated in Table 5. The present strategic plan is presented in the format of logical frameworks (logframes) that illustrate how a set of interrelated outputs and corresponding activities will lead to achieving the overall goal. A master logframe summarises the overall goal of the strategic plan, states the purpose, and strategic objectives (section 5.4). This is followed by more detailed analysis of the individual strategic objectives together with their corresponding outputs and activities. Logframe summaries are presented for each strategic objective.

In the context of focussing on the specific geographical regions in which the five-year strategic plan is to be implemented on a phase by phase basic, four geographical conditions(Plain, coastal, delta and hilly) have been duly based on. It is important to restate here that the strategic plan has been developed from the perspective of the MOH. More specifically, the strategic plan highlights a set of core activities in which the MOH either has a comparative advantage or is the logical institution to take the lead role. For some of the proposed activity areas the MOH will need to develop the necessary implementation capacity though this is envisaged as part of the institutional strengthening process. Fundamental to the success of the strategic plan is the need for a working agreement among intra-sectoral agencies to clearly define ownership of the key responsibilities, aiming to real interest of State and practical livelihood of people.

**Table 4.1:Location of national workshop strategies within current strategic plan objectives**

|  |  |  |
| --- | --- | --- |
| **Strategies Identified** | **Partner Agencies** | **Corresponding Strategic Objective** |
| 1. Evidence-based advocacy for increased access, increased efficiency and increased equity
 | ESD,HEB(DOH)WHO, UNICEF | Strategic Objective 1: Resources for equitable access to safe water supply and sanitation |
| 1. Capacity building of institutional infrastructure and human resource development (government personnel, INGOs, NGOs & representatives of the community)
 | ESD,HEB,DDA, WRUD, MSTRD, RRD, DEPT, YCDC,MCDC, NDC, WHO, INGOs, NGOs (MMCWA,MWF,MRS)Representatives of the community, UNICEF | Strategic Objective 3: Strengthened institutional capacity |
| 1. Promotion of health and hygieneeducation through social mobilization and behaviour change communication
 | ESD,HEB(DOH), WHO, UNICEF, INGOs, NGOs (MMCWA,MWF,MRS)Representatives of the community,  | Strategic Objective 3: Strengthened institutional capacity; and Strategic Objective 2:Appropriate technologies and practices |
| 1. Promote application of appropriate technology
 | ESD,HEB,DDA,WRUD,WHO, UNICEF INGOs, NGOs, Representatives of the community | Strategic Objective 2: Appropriate technologies and practices |
| 1. Improve inter-sectoral and inter-organizational coordination
 | ESD(DOH),HEB,DDA,WRUD, MSTRD, RRD, DEPT, YCDC, MCDC, NDC, WHO, UNICEF INGOs, NGOs (MMCWA, MWF,MRS) | Strategic Objective 4: Effective sector coordination |
| 1. Develop a central management information system for validity and standardization of data
 | ESD,HEB,DDA,WRUD,MSTRD,RRD,DEPT,YCDC,MCDC, NDC, INGOs,NGOs(MMCWA,MWF,MRS) | Strategic Objective 4: Effective sector coordination |
| 1. Development of mechanism to assure financial assistance to the outreached community fro water and sanitation
 | ESD,HEB,DDA,WRUD,MSTRD,RRD,DEPT,YCDC,MCDC,NDC, INGOs, NGOs(MMCWA,MWF,MRS) | Strategic Objective 1: Resources for equitable access to safe water supply and sanitation |
| 1. Community involvement and

empowerment on self-help basis  | ESD,HEB,DDA, INGOs, NGOs(MMCWA,MWF,MRS) | Strategic Objective 2: Appropriate technologies and practices |
| 1. 9. To link with National Rural Development Scheme and poverty reduction plan
 | ESD,HEB,DDA,WRUD,MSTRD,RRD,DEPT,YCDC,MCDC, NDC, WHO, UNICEF INGOs, NGOs(MMCWA, MWF,MRS), Representatives of the community,  | Strategic Objective 4: Effective sector coordination |

**4.1 Goal**

The overall goal of the strategic plan is to reduce the burden of water and sanitation-related disease, especially among children, thus improving the quality of life of the Myanmar people. The achievement of the goal will be measured using standard indicators such as U5MR with regard to diarrhoea and diarrhoea morbidity in the general population.

**4.2 Purpose**

The purpose of the strategic plan is to significantly increase access to water and sanitation facilities, and maximise the health benefits through the widespread adoption of good hygiene practices.

**4.3 Strategic objectives and activities**

The four strategic objectives are stated in full in the master log frame (see following section), while the related activities are detailed in individual logframes and accompanying text in section #5.5.

Although the strategic plan is designed to be a component of the national water and sanitation policy, it is envisaged that several of the proposed activities will have a geographial focus. For some activities this is justified on the basis of redressing the present inequity of access to services, while for others it is because of a specific set of environmental or physical conditions such as the need for modified latrine design, and research into arsenic mitigation. It is also important that an increased level of resources is not spread too thinly as this puts at risk the long-term sustainability of the interventions. The strategic plan has also been designed to progressively increase the scale and diversity of activities on the assumption that there will be a concomitant increase in the level of resources.

**4.4 Master Log frame**

|  |  |  |  |
| --- | --- | --- | --- |
| **Narrative Summary** | **Verifiable Indicators** | **Means of Verification** | **Risks and Assumptions** |
| **Goal**The burden of water and sanitation-related disease, especially among children, is substantially reduced | ◊ Reduction of U5MR caused by diarrhoea ◊ Diarrhoeal disease morbidity reduced by 20% overall | ◊HMIS/MICS | ◊ Necessary commitment is given to improving the population’s health |
| **Purpose**By the end of 2016, 95% of the population have sustainable use of improved water supply, 100 % to improved sanitation, and 100% have adopted good hygiene practices | ◊ Percentage of population with access to use of improved water supply, access to improved sanitation, and practicing good hygiene | ◊ MICS surveys | ◊Good hygiene practices adopted◊Water and sanitation facilities adequately maintained(SM,CB,CLTS) |
| **Objectives**1. Increased resources are made available to ensure greater and more equitable use of water supply and access to sanitation
 | ◊ Greater resources allocated | ◊Budget documents | ◊Advocacy campaigns successful(SM,CB,CLTS) |
| 1. Sector actors implement water supply, sanitation and hygiene projects which are effective, appropriate, and sustainable
 | ◊Sustainable, community managed water supply systems; appropriate hygiene behaviour, use of sanitary latrines | ◊Programme evaluation documents; interagency WASH group meeting minutes | ◊Dissemination and take-up of best practice by sector actors |
| 1. Institutional capacity of appropriate MOH Departments strengthened in key programme areas
 | ◊ MOH Departments’ capacity strengthened | ◊Activity reports show increased output , outcome and impact levels | ◊Institutional strengthening achievable in short and long term |
| 1. Effective sector coordination and cooperation, and working partnerships encouraged among stakeholder agencies
 | ◊Coordination mechanism ever-lasting functioning | ◊Visible partnerships◊External evaluation and assessment reports | ◊Sector actors committed to coordination, cooperation & partnership |

**5. Resources**

**5.1 Increased resources are made available to ensure greater and more equitable use of improved water supply and access to improved sanitation**

 In the present economic and political climate, water supply and sanitation are given relatively low priority by national governments, bilateral and multilateral donors, and NGOs. This is something of a paradox given that increased access to water and sanitation bring significant social and economic benefits, as well as the more widely understood health gains. Indeed, there is a strong argument that ensuring access to safe water supply and sanitation, together with the adoption of good hygiene practices will contribute significantly to all of the Millennium Development Goals (Table 5.1). Therefore, a fundamental activity within the strategic plan is to raise awareness and understanding of the underlying importance of safe water supply and sanitation to development progress.

**Table 5.1: Links between water supply and MDG (Source: DFID, 2004)**

Undoubtedly essential a substantial increase in resources for the water supply and sanitation sector is necessary. However, simply increasing the level of resources is not enough itself. Additional resources must be targeted to address specific problems and inequalities in the sector. It is essential that sound evidence is presented to development agencies and donors - government and non-government alike - to back-up the demand for greater resource allocation to the water and sanitation sector. In the strategic plan it is proposed that evidence-based advocacy is the best approach to securing additional resources and targeting their use appropriately and equitably. In essence it means advocacy based on data, available knowledge, experience and scientific evidence. Ensuring that advocacy campaigns are evidence-based will provide a more compelling argument for greater resources to be committed to the sector.

The MOH is already in a good position to advocate for greater investment in the water and sanitation sector because it has a mandate to carry out disease surveillance, water quality analysis, sanitation and hygiene promotion, and provision of water and sanitation facilities to rural health centres. Although there is both a wealth of experience and data within the MOH that form the evidence base for advocacy, it is not presently being used for this purpose. In spite of the extensive information available there are also information gaps and weaknesses in data quality that will be addressed through institutional strengthening and research and development. Furthermore, the reporting and dissemination of such information tends to move through vertical lines of communication as opposed to laterally across the departments of MOH. It is equally important that information sharing goes beyond government ministries and is used to inform and influence the policy decisions of donors and NGOs.

**Output 1: Establish advocacy task-force**

During the consultation process for the strategic plan it was suggested that the (DOH ) and (DHP) would be the most suitable departments under the MOH to develop the advocacy task-force. Furthermore CHEB and ESD under the DOH are the two divisions with the capability of fully implementing the evidence-based advocacy campaign. Preparing advocacy materials requires substantial technical, administrative and secretarial inputs and will ideally have some members of staff working full time on advocacy work. It is recommended that the advocacy task-force be allocated office space and equipment, and its own operating budget. Training the task-force in evidence-based advocacy is essential because specific skills need to be acquired in order that advocacy campaigns are successful. Furthermore, there is presently some confusion among MOH staff between the concepts of promotion and advocacy. A consultant should be contracted to provide a foundation of understanding and awareness about the scope and nature of advocacy work.

***Output 2****: Implement evidence-based advocacy campaigns*

 Once established and trained, the advocacy task force will need to identify and prioritise the issues for which evidence is to be collected and campaigns prepared.

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This activity should involve consultation with the thematic group which consists of expert practitioners from MOH Departments, UN organisations, INGOs, NGOs. Several issues were highlighted during the preparation of the strategic plan as ‘candidates’ for advocacy campaigns. They are presented here as examples that may be selected by the task-force but should not be taken as a prescriptive list.

1. **Equitable use of water supply and access to sanitation**

 Although use of water supply and access to sanitation coverage has increased significantly over the last five years, the MICS surveys indicate a considerable disparity between States and Regions, and also between rural and urban areas. Reasons for low coverage could include the difficulty of access, remoteness, insufficient personnel and technologies unsuited to specific local conditions. The barriers to increasing coverage in these areas must be identified as the basis for a sound advocacy case.

1. **Water quality issues**

The full potential to improve health through public water supplies will not be reached unless close attention is paid to drinking-water quality. Several issues have been identified that warrant urgent attention. For example, there is a clear need to advocate for legislated water quality standards and norms. The “ Revised & Proposed “National Drinking-Water Quality Standard 2006” has to be officially endorsed. Recently “National Drinking-Water Quality Standard 2011”(Draft) was formulated and one or two workshops need to conduct for the rest water quality parameters. Another advocacy campaign might focus on the public health benefits from chlorinating urban piped water supplies. Intermittent, leaking piped-water systems are extremely vulnerable to contamination and can lead to serious outbreaks of water-borne disease.

1. **Water and sanitation systems for rural health centres and schools**

A strong case can be made for more resources to accelerate the provision of water supplies and sanitation to the RHC and rural schools. It is especially important that safe water supply and sanitation are available at RHC given the likelihood that some patients will be suffering diarrhoeal disease and other faecal-oral infections. Schooling presents a major opportunity to encourage the early adoption of safe hygiene practices, and is fundamental to the School Sanitation and Hygiene Education programme. The provision of basic sanitation and water supply in schools is essential to successfully motivating a permanent, lifelong change in hygiene behaviour.

Having prioritised the issues that will be the focus of advocacy campaigns, the task-force will then need to identify appropriate communication channels through which the advocacy campaigns will be presented. There is an extensive range of different media that could be used including lobbying, reports, leaflets, posters, fact sheets, and the mass media. The campaigns will need to be prepared on the basis of careful research and data collection. The proposed campaigns should be presented to the thematic group for review and discussion. After making any necessary revisions they can then be put into action. An impact evaluation should follow each advocacy campaign.

Successfully advocating for change will be significantly influenced by the implementation of activities corresponding to the other three strategic objectives. Advocacy evidence will be produced through research and development; institutional strengthening will raise the quality of data management and broaden the experience base, and through consultation and cooperation with partners it is probable that further issues requiring policy change will be identified.

**Logframe 5.2: Resources for equitable use of improved water supply and access to improved sanitation**

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| **Narrative** | **Verifiable Indicators** | **Means of Verification** | **Risks and Assumptions** |
| **Objective**Increased resources are made available to ensure greater and more equitable use of improved water supply and access to improved sanitation | Greater resources allocated | Budget documents | Advocacy campaigns successful |
| **Outputs**1. Advocacy task-force established, trained and equipped
 | Task-force established | Revised job descriptions | Funding available |
| 1. Evidence-based advocacy campaigns focussed on key water and sanitation issues implemented
 | Advocacy campaigns implemented | Advocacy documents | Reliable sources of data |
| **Activities*** 1. Recruit advocacy task-force
 | Task-force exists | Task-force personnel | Suitable staff |
| * 1. Designate office space & budget
 | Advocacy office | Budget documents | Funding available |
| * 1. Procure office equipment
 | Equipment purchased | Invoices | Funding committed |
| * 1. Train task-force in evidence-based advocacy methodology
 | Staff trained | Training materials | Motivated staff |
| * 1. Identify and prioritise advocacy issues
 | Key issues identified | Documentation | Staff competence |
| * 1. Identify appropriate communication channels
 | Communication means identified | Strategy plan | Appropriate channels exist |
| * 1. Prepare advocacy campaigns and documentation
 | Campaigns prepared | Documentation | Availability of evidence |
| * 1. Present advocacy campaigns to interagency thematic group for comment, & revise
 | Campaigns reviewed & revised | Memos with comments | Cooperation from sector partners |
| * 1. Run advocacy campaigns
 | Campaigns implemented | Activity plan | Necessary resources |
| * 1. Evaluate advocacy campaigns
 | Evaluation done | Evaluation reports | Staff/consultant time |

**5.2 Sector actors implement water supply, sanitation and hygiene projects which are effective, appropriate, and sustainable**

Water supply, sanitation systems and hygiene messages must be capable of being sustained by the intended beneficiaries. Therefore programmes addressing these needs should be demand-driven and participative if they are to be effective and appropriate to the needs of the communities. This means that alternative solutions must be found to meet the different needs and contexts of the population that are determined by geographic, economic, demographic and cultural factors. Therefore, it is evident that the process of research and development is fundamental to achieving the second strategic.

The outputs proposed under this strategic objective consist of the development of appropriate and sustainable solutions to the technical and methodological problems faced by the sector. The results of research and development will also feed into the advocacy strategy. Therefore, the research must be of high quality, properly documented and widely disseminated among sector actors. The aim is to ensure the uptake of best practices and most appropriate technologies as quickly and efficiently as possible. This is important not least because it becomes more difficult to motivate community involvement and participation where a failed project has been experienced. For example, in the Delta region the standard latrine design has met with limited success because of flooding. The communities concerned may be less willing to participate in latrine building a second time around. Here too is an argument for ensuring that communities are involved in the research as they are able to contribute important knowledge about local conditions. There is also a strong argument for involving the private sector in research and development. If appropriate technologies are to be sustainable and scaled-up, the private sector might have an important role to play in both production and in the supply chain. In the evaluation of a technology it is essential to determine whether it would be affordable, and consulting the private sector on this aspect would be very useful.

***Output 1 :*** *Appropriate technologies nd practices*

The ESD is proposed to take the lead in the research and development of appropriate technologies and practices. It is staffed by 14 sanitary engineers plus 22 technicians and supported by skilled workers in trades such as plumbing and building . The ESD has already been involved in the development of appropriate technologies and pilot-scale testing. In order for the ESD to be effective in R & D it will need more computers, software and other office equipment, additional water quality testing equipment, a generator, workshop tools and transport facilities. Although the ESD staff have already had some experience of R & D it is recommended that additional training in field research methods be provided. The training should focus on research design, data collection and measurement, and documentation of research. The justification for raising the quality of R & D is that the results of successful pilot studies will be disseminated to other sector agencies through the thematic group, and will also be a source of information for the advocacy task force. The ESD will then need to prioritise which technologies and practices should be researched first. It can be expected that as data is collected and analysed further research questions will be raised and form the basis of new R & D projects. Initially, the following technologies and practices should be investigated: low-cost “point of use” water treatment, arsenic mitigation, simple chlorination systems for small urban piped supplies, urban and rural sanitary inspection procedures, appropriate latrine designs. An outline of these pilot projects follows.

1. **Point of use water treatment**

Given that a large proportion of the population depend either on very rudimentary improved water systems or continue to use traditional sources, it is very likely that microbiological water quality is unacceptable for human consumption. Point-of-use water treatment represents a low-cost intervention that has been demonstrated to reduce diarrhoeal disease in other countries. Four technologies will be tested: point-of-use disinfection also known as the Safe Water System using sodium hypochlorite (low strength chlorine bleach), solar disinfection or SODIS, biosand filters, and ceramic candle filters. A pilot project to evaluate the Safe Water System has been launched by Population Services International in Myanmar with some input from ESD and WHO on February 2004. However, it is very limited in scale and has a planned duration of only eight months. Therefore it is recommended that a larger trial be planned to fully evaluate its efficacy and acceptability.

1. **Arsenic mitigation**

There is growing awareness and concern that arsenic in drinking water detected in the rural supplies in certain areas of the country are at harmful levels where there is long-term exposure. A pilot project should be designed to evaluate the various options for arsenic mitigation. These range from treatment methods to switching sources such as rainwater or deep wells.

1. **Chlorination for small urban piped supplies**

There are an urban piped water supplies serving small to medium size towns. None of these are thought to be chlorinated at present, though it would be relatively simple to install chlorination equipment and inexpensive to operate and maintain. The basic materials required are an injection pump, and chlorine dosing tank. High strength chlorine granules or bleaching powder could be used as the base for the concentrate solution.

1. **Sanitary inspection**

Ideally water quality surveillance (now, Water Safety Plan) would be carried out at frequent intervals in all communities regardless of their population size. However, this would be both impractical with such a large number of small water systems and prohibitively expensive. In contrast sanitary surveys, which require no testing equipment and only limited training can make a significant contribution to maintaining the quality and safety of drinking-water. A pilot project will develop an appropriate sanitary inspection methodology for use in rural and urban communities.

1. **Latrine designs**

It has been mentioned earlier that in certain areas of the country there have been difficulties in promoting the construction of sanitary latrines at least in part because of local conditions. Problems include flooding in the Delta/Coastal and other flood- prone areas, rocky ground conditions preventing excavation in the Hilly region, and in peri-urban communities the density of population and limited space has restricted latrine construction. Clearly, “one size” does not fit all and innovative designs must be developed to overcome these problems. Appropriate promotional materials will also be required for use in conjunction with alternative sanitation systems.

***Output 2:*** *Hygiene promotion methods improved*

At present there are three main hygiene promotion programmes being implemented in Myanmar. These are the 4 Cleans, PHAST and SSHE. With UNICEF support HEB is taking a lead role in these programmes. In-depth evaluations have been carried out, notably the “Assessment of National Sanitation Week and Social Mobilization for Sanitation and Hygiene in Myanmar”, which was commissioned by UNICEF. However, there is still a need for ongoing monitoring and improvement. This is especially the case in more recently introduced programmes such as PHAST and SSHE. Therefore, it is proposed that HEB staff receive training

in evaluation methods. This would then facilitate the development of existing hygiene promotion methods to be more specific to the Myanmar population. In addition research should be carried out to identify alternative approaches that have been successfully used elsewhere. This will require that staff are able to attend international conferences and exposure to the wider network of hygiene professionals. It will then be possible to implement pilot projects to trail new approaches to hygiene behaviour change. These too should be fully documented and disseminated through the thematic group.

One pilot project that is recommended at this stage aims to involve communities in the monitoring and evaluation of the hygiene promotion programmes. The rationale for such a project is that institutions are typically overstretched and barely manage to keep up with the demand for project implementation, so monitoring the longer term impact and sustainability is rarely achieved. This is particularly the case with the monitoring of hygiene and sanitation issues. A pilot project would take the form of action research to evaluate participatory monitoring and evaluation, which has been found to enhance the sustainability of community managed projects in other countries. Participatory monitoring and evaluation helps provide a clearer understanding of the project impact and how to improve future interventions.

***Output 3:*** *Best practices disseminated*

Here, dissemination of ‘best practices’ is used as all-encompassing to include appropriate technologies, practices and hygiene promotion methodologies. As a first step the results and conclusions of R & D into should be presented to the thematic group. The aim of the dissemination process is that successful pilot projects are then adopted by sector agencies. It is proposed that ESD and HEB should assist other agencies to prepare action plans that incorporate best practices into their programmes so producing a ‘multiplier’ effect in terms of widespread introduction. In effect this is a means to advocate for common approaches to be taken by the diverse sector agencies. ESD and CHEB should also provide technical assistance to enhance the design and implementation of the best practices. This will speed up the implementation process and ensure that the learning process that is part of R & D is not repeated unnecessarily. The final step is to carry out an evaluation of the uptake of best practices and feed this information back to the thematic group and the advocacy task-force.

**Log frame 5.3: Appropriate technologies and practices**

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| **Narrative Summary** | **Verifiable Indicators** | **Means of Verification** | **Risks and Assumptions** |
| **Objective**Sector actors implement water supply, sanitation and hygiene projects which are effective, appropriate, and sustainable | Sustainable, community managed water systems; appropriate hygiene behaviour, use of sanitary latrines | Programme evaluation documents; interagency theme group meeting minutes | Dissemination and take-up of best practice by sector actors |
| **Outputs**1. Appropriate water & sanitation technologies & practices researched and documented
 | Novel water & sanitation technologies tested; new practices evaluated | R & D documentation | Resources available |
| 1. Hygiene promotion methods evaluated & improved upon
 | Improved hygiene promotion methods developed | Evaluation reports | Improvements can be found |
| 1. Best technologies, methods & practices in community water supply, sanitation & hygiene promotion widely disseminated
 | Technologies, practices & methods disseminated | Interagency thematic group meeting minutes | Interest among sector agencies |
| **Activities**1. Rehabilitate ESD facilities for R & D
 | ESD facilities improved or renewed | Budget documentation | Funds allocated |
| 1. Train ESD staff in field research methods
 | Staff trained | Training materials | Staff time |
| 1. Prioritise technologies and/or practices for pilot scale testing
 | Technologies & practices identified | Report justifying chosen technologies/practices | Available information |
| 1. Implement pilot projects
 | Pilot projects implemented | Action plan | Communities participate  |
| 1. Evaluate & document pilot scale projects
 | Evaluation completed | Evaluation reports | Reliable data |
| 1. CHEB staff trained in evaluation methods
 | Staff trained | Training materials | Motivated staff |
| 1. Existing hygiene promotion approaches evaluated
 | Evaluation completed | Report with recommendations | Communities participate |
| 1. Identify alternative approaches to hygiene promotion
 | Novel approaches identified | Report | Time allocated in research |
| 1. Implement pilot projects using alternative approaches to hygiene behaviour change
 | Pilot projects implemented | Action plan | Resources committed |
| 1. Evaluate & document pilot projects
 | Evaluation completed | Report with recommendations | Communities participate |
| 1. Present results of appropriate technology, & hygiene promotion pilot projects to interagency thematic group
 | Results presented | Presentation materials | Sector agencies interest |
| 1. Prepare action plans to incorporate best practice & appropriate technologies into sector agencies programmes
 | Action plans prepared | Action plans | Willingness of sector agencies to adopt new approaches |
| 1. Provide technical assistance to sector agencies for design & implementation of best practice & appropriate technologies
 | Technical assistance provided | Reports | Available staff time |
| 1. Evaluate uptake of best practice & appropriate technologies
 | Evaluation complete | Evaluation reports | Participation of sector agencies |

**5.3 Institutional capacity of appropriate MOH Departments strengthened in key programme areas**

In order that MOH Departments are able to contribute more effectively to increasing use of improved water supply and access to improved sanitation and actively promoting good hygiene practices, it is essential to strengthen their institutional capacity. It must be stressed that this is not about creating a “super ministry” but rather it is aimed at developing the capacity to play a central role in safeguarding public health. The MOH already has the necessary specialist departments to provide leadership, information and advice to partner institutions involved in the sector. Further strengthening DOH and DHP capacity will extend their geographical influence, as well as raise confidence in their ability to provide leadership and appropriate advice to the sector. In practical terms what is needed is to scale-up several of the key programme areas. Inevitably this means that more resources of every kind are required. Additional material resources are required so that existing divisions are able to carry out their responsibilities, additional personnel to enable understaffed divisions to operate to their full potential, additional staff will also be necessary for scaling-up successful projects, training and refresher training of existing personnel, and minor reorganisation of responsibilities to clarify roles. The proposed areas of institutional strengthening will complement the other three strategic objectives enabling the MOH to be a more effective advocate for the sector, produce better quality research, and increase its capacity to become a more proactive partner with other institutions operating in the sector.

***Output 1****: Hygiene programmes scaled-up*

Three hygiene-related programmes - the ‘4 Cleans’ project, SSHE and PHAST - have enormous potential to increase the widespread adoption of appropriate hygiene practices. The ‘4 Cleans’ project has been implemented since 1996 (originally 3 Cleans) and has been the mainstay of the MOH effort to promote safe hygiene practices. To date the ‘4 Cleans’ project has been implemented in about 60% of Myanmar’s townships and has been successful in raising demand for latrines and encouraging hand washing. Nevertheless, there remains a substantial proportion of the population who have not been exposed to this hygiene promotion project, and therefore justifies its scaling-up.

At present the PHAST programme is in its infancy with the hygiene promotion ‘toolkits’ having only been prepared for use in Myanmar. It is proposed that the PHAST programme is also scaled-up during the five-year lifetime of this strategic plan. The PHAST methodology places a greater emphasis on participatory principles than the ‘4 Cleans’ project. The basic premise is that permanent behaviour change will only occur when people understand and believe that hygiene and sanitation will result in better health. On this basis PHAST enables communities to analyse constraints to change, plan and implement sustainable solutions.Also related to strengthening the capacity to bring about the adoption of good hygiene practices is the SSHE programme. The aim of SSHE is to develop life skills, healthy and safe school environments, and outreach to parents and communities. This is achieved through the combination of both hardware - water systems, sanitation, and hand-washing facilities (see *Output 3* below), and software – the promotion of practices that prevent water and sanitation related diseases. The SSHE concept may be seen as a long-term investment as children will be future parents and should ensure the sustainability of the programme impact. What is learned in school is taken home and can influence family and neighbours. For example, school age children often look after younger siblings and are involved in household chores both of which will benefit from hygiene practices learned at school.

In order to scale-up the existing hygiene promotion programmes, it will first be necessary to review the sector capacity to expand the level of operation. It is also important that any extension of the programmes gives priority to geographic areas or demographic groups that exhibit slower adoption of good hygiene practices. Data from the MICS surveys should enable the identification of areas or population groups.

New staff will need to be recruited and trained in order that hygiene programmes are significantly scaled-up. Additionally existing health staff should be trained in one or more of the hygiene promotion methods. For example, the Public Health Supervisors (PHS) based in the Rural Health Centres could be trained in PHAST. They would then become the facilitators in the implementation of the programme. Although they are already involved in social mobilisation, the methodological approach taken by PHAST is different and the PHS would need to learn new skills. As regards SSHE it is mainly school teachers who would require training though it would be advantageous to provide the PHS with knowledge of the basic concepts in order to reinforce the programme.

New sector partners would also needed for the scaling-up of activities in order to create the additional capacity needed. For example, the School Health Unit could become a partner agency in implementing SSHE. Currently, the Department of Education, Planning and Training takes responsibility for introducing hygiene education into the school curriculum. It is recognised that incorporating new sector partners into the hygiene programmes will not result in an immediate increase in activities because of the need for training and learning new approaches. However, over the life time of the strategic plan it is reasonable to assume that a progressive increase in the scale of hygiene promotion can be achieved.

***Output 2****: Drinking-water quality surveillance ( Now, Water Safety Plan)*

 Maintaining and raising the standard of drinking-water quality requires a system of regular surveillance. It is proposed that water quality surveillance units should be established in all 14 States and Regions and 3 sub state and Region to test basic parameters. The State and Region level surveillance units should be supervised and provided with technical support by the NHL. Initially baseline data should be collected so that priority water quality problems can be identified and corrective action planned and implemented. A programme of regular surveillance should be developed for towns above an agreed population size. In this way seasonal problems as well as operation and maintenance failures can be identified and the necessary action taken.

Given that the detection of arsenic in Myanmar has been relatively recent (since 2000), a rigorous testing programme has not yet been fully developed and confirmatory testing with better trained staff will be an important activity. Therefore, it is proposed that the surveillance units should give special attention to monitoring levels of arsenic in drinking water. This emphasis may only be required over the short-term because of the pressing need to collect baseline data. If it later transpires that the arsenic problem is restricted to specific areas or is at levels that represent low health risk, then this parameter could be monitored on a reduced scale. The surveillance units should coordinate with ESD in their investigation of appropriate mitigation measures.

The surveillance units should be established in towns that are centrally located within each State or Region to facilitate the collection of samples from surrounding townships. The physical location should be suitable for housing basic laboratory and office facilities. The specification and type of laboratory equipment should be determined by the NHL and be appropriate to the surveillance of the ten key water quality parameters (total coli forms, thermo tolerant bacterias , turbidity, pH, conductivity, hardness, arsenic, iron, nitrate and fluoride) as agreed by the interagency task force in June 2000. Under the supervision of the NHL, laboratory equipment should be procured and installed, and suitably qualified staff recruited and trained in water quality analysis and surveillance. Having located, equipped and staffed the surveillance units, the following step will be to develop the surveillance strategy and ensure that standardised procedures are followed. The surveillance programme can then be put into action along with the implementation of quality assurance procedures.

***Output 3:*** *Water and sanitation facilities for RHC and rural schools*

There is an urgent need to provide water and sanitation facilities for both the RHC and rural primary schools. It is estimated that approximately 45% of the RHC have access to safe water and sanitation, and only ( ) of rural schools. In more remote areas only around ( ) of schools have access to a safe water supply. Therefore it is proposed that the ESD plays a much more significant role in constructing waterand sanitation systems for the RHC and rural schools. A variety of water systems

would be suitable including drilled wells or protected hand-dug wells with hand-pumps, rainwater harvesting systems, and gravity-fed piped systems. Sanitation should be based on the standard latrine designs including flooded area. that have been widely introduced and include hand-washing facilities.

The main limitation in the ESD ability to scale-up its level of activity in this area is a shortage of resources and equipment. It will be necessary to provide ESD with drilling equipment for wells, transport facilities, construction materials, and additional office equipment. Following consultation with ESD it is estimated that it will be feasible to construct water and sanitation systems for ( ) rural schools and 200 RHC annually. ESD should be provided with training on any new equipment and techniques or methods especially with regard to well drilling to recruit drilling workers. Training should also be provided in social mobilisation including behaviour change and promotion of operation and maintenance. In order to accelerate the construction of water and sanitation systems additional technicians, builders and carpenters should be recruited and trained. Action plans should be prepared that give priority to low coverage areas. Four activity areas will require that ESD establish specialist staff teams to ensure efficient progress and sustainable results. These teams will focus their efforts on one of the following activity areas: technical feasibility studies, social mobilisation, construction of water and sanitation systems, and provision of operation and maintenance training to the RHC staff and VHC. The key measure of success in this programme area is the sustainability and it is recommended that ESD carry out periodic monitoring of the new facilities to ensure that they are being adequately maintained.

# Logframe 5.4: Strengthened institutional capacity

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| **Narrative Summary** | **Verifiable Indicators** | **Means of Verification** | **Risks and Assumptions** |
| **Objective**Institutional capacity of appropriate MOH Departments strengthened in key programme areas | MOH Departments’ capacity strengthened | Activity reports show increased output levels | Institutional strengthening achievable in short term |
| **Outputs**1. Hygiene promotion programmes scaled-up
 | Hygiene programmes active in more townships | Activity reports | Spare capacity |
| 1. Drinking-water quality surveillance units established in all 14 States & Divisions and 3 Sub-state& Sub-division
 | Surveillance units established | Water quality data reports | Resources available |

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| 1. Rate of construction of water & sanitation facilities for RHC and rural primary schools scaled-up
 | Rate of construction increased | Activity reports | Resources available |
| **Activities**1. Capacity of existing hygiene programmes reviewed
 | Review completed | Report | Agency cooperation |
| 1. Priority geographic &/or demographic areas identified
 | Areas & populations identified | Report | Information available |
| 1. Additional hygiene promotion staff recruited & trained
 | Staff trained | Training records | Recruitment approved |
| 1. Identify new sector partners & plan programme coordination
 | Sector partners contacted | Coordination plan | Cooperation of sector partners |
| 1. Implement scaled-up activities in hygiene promotion
 | Hygiene promotion activities increase | Programme reports | Resources available |
| 1. Identify suitable laboratory/office locations in each State & Division
 | Laboratories/offices located | Report | Office space available |
| 1. Procure & install water quality testing equipment
 | Equipment installed | Procurement documents | Resources committed |
| 1. Recruit & train water quality surveillance staff
 | Staff trained | Training materials | Qualified staff available |
| 1. Develop surveillance strategy and standard procedures
 | Strategy & procedures developed | Document | Commitment with sector agencies |
| 1. Put surveillance programme into action
 | Regular surveillance activities | Database of water quality | Resources available |
| 1. Carry out QA procedures
 | QA completed | QA report | Expert availability |
| 1. Equip ESD with material resources
 | Resources procured | Delivery notes | Resources allocated |
| 1. Train ESD staff in use of new equipment &/or methods
 | Staff trained | Training materials | Motivated staff |

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| 1. Recruit additional staff if necessary
 | Staff recruited | Job descriptions | Recruitment approved |
| 1. Prepare action plan identifying & prioritising geographic regions
 | Action plan prepared | Action plan | Information available |
| 1. Carry out technical feasibility studies
 | Feasibility studies done | Technical document | Access to communities |
| 1. Carry out social mobilisation activities
 | Communities mobilised | Activity report | Communities participate |
| 1. Construct RHC & school water & sanitation facilities
 | Facilities built | Activity report | Local resources mobilised |
| 1. Provide O & M training to local RHC staff & VHC
 | Training provided | Training materials | RHC & VHC participate |
| 1. Carry out periodic sustainability monitoring of new facilities
 | Monitoring carried out | Report | Staff time |

**5.4 Effective sector coordination and cooperation, and working partnerships encouraged among stakeholder agencies**

 Effective sector coordination and cooperation are seen as fundamental to accelerating more equitable access to safe water supply, sanitation and the promotion of good hygiene practices in Myanmar. Effective coordination and cooperation create an environment where partnerships between diverse sector actors can flourish. A forum for coordination facilitates information exchange and leads to learning opportunities for all sector actors. It also provides the opportunity to develop common approaches and methods of intervention and leads to a common understanding of the *status quo*. In summary, effective coordination propagates a teamwork approach to the challenge of ensuring sustainable access to safe water supply, sanitation and good hygiene.

 Partnership further extends the concept of an integrated ‘WASH’ approach in the sense that greater impact can be achieved through pooling and coordinating the knowledge and skills of a diverse group of stakeholders. A common goal and agreement on the policy approaches to reaching it are fundamental to a successful partnership. There already exists a strong tripartite partnership between the MOH, WHO, UNICEF. These institutions share core mission values and it is therefore not surprising that this partnership has developed. However, there is a need to expand and develop this partnership to include other Ministries, universities, NGOs, the private sector; and community based organisations (CBO).

***Output 1****: Sector coordination mechanism established*

Sector coordination requires a forum consisting of expert practitioners that are involved in the direct management of water supply, sanitation and hygiene programmes. The existing thematic group with representation from government, UN organisations and international NGOs would appear to offer an ideal base on which to formalise the sector coordination mechanism. For the purposes of this strategy document the coordination mechanism will be referred to as the (ACF).

It is proposed that the DHP is tasked with establishing the Inter-Agency Collaborative Forum. As a first step, consultation meetings with sector actors should be organised to discuss the aims and objectives of the ACF. An external consultant with experience of similar mechanisms in other countries could help to facilitate this consultation process. The DHP with further consultancy support if necessary should produce a first draft of the ACF terms of reference to include the aims and objectives, procedures and responsibilities. The ACF should be held on a regular basis, preferably monthly but at least on a quarterly basis. The DHP should present the terms of reference to sector agencies for comment and revise as necessary. It is suggested that the ACF will have limited success if its direction is entirely voluntary and it is dependent on various agencies to provide basic resources. Therefore, a permanent secretariat must be established, allocated office facilities and an adequate budget to ensure that it can operate effectively.

As confidence in the permanence, usefulness and ‘voice’ of the ACF develops, and this would depend considerably on the commitment and leadership shown by the MOH, it is proposed that shared tasks of fundamental importance to the sector should be undertaken. For example, there is a need for national drinking water quality guidelines. These should be developed in a consultative process and take into consideration not just the institutions’ views but also be based on the community perspective. Similarly, it is proposed that an inter-institutional task force be established to monitor the National Drinking Water Quality Surveillance & Monitoring System.

The ACF should be held in rotation at the offices of all the principal sector agencies. This is intended to encourage a common ‘ownership’ and responsibility for the ACF. Its role and function should be evaluated periodically and the terms of reference adjusted to ensure that it continues to be perceived as useful to sector agencies. An important role of the ACF is to be a focal point for the dissemination of information about other activities proposed in this strategic plan. It should also provide a forum for joint problem solving, and to facilitate learning across the sector to promote best practices. The following two outputs are closely linked to the principles of information sharing and common understanding that will be among the core values of the ACF.

***Output 2****: National water and sanitation database*

Although data on water supply and sanitation coverage exists within individual agencies there is at present no collation or dissemination of the data. Establishing a national water supply and sanitation database would help to identify low coverage townships, and facilitate long-term planning for upgrading water supply and sanitation systems. The database should contain comprehensive information and include the type of water source, type of water and sanitation system, number of users, level of service, and location. Such a database will feed directly into the advocacy aim of achieving greater equity in coverage. Once the ACF is established, it offers an excellent opportunity to collect and disseminate data from the proposed national water supply and sanitation database. The HMIS/MICS division have the skills and experience of managing complex information and are proposed to take the lead this initiative. Firstly, there should be a process of consultation through the ACF to determine the data criteria and depth of detail required. For example, a large number of data fields could be included but this will increase the sophistication of the software required as well as the computer system specification. It would also be time consuming to maintain and update the records. However, too few data fields would limit the usefulness in terms of planning upgrading water supply and sanitation systems. The importance of this step should not be underestimated as it determines the specification of the database system. It would be useful to visit other countries where similar management information systems have already been developed to have a greater appreciation of the possibilities and limitations of such systems.

Having completed this process the hardware and software should be procured and installed. Staff will need to be trained in the operation and maintenance of the database. The HMIS should then make use of the ACF to agree on standard procedures for data collection from the various sector agencies. It should then be possible to operationalize the database and produce some trial reports. It can be expected that this process will take a period several months and revisions to the software may be necessary. Having ‘fine-tuned’ the database, the frequency and detail of regular dissemination of reports should be agreed with sector agencies.

***Output 3****: Expanded learning opportunities*

At present there are relatively few opportunities for learning and updating (continuing professional development – CPD) knowledge and skills related to community water supply, sanitation and hygiene promotion. The opportunities that do exist are often only for senior staff and involve travel overseas. Gaining international experience is of undoubted benefit and experience as this provides important exposure to international networks of professionals. It is envisaged that the ACF secretariat could organise a series of learning events to take place in Myanmar such as seminars, workshops and more formal training activities. It is quite feasible that an annual sector conference that would include presentations from neighbouring countries to share a broader range of experiences. This would also be an opportunity to publicise the achievements in the sector and advocate for further Government support and commitment to the sector. It is also proposed that a programme of learning should be intended not only for professional level staff but also for technicians and extension workers. The ACF secretariat could also assist sector professionals to obtain financial assistance to attend international conferences.

Through the ACF forum a task-force should be established to investigate the learning needs and existing opportunities. The task force should carry out a review of these opportunities in close consultation with the sector agencies. The main issues that need to be addressed to increase staff competence, skills and knowledge will be identified. At this point the ACF secretariat should take over the responsibility to draft a programme of learning events based on the needs analysis carried out by the task force. The programme will be presented to the sector agencies for feedback and reviewed as necessary. The programme should then be implemented and evaluated to determine the effectiveness and uptake of the leaning events. This process is envisaged as becoming cyclical with an annual learning programme becoming part of the IACF contribution to developing a more effective and competent set of professionals in the sector.

**Logframe 5.5: Effective sector coordination**

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| --- | --- | --- | --- |
| **Narrative Summary** | **Verifiable Indicators** | **Means of Verification** | **Risks and Assumptions** |
| **Objective**Effective sector coordination and cooperation, and working partnerships encouraged among stakeholder agencies | Coordination mechanism functioning | Visible partnerships; external evaluation reports | Sector actors committed to coordination & partnership |
| **Outputs**1. Sector coordination mechanism established & endorsed by main actors
 | Coordination mechanism established | Meeting minutes | Sector agencies participate |
| 1. National water supply & sanitation database established
 | Database established | Database records | Sector agencies submit data |
| 1. Expanded learning opportunities created for sector staff through training events, seminars, & conferences
 | Sector staff have attended learning events | Programme of learning events | Funding available |
| **Activities**1. Hold consultation meetings with sector agencies
 | Meetings held | Consultation report | Agency staff time  |
| 1. Draft terms of reference, procedures & responsibilities
 | ToR produced | Draft document | Resources available |

|  |  |  |  |
| --- | --- | --- | --- |
| 1. Present ToR etc. to sector agencies & revise as necessary
 | Consultation meeting held | Notes on draft ToR etc | Consensus reached |
| 1. Establish permanent secretariat and office location
 | Office & secretariat in place | Ratification of document | Funding |
| 1. Procure office equipment
 | Equipment purchased | Invoices | Funding |
| 1. Evaluate through regular consultation with sector agencies
 | Evaluation complete | Evaluation report | Sector agencies participate |
| 1. Revise To R &/or procedures as required
 | Revision complete | Revised ToR | Consensus reached |
| 1. Hold consultation meetings with sector agencies to determine data criteria & detail required
 | Consultation meeting held | Meeting notes | Agency staff time  |
| 1. Investigate Hardware & software requirements & specification
 | Hardware & software specification | Document | Experienced suppliers |
| 1. Procure & install computer system
 | System installed | Procurement documents | Resources committed |
| 1. Train staff in operation & maintenance of database
 | Staff trained | Training materials | Motivated staff |
| 1. Agree procedures for data collection in consultation with sector agencies
 | Procedures agreed | document | Agency commitment |
| 1. Operationalize database and revise software capacity as required
 | Database operational | Records produced | Appropriateness of database software |
| 1. Disseminate regular database reports to sector agencies
 | Reports disseminated | Reports | Ongoing resources |
| 1. Establish task force to investigate learning needs & opportunities
 | Task force established | Memorandum | Staff time commitment |
| 1. Review existing learning opportunities in consultation with sector agencies
 | Review completed | Review report | Agencies share information |
| 1. Identify main issues that should be addressed to increase staff capacity & competence
 | Issues identified | Report | Specific issues can readily be identified |
| 1. Draft learning events programme, present to sector agencies & revise as necessary
 | Programme presented | Document | Agencies participate |
| 1. Implement learning programme
 | Programme implemented | Staff feedback reports | Staff interest |
| 1. Evaluate uptake and effectiveness of programme
 | Evaluation complete | Report | Learning programme used |

**6.WASH Emergency Rapid Response to disaster-affected areas**

* 1. **Definition**

**Disaster**

A serious disruption of the functioning society, causing widespread human, material or environmental losses which exceed the ability of the affected society to cope using its own resources.

**Emergency**

A state in which normal procedures are suspended and extraordinary measures are taken to avert a disaster

* + 1. **Various types of Disaster**

The following major natural disastersparticularly prone to some regions;

1. Earthquake
2. Cyclone
3. Flood
4. Drought
5. Civil unrest and conflict

6. Fire

* + 1. **Situation of Disasters in Myanmar**

Myanmar had faced the most severe natural disaster in its history caused by the strong cyclone storm " Nargis " that crossed the coast of Myanmar and hit Ayeyarwady and Yangon Division on the 2nd and 3rd May of 2008. It was the worst cyclone that had ever hit the country and the effect was devastating. Bogale, Labutta, Nagputaw, ( Hainggyi Gun ), Dedaye, Mawlamyineggun, Pyapon and Kyaiklat townships in Ayeyawady Division werw worsely hit and Kyaungyangone, Kawhmu, Dalab, Dagonmyothit (South/ North), Shwepyithar, Twante, Kyauktan, Kyanaungto, Hlaingtharyar and Kyimyindaing (West) townships in Yangon Division were hit badly.

 The Tsunami event in December 2004 was stroke in the coastal and delta regions of Myanmar. In 2009, Cyclone Giri stunk the Rakhine State. In 2010, Tahlay located in Shan State (East) was concentrated an richest scale (6) of Earthquake. In last year (2011), some areas in Magway Region of the middle part of country were flooded.

**6.2 Cause and Effect of Disasters in Myanmar**

In today’ World, almost every country is experiencing with natural disasters and man- made disasters, and disaster preparedness plan and rapid response plan have to be drawn and took immediate response actions such as emergency medical care, dead bodies removal ,……………., up to WASH emergency activities. The cause of Disaster is the climate change and the effect of the climate change is impact of disaster.

* + 1. **Experiences on WASH Emergency Rapid Response in Myanmar**

 The Government of Union of Myanmar had organized the National Natural Disaster Preparedness central Committee chaired by his Excellency, the Prime Minister. It comprised of (10) Sub- committees of which Health Sub-Committee is chaired by the Minister of Health and Professor Dr. Mya Oo, Deputy Minister of Health as Secretary. He also led of Central Assessment and Investigation team for disaster management.

On beginning of 4th May, HE. Minister of Health initiated response action by forming specialist teams and sent there teams to the disaster hit areas of Ayeyarwady and Yangon Division. And then, Public Health Teams were formal and sent them to the disaster hit areas including front line camps of Ayeyarwady Division, and Yangon Division. Public Health Teams were comprised of Public Health Professionals together with environmental sanitation Engineers and health education personnel. Seventeen Environmental Sanitation Engineers including Central Level from Environmental Sanitation Division, Department of Health, were sent to (3) front line camps such as Pyinkhayaing, Theikpankonegyi and Hlaingphone, (5) intermediate camps such as Hainggyi, Labitta, Bogale, Dadeye and Pyapon, (1) rare camp wakema of Ayeyarwady Division and Kungyangon of Yangon Division.

They carried out the Public Health measures in those regions Safe Water

Supply, Construction and Utilization of fly- proof Sanitary Latrine, systematic

disposal of Garbage and personnel hygiene activities for the cyclone-affected people. These activities were done by participation of local authorities, Basic Health Staffs and local community with the joint cooperation collaboration of UN Agencies, local and International Non- government Organizations.

Moreover, Health Sub- committee also organized the Yangon Division Prevention and Control group on diarrhoea and dysentery which included responsible persons from Disease control section, Yangon Division Health Department, Environmental Sanitation Division of Under the Department of Health

With the coordination between responsible personals from Central Disease Control and Yangon Division Health Department, Environmental Sanitary Engineers together with Disease Control specialist and Professionals, as well as responsible persons from TDC(DDA) took parts in Public Health measures such as Safe Water Supply, Construction and Utilization of fly-proof sanitary Latrine, Systematic Garbage disposal and personnel hygiene activities in covering all townships in Yangon Division. The implementation and monitoring for these activities were carried out by Environmental Sanitation Division with cooperation and of members from Yangon Region Prevention and Control Taskforce on diarrhoea and dysentery and participation of Local authorities, Local people, Local and International Non-government Organization.

In carrying out the water supply, it was aimed to provide consumption of safe water supply for the community. In doing so, the disinfection by means of various types of bleaching powders are very popular to respond the emergency safe water supply. So, ESD analyzed the disinfection by means of bleaching powder, Chlorine stock solution, water purification tablets, water guard water analyzed many times for their strength and effectiveness and developed dosing rate, step-by-step procedure and with different types of water sources before transfer of technology. After accurate analysis and coming out of results, the disinfecting technologies by means of different free available chlorines stock solution, chlorine tablets & powder were transferred to community in storm- hit areas through different Public Health teams and Local basic health staffs. In accordance with low cost housing construction arrangement of Government of State for cyclone victims whom did not want to go back to old home places, Construction Companies had built the Low-cost houses for these victims. Along with the guidance of Ministry of Health, ESD have constructed the Fly-proof Sanitary these Latrines for Low-cost houses. ESD could collected WASH data from some International non-governmental Organization implementing WASH.

**Future WASH Emergency Rapid Response in Myanmar**

 **Organization of National Disaster Preparedness and Management Committee**

National Disaster Preparedness and Management Committee

Central Committee for Disaster Preparedness and Response

Ministries

Central Level

UN agencies & ASEAN Countries

Sub-committee

Early Warning

System Period

Period

During Disaster

 Period

Post disaster

 Period

Pre-disaster period

Emergency Period

Emergency Response Headquarters

Government and non-government Organizations

Committees from Ministries

Government and non-governmental Organizations

 State/Region/Township/Wards and Village Disaster Preparedness and Response

All Areas

All disaster area and resources from related area necessary for help

All Areas concerned with rehabilitation programme

**6.3.1 The Essential and Minimum Requirements for WASH Facilities**

 The wide range of disaster response varies depending on type of the disasters, their magnitude, affected household and population, intensity, geographical condition,…etc:. To estimate the essential and minimum requirements for WASH facilities in disaster –affected areas are prerequisite urgently and particularly according to the basis of at-once response.

**6.3.2 Pre-positioning WASH Facilities**

The immediate rapid response is prevalent for disaster-affected people after hitting the disaster because WASH facilities are the basic and essential infrastructures for daily human requirement. So, the WASH facilities are stocked as a pre-positioning stage. The different kind of WASH facilities has calculated depending on following criteria:

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(a)The classification of disaster-hit villages (small, median, big villages)

 (b) The different range of disaster-hit population (small, median, big ranges)

In (a) classification of disaster-hit villages, small village consist of 50-75 households, median village composed of 76-150 households and big village means 151-250 households. To calculate WASH facilities according to different range of disaster-hit population (small, median, big ranges), small means 300-450 affected-populations, and median is 451-900 affected-populations, big means affected-populations are 901-1500.

**6.3.3 Contingency Plan**

The WASH rapid response is always the prime important rather than other activities because WASH activities are the basic need for human being. The WASH rapid response must reflect within 2-4 hours after being affected disaster. Not affecting normal activities, essential and minimum requirement for WASH facilities (or) pre-positioning WASH facilities must be allocated aiming to any type of disaster will come.

 Internationally, 10%-15% of budget for normal activities should be allocated at point of view of manageable effective WASH rapid response preparedness. Similarly, without affecting normal activities, human resources should be trained and placed technically.

**7. Indicative Budget**

7.1 Estimated total budget requirement for the implementation of the five-year strategic plan in improved water supply, improved sanitation and hygiene promotion

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| **Strategic Objective.** | **Output** | **2012** | **2013** | **2014** | **2015** | **2016** | **Total** |
| **US$** | **US$** | **US$** | **US$** | **US$** | **US$** |
| 1. Increased resources are made available to ensure greater and more equitable use of improved water supply and access to sanitation
 | 1. Establish advocacy task force
 | 118,000 | 66,000 | 77,840 | 64,000 | 64,000 | 389,840 |
| 1. Implement evidence-based advocacy campaigns
 | 105,000 | 105,000 | 120,000 | 120,000 | 120,000 | 570,000 |
| 1. Sector actors implement water supply, sanitation and hygiene projects which are effective, appropriate, and sustainable
 | 1. Best appropriate technologies and practices
 | 250,000 | 237,000 | 290,500 | 290,000 | 290,000 | 1,357,500 |
| 1. Hygiene promotion methods improved
 | 95,500 | 95,500 | 93,500 | 95,500 | 94,500 | 474,500 |
| 1. Best practices disseminated
 | 77,000 | 85,600 | 85,600 | 85,600 | 85,600 | 419,400 |
| 1. Institutional capacity of appropriate MOH Departments strengthened in key programme areas
 | 1. Hygiene programmes scaled-up
 | 234,500 | 277,000 | 285,750 | 277,000 | 277,000 | 1,361,250 |
| 1. Water Safety Plan
 | 230,000 | 305,000 | 390,000 | 467,000 | 580,000 | 1,972,000 |
| 1. WASH facilities for RHCs /
2. Sub-centres and rural schools
 | 300,000 | 400,000 | 400,000 | 650,000 | 1,330,000 | 3,080,000 |
| 1. Effective sector coordination and cooperation, and working partnerships encouraged among stakeholder agencies
 | 1. Sector coordination mechanism established
 | 108,000 | 60,000 | 70,000 | 60,000 | 60,000 | 358,000 |
| 1. National water and sanitation database
 | 80,000 | 90,000 | 90,000 | 109,000 | 109,000 | 478,000 |
| 1. Expanded learning opportunities
 | 130,000 | 208,500 | 226,000 | 226,000 | 226,000 | 1,016,500 |
|  | **Total** | **1,428,000** | **1,929,600** | **2,128,350** | **2,444,100** | **3,236,100** | **11,166,150** |
| **Unforeseen cost (5%)** | **71,400** | **96,480** | **106,417** | **122,205** | **161,805** | **573,849** |
| **Sub-total** | **1,499,400** | **2,026,080** | **2,234,767** | **2,566,305** | **3,397,905** | **12,050,839** |
| **Contingency for disaster (10%)** | **149,940** | **202,608** | **223,477** | **256,630** | **339,790** | **1,205,084** |
| **Grand total** | **1,649,340** | **2,228,688** | **2,458,244** | **2,822,935** | **3,737,695** | **13,255,923** |

**7.2 Detailed breakdown of estimated budget**

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Intervention** | **Outputs and Activities** | **Responsible Agency** | **Focal Department** |  **Partners** | **Time Frame (five years)** |
|  | **2012** | **2013** | **2014** | **2015** | **2016** |
| **US$** | **US$** | **US$** | **US$** | **US$** |
| **Objective 1:** Resources for equitable use of improved watersupply and access to improved sanitation | **Output 1: Establish advocacy task force** | ESD-DOH | ESD-DOH | **All stakeholder****Agencies +****NGOs****(MMCW, MWF)+****INGOs** |  |  |  |  |  |
|  | 1) Advocacy office |  |  |  | 11,380 | 11,380 | 11,380 | 10,000 | 10,000 |
|  | 2) Office equipment (computers, desks, chairs, filing cabinets, stationery, photocopier, air conditioner, generator etc.) |  |  |  | 21,480 |  | 5,370 |  |  |
|  | 3) Audio-visual equipment (video, camera, projector, microphones) |  |  |  | 10,740 |  | 2,000 |  |  |
|  | 4) Train task-force: 4-5 professional grade staff |  |  |  | 7,120 | 1,620 |  | 1,000 | 1,000 |
|  | 5) Overseas learningexperience (4 staff year 1, 2 staff year 3) |  |  |  | 14,280 |  | 5,250 |  |  |
|  | 6) Management & consultancy support |  |  |  | 53,000 | 53,000 | 53,000 | 53,000 | 53,000 |
|  |  |  |  |  |  |  |  |  |  |
|  | **Sub-total** |  |  |  | **118,000** | **66,000** | **77,000** | **64,000** | **64,000** |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | **Output 2: Implement evidence-based advocacy campaigns** | ESD-DOH | CHEB-DOH | **All stakeholder****Agencies +****NGOs****(MMCW, MWF)+****INGOs** |  |  |  |  |  |
|  | 1) Prepare and run 2 advocacy campaigns per year (global cost) |  |  |  | 44,750 | 44,750 | 50,750 | 50,750 | 50,750 |
|  | 2) Logistics (taxis, car hire, domestic flights) |  |  |  | 7,250 | 7,250 | 13,250 | 13,250 | 13,250 |
|  | 3) Management & consultancy support |  |  |  | 53,000 | 53,000 | 56,000 | 56,000 | 56,000 |
|  |  |  |  |  |  |  |  |  |  |
|  | **Sub-total** |  |  |  | **105,000** | **105,000** | **120,000** | **120,000** | **120,000** |
|  |  |  |  |  | **2012** | **2013** | **2014** | **2015** | **2016** |
| **Objective 2:**Appropriate technologies and practices | **Output 1: Appropriate technologies and practices** | ESD-DOH | ESD-DOH | **All stakeholder Agencies +****NGOs****(MMCWA, MWF)+****INGOs** |  |  |  |  |  |
|  | 1) Rehabilitate ESD facilities (computers, air conditioner, generator, water quality testing equipment, workshop tools) |  |  |  | 40,000 |  | 5,500 |  |  |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 2) Logistics (4 wheel drive vehicle & running costs) |  |  |  | 60,000 | 80,000 | 26,000 | 30,000 | 30,000 |
|  | 3) Train ESD staff in field research (15 participants for 5 days) plus refresher training |  |  |  | 6,000 | 9,000 | 9,500 |  |  |
|  | 4) Overseas training visits in preparation for pilot projects (India, Nepal, Vietnam, Lao, Cambodia x 2 staff per training visit) |  |  |  | 3,500 | 7,500 | 8,000 |  |  |
|  | 5) Implementation of pilot projects I-V: |  |  |  |  |  |  |  |  |
|  | I - Point of use water treatment project. Global cost per pilot project including water quality test kits, consumables & treatment units (ceramic filters, biosand filters, SODIS, Safe water system) |  |  |  | 35,000 | 35,000 | 60,000 | 65,000 | 65,000 |
|  | II – Arsenic and fluoride mitigation R & D |  |  |  | 35,000 | 35,000 | 35,000 | 35,300 | 35,300 |
|  | III - Chlorination of small urban supplies (5 towns per year including monitoring and evaluation) |  |  |  | 6,000 | 6,000 | 35,000 | 39,000 | 39,000 |
|  | IV - Sanitary inspections (training township engineers/PHS, design & prepare survey manuals, evaluation): |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 10 small towns over 3 year period |  |  |  |  |  | 18,500 | 25,000 | 25,000 |
|  | 20 rural villages over 3 year period |  |  |  |  |  | 25,000 | 25,000 | 25,000 |
|  | V - Latrine design (test a minimum of 2 designs per year in 50 households in 2 States or Divisions) |  |  |  | 11,500 | 11,500 | 15,000 | 15,000 | 15,000 |
|  | 6) Management & consultancy support |  |  |  | 53,000 | 53,000 | 53,000 | 53,000 | 53,000 |
|  | **Sub-total** |  |  |  | **250,000** | **237,000** | **290,500** | **290,000** | **290,000** |
|  |  |  |  |  | **2012** | **2013** | **2014** | **2015** | **2016** |
|  | **Output 2: Hygiene promotion methods improved** | ESD-DOH | CHEB-DOH |  |  |  |  |  |  |
|  | 1) CHEB staff trained in evaluation methods (6 participants for 5 days) plus refresher training |  |  | **All stakeholder Agencies +****NGOs****(MMCWA, MWF)+****INGOs** | 2,700 | 2,700 | 2,700 | 2,700 | 2,700 |
|  | 2) Logistics (taxi, car hire domestic flights) |  |  |  | 9,000 | 9,000 | 8,500 | 9,000 | 8,750 |
|  | 3) Implement field evaluations using contracted field-research assistants (x 50 researchers for 10 days per year) |  |  |  | 9,000 | 9,000 | 8,500 | 9,000 | 8,750 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 4) Pilot projects using new approaches to hygiene promotion. Including design, training field staff, evaluation & documentation (1 project per year) |  |  |  | 21,000 | 21,000 | 20,000 | 21,000 | 20,500 |
|  | 5) Overseas training visits to see alternative hygiene promotion approaches demonstrated in the field (2 staff S.E. Asia region 2 trips) |  |  |  |  |  |  |  |  |
|  | 6) Management & consultancy support |  |  |  | 53,800 | 53,800 | 53,800 | 53,800 | 53,800 |
|  | **Sub-total** |  |  |  | **95,500** | **95,500** | **93,500** | **95,500** | **94,500** |
|  | **Output 3: Best practices disseminated** | ESD-DOH | CHEB &ESD |  |  |  |  |  |  |
|  | 1) Present results of best practice at specially convened seminars to sector actors over 2 day workshop period |  |  | **All stakeholder Agencies +****NGOs****(MMCWA, MWF)+****INGOs** | 6,100 | 9,000 | 9,000 | 9,000 | 9,000 |
|  | 2) Prepare action plans and provide technical assistance to sector agencies (local transport & per diems for 12 staff for 10 days per year) |  |  |  | 7,300 | 9,200 | 9,200 | 9,200 | 9,200 |
|  | 3) Evaluate uptake (transport & per diems for 4 staff 10 days per year) |  |  |  | 2,400 | 4,400 | 4,400 | 4,400 | 4,400 |

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|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 4) Management & consultancy support |  |  |  | 61,200 | 63,000 | 63,000 | 63,000 | 63,000 |
|  |  |  |  |  |  |  |  |  |  |
|  | **Sub-total** |  |  |  | **77,000** | **85,600** | **85,600** | **85,600** | **85,600** |
|  |  |  |  |  | **2012** | **2013** | **2014** | **2015** | **2016** |
| **Objective 3:** Strengthened institutional capacity | **Output 1: Hygiene programmes scaled-up** | ESD-DOH | CHEB-DOH | **All stakeholder Agencies +****NGOs****(MMCWA,MWF)+****INGOs** |  |  |  |  |  |
|  | 1) Review capacity of hygiene programmes & identify priority areas (interagency workshop 50 participants for 5 days). Repeated year 3. |  |  |  | 25,500 |  | 25,550 |  |  |
|  | 2) Train 200 PHS in PHAST (10 days) each year (100 PHS in year one) |  |  |  | 68,000 | 71,000 | 68,000 | 71,000 | 71,000 |
|  | 3) IEC materials for 200 PHS/ year |  |  |  | 7,000 | 7,000 | 7,000 | 7,000 | 7,000 |
|  | 4)Train 600 school teachers in SSHE (5 days) per year (300 teachers in year one) |  |  |  | 48,000 | 104,800 |  93,500 | 104,800 |  104,800 |
|  | 5) IEC materials for 600 school teachers/year |  |  |  | 20,000 | 21,000 | 20,000 | 21,000 | 21,000 |
|  | 6) Plan programme coordination with new sector partners (One 5 day meeting/year 50 participants) |  |  |  | 12,000 | 13,500 | 12,000 | 13,500 | 13,500 |

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|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 7) Logistics (bicycles for 50 PHS per year determined by access) |  |  |  | 6,000 | 6,200 | 6,200 | 6,200 | 6,200 |
|  | 8) Management & consultancy support |  |  |  | 48,000 | 53,500 | 53,500 | 53,500 | 53,500 |
|  | **Sub-total** |  |  |  | 234,500 | 277,000 | 285,750 | 277,000 | 277,000 |
|  | **Output 2:** Water safety plan | ESD-DOH | NHL-DOH |  |  |  |  |  |  |
|  | 1) Laboratory/office locations rented (1 location in year one, 2 locations year two, 3 locations year three, etc total of 17 locations) |  |  | **All stakeholder Agencies +****NGOs****(MMCWA, MWF,)+****INGOs** | 18,500 | 25,500 | 30,500 | 60,000 | 84,000 |
|  | 2) Water quality test equipment 1 lab in year one, 2 labs year two, 3 labs year four, four labs years four & five), plus computer & office equipment |  |  |  | 60,150 | 65,150 | 95,150 | 80,000 | 81,850 |
|  | 3) Reagents, consumables, equipment renewal, stationery ($15,000 per lab) |  |  |  | 310,00 | 350,00 | 550,00 | 100,000 | 140,000 |
|  | 4) Train surveillance staff, 6 technicians in year one, 30 technicians each year thereafter (10 days) |  |  |  | 9,400 | 10,700 | 16,700 | 28,700 | 29,700 |
|  | 5) Refresher training/updating (7days) |  |  |  |  |  |  |  | 15,300 |
|  | 6) IEC materials |  |  |  | 8,300 | 13,000 | 17,000 | 19,000 | 24,000 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 7) Develop surveillance strategy plus annual review (20 participants for 3 days) |  |  |  | 3,950 | 6,800 | 9,800 | 13,350 | 19,350 |
|  | 8) Logistics (16 motorcycles @ $2,000 each, plus running costs $1,200 per motorcycle/year) |  |  |  | 9,700 | 14,900 | 19,900 | 30,000 | 35,800 |
|  | 9) Management & consultancy support |  |  |  | 91,000 | 133,950 | 145,350 |  164,650 | 170,150 |
|  |  |  |  |  |  |  |  |  |  |
|  | **Sub-total** |  |  |  | **230,000** | **305,000** | **390,000** | **467,000** | **580,000** |
|  |  |  |  |  |  |  |  |  |  |
|  | **Output 3:Water and sanitation facilities for RHC and rural schools** | ESD-DOH | ESD-DOH |  |  |  |  |  |  |
|  | 1) Procure 2 drilling rigs (suggest PAT 301-TP trailer mounted distributed from Thailand) including drill pipe, compressor, DTH, mud pump |  |  | **All stakeholder Agencies +****NGOs****(MMCW****,MWF)+****INGOs** |  |  |  | 75,000 | 75,000 |
|  | 2) Training in drilling methods & equipment maintenance (7 day workshop) |  |  |  |  |  |  | 5,000 | 5,000 |
|  | 3) Drill rig spares & repairs |  |  |  |  |  |  | 7,500 | 15,000 |
|  | 4) Logistics (2 x 4 wheel drive vehicles, 15 motorcycles, & running costs) |  |  |  |  |  |  | 52,400 | 64,000 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 5) Train additional staff & refresher training for existing staff (15 technicians for 5 days & 30 skilled workers for 3 days)  |  |  |  |  |  |  | 3,300 |  |
|  | 6) IEC materials (15 sets) |  |  |  |  |  |  | 300 |  |
|  | 7) Global costs for construction of 300 water & sanitation systems per year (150 systems in year four), mean cost per system $2,000 |  |  |  |  |  |  | 300,000 | 600,000 |
|  | 8) Prepare annual action plan identifying & prioritising locations, & procedures review (15 staff for 3 days) |  |  |  |  |  |  | 1,350 | 1,350 |
|  | 9) Technical feasibility studies (local transport & per diem), 3 days per community x 350 communities |  |  |  |  |  |  | 5,250 | 10,500 |
|  | 10) Social mobilisation (local transport & per diem), 4 days per community including travel time x 300 communities |  |  |  |  |  |  | 7,000 | 14,000 |
|  | 11) O & M training to RHC & VHC (local transport & per diem), 3 days per community x 350 communities |  |  |  |  |  |  | 5,250 | 10,500 |
|  | 12) IEC materials, 2 sets per RHC & VHC |  |  |  |  |  |  | 3,500 | 7,000 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 13) Periodic monitoring, 2 days per month by 3 engineers |  |  |  |  |  |  | 2,160 | 2,160 |
|  | 14) Management & consultancy support |  |  |  |  |  |  | 30,000 | 30,000 |
|  |  |  |  |  |  |  |  |  |  |
|  | **Sub-total** |  |  |  | **300,000** | **400,000** | **400,000** | **650,000** | **1,330,000** |
|  |  |  |  |  |  |  |  |  |  |
| **Objective 4** Effective sector coordination | **Output 1:** Sector coordination mechanism established | ESD-DOH | DHP | **All stakeholder Agencies +****NGOs****(MMCW****,MWF)+****INGOs** |  |  |  |  |  |
|  | 1) Initial consultation meeting/ workshop (50 participants for 2 days) |  |  |  | 3,000 |  |  |  |  |
|  | 2) Present ToR to sector agencies & revise during workshop (50 participants for 2 days) |  |  |  | 3,000 |  |  |  |  |
|  | 3) Procure office equipment (computers, desks, air conditioner, stationery, generator, photocopier, printer, etc) |  |  |  | 12,000 | 5,000 | 5,000 | 5,000 | 5,000 |
|  | 4) Monthly meetings (25 participants for one day/month) |  |  |  | 3,000 | 3,000 | 3,000 | 3,000 | 3,000 |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 5) Annual review & evaluation to revise ToR as necessary (50 participants for 2 days) |  |  |  |  | 3,000 | 3,000 | 3,000 | 3,000 |
|  | 6) Management & consultancy support |  |  |  | 30,000 | 30,000 | 30,000 | 30,000 | 30,000 |
|  |  |  |  |  |  |  |  |  |  |
|  | **Sub-total** |  |  |  | **108,000** | **60,000** | **70,000** | **60,000** | **60,000** |
|  |  |  |  |  |  |  |  |  |  |
|  | **Output 2:** National water and sanitation database | ESD-DOH | HMIS-DHP | **All stakeholder Agencies +****NNGOs****(MMCWA, MWF)+****INGOs** |  |  |  |  |  |
|  | 1) Consultation meeting with sector agencies to determine data criteria (50 participants for 2 days) |  |  |  |  |  | 3,000 |  |  |
|  | 2) Investigate database specification (2 staff make 2 overseas visits) |  |  |  |  |  | 4,000 |  |  |
|  | 3) Procure & install computer hardware & software, annual software updates |  |  |  |  |  | 50,000 | 10,000 | 10,000 |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | 4) Train staff in O & M of database (5 staff for 5 days), additional training annually for 2 days on software upgrades |  |  |  |  |  | 2,500 | 1,000 | 1,000 |
|  | 5) Agree procedures for data collection with sector agencies (50 participants for 2 days) |  |  |  |  |  | 3,000 |  |  |
|  | 6) Operationalize system & disseminate monthly and annual reports (stationery, annual review meeting) |  |  |  |  |  | 8,000 | 8,000 | 8,000 |
|  | 7) Management & consultancy support |  |  |  |  |  | 30,000 | 30,000 | 30,000 |
|  |  |  |  |  |  |  |  |  |  |
|  | **Sub-total** |  |  |  | **130,000** | **208,500** | **226,000** | **226,000** | **226,000** |
|  |  |  |  |  |  |  |  |  |  |
|  | **Output 3: Expanded learning opportunities** | ESD-DOH | DHP |  |  |  |  |  |  |
|  | 1) Review existing learning opportunities with sector agencies (50 participants for 2 days) |  |  |  |  | 3,000 |  |  |  |
|  | 2) Draft learning events programme & present to sector agencies, review as necessary (50 participants for 1 day) |  |  |  |  | 1,500 |  |  |  |
|  | 3) Implement learning programme, examples:  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  | * Annual 2-day watsan conference (300 participants)
 |  |  |  |  |  | 15,000 | 15,000 | 15,000 |
|  | * Invited international training events (2 per year) for 50 participants
 |  |  |  |  | 30,000 | 30,000 | 30,000 | 30,000 |
|  | * External conference attendance (12 awards)
 |  |  |  |  | 12,000 | 12,000 | 12,000 | 12,000 |
|  | * National training seminars for technicians and extension workers (2 per year) 150 participants
 |  |  |  |  | 27,000 | 27,000 | 27,000 | 27,000 |
|  | * IEC materials (600 copies)
 |  |  |  |  | 12,000 | 12,000 | 12,000 | 12,000 |
|  | 4) Evaluate uptake & effectiveness of programme with sector agencies (50 participants for 2 days) |  |  |  |  | 3,000 |  | 3,000 |  |
|  | 5) Management & consultancy support |  |  |  |  | 30,000 | 30,000 | 30,000 | 30,000 |
|  | **Sub-total** |  |  |  | **130,000** | **208,500** | **226,000** | **226,000** | **226,000** |
|  |  |  |  |  |  |  |  |  |  |
|  |  |  |  | **Total** | **1,428,000** | **1,929,600** | **2,128,350** | **2,444,100** | **3,236,100** |
|  |  |  |  | **Unforeseen cost (5%)** | **71,400** | **96,480** | **106,417** | **122,205** | **161,805** |
|  |  |  |  | **Sub-total** | **1,499,400** | **2,026,080** | **2,234,767** | **2,566,305** | **3,397,905** |
|  |  |  | **Contingency for disaster (10%)** | **149,940** | **202,608** | **223,477** | **256,630** | **339,790** |
|  |  | **Grand total** | **1,649,340** | **2,228,688** | **2,458,244** | **2,822,935** | **3,737,695** |

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1. 50 μg/l(ppb) is the standard used by most developing countries and , though the WHO recommended guideline value for maximum contaminant level has been set at 10 μg/l. [↑](#footnote-ref-1)
2. BHS refers to Township medical officers, midwives, nurses, health assistants, PHS 1 and 2

-11- [↑](#footnote-ref-2)
3. [↑](#footnote-ref-3)