MANUAL For The Sri Lanka Public Health Inspector



Ministry of Health

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Ministry of Health Public Health Services

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Foreword

Sri Lanka has the unique record, as the pioneer in the field of development of Public Health Services among the countries in this part of the world. As far back as 1858, Public Health became a function of the then Civil Department and in the same year, the Public Health and Suppression of Nuisances Ordinance was enacted, making the way of the creation of Boards of the Health with regulations to safeguard Public Health. Inspection of private and public premises, enforcement of the law in relation to Public Nuisances, ensuring sanitation of private and public places, were same of the functions of the Boards of Health.

The movement towards improvement of sanitary conditions in towns, villages and estates was gathering momentum in 1912, and a separate Sanitary Department was created under the Civil Medical Department. The first Sanitary Inspectors were trained in 1913 and worked under the supervision of Assistant Sanitary Officers, who were Medical Officers, in the areas of investigation and control of Infectious Diseases and epidemics, sanitation of rural and urban areas. A further impact was given to Public Health in 1925 by the amalgamation of Public Health activities to the General Health Services, thus creating the Department of Medical and Sanitary Services.

The establishment of the first Health Unit at Kalutara in 1926 was a significant landmark in the history of Public Health in this country. During the formative years of the Health Units, attention was on control of Communicable Diseases and Environmental Sanitation, where the Public Health Inspector played a major role.

An instruction for the guidance of Sanitary Inspectors was first published by the then Department of Medical and Sanitary Services in 1926. During the ensuring years, the role of the Public Health Inspector became more and more important and occupied a pivotal position in the Health Development of the country. Some notable achievements in the field of Public Health in this country have no doubt been due to the determination, devotion and dedication of the pioneer Public Health Inspectors at that time.

During the last few decades, Public Health has advanced rapidly and the key field officers such as Public Health Inspectors are called upon to play a new and a varied role in their spheres of activity, thus necessitating clear guidelines. Since the publication of the Manual of the Department of Health Part IV in 1958 where instructions for guidance of Public Health Inspectors was available, no major effort had been made to compile an up to date set of guidelines except in 1986 by Dr. H M S D Hearth –DDG PHS. The Manual for the Sri Lanka Public Health Inspector fulfils e long felt need. This Manual is likely to be useful to the Trainee Public Health Inspectors as well.

The Editorial board has taken much trouble to prepare this document which is comprehensive, the subjects are well presented, thus providing the Public Health Inspector with an up to date Manual, serving as a valuable guide in performing his duties.

Dr U.A. Mendis Director General of Health Services

Message from the Deputy Director General (Public Health Services) I

Sri Lanka has one of the best public health services in the region. Contributions came from many categories of health of personnel in the country, to reach this state of affairs. The Public Health Inspector has been in the forefront in the public health programmess that were launched in the past, and undoubtedly an important member of the health team functioning under the present 'Health Unit' system. Practically in all field-based programmes the Public Health inspector or the Public Health Midwife is the first person to make contact with the community.

Very clearly the public health problems in Sri Lanka have changed their order of priority. Not only that major communicable diseases have been eliminated, but even other important communicable diseases such as poliomyelitis, leprosy, and malaria, have been either eliminated or on their way to elimination. Dengue fever is one exception which has seen a global resurgence as well as a high incidence in Sri Lanka. Being a disease which is a direct result of an unsatisfactory environment, the Ministry expects the Public Health Inspector to play a key role in the control of this disease.

Much emphasis is now given to the control of non-communicable diseases such as mental illnesses, hypertension and diabetes mellitus. Efforts at changing unhealthy behaviour in persons, who have taken to undesirable habits such as tobacco, alcohol, and those involved in substance abuse, are now high priorities.

The Public health inspector who is required to study the behaviour petterns of the community in his care, can perform a yeomen service by carrying out necessary counseling on the affected individuals, or referring them for appropriate medical care.

I sincerely hope that both the Public Health Inspectors in service, and those who are undergoing training to become Public Health inspectors, will find this manual indispensable.

Dr. P.G Mahipala Deputy Director General (Public Health Services) I

Note from the Editor

The period that has elapsed since the publication of the last Manual for Public Health Inspectors, in 1989, is quite a long one, especially in view of the major changes in the delivery of public health the world and our country have experienced. Therefore the public health administrators in the Ministry of Healthcare and Nutration are to be congratulated for having taken a very productive step in revising the said manual.

From the inception of the public health services in Sri Lanka as a separate division, originally as the Sanitary Branch of the Civil Medical Department in 1913, the Public Health Inspectors have played a crucial role as the officers liaising between the Medical Officer of Health and the public. They were originally designated as Health Assistants and their as Sanitary Inspectors, before their designation were finally termed as Public Health Inspectors.

With the disappearance of some major infectious diseases such as smallpox at the global level, and diseases such as plague, at the country level. The PHIs have been able to divert their attention much more to other areas in public health such as nutrition, food hygiene, occupational health, and family planning.

The primary health care system which the country adopted in the seventies has been a most significant change in the public health delivery system in Sri Lanka.

Additionally, the world has witnessed many technical advances in the sphere of public health, as well as changes in the attitude of policy makers towards public health problems.

This revised edition which has been contributed by experienced officers in their respective fields contains many subject areas that have been added to the sphere of public health practice in Sri Lanka, since the publication of the last edition.

It is much expected that the present manual will be found useful by the practicing Public Health Inspectors, as well as by the Public Health Inspector Trainees, as a technical guide.

Dr W. Punsiri Fernando Editor

Acknowledgement

It is my duty to pay my honor to the stakeholders who contribute their most valuable efforts for the successfulness of the 1st review of this manual Initially I must not forget Dr. H. M. S. S. D. Herath, (Former Deputy Director General (Public Health Services), who took initial step for developing a Manual for the Public Health Inspectors in Sri Lanka, in order to fulfill a long felt need pertaining to up liftmen of Environmental Sanitation in Sri Lanka, even after 60 years of long period establishing the Public Health Inspectors service in Sri Lanka.

It's my pleasure to thank Dr (Mrs.) U. K. D. Piyaseeli, Director, and Dr (Mrs.) Chandrani Jayasekara, Deputy Director (Training), National Institute of Health Sciences (NIHS), who gave me the great responsibility to coordinate this task.

I should mention the close cooperation and contribution received from Dr. W. K. Laxman, Head, Dr (Mrs.) L. P. Abeysinghe, Medical Officer of Environmental Health Teaching Unit, NIHS and my colleagues of the teaching faculty of NIHS and Regional Training Centers, Supervising Public Health Inspectors, Public Health Inspectors in various parts of Sri Lanka.

I like to pay my gratitude to Mrs. S. C. Samarasinghe, Librarian, and Mrs. M. G. J. Ranatunga, Asst. Librarian, NIHS, Mr. Lasitha Mendis, Data Entry Operator, NIHS and Mrs. P. W. K. Shantha, Management Assistant, NIHS, who delivered their valuable services on documentation of this manual.

At last but not the least I like to thank Mr. Jayasiri De Silva, Former Senior Tutor Public Health, NIHS, who gave me the courage to undertake this responsibility, rendered his expertise for developing the manual and editing with the cooperation of Dr (Mrs) U. K. D. Piyaseeli, Director, NIHS.

We are indebted to World Health Organization for the financial assistance for editing of this manual. Our thanks are also due to those who contributed by writing the chapters.

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Public Health Inspector

Inspector

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PHI Manual

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Contents

Chapter	1 -	Duties and Responsibilities of Public Health Inspector	01 - 78
	1.1		01 - 05 05 - 51
		Uniform	52 - 58
	1.4		59 - 78
Chapter		Environmental Health	79 - 131
	2.1		79 - 82
		Water Supply & Sanitation Disposal of Human Excreta	82 - 99 100 - 107
	2.4		107 - 108
		Solid Waste Management	108 - 123
		Disposal of the dead	124 - 127
	2.7	Pest Control	128 - 131
Chapter	3-	Food Safety & Hygiene	133 - 157
	3.1	Inspection of Food Handling Establishments Grading of Food Handling Establishment (H 800)	133 - 144 144 - 150
	3.3	Food Sampling	151 - 152
	3.4		152 - 153
	3.5	Street Vended Food	1 54 - 1 57
Chapter		Public Health Legislation	159 – 186
	4.1	Food Legislation	159 - 166
	4.2	Housing and Related Legislation Quarantine and Prevention of Diseases Ordinance	167 - 175 175 - 179
	4.4		179 -180
	4.5	National Authority on Tobacco and Alcohol Act	180 - 183
	4.6	Prevention of Mosquito Breeding Act	183 - 166
Chapter		Disaster Management	187 – 202
	5.1	Definition of Disaster & Disaster Management	187 - 190 190 - 192
	5.2	Role of the PHI in Disaster Management Assessments	292 - 198
	5.4		199 - 200
	5.5	Disaster Recovery Phase	200 - 201
	5.6	Risk Communication	202
Chapter		Occupational Health	203 - 228
	6.1		203 - 204 204 - 217
	6.2	Occupational Hazards Health Promotion at Workplace	217 - 218
	6.4	Factory Inspection Report	218 - 228
Chapter	7-	Epidemiology	229 – 273
•	7.1		2 29 - 252
		Communicable Diseases	252 - 256
	7.3		256 - 267
	7.4	Emerging and Reemerging Infectious Diseases International Health Regulations	267 - 268 269 - 273

Chapter 8 -	Collection ,Storage, and Transport of Samples for Investigation	275 284
8.1 8.2	Samples for Microbiological Investigations	275 - 2 79 280 - 284
Chapter 9- 9.1 9.2 9.3 9.4 9.5 9.6	Role of The PHI in the School Health Programme School Medical Inspection Health Promoting Schools	285 - 294 285 - 286 286 - 287 287 - 288 288 - 291 291 - 293 293 - 294
Chapter 10 - 10.1 10.2 10.3 10.4 10.5 10.6 10.7 10.8	Communication Participatory Learning and Action Health Learning Materials Concept of Behavior Change Communication Health Education Programme Planning Recording and reporting	295 - 304 295 - 297 298 - 298 298 - 299 299 - 300 300 300 - 302 302 - 304 304
Chapter 11- 11.1 11.2 11.3 11.4 11.5 11.6 11.7	Setting Objectives	305 - 322 305 306 - 309 309 - 311 311 - 312 312 - 314 314 - 316 316 - 317 317 - 322
Chapter 12- 12.1 12.2 12.3 12.4	Persons with Disability	323 - 330 323 - 324 324 - 326 327 - 329 329 - 330
Chapter 13-13.2 13.3 13.4 13.5 13.6 13.7	Memai Health Policy Mental Health Services Mental Health Promotion Factors Affecting mental health wellbeing Promotion mental health and wellbeing	331 - 344 331 - 331 331 - 332 332 - 333 333 - 334 334 335 - 336 336 - 344
Chapter 14 - 14.1 14.2 14.3	Male Participation Introduction Benefits of Male Participation The role of the PHI in promoting male participation	345 - 349 345 - 346 346 - 348 348 - 349



Duties and Responsibilities of Public Health Inspectors

Introduction

The Public Health Inspector is a vital member of the community health system. With the inauguration of the Sanitary Branch of the Medical Department in 1913, six Sanitary Inspectors were appointed after a short period of training for six months at the Ceylon Medical College. Since their recruitment of Sanitary Inspectors was a regular feature. Following the devastation caused by the massive malaria epidemic in the country in 1934/35, the Malaria Control and Health Scheme commenced in 1937. Under this scheme the designation was changed as Sanitary Assistants, at first, but was changed back again as Sanitary Inspectors. The present designation as Public Health inspectors took effect from 1⁵¹ of July 1954, following the recommendations contained in the report by Dr. Cumpston

A landmark in the development of public health in Sn Lanka was the establishment of the Health Unit system in 1926. During the formative years of the Health Unit system attention was mainly on the control of communicable diseases, and Environmental Sanitation and the Public Health Inspector played a key role in the delivery of the necessary services.

The importance of the duties of the Public Health Inspector, who is a crucially important member of the Health Team in the Health Unit, has increased even more, with the introduction of the Primary Health Care system which forms the basis of the delivery of community health care in Sri Lanka. In keeping with the different components of the PHC system, and also in keeping with the advances the public health delivery system has undergone in the past decades, there have been very significant changes in the duties and responsibilities of a Public Health Inspector.

1.1 Duties of Public Health Inspectors (Range)

1. General:

- I. Shall gain the confidence and co-operation of the people of his assigned area
- II. Shall carry out a survey of the area and write a report according to departmental instructions, and prepare a programme of work for approval of the supervising officer, within three months of assuming duties in the area
- III. Shall take prompt action regarding public complaints
- IV. Shall maintain the office in a neat and tidy manner, within the geographical area of the range, according to the departmental instructions

- V. Shall attend to the monthly conference at the M.O.H Office and other official meetings convened by the supervising officers
- VI. All Public Health Inspectors, when on duty, should appear in the uniform provided. They should be attired in a clean and neal manner. The badge and the buttons should be well polished.

2. Control of Communicable Diseases

- 1 Shall investigate cases of communicable disease, keep contacts under surveillance and take appropriate action to prevent the further spread of disease
- Shall carry out immunization programmes in schools according to departmental instructions and assist in immunization at clinics when instructed by the supervising officer.
- III. Shall assist Specialized Campaigns in their disease control activities, when called upon to do so.
- IV. Shall assist in tracing contacts of leprosy, tuberculosis and sexually transmitted diseases and in tracing of treatment defaulters.
- V Shall visit medical institutions in his area and ascertain the communicable diseases treated at these institutions and take appropriate action
- VI. Shall study the mortality and morbidity statistics of the area and submit proposals to the supervising officer regarding control programmes
- VII. Shall regularly inspect houses and advise on the requirements of sanitary latrines, water supply, refuse disposal, light and ventilation, maintenance of a home garden, and ensure that improvements are carried out.

3. Control of Non-Communicable Diseases

- Shall coordinate with relevant stakeholders for the purpose of prevention and control of non-communicable diseases
- II. Shall enforce the law/regulations, as related to non-communicable diseases whenever the PHI is an authorized officer under the specific acts
- III Shall engage in Health Education activities, creating awareness on prevention of non-communicable diseases
- IV. Shall carry out disease surveillance activities and take appropriate action on control of non-communicable diseases, jointly with other health staff.

4. Housing

- Shall report on building applications, carry out inspections of new buildings under construction, and make recommendations on the issue of Certificates of Conformity to completed buildings
- II. Shall report and take action on unauthorized buildings

5. Sanitation

- Shall initiate construction of latrines, and recommend financial assistance, where appropriate, under the Aided Scheme of Latrine Construction
- Shall guide, supervise and monitor the latrine construction programmes implemented in the area

6. Water supply

- Shall supervise the maintenance of Public and Community water supplies and ensure proper disinfection
- II. Shall send samples of water for bacteriological and chemical analysis regularly
- Shall inspect private and public wells and ensure that improvements, whenever necessary, are carried out

7. Waste Disposal

- Shall guide and supervise the proper management and disposal of waste, by the community
- II. Shall supervise the scavenging services of the Local Authorities and ensure regular collection and proper disposal of waste, including at household level

8. Vector Control

- Shall undertake fly and mosquito control programmes, anti-rat programmes, and the abatement of nuisances of public health importance, caused by vectors
- Shall ensure enforcement of regulations under the Prevention of Mosquito Breeding Act

9. Rabies control

 Shall take action to ensure vaccination of dogs against rabies, and control of the stray dog population

10. Food Safety

- Shall carry out a survey of all food handling establishments in his area, and regularly inspect food handling establishment and give advise on improving their sanitary conditions
- II. Shall carry out the responsibilities of an Authorized Officer under the Food Act
- III. Shall approve animals as fit for slaughter, when called upon to do so by the supervising officer, and ensure proper sanitation of slaughter houses
- IV. Shall inspect public fairs, markets, school canteens, mid-day meal programmes, and festivals, and ensure maintenance of proper sanitation when conducting these

11. Sanitation in Medical Institutions

 Shall guide and supervise the sanitation in medical institutions, and submit reports periodically, to the medical officer-in-charge of the institution

12. School Health Work

- Shall prepare the advance programme in consultation with the MOH/ AMOH/ school principals and other health staff
- Shall coordinate the preparation of the school health promotional plan by the principals
- III. Shall offer guidance to the school principals and to health clubs to facilitate implementation of the school canteen policy
- IV. Shall supervise the school mid-day meal programme

- V. Shall carry out a school sanitation health survey according to departmental instructions and formulate a programme of work
- VI. Shall assist the MOH/ AMOH in carrying out the School Medical Inspection (SMI), by screening school children for the SMI. Even if the SMI is not done, screening has to be done. Follow up the progress of children with defects, jointly with education officers.
- VII. Shall carry out immunizations and deworming treatment in schools
- VIII. Shall prepare all school health returns, and send them in a timely manner
- Shall monitor and evaluate the school health programme and take remedial measures whenever necessary

13. Occupational Health and Estate Health

- Shall regularly inspect all factories and work-sites in his area, identify any health hazards that may be present, and give advise on necessary remedial measures.
- Shall regularly inspect all plantation estates in his area and advice on proper environmental sanitation and the control of communicable diseases
- III. Shall assist the Heads of the work places to carry out health promotional activities in the respective work places.

14. Sanitation during Disasters and Epidemics

 Shall organize and supervise health activities related to environmental sanitation, food hygiene and prevention of spread of communicable diseases, during disasters / épidemics, and post disaster situations

15. Mental health

 Shall work in collaboration with the relevant stakeholders, to promote the mental well being of the community

16. Adolescent health

 Shall plan and implement health promotion programmes for the adolescents, in collaboration with the relevant stakeholders

17. Reproductive health

f. Shall ensure male participation in reproductive health programmes

18. Health Promotion and Health Education

 Shall plan and implement a programme of health promotion and health education in his area, and ensure community participation in health activities

19. Records and Reports

 Shall maintain records and submit reports regularly as required by the supervising officer, according to departmental instructions

20. Team work

I. Shall work and maintain a cordial relationship with the other public health staff

21. Any other work

t. Shall carry out any other duties assigned to him by his superior officers

Hours of work

The duty hours of the PHI shall be from 7.30 a.m. to 4.30 p.m. on weekdays and from 7.30 a.m. to 1.00 p.m. on Saturdays.

Although Sundays and public holidays are generally considered "off days", he should remain in station so that he may be contacted by the supervising officers in an emergency. On no account should the PHI leave his area without obtaining prior approval of the supervising officer.

The period between 7,30 a.m. and 12,00 noon in the morning, and between 3.00 p.m. and 4,30 p.m. in the afternoon, on week days, is generally devoted to carry out field work, 12,00 noon to 2,00 p.m. will be the lunch interval. The period between 2.00 p.m. and 3.00 p.m. on week days should be devoted to his office work. On Saturdays the PHI may undertake field werk, or any other work as directed by the supervising officer.

However during emergencies, and while being engaged in special programmes, the PHI may be required to deviate from the above schedule of working hours.

PHII attached to specialized compaigns and special institutions will have to adhere to the duty hours specified in their duty lists.

Note: The duty list of the Public Health Inspector is been currently revised and would be circulated in due course.

Relationship with local authorities

All PHII of the Department of Health are under the purview of the Director General of Health Services, exercised through the relevant departmental supervising officers. In instances when the services of PHII have been seconded to local authorities, such PHII will work under the direct supervision of the Medical Officer of Health, or the Supervising Public Health Inspector of the area, subject to the overall administrative control of the Head of the Local Authority.

All PHII shall discuss with the leaders of Local Authority, regarding the community health problems in his area.

1.2 Office of the public health inspector

Immediately after being appointed to a station, the PHI shall find a suitable building to live, and to maintain his office. The building and the location must be to the satisfaction of his immediate supervising officer. The building should be located within his range and should be accessible to his inspecting officers and to the people of the area. It should be centrally placed and as far as possible, be near a motorable road.

The departmental sign-board indicating his designation must be prominently displayed outside his office.

A separate room shall be set apert as his office, and kept in a clean and tidy manner. It should be open for official inspections throughout the day. All registers, records, and files shall be maintained up to date, properly arranged, and kept accessible for inspection at all times. Maps and charts should be prepared according to departmental instructions and displayed.

PHI Manual - Chapter 1

He should make arrangements with a member of the household or any other person, to make the office available for inspection even in his absence.

Occasionally the PHI may be provided with office accommodation in a local authority building or a departmental building. The PHI is not entitled to an office allowance when he maintains office in such a building.

Public Health InspectorMaintenance of Registers, Records, Statistics and Maps in the Office

The PHI should maintain the following registers, records, books, files, maps and charts.

Registers

- 1. Sanitation and Basic Information Register
- 2. Latrine Construction Register
- 3. Infectious Diseases Register
- 4. Non-Communicable Diseases (NCD) and Disabled Persons Register*
- 5. Notices and Prosecutions Register
- 5. Trade and Industries Register
- 7. Food Analysis Register
- 8. Building Construction Register
- Environmental Pollution and Public Complaints Register*
- 10. Meat Inspection Register
- Consumable Stores Register
- 12. Inward Register
- Outward Register
- 14. Immunization Register*
- Occupational Health and Safety Register*
- Common Sources of Drinking-Water Register* (General Circular No 01- 23/2007(revised) of 01.10.2009)
- 17. Health Education and Health Promotion Activities Register*
- 18. Disaster Preparedness and Response Register*

Books.

- 1. Pocket Note Book
- 2. Summary of Activities
- 3. Monthly Report
- 4. Visitors' Book

PHI Manual - Chapter 1

Files

- I. Departmental Instructions and Circulars
- II. Correspondence
- III. Inventory File
- IV. Food Handling Establishments (H-800)
- V. Tuberculosis (TB) File
- VI, Health Survey File
 - a. List of Beneficiaries of Latrine Construction
- VII. Public Complaints File
- VIII. Programme File
 - a. Monthly Advance Programme
 - b. Annual Latrine Construction Programme
 - School Health Programmes (a separate sub-file could be kept for each school)
 - d. Health Promotion Programme
 - e. Food Safety & Hygiene Programme
 - f. Vector Control Programme
 - g. Rabics Control Programme
 - h. Disaster Management Programme
 - i. Any other special activities or projects

Contents of Registers

1. Sanitation and Basic Information Register

- Serial No: Commencing number should be 01
- II. Name of Chief Occupant: Enter Name of Chief Occupant
- III. Address: Indicate full postal address
- IV. No. of Inmates
- V. No. of Disabled persons
- VI. No. of Elderly persons (over 60 years)
- VII. No. of persons suffering from non-communicable diseases
- VIII. Water Supply: the source from which the household obtains drinking water should be indicated (by the name or code)
 - a) Pipe-borne: Indicate whether water is obtained from a pipe-borne water supply available inside or out side the premises
 - b) Water supplied by tap but obtained from a private well should be included under "Well"

 Well: Indicate whether the well is a private or a public well and whether it is inside or out-side the premises, as follows;

Private well Inside - Pr/I

Private but Oulside - Pr/O - (i.e. a private well but in another household)

Public out-side - Pub/O - (i.e. public schemes maintained by Local Authority,

Water Board, Community Based Organizations in rural areas, or any other institution)

- d) Tube well
- c) Rainwater harvesting tank.
- f) Others

Types of drinking water wells

Fully protected well

- a. It should be located away from potential sources of contamination—and, as far as possible, at a higher level from such sources.
- b. The upper potion of the well should be protected by an impervious casing for at least 3 meters (10 ft.) below the ground level, and for 30 cm above ground level (to prevent surface water from flowing in).
- c. The casing should be surrounded at ground level by a concrete platform at least one meter wide, sloping outwards to allow for waste water to drain away from the well.
- d. A lead awey drain 3 meters (10 feet) long should be provided.
- e. The well should be provided with concrete cover to which a pipe is fitted eccentrically to withdraw water. The opening in the cover for the pipe should be well sealed around the pipe, to prevent entry of water from outside.
- f. A manhole should be provided for inspection purposes, and the rim offlie manhole should project at least 8 cm above the surrounding surface and the manhole cover should overlap it.

For the purpose of this register, a well that has the following features (semi protected) also should be included as a protected welf.

it. Semi-protected well

When it is not possible to have the pump arrangement to draw water, the top of the well has to be kept open, but still the well could be protected from surface pellution. Such a semi-protected well should have the following minimum requirements;

- a) A parapet wall of 3 4 ft. in height, with knife-edge top.
- b) An apron 3 ft wide, around the parapet wall.
- c) Lead away drain 10 ft. long.
- d) Impervious lining of the well for a distance of at least 10 ft. below ground level.
- Separate bucket with affached rope, an a pulley arrangement to raise the bucket of water (users of the well have to use this common bucket)
- f) A suitable stand for placing the bucket when not in use.

PHI Manual - Chapter 1

iii. Unprotected well

Restoration of wells

Whenever an unprotected well is restored to a semi-protected well/protected well, the date of restoration should be indicated. Likewise date of any restoration of a semi-protected well to a protected well is also to be stated.

iv. Tube-wells

Rain-water harvesting tanks

Others

Water supplies other than pipe-born supplies wells, and rainwater harvesting tanks should be indicated here. (rivers, town/village tanks, springs, streams, ponds, etc.)

- IX. Light and Ventilation; the adequacy of light and ventilation is determined according to the standards laid down in the Housing and Town Improvements Ordinance / UDA Act
- X. Latrines: the type of existing latrine should be indicated, whether sanitary Yes / No
 If improved from unsanitary to sanitary type: date of improvement.

XI. Solid Waste Management

Method- the following abbreviations may be used to indicate the method of refuse disposal;

- Burning Burn
- Burying Bury
- Composting Comp
- Removal by Local Authority LA
- Others Oth;
- Whether method is sanitary; Yes/No
- If corrected from insanitary to sanitary disposal method. Date of correction.

All, whether liquid waste management method sanitary,	I BS/NO
XIII. Date of Survey:	
XIV. Remarks:	•

Index: An index should be filled/displayed according following headings by the PHM areas, on the first page of the sanitation register/s.

PHM area:-

GN Division	Village	No. of House	Population	pages		
		Units	_	from	to	
			-			
	-				-	
10.00					1	

<u>Summary</u>: A summary should be displayed at the end of each Sanitation Register

2. Latrine Construction Register

Latrines constructed within the area, including those built under the aided scheme of latrine construction, should be entered in the register according to the following headings:-

- Serial No: The starting number for any year will be no.1.
- II. Name of Chief Occupant: Full name of the chief occupant
- III. Address: Assessment number also should be given in the case of urban areas
- Date on which latrine components were issued: Date of issue of components under the aided scheme (if applicable)
- V. Date on which construction started: Date should be entered after Inspection
- Date of Completion: Date of Completion of the latrine (should be entered after inspection)
- VII. Type: Type of the sanitary latrine.
- VIII. Amount paid and the Funding Agency
- IX. Date of Voucher Submission: The date voucher was submitted to MOH
- X. Amount Deducted for the components already issued: if applicable
- XI. Balance to be paid: Balance amount to be paid after deducting the cost of the components already issued
- XII. Date of Payment: Date of payment of the balance amount
- XIII. Amount paid
- XIV. Reference no. in the Sanitation Register: Reference no. in the sanitation register should be entered for further information
- XV. Remarks: Any other information

3. Infectious Diseases Register

All cases of infectious diseases, whether detected by the PHI, or notified to him, should be promptly investigated using the relevant Investigated Card. The particulars of all cases thus investigated should be entered in the Infectious Diseases Register.

4. Non-Communicable Diseases (NCD) and Disabled Persons' Register

All cases of non-communicable diseases (diabetes mellitus, hypertension, cancer, ischaemic heart disease, stroke, etc.) or any disability, whether detected by the PHI or notified to him, should be entered.

	Heading		Instructions for filling
1	1. Serial No	:	For any given year the starting number should be no.1
2	Name and Address of the chief occupant	;	As in the sanitation register
3	Name of the Patient/ Disabled	:	Name / names of affected person/s
4	4. Age	:	Affected person/s
5	5. Sex	:	Affected person/s
6	6. Nature of the NCD/ Disability	:	One or more NCDs / Disabilities found in affected members of the household to be stated
7	Whether taking treatment	:	Yes/No
8	8. If yes, what system of treatment	;	Western / Indigenous / other

10. Action taken by PHI :

Family/ social support available : Yes / No

11. Remarks :

5. Notices and Prosecutions Register

committed

All information pertaining to notices issued and prosecutions instituted by the PHI should be recorded in this register.

	Heading		Instructions for filling
1.	Serial No.	:	for any given year the starting number should be no.1
2.	Place of offence	:	the actual place where the offence has been committed. Assessment number, Road name, etc should be stated
3.	Name of the owner of the place where offence has been	:	It should be the legal owner of the place

11

PHI Manual Chapter 1

Address : Complete postal address

Name of the offender : Person who actually committed the offence.

Offender can be the owner or an occupier

6. Address : Complete postal address

7. Nature of offence : Brief description of the offence egs:-.

unauthorized construction, unsanitary latrine

8. Date of offence : Insert date of detection by the PHI

9. Date of serving notice : Date on which the notice was actually served

10. Time allowed for rectification : Period given to comply with the

instructions contained in the notice

eg.- 7 days, 14 days

11. Date of compliance : If the instructions have been

complied with, date of completion of

such rectification

Date of institution of a case,
 If legal action was taken

: The date on which the plaint was filed in the

court

Case No. : The number assigned to the plaint, i.e., the

Registration Number

14. Calling date : The date on which the case is due to be taken.

up in the courts.

15. Results if the case has been

disposed of

 Whether accused discharged or punished. If punished, the nature

of punishment

16. Trial date : If the case has been committed for

trial, the date fixed for hearing

17. Result ; Oulcome of the trial

18. Remarks : Any further details / remarks not

included under other headings

6. Trades and Industries Register

The following information on the trades and industries in the area, including dangerous and offensive businesses, excepting food-handling establishments for which a license is required from the local authority, should be maintained in this register.

The inspections should be carried out periodically, at least twice a year. Trades causing problems or leading to complaints should be inspected promptly, as required by the situation which has arisen.

Name and Address of the owner of the premises:-

Name and Address of the owner of the business.-

Nature of the trade/s.-

Number of employees; - Males... Females......

Date of commencement of the business:-

Date	Conditions observed at the Inspections	Actions taken	Remarks

Area of the Local Authority:-

Whether license has been obtained or not:-

7. Food Analysis Register

6.

All samples sent for analysis, whether formal or informal, should be entered in this register.

Instructions for maintaining the register

From whom sample was taken

	Heading		Instructions for filling
1.	Serial No.	:	Numbers in order
2.	Date of Sampling / Seizure	:	The date on which the sample was obtained or goods seized
3.	Formal / Informat/ Chemical/ Bacteriological	:	This could be marked with codes "F", "I", "C", "B" - eg:-, F/C, I/B etc., (English Letters should be used, as Indicated above)
4.	Nature of article/s sampled or seized	:	The type of the article (e.g.: coffee powder in bulk pack, Gingelly oil in 2 oz. bottles packed by Harendra and Co, Matale, Peanuts in gunny bag)
5.	Number of samples taken	:	This should include the number of samples taken, with quantity in each sample (by weight/volume)

The name of the person who was setting the sampled material, or person in charge of sales / in charge of factory, at the time

PHI Menual - Chapter 1

Place of sampling or seizure The name of the shop, and address, with number and street name Owner of business 8. The name of the owner, manager or establishment. senior partner should be entered egs:- Govt. Analyst -13/06/2008, MRI -Date on which sample/s was: 15/06/2008 or other Officer 10. Ref. No. of Analyst Report and Any delay in receiving the report, by the date of receipt PHI, subsequent to the report reaching the given address, must be mentioned in the remarks column if a prosecution could not be filed due to this delay 11. Findings in the Report The report of the Analyst should be stated briefly Action taken Whether noticed , prosecuted , or corrected, with date or no action taken. If prosecuted - date, case number and If no action taken - reason should be entered in the remarks, column

8. Building Construction Register

Result following prosecution:

Remarks

Records of all building applications received for new crections, alterations, or any additions, should be included in this register.

Any notes required under 10 and 12

Instructions for maintaining the register

Heading Instructions for filling Senal No. Numbers in order 2. Local Authority Reference No. This is the serial number assigned to the application by the local Authority. Name of applicant Full name as given in the application Address Full postal address 5. Location Details of location, including assessment number, access road Building will be used for Specify whether - Residential, or what purpose Commercial, Industrial etc.

7. Type of Application : Whether new exection, alteration or reerection

PHI Manual - Chapter 1

8. Temporary or permanent

building

If it is revealed that the application is in order, state the date of receipt of the application;

Otherwise state the date on which the

corrected application was

handed over

9. Date of receipt of application

Date of report

11. Recommendation : Whether application is recommended or not.

If not recommended, give reasons in

the remarks column

12. Date of permit : Date as given on the permit

Issue of the Certificate of Conformity

1. Date of application : Date stated in the application

2. Date of receipt : Date of receipt by PHI

3. Date of report : Date on which recommendation re- conformity is

done

Recommendation : recommended or not

Date of issue : Date of issue of Certificate of Conformity (COC)

6. Remarks : If any

9. Environmental Pollution and Public Complaints Register

Every complaint which has been received in writing /verbally / by telephone / fax / e-mail, should be entered in this register.

Guidelines for filling the register

- 1. Serial No
- 2. Date:
- 3. Name and address of the complainant :
- 4. Nature of complaint: pollution / nuisance etc.
- 5. Modia through which the complaint was received: written/ verbal/ telephone
- Date of inspection:
- 7. Action taken:
- 8. Result:
- 9. Remarks:

10. Meat Inspection Register

Guidelines for filling the register

Heading Instructions for filling

Serial No.
 For any given year the starting

number will be no. 1

Name of Licensed butcher/s ; Enter name/s of butcher/s

3. Date of purchase of animal : Date of purchase is the date that is in the

receipt

Description of the animal : Type of animal- Cattle, Buffalo, Goat, etc.

Age, Sex, Brand marks

5. Name & address of the seller : give complete postal address

Date of pounding :

7. Time of pounding :

8. Proposed date of slaughter : If an animal is not slaughtered on the

proposed date, an entry to that effect should be made in the remarks column. If rejected,

word "rejected" should be stated

9. Actual date of slaughter : Time of slaughter

Whether hide checked : Yes / No

11. Remarks : Any further relevant details may be entered

here

11. Consumable Stores Register (Form health 287)

12. Inward Register (General form 16)

13. Outward Register (General form 17)

14. Immunization Register

All immunizations done by the PHI should be entered in this register. An adequate number of pages must be allocated for each type of immunization.

Instructions for maintaining register

Headings (for each type of immunization)

- 1. Serial No:
- 2. Date:
- 3. Name of recipient:
- 4. Age:

- 5. Sex:
- 6. Batch Number of vaccine:
- 7. Date of expiry:
- 8. Place or immunization:
- 9. Any adverse effects Following Immunization: if reported (specify)
- 10. Remarks:

15. Occupational Health and Safety Register

Details of all Institutions including Factories, Offices, schools, Public or Private Institutions, Medical Institutions, Religious places, Educational centers, Day Care centers, Pre-Schools and Lodging houses should be entered in this register.

Name and Address of the owner of the premises:

Nature of the occupation/ service/ business:

Number of employees: Males / Females

Area of the Local Authority:

Whether license has been obtained or not:

Environment						Welfare facilities					Waste disposal				
Light / Ventilation	Heat	Noise	Temperature	Radiation	Emissions	Drinking water	Toilets	Меаі гоот	Availability of First Aid	Personal Protective Equipment	Rest room	Solids	Liquids	Gas, Furnes, Dust	Any Action taken
		/ Ventilation	/ Ventilation serature ttion sions ing water	/ Ventilation rerature ttion sions ing water	/ Ventilation serature ttion sions ing water ts	/ Ventilation berature ttion sions ing water ts room ability of First Aid	/ Ventilation berature tition sions ing water toom ability of First Aid	/ Ventilation rerature tition slons ing water room room ability of First Aid nal Protective Equipment room	Funition Metature sing water room ability of First Aid ability of First Aid soom soom	Funition All Protective Equipment From Application App	Funition sions sions sions room ability of First Aid ability of First Aid scom scom Fumes, Dust Fumes, Dust				

16. Common Sources of Drinking Water Register

(General circular No; 01-23/2007 (Revised) Dated: 01.10.2009 on Drinking water quality surveillance)

PHI should identify all common drinking water sources that are present in his range and their distribution perimeter. He must also maintain a register and a map that include all common drinking water sources in his range.

Following data must be maintained on first page of the register as an Index.

Serial No	Name of the water supply	Number of households covered (approx.)	Location / address	Water service provider responsible for management/ maintenance	Contact number or address of the service provider
-					

Note: For the purpose of water quality surveillance, a common source of drinking water is defined as "a water source providing water intended for human consumption and other domestic uses, for at least 10 households".

The information on common drinking water sources should be maintained according to the following headings of the register.

	er				Results		Resu	Resul	t	Action taken /	2
GN Division	Name of the common drinking water sources	Date of Inspection	Date of Testing for Free Chlorine	Number of Tests done	No. of samples found satisfactory	No. of samples found unsatisfactory	Date of sampling for bacteriological examination Examination	No. of samples found satisfactory	No. of samples found unsatisfactory	References	Date of sending Quarterly Return the MOH

17. Health Education and Health Promotion Activities Register

All health education activities and health promotion activities conducted by the Public Health Inspector should be recorded, and a Register maintained as follows:-

- I. Date
- II. Place
- III. Topic/s covered
- IV. Objective/s of the programme
- V. Target group/s
- VI. Method/s
- VII. No of Participants
- VIII. Outcome

18. Disaster Preparedness and Response register

This register consists of two parts.

Part 1 - (preparedness) will contain the following information:-

- 1. Preparedness plan
- 2. Resource persons' addresses and contact telephone numbers
- 3. Addresses and contact telephone numbers of volunteers
- Map/s of the area/s prone to natural disasters (floods, land slides, etc.)

Part 2 - (actual disasters) will contain the following information:-

- 1. Serial No.
- 2. Date on which disaster occurred
- Place.
- 4. Affected areas/villages
- Affected families (with numbers of Households)
- No of affected persons: categorized by sex , Infant / others, Lactating mothers.
 Disabled persons , Elcerly people (>60 yrs)
- 7. No. of Displaced Persons
- 8. No. of persons dead
- 9. No. of persons injured
- 10. No. of IDP Camps
- 11. Date of opening of the IDP camp/s
- 12. Date of closing of the IDP camp/s
- 13. Romarks

Pocket Note Book (H-253)

The Pocket Note Book is provided by the Department, and It should be always carried by the PHI when on duty. The Pocket Note Book is a legally valid and a very important document of the PHI, related to his duties, and therefore it should be kept clean and tidy, up to date, and in a very safe manner. This note book should be properly maintained, according to the following instructions:-

- Before starting to use a new pocket note book, it should have an endorsement, along with the seal of the immediate supervising officer.
- 2. Notes should be written in a legible, descriptive and a readable manner.
- 3. Any official language may be used. Technical words, as necessary, may be used
- The pages should be serially numbered clearly, in red colour, page number being placed on the top of each page.
- 5. Beginning the day at first, enter the data using the following format.

Date an	egs:- 20/11/2008 Tuesday			
		am	ρm	
Place of work	-	•		
Time of depart	-	-		
Time of arrival	in the field	-	-	
Time of leaving	g field	-	-	
Time of return	-	-		
Distance travelled	By vehicle maintained by PHI	km	km	
during day	by public transport	km	km	

^{*}Enter your programmed duty place from your list. Every duty station should have been listed out and numbered soon after assuming duties in a new station. Every village, school, estate, clinic, office, Pradeshiya Sabha, and other important places, should be included in the list in an alphabetical order. The list of duty stations should be displayed on the Administration Board and on the first page of the Summary of Activities, in his office.

- When performing duties, soon after each activity the work done must be documented in a descriptive manner, step by step.
- When back in office, go through the documented notes in the Pocket Note Book, and enter whatever necessary data, in to the registers and files in the office.

PHI Manual - Chapter 1

- 8. The pocket note book should be produced to any Supervising Officer, or in a court of law, to the magistrate/judge, on demand.
- The Pocket Note Book should be submitted for inspection and signature of the Supervising Officer, once a month.
- 10. Do not leave unnecessary blank spaces while making notes in the Pocket Note Book. After finishing making entries for the day, if any such empty spaces are noticed, obliterate these spaces by drawing a straight / zigzag line.
- Pocket note book shall be maintained and kept updated. The PHI should preserve all Pocket Note Books used by him.
- 12. A newly appointed PHI shall start a new Pocket Note Book.

Visitors' Book

The pages of this book should be serially numbered. Whenever a note or an observation is made by an Inspecting Officer / Supervising Officer, a certified copy of it has to be made, and should be forwarded by the PHI to the MOH, within seven days of the endorsement in the Visitors' Book. Any explanations that the PHI may have to offer also should be submitted along with this certified copy.

Specimen Page of Visitors' Book		
Name and Designation of Visitor:		Page No.
Date and Time of Visit:		
Observations	Action Taken	

Summary of Activities

A CR book is provided for maintaining a summary of daily activities. For each day, the following preliminary information should be entered first, followed by the summary of activities performed by the PHI, in the same order as given in the Monthly Report. This format enables the PHI to obtain a complete summary of activities at the end of the month. It should be maintained up to date.

			000	Dates of the month							
			1	2	3	4	5	6	7	8	
Place of work		AM		1			T				
							Г	<u> </u>			
Time of departure for	AM		1	-						t	
	PM		T								
Time of arrival in the	AM							İ		t	
	PM	-				1 2					
Time of leaving from	AM	\top	\dagger							T	
	PM										
Time of returning to	the office	AM		\vdash							Ť
	PM	\neg									
Distance travelled	by vehicle		1		-					T	
	by public to									l	
Housing and Sani	_	T							H		
No. of Houses new				-		Г			1		
No. of Houses re- surveyed							T				T
No. of Latrines inspected											t
No. of inspections for re- new building applications											
Water Safety				T			Г				Ì
No. of Water Samp	les taken	For Bacteriologic	al								
		Examination For Chemical				\vdash					-
	Examination			L	L						
No. of community w		s inspected									L
No. of wells inspect											L
No. of wells chloring											L
No. of water sample	es tested for	residual	1		1						
chlorine											L
No. of community w											L
No. of Food Handli	ng Establish	ments									
newly registered										-	
No. of Food Handlin			1		L						
No. of food sample	s taken	Formal C/B									
		Informal C/B									
No. of food items s	eized										Γ

No. of awareness programmes conducted		П	П	П	\top
No. of animals passed for slaughter					
No. of meat stalls inspected					
Occupational Health and Safety					
No. of factories / Trade institutions inspected					
No. of awareness programmes done	TT				
No. of service programmes conducted					
No. of visits for estate sanitation					
No. of visits to public institutions					T
School Health Programme					
No. of school sanitary surveys done					
No. of schools arranged for SMI s to be done				\Box	
No. of School Medical Inspections done		\Box			
No. of follow up visits for correction of defects					
Control of Communicable Diseases					
No. of ID notifications received					
No. of cases detected by PHI / other sources	TT				
N. of ID cases investigated					
No. of immunizations done					
Rabies Control Activities					
No. of dogs vaccinated					
No. of dogs sterilized					1
No. of dogs eliminated					
Control of Environmental Pollution					
No. of Public complaints on environmental pollution investigated					
		1			
No. of violations detected by PHI/ other sources		11			
No. of violations detected by PHI/ other sources No. of problem situations settled					

No. of visit to Medical Institut	ions				
Health Education and Heal	th Promotion				
No of Health Education	Schools		11		T
programmes done	Community				1
	Food handlers				1
	Volunteers				
	Employees			11	
	Other groups				
No. of Participatory Health P	romotion			11	\top
programmes done					
-	- N				
Volunteer training program	imes				
No. of Volunteer training prog	grammes done				
No. of Health Promotion Activ	vities with			2	
Volunteers					
Others					
No. of inspection visits to well	fare centres				
No. of inspection visits to EC	CD centres				
No. of inspection visits to Ref	habilitation			8	
Institutions					
No. of in-service training prog	grammes,	2.9			
work shops, and meetings, a	at which the PHI			11	
participated					
Legal Action					
No. of prosecutions					
No. of visits to Courts for lega	al proceedings				
Any other Activities					

Monthly Report

Instructions for maintaining the Public Health Inspector's Monthly Report (Health 631 – Revised)

The Monthly Report format of Public Health Inspectors working in Health Unit areas has been revised considering the following reasons;

- Improving the accuracy of collection and reporting of data
- Avoiding duplication and redundancy of information reported to the district and central levels
- Enabling better monitoring of activities of the Public Health Inspector

Structure of the Monthly Report

M.R. consists of two parts:

- a Part 1
- b. Parl 11

Part 1

Part 1 will deal with general information of the PHI area, under the following sub-headings:-

- 1. Extent of the area (taken from Div Secretary Office).
- Population should be given as Urban, Rural and Estate rural = Pradeshiya Sabha
 - No. of houses in estates can be estimated as 1/5 of the estate population (should tally with the figures in the Survey Report and Sanitation Register)
- 3. Local authority state the name of the LA
- Drv. Secretary usually the MOH area corresponds to area of the DS area; state the name of the DS area.
- 5. GN divisions state the number of GN divisions.
- List of Medical Institutions This refers to the medical institutions with facilities for indoor patients. Names of the institutions should be stated
- Number of private Dispensaries Refers to the places where only dispensaries outdoor freatment is given
- Number of pharmacies state the no. of registered and not registered pharmacies, separately
- Schools Two groups are identified, viz., schools with < 200 students and schools with > 200 students
- 10. No. of public lattnes This refers to sets of lattnes which can be used by any member of the public. A set of lattnes, even if it contains more than one individual toilet unit, is considered as one. A group of latrines which is meant for the use of a particular cluster of people or houses should not be considered as public latrines, eg:- A set of latrines in a Government Institutions.
- 11. Community water supply schemes State the name of the scheme. A common water supply scheme could be a large one, or for a limited no. of houses. Only those schemes where the main installation is in the PHI area should be included, and not the schemes in which the source of pipe-borne water is a scheme located in an outside the area, also supplying other PHI areas (egs:- water from Labuqama or Kalatuwawa Sheme reaching Colombo city).
- No. of Food Handling Establishments Factories, Bakeries, Hotels/Restaurants, Snack Bars, Tea/coffee kiosks, Groceries, Others, Total =

Note: The first 6 types of places stated here are considered as Food Handling Establishments, defined under Local Authority regulations. Category 'Others' will include places not belonging to any of these 6 groups.

- 13. No. of Slaughter Refers to staughter houses registered by the Local Authority, which can be inspected by the PHI, and not the illicit staughtering locations.
- 14. No. of meat stails.
- 15. No. of fish statts
- No. of Poultry stalls (include stalls selling Chicken, Turkey, Bush quail, and Ouck)
- 17. No. of Pig farms
- 18. No. of grawn farms
- 19. No. of Poultry farms
- 20 No. of farms with other animals
- 21. No. of public markets
- 22. No. of public fairs / 'potas'
- 23. No. of street food outlets (refers to persons who carry out the trade without a fixed location or a building- eg. selling lunch packets on the pavement, vans/carts setting string hoppers)
- 24. Festivals refers to festivals at which the public health staff has to make special arrangements to provide services for the welfare of the public
- 25. No. of Industrial establishments
 - with < 500 employees
 - with > 500 employees
- No. of dangerous / offensive trades these trades are gazetted by the relevant local authority. (eg:- Grinding Mills and Stone Crushing Mills
- 27. No. of public cemeteries
- 28. No. of estates
- No. of welfare centers for the- Displaced (would included refugee camps), Elderly, Disabled, Day-Care Centers

No. of welfare centers may vary depending on the area. If you have places not mentioned in the MR already, you can include.

Part 1

should be completed by January of the particular year. Additions/ alterations could be made whenever required, and in both copies.

Part 11

This is divided into following main chapters:-

- A Housing and Sanitation
- Water supply
- C Food Safety and Hygiene
- D Occupational Health
- E School Health
- F Control of Communicable Diseases
- G Environmental Pollution
- H Volunteer Programmes
- I Health Education

PHI Manual - Chapter 1

- J Welfare Centers for displaced persons
- K Legal Actions
- L List of Training Programes attended
- M List of Seminars, Workshops attended
- N Special Programmes conducted / participated

Each chapter will include the activities conducted, and the relevant statistics pertaining to a major function performed by the PHI.

Collection of Information for the Monthly Report

Information for filling the Monthly Report format is collected by a Public Health Inspector while carrying out his daily work. The following records and registers are maintained by a PHI in carrying out his technical functions.

- 1. Sanitation Register.
- 2. Latrine Construction Register.
- 3. Infectious Diseases Register.
- Notices and Prosecutions Register.
- 5. Licensed Trades Register.
- 6. Building Applications Register.
- 7. Building Applications (temporary buildings) Register.
- Slaughter Houses Register.
- 9. Disaster Preparedness & Response Register

During field work the Public Health Inspector will record data in his Pocket Note Book and in other Registers that he may carry with him to the field. At the end of the day, the work performed during the day is quantified, and entered as the summary of work, in a format similar to that of the Monthly Report.

At the end of the month, the daily summaries are totaled, and the figures for the whole month transferred to the Monthly Report,

The Monthly Report should be completed in two copies. At the end of each month, one copy should be sent to the MOH office and other copy kept with the PHI.

Instructions for completing the Part II of Monthly Report

The numbers given below correspond to those in the printed form H-631 (rev.) booklet.

Parf II consists of three categories of columns;

- Monthly column
- Quarterly column
- III. Yearly column

Total of the data for the activities done during the previous year will be contained in the first column, and the total data for the activities done during the whole year will appear in the last column.

Each monthly column should be filled immediately after the last day of the relevant month.

A - Housing & Sanitation

- a. No. of houses in the Sanitation Register at the end of the month. This figure should be obtained from the Sanitation Register.
- b. Houses without sanitary latrines
- c. Houses with sanitary latrines
- d. Latrines constructed the during the month

Above details should be taken from the Sanilation Register and should be filled immediately after the last day of that month. However, this data will depend on;

- i. No. of new houses registered and the type of latrines they have
- ii. Number and the type of new latrines constructed during that month

To illustrate, an example is given below:

		Previous year's total (in red colour)	January	February	March	First Quarter (in red colour)
а	No. of houses in the sanilation register at the end of the previous month	2500	2505 five new houses added			figure on 31 st March
b	Houses without latrines	250	246 -I added -5 houses acquired latrines			-do-
C	No. of houses with insanitary latrines	250	252 2 added			-do-
d	Total no. of houses without a sanilary latrine	500	498 2 insanitary latrines converted to sanitary type			-do-
е	Water sealed type Latrines	2000	2007 5- new 2- converted from insanilary type			-do-
f	Other types	0	0			-do-
	Total No. of houses With a sanitary latrine	2000	2007			-do-

Latr	ine construction	1				
		Previous year's total (in red colour)	January	February	March	First quarter (in red colour)
A	Water sealed type		5		4.	Cumulative total for quarter
В	Others		0			-do-
C	Total		5		20	-do-

Note: 5 new houses were identified during the month, as follows:-

- 2 houses with sanitary latrines
- 2 houses with insanitary latrines
- 1 house without a latrine

B - Building applications

- No. of new applications received per month. Total no. of applications received, both for permanent and temporary buildings, should be recorded
- No. of inspections carried out for re- building applications, excluding the inspections carried out for the purpose of issue of Certificate of Conformity

C - Water supply

 No. of houses, obtaining water according to the source (no. of houses against each source should be mentioned for each month)

As others, include sources other than those belonging viii (a) to viii (d) in the Sanitation & Basic Information Register. Total No. of houses should be equal to the number in the Sanitation register.

- ii. No. of public water supplies sampled
- iii. No. of private water sources sampled
- iv. No. of wells chlorinated

D - Food Safety and Hygiene

Data for this section is obtained from the file for Food-handling Trades Inspection rating form (H-800), Food Analysis Register, and from the Notices and Prosecutions Register.

- Registration of food-handling establishments
 No. registered for the first time will be entered, by the category and location
- II. Inspection of food-handling establishments
 No. of inspections This includes the no. of visits for new registrations and the number of subsequent visits done by PHI

- III. Food sampling data related to food sampling is entered under ...
 - a. Formal samples
 - b. Informal samples
 - c. Food seizures
- IV. No. of awareness programmes conducted, on food hygiene Data for this section is obtained from the special activities file
- V. Slaughter of animals
 Data collected from slaughter houses register

D - Occupational Health

- No of Eactories
- ii. No. Inspected A factory is counted as inspected, only when the relevant inspection report is completed
- iii. No. of defects found
- iv. No. of defects referred to special units
- v. No, corrected
- vi. No. of educational programmes conducted
- vii. No. of service programmes conducted

Note: for D-ii to D-vii, state the number applicable to that particular month only in the monthly column. Then state the cumulative total for that quarter, in the quarterly column.

E - School Health

- i. School Sanitary Surveys
- ii. School Medical Inspections
- iii. School Health Clubs

Data should be obtained from School Health Quarterly Return. School Health Clubs refer to functioning School Health Clubs only.

No, functioning clubs by the last day of each month should be entered in each column.

F- Control of communicable diseases

- No. of notifications received This should also include any cases detected by the PHI, or informed to him by the community, for which an investigation form is completed
- II. No. remaining from previous month refers to the cases pending investigation from previous month. No. of such cases for that particular month should be filled in the monthly column. Quarterly and Yearly columns need not be filled for this item.
- III. No. investigated No. of cases investigated by PHI (out of the notifications received during the month + pending from last month)
- IV. No. confirmed No. of cases in which the diagnosis has been confirmed following the investigation, out of the total no. of cases investigated during the month by the PHI
- V. Not traceable No of cases which could not be traced, out of the notified cases

Disease outbreaks

- i. No. of outbreaks notified
- ii No. of outbreaks investigated

This refers to the no, of outbreaks investigated by PHI out of the total notified during the month. The cumulative totals should be given under Quarterly and Yearly columns.

Immunization programmes

- No. of sessions of participation This refers to the total no of immunization sessions that PHI has participated
- II. No, of immunizations done by PHI The PHI should report only the no, of immunizations given by him during the particular month (no of children). The total no, by the dose and by the age of the child, as given at each clinic, is reported by way of the clinic reports.

Rabies Control

- 1. No, of human rabies cases Cases reported during each particular month only
- II. No. of dogs vaccinated This would include only the domestic dogs
- III. No. of dogs eliminated

G - Environmental Pollution

Environmental pollution problems

- No. of complaints received complaints received by PHI in writing for that particular month.
- No. detected PHI No. of environmental problems detected by PHI in addition to those notified to him
- III. No. investigated
- IV. No. settled Refers to the problems settled by PRI at MOH level.
- V. No. referred for action Problems which cannot be settled by PHI should be referred, and state here the no- of such problems referred.

H - Volunteer programmes

- 1. No, of volunteers in the area
- II. No recruited during month

Training of volunteers

- No. of programmes No. of volunteer programmes conducted as per the guidelines provided by the Health Education Bureau
- II. No trained No, of volunteers who have completed training as per the curriculum provided by Health Education Bureau

! - Health Education

- 1. Schools
- II. Community
- III. Other groups
- IV. Total

No. of programmes conducted during a particular month should be stated in the monthly column, and cumulative total given in the quarterly and yearly columns.

J - Welfare centres for displaced persons

- No, of centres in the area No, existing as at the last day of the each month is stated in the monthly column
- b. No. visited during the month

Note: More than one visit covering the same centre, will still be taken as one visit. Therefore the no. of visits should not exceed the no. of centres in the area.

Guidelines for filling each column in part 11 of Monthly Register

Monthly columns

Each monthly column should be filled immediately after the last day of the relevant month.

Table below shows which number is to be used in each monthly column, under the main sub headings in part 2 of Monthly Report.

		The no. available on last day of month	No. for that particular month only
Α	Housing & Sanitation	1,2,3	4,5,6,7,8
В	Water supply	1	2,3,4
С	Food safety	1	2,3,4,5
D	Occupational Health	1.1 , 2.1	1.1-1.7, 2.2 2.4
Е	School Health	1,2,3	-
F	Control of communicable diseases		1,2,3,4
G	Environmental pollution	-	1,2,3,4,5,6,7,8,9
Н	Volunteer programmes	1	2,3
1	Health Education		1
J	Welfare centres	1	2,3

Quarterly Column

		The no. available on last day of month preceding the quarter (eg: 31 st March for 1 st quarter)	Cumulative total for that particular quarter
Α	Housing & Sanitation	1,2, 3	4,5,6,7
В	Water supply	1	3,4
Ç	Food safety	1	2,3,4,5
D	Occupational Health	1.1, 2.1	1.2-1.7, 2.2 2.4
Ε	School Health	1,2,3	-
F	Control of communicable diseases	-	1(except 1.2) ,2,3,4
G	Environmental pollution	7	1,2,3,4,5,6, 8,9
н	Volunteer programmes	1	2,3
I	Health Education	<u>-</u>	1
J	Welfare centres	1	3

Yearly column

		The no. available on last day of month preceding the quarter (eg: 31 st March for 1 st quarter)	Cumulative total for that particular quarter
Α	Housing & Sanitation	1,2, 3	4,5,6,7,8
В	Water supply	1	3,4
C	Food safety	1	2,3,4,5
D	Occupational Health	1.1, 2.1	1.2-1.7, 2.2 2.4
E	School Health	1,2,3	
F	Control of communicable diseases	*	1(except 1.2) ,2,3,4
G	Environmental pollution	7	1,2,3,4,5,6, 8,9
Н	Volunteer programmes	1	2,3
- 1	Health Education		1
J	Welfare centres	1	3

Note: numbers used to fill the columns in this table are the numbers given in Part 11 of MR (H 631 Rev.) under each sub headings.

Maps, Charts and Office Boards

Boards

No. of Boards which should be maintained for the display of maps/charts - 05

Dimensions of each board - Height 3'

- Width 2'

Titles of Boards: 1. Administration & Statistics

- 2. Epidemiology
- 3. Environmental Health
- 4. School Health
- 5. Miscellaneous

Board 1 - Administration & Statistics

Contents

(a) Area Map

- Size A3 paper size.
- The map should be drawn in black.
- There should be a standard legend.
- Boundary lines should correspond to Grama Niladhari Division boundary lines
- PHMM areas should be demarcated with a green interrupted line.
- The map should indicate the locations of the PHI office, offices of PHMM, hospitals and health centers, clinics, government institutions, important private institutions, religious places, highways and sub roads, irrigation schemes, and other important and relevant places.
- Standard colours and codes should be used.
- North direction should be indicated.

(b) Administration Form - Health 795 (Revised)

- Size of the format A 4
- A specimen is shown in Annex-1

(c) Public Health Statistics Form - Health 796 (Revised)

- Size of the format A 4
- A specimen is shown in Annex 2

Board 2 - Epidemiology Contents

(a) Spot Maps

(I) Map 1

- Size A 4 paper
- This map shows current cases of communicable diseases and the map should be similar to the map displayed on the Administration board
- A case of communicable disease should be marked with a pin of standard colour, after investigation and confirmation of diagnosis
- The above pin should be removed after confirmation of recovery of the patient, ascertained through follow up visits

(II) Map 2

 This map shows the number of cumulative cases of communicable diseases during the year. This map also should be similar to the map displayed on the Administration board

(b) Specific Communicable Diseases

- Size of the paper A 4
- Line graphs should be maintained for the 5 selected most prominent communicable diseases, for the previous and current years, by month, in five different colours as shown in Annex 3.

(c) Non Communicable Diseases

- Size of the paper A 4
- Identified cases of Myocardial Infarction (MI)/ Ischaemic Heart Disease (IHD),
 Cancer, Diabetes, Stroke and Hypertension should be shown in a bar diagram, in five different colours for the last four years.

This should commence from current year.

Colours for different bars:

MI - Red
Cancer - Blue
Diabetes - Green
Stroke - Yellow
Hypertension - Brown

An example is shown in Annex- 4.

Board 3 - Environmental Health

Contents

(a) Food Safety

Size of the paper - A 4

(I) Assessment of Food Handling Establishments

 A bar diagram should be maintained covering the total no. of food handling establishments, according to their grades (determined through assessment), quarterly for the previous year and current year, as shown in Annex-5.

(II) Food Sampling

- Information on food sampling should be shown in a bar chart, by the month, as shown in Annex- 6.
- Colours for graphs:

Annual target for taking samples - Red interrupted line

No. of Samples taken for,

- chemical analysis -Black
- bacteriological analysis Red

(b) Water Safety

- Size of the paper A 4
- . Common drinking water sources in the area should be shown in a map

(c) Occupational Health

(I) Types of Factories

 Factories available in the area should be shown in a bar diagram according to their categories

An example is shown in Annex- 7

(II) Factory Inspection

 A bar diagram should be maintained to indicate data on factory inspection, quarterly

An example is shown in Annex- 8.

PHI Manual - Chapter 1

(d) Solid Waste Management

 Available solid waste disposal methods in the area should be shown in a bar diagram, for the last two years

An example is shown in Annex-9.

Board 4 - School Health

Contents

(a) School Medical Inspections

- · Size of the paper A4
- Information on school medical inspections should be shown in separate bar diagrams for previous and current years, as shown in the annex- 10

Colours for graphs:

No. to be examined Red

No. examined: Black

No. with defects: Blue

No. of defects: Yellow

No. corrected: Green

(b) Specific Defects & Defects Corrected

- Size of the paper A4
- 4 most prominent defects detected should be shown in a bar chart in different colours for previous year and current year
- Current year chart should be updated quarterly (cumulative)

Example: Annex- 11

(c) Immunization

- Size of the paper A4
- Immunization of school children with T. Toxoid, Rubella and DT/OPV should be shown in separate bar diagrams for previous years and current year, as shown in this example (Annex- 12)

Colours for graphs:

Target - Red No. Immunized - Slack

(d) School Sanitary Survey

- Size of the paper A4
- Information on adequacy of sanitary latrines, safe water supply, and sanitary disposal of garbage, should be shown in bar diagrams for both previous years and current year, separately

Colours for graphs:

No. of schools - Red

Sanitary surveys completed - Black
Sanitary latrines - Yellow

Water supply - Blue

Disposal of garbage - Green

Example: Annex- 13

Board 5 - Miscellaneous

Any other activities except those covered under the above topics already dealt with, should be shown on this board, by using appropriate and creative methods of display.

Annex - 1

Health .	-795 (R	evised)
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ADMINISTRATION

Range:....

POPULATION

Grama Niladhari		Name of	No. of Dwellings	Pop	pulation	
Division & Code No.	No.	No. Village/Street/ Ward/ Estate		Actual	Estimated	
					-	
3						
					<u></u>	
TOTAL						
TOTAL ESTATE P	OPULA	TION				

Annex - 2

Health- 796 (Revised)

PUBLIC HEALTH STATISTICS

Area:
Divisional Secretary Area:
Local Authority:
No. of Grama Niladhari Divisions:No of: Villages/Streets/Estates/Wards

		Year						
	Description		20	20	20	20		
Populatio	n a transfer				Section 1			
	Urban							
	Rural							
	Estate							
	Total							
Vital Stati	stics in the state of	40000000000000000000000000000000000000		en en de la constant		2 10 10 10 10		
	Births							
	Deaths							
Communi (Confirme	cable Diseases d Cases)	6.00						
Group A	Cholera							
	Plague							
	Yellow Fever							
Group B	Poliomyelitis / AFP							
	Chicken pox							
	Dengue Fever/DHF							
	Diphtheria							
	Dysentery							
	Encephalitis							
	Enteric Fever							
	Food Poisoning							
	Human Rabies							
	Leptospirosis							
	Malaria							
	Measles					9		
	Meningitis							
	Mumps		15.758					

	Description	20	20	20	20	20
	Rubella/CRS					
	Simple Continued Fever]	
	Tetanus					
	Typhus Fever					
	Viral Hepatitis					
	Whooping Cough					
	SARS/Suspected for SARS					
	Tuberculosis					
Sanitatio	nada Barata Alakar				F. (2)	
No. of Hou	uses with Sanitary Latrines		1			
No. of Ho	uses with Insanitary Latrines					
No. of Ho	uses without Latrines					
Water Sa	fety				14.17.14	THE PARTY
No. of Hou Supplies	uses with Safe Water		- The Congulation of the			
No. of Hou Supplies	uses with Unsafe Water					
Food Safe	ety	CONTRACTOR OF STREET		Carrier		
No. of Foo	od Factories					
No. of Bal	keries					
No. of Hot	els / Restaurants					
No. of Sna	ack Bars					
No. of Tea	& Coffee Kiosks					
No. of Gro	oceries					
No. of Oth	ers			- 20 391091		
School H	ealth	- P	1 法国	思想的	以	KIN O
No. of Sch	nools less than 200 children					
No. of Sch children	nools more than 200					
No. of Priv	vate Schools					
No. of Piri	vena Schools					
Total Scho	ool Population in All Schools					
No. of Pre	Schools					
Occupation	onal Health	A Company			Tar A	1000000

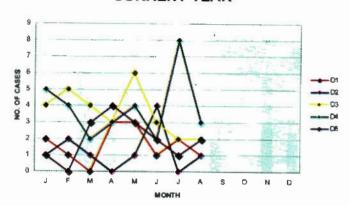
PHI Manual - Chapter 1

Description		20	20	20	20	20
Medical Institu	tions & Pharmacies			100		
No. of	Western					
Government Medical Institutions	Indigenous					
No. of Private	Western					
Hospitals	Indigenous/Others					
No. of Private	Western					
Dispensaries	Indigenous					
*	Others					
No. of Pharmac	ies			1000		
Others		医 3人			第13 0年	1000年
No. of Welfare	Centres for Children					
No. of Welfare	Centres for Elders					
No. of Refugee	Camps					

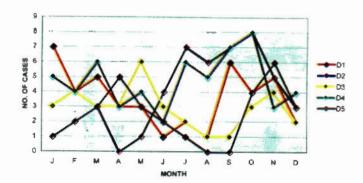
Annex - 3

SPECIFIC COMMUNICABLE DISEASES

CURRENT YEAR

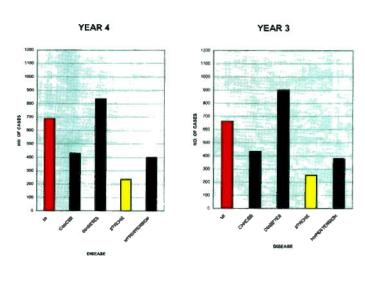


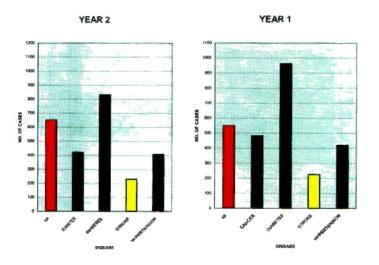
PREVIOUS YEAR



Annex - 4

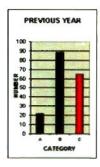
NON COMMUNICABLE DISEASES

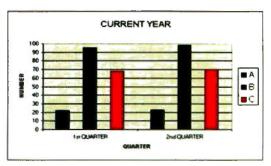


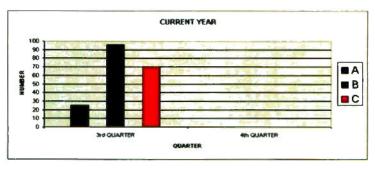


FOOD SAFETY

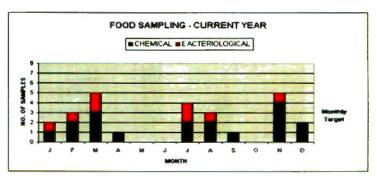
ASSESSMENT OF FOOD HANDLING ESTABLISHMENTS





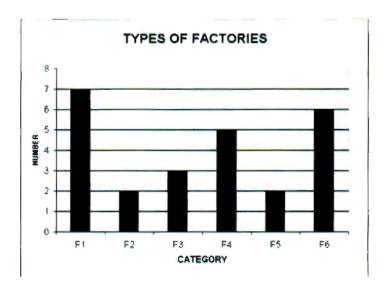


Annex-6



Annex-7

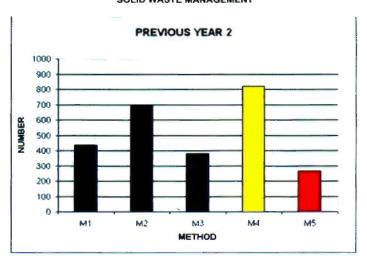
OCCUPATIONAL HEALTH

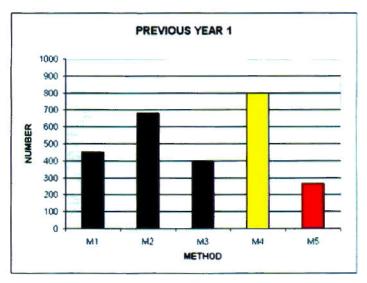


Annex-8



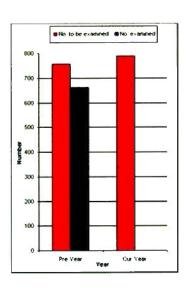
Annex- 9
SOLID WASTE MANAGEMENT

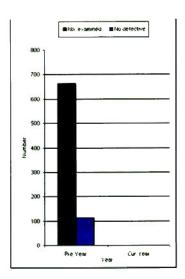


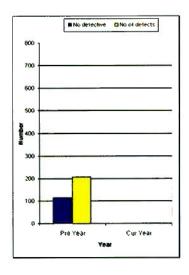


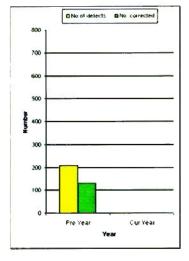
Annex -10

SCHOOL MEDICAL INSPECTIN

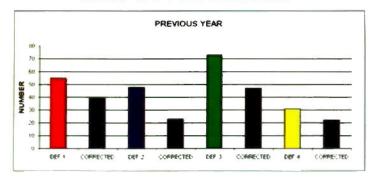


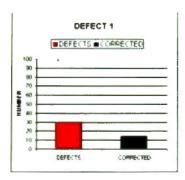


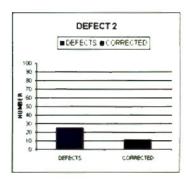


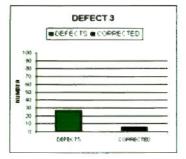


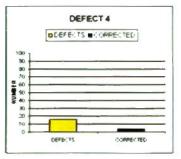
SPECIFIC DEFECTS & DEFECTS CORRECTED







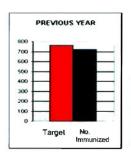


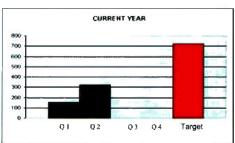


Annex- 12

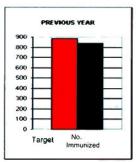
IMMUNIZATION

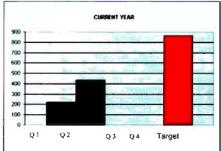
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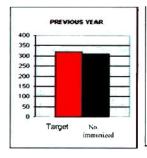


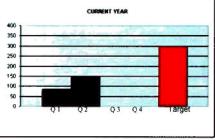
TETANUS TOXOID



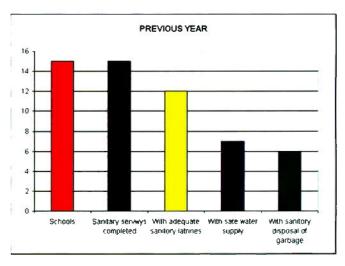


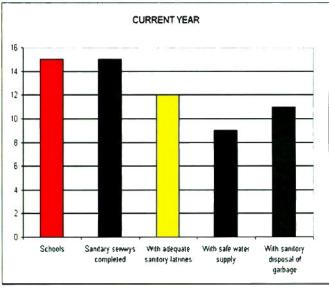
RUBELLA





Annex-13
SCHOOL SANITARY SURVEY





1.3 Uniform

Public Health Inspectors on duty should appear in the uniform provided by the department. They should be dressed in a clean and next manner; and the helmet crosts and buttons should be well polished.

Circular of the uniform (Circular No: 01-03/2003 Date; 01 04.2003)

PUBLIC HEALTH INSPECTOR - CLASS 11-8

- Trouser Khaki
- Khaki Tunic with two shoulder straps; front two upper and lower pockets;
 lower part of the funic bisected at the centre (rear)
- Bell with Nickle Buckle
- Shoes Brown
- 5 Nickled large buttons with Health Department insignia.
- 6 Nickled small buttons with Health Department insignia
- 2 Nickled shoulder badges with Health Department insignia
- 2 Epulettes (Two Snakes & Bar) for the shoulder straps (Bar in red)
- Peak cap (Khaki) with nicked crest with Health Department insignia

PUBLIC HEALTH INSPECTOR - CLASS 11-A

- Trouser Khaki
- Khaki Tunic with two shoulder straps; front two upper and lower packets;
 lower part of the tunic bisected at the centre (rear)
- Belt with Nickle Buckle
- Shoes Brown
- · 5 Nickled large buttons with Health Department insignia
- 6 Nickled small buttons with Health Department insignia.
- 2 Nickled shoulder badges with Health Department insignia.
- 2 Epulettes (Two Snakes & Bar) for the shoulder straps (Bar in red)
- Two stars (1X1) for the shoulder straps with Health Department insignia.
- Peak cap (Khaki) with nickled crest with Health Department insignia.

PUBLIC HEALTH INSPECTOR CLASS .1

- Trouser Khaki
- Khaki Tunic with two shoulder straps; front two upper and lower pockets;
 lower part of the tunic bisected at the centre (rear)
- Belt with Nickle Buckle
- Shoes Brown
- 5 Nickled large buttons with Health Department insignia.
- 6 Nickled small buttons with Health Department insignia
- 2 Nickled shoulder badges with Health Department insignia.
- 2 Epulettes (Two Snakes & Bar) for the shoulder straps (Bar in red)
- Four stars (2X2) for the shoulder straps with Health Department insignia
- Peak cap (Khaki) with nickled crest with Health Department insignia

PUBLIC HEALTH INSPECTOR - SPECIAL GRADE

- Trouser -- Khaki
- Khaki Tunic with two shoulder straps; front two upper and lower pockets;
 lower part of the tunic bisected at the centre (rear)
- Belt with Nickle Buckle.
- Shoes Brown
- 5 Nickled large buttons with Health Department insignia.
- 6 Nickled small buttons with Health Department insignia.
- 2 Nickled shoulder badges with Health Department insignia.
- 2 Epulettes (Two Snakes & Bar) for the shoulder straps (Bar in red)
- 2 State Insigna for the shoulder strap.
- Peak cap (Khaki) with nickled crest with Health Department insignia

Accessories of the Uniform of Public Health Inspectors

1. Peak Cap - 01

Length - 40 mm Breadth - 35 mm



2. Epulette - 02

Length 55 mm
Distance between two snakes
Circumference of the first coil
Circumference of the second coil
Circumference of the third coil
Distance between the tails of
the two snakes

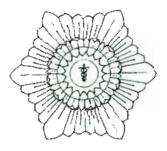
20 mm 20 mm 23 mm 18 mm



3. Epulette - 02

Distance between the two points in the star with longest distance 20 mm

(Class 1 - 04 stars) (Class I1 "A" - 02 stars)



Epulette - 02
 Height - 23 mm
 (for special Grade - 02)



Eputette - 02
 Breadth -- 35mm
 Maximum height - 20 mm
 Height at the ends - 10mm



6. Buttons

Should be in 3 sizes

- Two buttons for the both sides of the (circumference 08 mm)
- 2. Six buttons for shoulders and Pockel
- 3. Five buttons on the front the uniform (circumference 08 mm)



7. Buckle of the belt

Length - 60 mm Breadth - 35 mm



8. Official Name Badge

Length - 90mm Breadth -15mm SUPERVISING PUBLIC HEALTH INSPECTOR DIVISIONAL

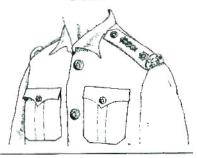
Public Health Inspector CLASS II B



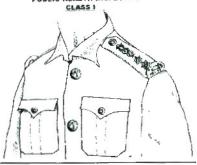




PUBLIC MEALTH INSPECTOR CLASS II A



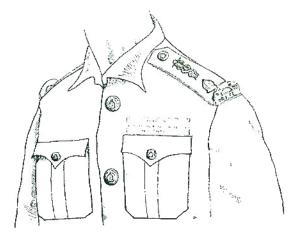
PUBLIC HEALTH INSPECTOR



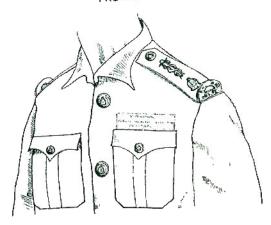
SUPERVISING FUBLIC HEALTH INSPECTOR



SUPPERVISING PUBLIC HEALTH INSPECTOR DIVISIONAL



SUPPERVISING PUBLIC HEALTH INSPECTOR PROVINCIAL



1.4 Duties of Public Health Inspectors attached to Specialized Campaigns and Specialized Institutions

Duty list of Public Health Inspector attached to the Unit of the Principal Public Health Inspector (PPHI) of the Ministry of Healthcare & Nutrition

- Shall be responsible to the Principal Public Health Inspector, with regard to the discharge of duties
- 2. Shall assist the Principal Public Health. Inspector in performing his duties
- Shall register all documents received by the Principal Public Health Inspector, and take necessary follow up action
- Shall maintain files regarding the public complaints received concerning the public health services of the country and take appropriate follow up action
- Shall regularly supervise the sanitary aspects of the canteen and the building complex of the Ministry of Health, Head Office
- Shall supervise and report on the sanitary aspects in medical/health institutions, to which a PHI is not attached (eg. Eye Hospital, Dental Institute)
- Shall assist in training programmes and progress review discussions organized by the Principal Public Health Inspector Unit
- Shall assist the School Medical Officer Unit, in the maintenance of sanitary services and conducting medical examinations in the schools within Colombo Municipal area
- Shall visit areas affected by sudden disasters and epidemics, and provide necessary assistance, under the instructions of the Principal Public Health Inspector
- Shall carry out any other duties assigned by the Deputy Director Generals (Public Health Services) or the Principal Public Health Inspector

Duty list of Public Health Inspector of Chest Hospital

- Shall be responsible for maintaining environmental sanitation with regard to hospital wards and units, along with the surroundings, and the maintenance of incinerators, sewerage treatment plant, laundry and issuing disinfectant materials. He will, discharge theses duties under the purview of the Head of the Department, and the Deputy Director of Chest Hospital, Wellsara.
- Shall be responsible for supervising the hospital kitchen, hospital canteen, kitchen at the Nurses' Quarters, and any other food handling unit in the hospital, to ensure good standards of food hygiene. He will discharge these duties under the purview of the Head of the department, and the Deputy Director of Chest Hospital, Wellsara.
- Shall act on any complaint made by residents in official quarters, regarding sanifation matters, and find appropriate solutions. He will discharge theses duties under the purview of the Head of the Department and the Deputy Director of Chest Hospital, Wellsara.
- Shall impart health education on patients, hospital visitors, and minor staff, and in other institutions, on the subject of TB and other communicable diseases.
- 5. Shall collect data from hospital wards and other units on a regular basis, and prepare and submit quarterly returns. Will liaise with the Deputy Director of the Chest hospital, Welisara, Medical Records Officer (MRO) at the National Programme for Control of TB and Chest Diseases (NPTCCD) and the Chief Medical Statistician of the Ministry
- Shall maintain the Indoor Morbidity, Mortality Register (IMMR), attend to notification of TB patients and maintain the H- 816 Register. Will liaise with the Deputy Director of the Chest hospital, Welisara, Medical Records Officer at the National Programme for the Control of TB and Chest Diseases (NPTCCD), and the Chief Medical Statistician of the Ministry
- Shall keep records of TB patients who are referred to District Chest Clinics and District Chest Hospitals, Shall liaise with District TB Control Officers (DTCO s).
- 8. Shall attend to vector control activities and control of rodents and stray animals in and around the hospital premises. Shall organize insecticide spraying t fumigation activities in the ICU, operating theatres and the surgery wards, if and when necessary. Will liaise with the Anti Rabies Unit and the ROHS Office to obtain the necessary services.
- 9 Shall assist the superior officers or other staff members, in conducting studies/ surveys related to TB and associated diseases.
- 10. Shall carry out any other duties assigned to him by the supervising officers.

Duty fist of the Public Health Inspector of Anti Filariasis Campaign

He shall:

- On assuming charge of an area submit a survey report or review the work done and send a report within one month of his assumption of duties.
- Maintain his office at the office of the Medical Officer of Health or any other place approved by the Director, Anti - Filanasis Campaign.
- Be on duty from 7.30-a.m. to 12 noon and 2.00 p.m. to 4.30.p.m. on week days and 7.30.a.m. to 1.00 p.m. on Saturday. Duty hours for night blood filming 7.30 p.m.to 11.30 p.m. on days fallowing night blood filming the duty hours will be 7.30-a.m. to 10.30 a.m. only.
- 4. Be responsible to the Director, Anti-Filariasis Campaign, through the supervising officers, for the safe custody of stores and equipment issued to him. He shall indent for the necessary stores and equipment in time to time to enable to maintain the activities of the Campaign uniformly. Inventory books, issue orders and receipt orders should be correctly maintained.
- Draw up the programme for the various activities in accordance with the instructions of the Director, Anti-Filariasis Campaign, and submit them through the supervising officer to the Director. Anti - Filariasis Campaign to reach him on or before the date specified for the purpose.
- Visit houses for purpose of Health Education and preparing list of the occupants of each house in his area;
 - (a) for blood survey, administration of treatment and follow up
 - (b) for carrying out night blood surveys according to approved programme
 - (c) for preparing a list of breeding places and make it up to date by localing new breeding places of Culex latigans or Mansonia mosquitoes
 - (d) Carrying out application of larvicides according to the approved dosage and method
 - (e) Removal and disposing of Pistia and other water plants according to the approved method
 - (f) Carrying out test checking of breeding places before and after treatment, in all sections of the allotted area
 - (g) Carrying out elimination of temporary and permanent breeding places according to approved methods
 - (h) Maintaining records in respect of all field work and assessing efficiency of control, work

PHI Manual - Chapter 1

- Assist the Medical Officer of Health or other medical officers at treatment clinics by receiving patients, making entries on treatment cards, issuing drugs, and maintaining necessary registers and records
- 8. Supervise and control the work of the overseers and labourers engaged in Filanasis control work and will be held responsible for their conduct and efficiency and output of their work. Any breach of regulations, misconduct or discourtesy to public on the part of the laborurers or overseers should be promptly brought to the notice of the supervising officer and Director. Anti-Filanasis Campaign.
- Carry out any special survey as directed by the Director of anti- Fitariasis campaign and also promptly investigate into all complaints regarding mosquito nuisance in the area, and adopt suitable method of control.
- Assist the Health Educator attached to the campaign, to carry out health education work in respect of Filariasis and Filariasis control work.
- 11. Attend staff conferences arranged by the MOH, for the Range public Health Inspectors of the area.
- 12. Prepare and submit to the Director, Anti Filariasis Campaign through the MOH or officer in charge health office, monthly, quarterly, annual, and special reports, by the due dates
- 13. Maintain the following records, files, maps, and legislative enactments:-
 - (1) Pocket Note Book
 - (2) Diary (Health 136)
 - (3) Inward Register (General 6)
 - (4) Outward Register (General 7)
 - (5) Letter Register
 - (G) Endorsement Register
 - (7) Inventory Sheets (Health 312)
 - (a) Official- on Government Registers
 - (b) Personal I on Non-Consumable articles
 - (c) Personal II on Consumable articles
 - (8) Consumable Stores Register(Health 287)
 - (9) Visitors' Book
 - (10) Leave Register (General 190)
 - (11) Anti-Filanasis Notices Register
 - (12) Prosecutions Register (Health 321 E)
 - (13) Monthly Sanitary Report
 - (14) Score Cards

- (15) Programmes
- (16) Register of breeding places
 - (a) Register of breeding places that could be eliminated
 - (b) Register of breeding places that have to be treated weekly
- (17) Case Index of Microfilaria cases
- (18) Surveillance Index of Microfilana cases
- (19) Case Index of Clinical cases
- (20) Surveillance Index of Clinical cases
- (21) Register of absentees in parasitological surveys
- (22) Register of complaints against minor employees
- (23) Check Rolls

The books and registers should be placed on a stand on the right hand side of the office table so that Inspecting Officers could reach for them easily.

An Index Card of books and registers should be maintained in the office. It should follow the order given above.

The Index Card should be left on the office table so that Inspecting Officers would have easy access to it.

Duty list of Public Health Inspector at the Airport Health Office

- Assist the Airport Health Officer to carry out Quarantine activities; inspection, examination, defention, surveillance, isolation, treatment, immunization, disinfection and disinsection of aircrafts/ goods and any other measures necessary for the prevention of the spread of any quarantinable disease into Sri Lanka.
- 2. Compile the Health Declarations reported by the pilot of aircrafts.
- Issue of pratique to aircrafts.
- 4. Surveillance regarding entry of passengers arriving from countries with prevalence of certain emerging and re-emerging communicable diseases, i.e., countries declared by the WHO, as having prevalence of special diseases such as SARS, Plague, Ebola virus fever etc.
- 5. Prevent entry of passengers arriving from any country declared by WHO as infected with Yellow Fever, if they do not have a valid vaccination certificate against Yellow Fever. Passengers coming from any country having major communicable diseases (as declared by WHO) too, are prevented from entry Passengers falling to above categories are either deported or kept in quarantine for 6 days at the Infectious Diseases Hospital at Angoda.

PHI Manual - Chapter 1

- Monitoring and Supervision of disinfection / disinfection of Aircrafts, passengers, and cargo.
- Release human remains arriving from foreign countries, after ascertaining the cause of death and requirements with regard to quarantine regulations.
- 8. Inspection of Sanitation of the Airport premises and taking necessary actions.
- 9. Water sampling for the purpose of Quality Assurance of drinking water
- 10. Performance of all duties coming under Food Act including Food Sanitation; Inspection of all food outlets and places of food preparation in the terminal building, cargo complex, Airport and Sri Lankan Airline premises; Investigation of any episodes of food poisoning.
- Inspection of food cargo when requested
- Arranging programmes for screening blood of the Airport staff for Ellaraisis infection.
- 13. Imparting health education to food handlers and canteen staff.
- 14. Monitoring and supervision of Vector Control activities.
- Maintenance of records relating to arrival and departure of all passengers and arrival of passengers from Yellow Fever infected countries.

Duties and Responsibilities of Public Health Inspectors attached to Hospitals

- Control of Communicable diseases
 - a) Daily wards rounds
 - b) Supervision of cleaning groups
- 2. Sanitation inspection
 - a) Daily wards rounds
 - b) Health Education
- 3. Water Supply
 - a) Supervision of cleaning the water tank
 - b) Taking water samples for analysis
- 4. Waste Management
 - a) Hazardous waste
 - b) Non hazardous waste
 - c) Pharmaceutical waste
 - d) Radio active waste
 - e) Infectious waste.
 - f) Pathological waste
 - g) Chemical waste
 - h) Supervision of cleaning groups
 - Managing the waste disposal.
 - J) Liaison with the Local Government bodies

PHI Manual - Chapter 1

5 Rables Control

- a) Anti rables vaccination
- b) Sterilization of female animals

6. Food Safety

- a) Responsibilities under the Food Act
- b) Inspection of food hygiene
- c) Inspection of workers' hygiene
- d) Inspection of general environmental sandation
- e) Inspection of Canteens, Kitchen, Milk room, Kitchen of Nurses' quarters, Milk Bars, Milk stores

7. Infection Control - Community

- a) Isolation and Barriers
- b) Disposal of used equipments, supervise waste disposal by burning, disinfection of reusable supplies and equipment etc.

8. Occupational Health

Shall inspect all work sites in the institution premises and identify any health hazards that may be present, and advise on control measures.

Environmental Health

Shall inspect all premises in the area / institution and advise on environmental sanitation for the control of communicable disease

10. Sanitation during the Disasters and Epidemics

Shall organize and supervise health activities related to environmental sanitation and prevention of communicable diseases, during disasters and epidemics

11. Records and Reports to be handled

- a) Monthly notification report
- b) Week-end AFP report
- c) Daily dengue reports
- d) Sanitary reports
- e) Monthly Spraying report

12. Registers to be maintained

- a) Notification register
- b) Sanitation register
- c) Communicable diseases register
- d) Food Hygiene register
- e) TCL issuing register
- () AFP register
- g) Other relevant registers and books

13. Notifications

Collection from every ward, coordinating with MOOH, Epidemiology Unit, Informing about all new IMOO, new nurses

14. Pest control

- a) Spraying programmes (during day / night)
- b) Mosquito nets insecticide-impregnating activities

15. Rodent Control

PIII Manual - Chapter 1

- Disease- wise surveillance AFP, Dengue, AEFI, Meningitis, Rubella, Cholera surveillance
- 17. Issuing TCL for wards and units
- Immunization Hep.8, DPT, Polio, DT, MR, aTd, JE vaccine
- 19. Water and Food sampling
- Handling matters related to HIV infected patients (patients/ attending medical staff/ community / equipments / refuse / burial of bodies)
- 21. Supervision of sewage scheme
- 22. Maintaining statistics
- 23. Health Education activities
- Special Activities, e.g., Arranging shramadana programmes, "Dengue week" activities, Universal Children's Day programme, School Health Programme

Duty list of Public Health Inspector (Leprosy Control)

Since PHII / LC are directly under the provincial administration, the following duties pertaining to leprosy control should be performed in addition to other duties which are assigned by the Provincial Director / Regional Director of Health.

- 1. Case Detection: -
 - Detection of new cases through Surveys & Contact tracing.
 - 2. Maintain the Registers of new patients and Mdt. Examination
- 2. Case Management: -
 - 1. Conduct Leprosy Clinics
 - 2. Carry out Contact Examination
 - 3. Carry out Defaulter Retrieval
- 3. Deformity Care: 1. Provide services for patients
 - 2. Renew Medical Certificates for Sda
 - 3. Maintain Deformity Care Rogister
- 4. Economic Rehabilitation: 1, Submit New Proposals
 - 2. Recoveries
- 5. Health Education: Conduct Health Education Activities
- 6. Training: Conduct Training Programmes
- 7. Information 1. Submit Monthly Advance Programme
 - Submit Monthly, Quarterly, and Annual Reports.
 - 3. Submit Annual Clinic Schedules and Plan of Action
- Claims 1. Submit Expenses Claims
 - 2. Submit for approval any replacement of spa-

Duty list of Public Health Inspector of Epidemiological Unit

- Receiving EPI vaccines (OPV, DT, aTd, T1, Measles, BCG, Rubella, MR) and JE vaccines
- 2. Storage and supervision of stored vaccines in cold rooms
- 3. Monitoring of cold chain equipment
- Maintaining cold chain equipment
- Distribution of vaccines to respective R/MSD throughout the island, wherever possible personally accompanying vaccine stocks
- Supervision of vaccine storage at R/MSD
- 7. Storing of vaccines in private cold rooms when necessary
- 8. Removal of vaccines from private cold rooms for distribution
- 9. Maintaining relevant records regarding receipt and distribution of vaccines
- To be on duty outside office hours and on public holidays to receive and store vaccines arriving from airport
- Surveillance activities on DHF.
- 12. Surveillance activities on rabies
- 13. Surveillance activities on tetanus
- 14. Surveillance activities on TB
- 15. Surveillance activities on malaria
- 16. Surveillance activities on JE
- Dispatch and receipt of special surveillance forms regarding DHF, JE, tetanus and rabies
- 18. Visit MRI to extract relevant information regarding DHF surveillance
- Surveillance activities on cholera and other major communicable diseases when such epidemics occur
- Preparation and maintenance of maps and charts
- 21. To be in charge of stalls run by Epidemiology Unit at exhibitions
- 22. Any other duties allocated by the Epidemiologist

Duty list of Public Health Inspector of Medical Research Institute (MRI- Department of Nutrition)

- Public Health Inspectors attached to the Department of Nutrition, Medical Research Institute are seven day workers. Their normal duty hours at the institution are from 8.00 a.m. to 4.00 p.m. on week days.
- They shall assist the Head of the department or the Senior Nutrition Assistant in designing and carrying out research projects, Dietary surveys, Nutritional assessment surveys, etc., as directed by them.

- They shall carry out research projects, Dietary surveys, Nutritional assessment surveys etc., as and when programmes are arranged by the Head of the department or Senior Nutrition Assistant.
- 4. They shall perform Anthropometric Assessments; Haemoglobin assessments; Clinical assessment; and Sample collection, preparation and transport, under the supervision and instructions of Head of the department (such as blood, stool and urine for bio-chemical tests, and food for food composition analysis)
- They shall compile, maintain and present Survey Reports pertaining to the work carried out by them under Dietary and Nutritional surveys and other Nutrition Research Projects.
- They shall conduct lectures, talks, discussions, and counseling on diet and Nutrition, as and when such programmes are arranged.
- They shall assist the Head of the department or Senior Nutrition Assistant during training of Public Health personnel, and Survey and Research teams, in carrying out Nutritional assessment programmes / Dietary and Nutrition surveys.
- They shall enlist the co-operation and support of the public and relevant organizations and institutions, whenever dietary surveys or other Nutritional surveys and Research Projects are undertaken.
- They shall ensure the maintenance of relevant records pertaining to the work of the department.
- They shall carry out any other appropriate duties as required by Director / MRI or Head of the department.
- 11. Orawing of blood whenever the situation arises.

Duty list of Public Health Inspector attached to the Family Health Bureau

PHII attached to the Family Health Bureau should follow the instructions of the Medical Officers in charge of Child & School Health Unit, and should carry out the following duties with the view to strengthen the school health programme and improve its quality.

- To assist in the functioning of the National Coordinating Committee appointed to the above purpose and to strengthen the cooperation with the Ministry of Education.
- To assist the teachers and health staff in the implementation of the School Health Programme.
- To take suitable action to investigate the reports pertaining to school health and to ensure their distribution
- To assist in the organization of seminars conducted by MOO/ MCH, for teachers in all areas.

- To organize seminars and to carry out necessary activities to provide information to different categories of officers in the Ministry of Education.
- To organize and assist at the in-service training programmes for the officers of the Ministry of Health engaged in school health work
- To assist in the monitoring and evaluation of school health work and in the provision of a feed back
- 8. To implement relevant activities pertaining school health work.
- To participate in the district school health programme review meetings and furnish relevant reports.
- To obtain reports on school health activities, process and analyze them and give a feedback.
- 11. To supervise the implementation of sanitary services in the premises of the Family Health Bureau and give recommendations to the higher authorities as and when required
- To carry out any instructions of Director, Family Health Bureau, depending on service needs

Duties of Public Health Inspector attached to Public Health Veterinary Services

1. Dog Vaccination Programme

Conducting dog vaccination programmes in areas assigned to PHII, based on the divisions of Medical Officers of Health, through PHII of the areas, under complete supervision and advice of MOOH. Assistance for co-ordination and required resources obtained either from the office of the Provincial Director of Health Services or from the office of the Regional Director of Health.

Conducting planning meetings well in advance of the vaccination programmes, at MOH level and sending a report to the national head quarters.

- 2. Conducting programmes for elimination of dogs
 - Conducting dog elimination programmes in areas assigned to PHII, based on the divisions of Medical Officers of Health, through PHII of the areas, under complete supervision and advice from Medical Officer of Health and the Competent Authority of the local government institution. Fuel and labourers obtained from the relevant local government institution, through the Range Public Health Inspectors: Planning activities to be carried out well in advance.
- Health education programmes should be launched to educate the public in the area, government officers, and school children, on rabies.
- Supervision of the following members of the dog vaccination teams working under Provincial / Regional Director of Health Services, and keeping relevant records.
 - 1) Vaccinators (including temporarily assigned spray machine operators)
 - Overseer/ Animal Unit (Raiding)
 - 3) Driver

- Supervision of the following members of the dog climination teams working under Provincial / Regional Director of Health Services, and keeping relevant records
 - Overseer Animal Unit (Raiding)
 - 2) Dog elimination labourer
 - Dog elimination substitute [abourer.
 - 4) Driver
- Supervision and overseeing the maintenance of vehicles attached to Rabies Control Division.
- Coordinating activities between Provincial Director's office and Regional Director's office and the office of the MOH, regarding anti-rabies activities
- Coordination with Local Government Institutions, and obtaining cooperation for elimination of dogs, and encourage local authorities to carry out registration of dogs.
- Obtaining vaccine, poison material, and equipment required for rables control unit from the national office, provide them to the field in time, and submit reports.
- Coordinating with the Public Health Veterinary Services national office and provide information and statistics in a timely manner
- Ensure provision of anti-rabies vaccine for the employees attached to offices of Provincial and Regional Director of Health Services.
- 12. Make inquiries regarding the payment of traveling claims and problems regarding salaries, of the employees engaged in anti-rables work attached to office of Provincial or Regional Directors of Health Services, and take necessary steps to provide them in time.
 - Investigate Rabies deaths and conduct emergency special programmes in areas where deaths have occured
- 13. To be in preparation to provide information and statistics on rabies pertaining to his area, when requested for by the Provincial or the Regional Director of Health Services.
- 14. Take prompt action regarding all complaints and requests received in the office.
- 15. Be on the alert on the extent of usage of human anti-rabies vaccine in hospitals in the area and expedite control measures in areas where more patients are reported owing to dog bites.
- Launch dog sterilization programmes if facilities are available, with the assistance of veterinary surgeons.
- 17. On discovering animals suspected of rabies, give instructions to send their heads after death, to the Medical Research Institute for examination, and follow up. Advise persons who came in contact with such animals to seek medical advice.
- 18. On receiving requests from Regional Directors of Health Services, launch special programmes to eliminate stray dogs in the institution premises by the poisoned batten and send labourers with poisoned batten.

- 19. Take action to obtain assistance from the national office in instances when shortage of vehicles are encountered
- 20. Organize exhibitions, obtaining co-operation of the national office
- 21. Bring to the notice of higher officials when staff/vehicle shortages occur
- Co-operate with voluntary organizations/societies interested in rables control, in obtaining assistance and rendering assistance
- Promote the Range Public Health Inspectors of the area to allocate one day in the monthly advance programme, for health education activities on rabies control.
- 24. Initiate disciplinary action against those who are found to have neglected their duties, according to supervision reports on the vaccination and elimination teams.
- 25. Carry out systematically dog elimination programmes for dogs not having collars which have been introduced by the national office, for vaccinated dogs. If necessary obtain cooperation from local authorities to provide collars (neckbands)
- 26. Promote the field staff to obtain cooperation for the survey activities and pilot programme on oral vaccines programme and the automatic vaccination programme to be introduced in future by the national office.
- 27. Dog vaccination programme should be implemented at the level of Medical Officer of Health divisions, systematically from one end of the area to the other, after obtaining prior permission from the Provincial or the Regional Director of Health Services.
- 28. When assigning vaccination teams or elimination teams to MOH areas, it should be planned in advance and all workers should be assigned to the relevant MOH areas by a letter, and released by a letter.

Duties of Public Health Inspector attached to National STD/AIDS Control Programme

Common Duties

Clinic Duties

- Registration of Patients
- 2. Counseling
- Screening
- 4. Maintenance of Statistics
- 5. Sanilation
- 6. Health Education
- 7. Maintenance of Registers and Charts
- 8. F/I Register C.S. Register B.B. (R) Register Defaulter register Diary
- 9. Preparation of Reports
- 10. Correspondence with relevant areas regarding patients
- Any other appropriate duties as decided by Director or MOIC or any other officers nominated by them.

Field (outreach activities)

- Defaulters and Contact tracing
- b. Health Education activities (co-ordinate with field PHI and relevant staff)
- c. Blood survey: identified specific groups
- d. Follow up of positives
- e. Drawing of blood from persons undergoing tests— whenever required (training in vacutiner system, will be provide)

Waiting Hall Duties

Registration Room

- a. Subsequent visits Maintaining register
- b. New cases register
- c. Summary of activities
- d. Registration of patients
- e. Monthly and quarterly returns assisting the designated officer

Waiting Hall

Ensure safety of the files and records of the files

Attendance Chart/ defaulter chart

Defaulter Chart

- a. Total of new cases attended
- b. Total of subsequent cases attended
- c. Visited Newl sub.
- d. Traced New/sub.
- e. Attended New/sub.

Default Visits Register

- a. No. of telephone calls
- b. No traced
- c. No. attended

Registration

- Registration of patients should start by 9.15 a.m.
- b. New patients should be seen by the PHI first and then registered
- All details should be entered in the new cases register as in the from (details as given in the register presently maintained)
- d. It is the responsibility of the PHI to ensure that confidentiality is maintained and there is non discrimination of the patients

Counseling

- a. On the instructions of the MOIC or MO, counseling services are to be provided to the following categories;
 - patients
 - persons screened
 - contacts
 - those seeking voluntary testing

- Counseling should cover the particular situation concerning contacts, control of spread of infection (including condom promotion)
- c. Contact tracing
- d. Need for follow up
- In those persons who are for screening pre-test and post-test counseling as instructed by MOIC or MO.
- At all times confidentiality should be maintained; friendly and cordial relationship should be maintained with the patient.
- Relevant registers should be maintained and updated periodically.

Screening

- a. Screening should be arranged on instructions from the consultants/ coordinator in the clinic.
- Screening will cover pre-employment screening / screening for obtaining Visas/ voluntary screening/ referrals and other groups as instructed by MOIC.

In the Field -Whenever required to do so PHI should assist in sentinel surveys (HIV/ VDRL, etc.)

Statistics

Every PHI should assist the officer designated to prepare monthly/ quarterly / annual returns, collecting the necessary data**

Health Education

- Each PHI is expected to organize HE programmes in the clinic
 - 1. Individual patients
 - 2. small group talks
- b. H.E. for other staff in the clinic
- c. Any other group (identified after consultation with co-ordinator in charge)
- d. Assist in H.E. Programmes for persons at risk
- All H.E. programmes should be conducted on an approved plan (submitted one month in advance) to the Director STD/ AIDS C.P., with the approval of Co-ordinator & MOIC)

Sanitation

- Supervision of the clinic sanitation
- b. Supervision of minor employees

Senior PHI

Should be responsible to the Director and MOIC for the work of the other PHI's

Duties of Senior PHI

- Supervision of PHI
- Contact tracing
- 3. Case tracing
- 4. Assisting in co-ordination of training programmes
- 5. Guide the other PHIs in counseling and other activities.
- Assign duties to other PHIs (including sanitation).
- Collection of relevant registers/diaries and submitting to the D-STD and AIDS C.P / MOIC on assigned dates

Each PHI should follow the approved roster of duties and submit the relevant reports, diaries, and CTA claims through the SPHI, or on in his absence through the senior-most PHI, to the MOIC for verification and approval.

Provision of motorcycles

Action is being taken to provide motorcycles to facilitate performance of duties by the PHIs. The distribution will take place according to accepted departmental regulations. Officers receiving motorcycles should utilize them for outreach work and submit CTA claim accordingly.

Duty list of Public Health Inspectors attached to Regional Blood Bank

- Contact the organizers of Blood donation programmes in the area.
- On receiving information from organizers, prepare blood donation advance programmes and submit to relevant authorities.

Education and Propaganda

- a. Inform the organizers regarding planned activities
- Organize and carry out information for blood donors.
- Organize and carry out information programmes for school children.
- Implementation of health education programme and propaganda, on the day prior to the day of the programme, at blood donation centres.
- Obtain assistance of the Health Education Unit, for the above programmes
- Implementation of mobile blood donation programmes.
 - Obtain instructions and guidance from the Senior Medical Officer of the Blood Bank.
 - b. Coordination of necessary activities regarding mobile programmes.
 - Organize the necessary staff and propaganda for mobile programmes, with the assistance of Senior Medical Officer.
 - d. Selection and registration of blood donors at mobile donation centres.
 - e. Organize transport of collected blood to the Blood Bank.

- Transfer of blood groups of donors from relevant blood group books to other books.
- g. Prepare for posting the blood group labels to the donors.
- Prepare and post letters of thank to the organizers.
- i. Dispatch lists of names of donors to the organizers.
- j. Prepare registers of donors who have rare blood groups.
- k. Maintain all data and information relevant to blood donation programmes.
- Send all relevant data and reports to the blood bank through the Medical Officer.
- m. Carry out instructions of MOIC in all emergency situations

Duty list of Public Health Inspectors attached to Port Health Office

- Assist the MOH in the provision of services related to vector control, control of communicable diseases and immunization, for the crews working in ships and vessels.
- Furnigation of cargo
- 3. Sterilization of goods within the ship
- Implementation of Food Act and other relevant regulations in relation to food items which are imported or exported
- Implementation of Alcohol Act to control the illicit trades related to alcohol beverages
- 6. Issuing the Clearance Certificate for ships, related to vector control
- Implementation of other Public Health regulations whenever necessary.
- Maintenance of registers related to financial management and issuing of receipts for charges
- 9. Planning and supervision of activities related to environmental sanitation.
- 10. Control of ratsies
- Assist the MOH in activities to be carried out in the case of deaths occurring in a ship or vessel
- Maintain other registers, records, files, and books as instructed by the supervising officer
- 13. Plan and implement health education programmes
- 14. Prepare and forward the quarterly returns
- 15. Perform any other activity as instructed by the supervising officers

Duty list of Public Health Inspector attached to the Health Education Bureau

- 1 General
- Participate in planning, implementing in health education and promotional programmes according to the institutional needs and regulations.
- Participate in planning of production of HE materials.
- Planning and conduction of mass media programmes on health promotion according to the institutional needs.
- 2. Health Promotion and Life Skill Development
- According to the need planning and conduction of the workshops, training in regional level as a group task.

PHI Manual - Chapter 1

- · Awareness and skill development programmes at Suwa Udana Health Campaign.
- Partner of the Life Skills development team.
- 3. Exhibitions and Social Marketing
- Organizing the staff and cater the provincial and regional level health exhibitions as requested, on promoting the health of the community.
- Participating in National level health exhibitions.
- Participate in electronic and mass media programmes on health development and health promotion.

4. Development and Maintainage of the ,WEB

 Assurance of smooth functioning of the WEB of Health Education Bureau and the update it according to the suggestions of Content Management Team. (CMT)

5. Control of Communicable Disease

- Working in close co-ordination with the Epidemiological Unit and analyze weekly Epidemiological Report and plan and implement health education programmes on high risk areas.
- Shall assist the specialized campaigns, in current needs when required.

Sanitation

- Plan a multidisciplinary health promotional programme on sanitation.
- · Ensure environmental sanitation and cleanliness in HEB premises.

7. Activities in Special Occasions

Shall plan and implement programmes for the exhibition sessions and other public gatherings obtaining the co-ordination from the other special campaions.

 Planning and implementing health promotion sessions at fairs, various health and non health institutions with the co-ordination of other specialized control units.

8. School Health

- Work with the close co-ordination with the school health section of FH8 and school health department at Narahenpita.
- Plan and implement health promotive sessions at schools when a need arises.
- · Plan and implementation of items in health exhibitions at various schools.
- If requested, the supportive work in medical inspections should be carried out.

9. Team work

Shall work and maintain cordial relation with all health staff.

 Working with close co-ordination with the non professional staff and also obtain community participation in health promotion

Duty list of Public Health Inspector attached to the Office of the MOH (AMC)

The duties and responsibilities of PHI (AMC) are;

- 01. He shall be under the immediate administrative and supervising control of the MOH and be responsible to the RDHS/Director AMC through the MOH and the RMO for all anti-malaria activities in his area.
- He shall reside and maintain his office in his central station as assigned to him by the MOH/RMO.
- 03. He shall carry out Epidemiological investigations of positive cases and remedial measures as outlined in director /AMC circulars and additional instructions.
- 04. He shall carry out active surveillance at monthly intervals in difficult areas not assigned to ACD agents.
- 05. He shall supervise all active case detection agents in his area at least twice a month.
- 06. He shall inspect the activated passive case detection agents in medical institutions in his area at least twice a month.
- 07. He shall also supervise and cheek spraying units in his area, Supervision must be both consecutive and concurrent.
- 08. He shall be responsible to MOH and RMO for any special remedial measures carried out in his area as instructed by Director AMC.
- 09. He shall be responsible to MOH and RMO for prophylactic treatment records and retunas in all development sehehes in his area.
- He shaa carry out any special surveye and fover surveys as instructed by MOH and Mmo for the wont carried out.
- 11. He shall submit monthly advance programmes to RMO and MOH on or before the 25th of the previous month. Any deviations should be submitted to MOH and RMO and approved by MOH.
- 12. He shall submit the following returns on the due dates as prescribed by the Director namely, weekly progress reports, monthly reports, monthly return of follow up positive cases.
- 13. He shall submit all investigation cards of positive cases immediatly afetr investigation to MOH and RMO. Two copies should be submitted to RMO, who will cheak the investigation cards.

PHI Manual - Chapter 1

- 14. He shall maintain the statistics of his area,maps, other lists, statements, files and registers as outlined in director RDSh circulars and other instructions
- 15. He shall carry out any other duties as assigned to him by the Director RDSH
- 16. He should assiduously inquire and search out for new obena bute and paddy land buts and other such now structures and take immediate action to get them sprayed and carry out all anti-malaraia measures according to instruction.

Note: Duty lists of all categories of Public Health Inspectors are currently being revised and once finalized new duty lists would be issued separately

CHAPTER 2

Environmental Health

Background

From the beginnings of human civilization, it was well known that unsanitary conditions spread communicable diseases, and Environmental Health has been the principal function of Public Health Inspectors (first designated as sanitary Inspectors) since the inception of the public health services in Sri Lanka, in fact when the extended general health programme, based on the Health Unit system, was inaugurated in 1936, a five-point rural sanitation scheme was introduced, and formed the basis of the departmental rural sanitation programme for many decades.

FIVE POINT RURAL SANITATION SCHEME

- · Well ventilated house
- · Boiled, cooled water for drinking
- Sanitary latrine
- Manure pit
- Kitchen garden

It is evident that from early times the emphasis of environmental health has been on the prevention of disease by ensuring good housing, safe water, excreta disposal, refuse disposal and provision of nutritious and safe food. These aspects of environmental health continue to remain priority activities even today.

However, new environmental health problems have emerged, mainly due to rapid population growth, urbanization and technological development. There is concomitant expansion of industry and agriculture, and the demand for energy, and material goods of civilization, has increased. Problems of waste disposal have become more complex and new environmental hazards are continuously being recognized. Likewise natural and man made disasters such as floods, droughts, and conflict-situations take place. The PHI, as an important member of the health team in a MOH area, have a fundamental role to perform in maintaining environmental sanitation in these varied circumstances, and therefore it is essential that the PHI is familiar with the various functions he has to perform in these situations.

2.1 Environmental health programme of the ministry of health

Objectives

- 1 To ensure the quality and safety of drinking water
- 2. To ensure the proper disposal of human excreta
- 3 To ensure the proper disposal of solid, liquid and hazardous waste
- 4. To ensure the use of healthy habitable dwellings.
- 5. To maintain high standards of food safety and hydiene
- 6. To ensure a safe and healthy environment in work places
- 7. To ensure a safe and healthy environment at school
- To ensure the provision of public health measures required during natural disasters
- To ensure proper sanitation in burial grounds, staughter houses and dumping sites
- To ensure proper sanitation of public places, special institutions and special events
- 11. To promote community participation to protect the environment
- To assist and ensure the implementation of environmental regulations imposed by the relevant authorities

Strategic Interventions

In order to achieve the above objectives there are strategic interventions, the PHI has to regularly carry out, comprising;

1. Safe water

- Regular monitoring of quality of drinking water in all public water supply schemes in the area
- Measuring the free residual chlorine content of water at source and at points of consumption
- Chlorination of all wells when pollution is suspected, i.e. after floods, during epidemics of diarrhoga, disease
- iv. Periodic sampling of water for quality
- v. Reporting
- vi. Create awareness on household water treatment systems or methods

2. Sanitary excreta disposal

- i. Promote and assist householders to construct sanitary latrines
- Create awareness on proper usage of sanitary latrines and health impacts of improper disposal of human excreta

3. Waste management

- i. Create awareness on waste management methods
- ii. Promote and guide in establishing waste management systems

4. Healthy habitable dwellings

- Create awareness on five perceptions on healthy dwellings.
- ii. Advice on construction of buildings and dwellings on recommended standards

5. Food safety and hygiene

- i. Registration and inspection of all food handling establishments
- Regular inspection of food items to test for quality and evidence of contamination
- Educate food manufacturers, traders, food handlers and public on food safety and hygiene

6. Safe working environment

- Regular inspection of work places to identify occupational hazards.
- ii. Advice on prevention of hazards and promote healthy work settings places

7. Safe and healthy environment, at school

- i. Inspection of school environment
- Follow up and coordinate with school authorities to rectify the identified defects
- iii. Promote activities to maintain healthier school environment.

8. Public health measures required during natural disasters

- Coordinate activities on provision of safe drinking water, food and sanitation of temporary shelters during natural disasters
- Educate public on prevention of communicable diseases and safe hygienic practices
- iii. Take measures in preventing spread of communicable diseases

9. Sanitation of burial grounds, slaughter houses and dumping sites

- i Regular inspection
- Advice and coordinate with local authorities to maintaining in proper sanitary condition

18. Sanitation of public places, special institutions and special events

i. Regular inspections of markets, fairs and festival sites

11. Promote community participation to protect the environment

 Organize and Implement community based environment protection programmes with the public of the area

12. Implementation of environmental regulations

Liaise with other stakeholders and assist in implementation of environmental regulations

THE STAKEHOLDERS IN ENVIRONMENTAL HEALTH SERVICES

- Water supply -The National Water Supply and Dramage Board, Community Water Supply and Sanitation Projects and Community Based Water Supply Schemes
- Food safety and hygiene, refuse collection and disposal, housing -Provincial and local authorities
- Prevention and control of environmental pollution Ministry of Environment and Natural Resources and The Central Environmental Authority
- Urban development and planning Urban Development Authority, National Housing Development Authority
- Prevention of environmental pollution in disaster situations Ministry of Disaster Management
- Protection of costal environment Costal Conservation Authority

The responsibility for the provision of many of the services related to environmental health also lies with certain other sectoral agencies.

Responsibility of the PHI to the Stakeholders

The local level PHI assists these agencies to perform their functions more effectively, by advising, guiding and participating in some of these activities.

2.2 Water Supply and Sanitation

Introduction

For the existence of human beings and animals, air, water, and shelter are the essential universal requirements. Importance of water as an essential element is rated as highest. With the fast growing population the consumption of water is increasing rapidly. Therefore action is essential to supply pure water to satisfy consumer needs.

Water Sources

Water Sources can be divided mainly into the following two types;

- i. Surface water sources
- ii. Ground water sources

i. Surface water sources

Surface water sources are the rivers/streams, lakes, ponds, impounded reservoirs, and rain water. These sources are often contaminated with feacal and other organic and inorganic matters. Natural purification of surface water occurs from sunlight, aeration, and the action of aquatic animals and plants. However, this degree of purification is inadequate for purposes of human consumption, and surface water needs special treatment before use.

Rivers - Lower reaches of rivers are used for major water supply schemes. Water is normally polluted and a complete water treatment system is necessary to purify water before supplying to the consumers.

Lakes -These sources are used for smaller water supply schemes, due to non availability of adequate quantity of water.

Ponds - Ponds are normally used as bathing places. But source area should be protected.

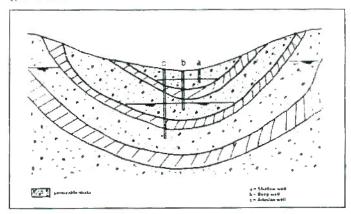
Impounding reservoirs - Major parts of this source are impounding reservoir, dams and catchment areas. These sources are usually located in hilly areas. Normally water is clear and it needs less treatment.

Rain Water - Rain water is the original source of water, a part of which evaporates; a part runs on the surface giving surface water, and a part percotates through the soil, into varying depths to form underground water sources. Rain water is originally uncontaminated; however it may be contaminated during passage through the atmosphere. Rain water collection can provide safe low cost water at household level, if collected and stored properfy.

ii. Ground Water Sources

The Ground Water is obtained by means of wells and tube wells. These include shallow wells, deep wells, artesian wells, bore holes and tube wells.

Types of wells



Shallow wells - The shallow well draws its water from the permeable strata between surface and soil. The storage capacity in these upper permeable strata is very limited and consequently the water-bearing capacity of such a well is unreliable and probably intermittent. The well is supplied by surface water which is liable to pollution (no natural filtration). A shallow well should be lined with impervious material up to a few meters from the bottom.

Deep wells - The supply is derived from strata unaffected by surface impurities. There is at least one impervious stratum between the water-bearing stratum and the surface water. Compared to a shallow well, water yield of a deep well will be much more dependable. The yield will be greatest when the well has just been dug.

Artesian wells - These have similar characteristics to deep wells, the essential difference being that the underground water is tapped under pressure and may rise to the surface of the ground under its own head.

Bore holes (Bored Tube Wells) - These are basically tube wells drilled using manual tools. After drilling it would be necessary to install casings down the hole, at least in the water bearing areas. In sandy type of soil it may be necessary to line the whole depth of the drilled hole using casing pipes. Usually PVC pipes are suitable as casing pipes. Tube wells of diameter up to 150mm can be bored up to a depth 20m, and wells with diameters up to 200mm can be bored up to a 15m depth.

Tube Wells (mechanically drilled tube wells) - The drilling equipment used for mechanical drilling are very expensive and complex. It requires highly skilled operators and drillers.

Protection of water sources and remedial measures

Both the sources and the catchment areas need to be protected to provide safe water supply. They may be contaminated with both domestic and industrial discharges. The minimum safe distance (MSD) for all potentially polluting activities should be fixed for both surface and groundwater.

Catchment area protection

- A survey of the catchment area should not reveal any potential sources of contamination.
- · Wherever possible, protection zones should be clearly demarcated.
- Activities that may affect water quality (the dumping of toxic waste, the
 discharge of undesirable effluents, farming, drilling, mining, quarrying,
 and the use of agricultural fertilizers and pesticides, etc.) should be
 restricted or prohibited within the protection zone

Source protection

 Any source of microbiological contamination should be located sufficiently far, at least at the minimum safe distance (MSD), from the drinking water source, in order to eliminate or minimize health risks.

Ground water protection

Characteristics of protected water sources are described below. It is the responsibility of the PHI to ensure that all the technical interventions designed to enable consumer to obtain good-quality water, are implemented and that community involvement necessary for the maintenance of water supplies and prevention of contamination, is mobilized.

Drinking water sources

1. Pipe-borne water supplies

Pipe-bome water supplies function mainly in urban areas provided with large water supply schemes. They often obtain water from surface water sources, Therefore protection of both the catchments area and the source should be considered as essential. However the installation of a water treatment plant is necessary since the water obtained from surface water sources may be contaminated with all kinds of pollutants.

2. Wells

a. Shallow dug wells

Dug wells are commonly used for drinking purposes, especially in rural areas. Most are unprotected or semi protected wolls, causing public health problems. Therefore it is an important duty of the PHI to ensure that semi protected wells in his area are upgraded into protected wells, and the unprotected wells to at least semi-protected wells.

Features of an adequately protected well

- Well should be located at higher level than, and as far as possible from potential sources of contamination such as latrines, animal excreta, household waste water etc.
- There should be no latrine constructed within a distance at least 16 meters (50 feet) of the well
- The top of the well should be protected with an impervious lining, running down for at least 1 metre (approx. 3 feet) below ground level, and continued upwards for a height of 30 cm (one foot) above the ground level.
- A cemented platform having at least one meter width, adequately sloping out, should constructed around the well at ground level.
- A lead away drain 3 meters long should be provided and be properly maintained.
- The well should be covered with a concrete cover to which is attached a
 pipe/inlet pipe of a pump, to withdraw water. The opening in the cover, for the
 pipe, should be kept well sealed to prevent entry of water from outside.
- A manhole should be provided for inspection of the interior of well, with rim of manhole opening raised at least 8 cm above the surrounding surface of cover. The manhole cover should overlap the opening in surrounding surface.

Features of a semi protected well

- The well should be fenced.
- A parapet wall 0.75 m (2.5 feet) in height, with a steep outward sloping top to prevent pollutants being washed into the well, and to prevent people sitting / standing on it.
- An apron around the parapet wall 1.5 meters (5 feet) wide, sloping outwards.
- A lead away drain 3 meters (5 feet) long.
- An impervious lining to the well at least for 3 meters (10 feet) below ground level.
- A pulley arrangement for raising water with a bucket attached to a rope or chain
- A common bucket users should not be allowed to use their own buckets.
 The common bucket should be kept on a raised cement pedestal when not in use, and should not be exposed to pollutants.
- Washings should be done away from the well.

it should be the effort of the PHI to get the owners of unprotected wells to convert them to protected wells, or at least to semi-protected wells. He should try to get the semi-protected wells converted to protected ones.

Disinfection of unprotected / semi-protected wells

It is the PHI's responsibility to have disinfected the unprotected / semi -protected wells in his area regularity

b. Deep tube wells

Tube wells with hand pumps, are used mainly in dry zone areas.

Features of well maintained (sanitary) tube wells

- There should be no latrine within a distance of a 16 meters (50 feet) radius around the well.
- The hand pump should be securely fixed and fenced.
- A cemented apron, at least one meter in width, should be there around the pump, and properly maintained to prevent the collection of polluted water.
- The lead away drain should be properly maintained to prevent accumulation of water.
- No collections of standing water or house waste water should be there at least within a radius of 16 meters from the well.
- Tube wells should be disinfected thoroughly with chlorine solutions regularly.
- The cement apron should be thoroughly cleaned with chlorine solutions regularly.

Other sources

a) Springs

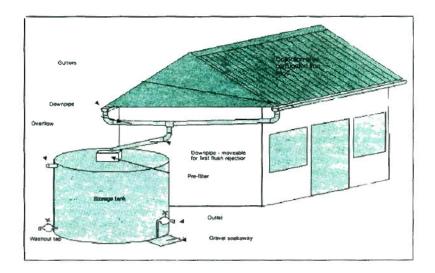
Water on the surface of the ground will filter down through the soil and rocks until it meets the impervious layer or water table (ground where soil or rock saturated with water is lying). Springs are places from where this filtered water reappears from underground, due to some kind of force. As water from the springs undergo filtration and is free of microbes, it is safe to drink such water unless contaminated. Springs form commonly used water sources for drinking and bathing, and therefore the PHI should ensure that such springs in the area, which supply drinking water, are properly protected and that steps are taken to prevent people or animals from contaminating such spring water.

b) Rain water

Rain water can be collected by individual households for domestic purposes (rain water harvesting). Rain water collection can be readily used in emergency situations when water supply in the area has been disrupted, and in areas where water is scarce and public water supply is not available. Quality of water can be maintained by using proper storage measures and household water treatment methods. It is relatively safe when collected on a clean, smooth, impervious surface and stored in containers free of contamination.

Requirements for rain water harvesting

- A hard impervious surface onto which rain water falls (e.gs; roof made out of suitable material, concrete slab.)
- A storage container
- A means of collecting water from the collecting surface to the storage container (e.gs. gutters and down pipes system)
- Washout line (to washout collecting surface)



c) Surface water

As cost of treatment and delivery of water is high, this system is used only in large urban water supply systems.

Water Treatment (Water Purification)

Having located a source for water supply, either surface or ground water, water treatment is necessary to bring to the standards required of drinking water, by removing, all types of impurities from it.

Stages in water treatment process

- a) Aeration
- b) Sedimentation
- c) Filtration
- d) Disinfection (Chlorination)

1. Aeration - Aeration is done;

- to add oxygen (O₂) to water
- to remove gases like Hydrogen Sulphide (H₂S), Methane (CH₄), Ammonia (NH₃) and Carbon Dioxide (CO₂) from water
- · to remove taste, odour and colour
- · to remove iron and manganese
- to remove substances that may interfere with the chlorination process
- to remove oil formed by micro organism and algae plants

3. Sedimentation

This is the process of causing heavier solid particles in suspension, both organic and inorganic, to settle by retaining water in large tanks. When the process is carried without the addition of coagulants it is called plain sedimentation, and if coagulants are added, it is called sedimentation with coagulation.

3. Filtration

Filtration in its commonest form allows water to pass through a thick layer of sand or other filtering media. By doing so, the suspended and coagulated matter in water is partially removed, the chemical characteristics of water are changed, and the density of bacteria reduced.

4. Disinfection - Disinfection of water using a disinfection method to kill bacteria, virus and small insects contained in the water is termed as disinfection of water.

The microbiological quality of drinking-water can be substantially enhanced by protecting the source, and by treating the raw water. Disinfection should be constantly done, specially in public water distribution systems, as a short-term fault in the disinfection process may lead to distribution of contaminated water.

Disinfection methods

Either physical or chemical methods may be used. Physical methods include boiling, or keeping water for 6 hrs exposed sunlight (ultra violet rays will kill the organisms). Chemical methods include the addition of ozone, or, most commonly chlorine or its derivatives. The residual disinfectant in water can minimize bacterial re-growth and re-contamination of water.

Selection of disinfectants used, should be based on the availability and the cost of the disinfectant, logistics, and cost of equipment. Based on these factors, chlorine is considered as the disinfectant of choice.

Chlorination

Chlorine is an effective disinfectant in clear water, and inactivates all microorganisms,i.e., protozoa, viruses and bacteria. Chlorine reacts with ammonia, organic substances, sulphides, and ferrous salts, etc., in water. These reactions can reduce effectiveness of chlorine, and therefore the dose of the chlorine required to achieve disinfection of water may vary.

Chlorine can be used in a form of gas dissolved in water, liquid (sodium hypochlorite solution for water disinfection), and solid forms (calcium hypochlorite, commonly available as bleaching powder or Tropical chlorinated lime-TCL, containing about 30% available chlorine).

However, solutions and solid forms are unstable at warm temperatures, and should be stored carefully. Choice of the form of chlorine to be used for disinfection is determined by the availability, and cost of equipment required for the process.

Residual chlorine

It is the amount of chlorine which remains in water after a specified period of time following the addition. Three forms of residual chlorine may exist after dosing:

- a) Hypochlorous acid or "residual free chlorine" It is the most effective form and an important indication of adequacy of chlorination.
- b) Chlorine combined with ammonia as chloramines.
- c) Chlorinated organic matter.

There should be a chlorine residue of 0.2 to 0.5mg / litre at points of supply. This means that a level of 1 mg / litre is required when water leaves the treatment plant. It is recommended that levels exceeding 0.8 mg / litre are avoided at the point of consumption (Chlorine residue is tested in water at 0.8 mg/l). In drinking water, there should be free residual chlorine level of at least 0.2 mg / litre or 0.2 ppm), after a contact period of 30 minutes.

GUIDE FOR THE CALCULATION OF INITIAL DOSAGE OF BLEACHING POWDER TO BE USED

For clear well water - 0.5 to1ppm

For clear surface water sources - 1-5 ppm

For highly contaminated sources - 2 - 5 ppm

Formula to be used to determine the amount of bleaching powder required for a particular water supply

$$P = \frac{C \times L}{B \times 10}$$

where

P = weight of bleaching powder in grams

C = PPM to be applied

L = volume of water to be chlorinated

B = % of chlorine in bleaching powder

Chlorination of wells -

There are many ways of disinfecting the wells. But commonest method is chlorination. Conducting chlorination of wells is an important duty of a range PHI. Bleaching powder is usually recommended for this purpose. ½ oz to 1 oz of fresh bleaching powder is used.

Physical Methods

Boiling

At household level boiling is used to disinfect water. This is the most suitable method of disinfection of water for household use, in Sri Lanka. Water should be boiled and maintained at100°c for about 15 minutes.

Ultraviolet radiation

Disinfection with ultra violet radiation does not leave any taste or odour in water. However this method is expensive, and also it does not leave any residual activity capable of disinfecting the water.

Water supply in epidemic and disaster situations

In these situations there is a possibility of water-borne diseases occurring, and it is vital to ensure adequate supplies of safe drinking water in such situations. The supplies must be:

- of good quality
- continuously available
- accessible to all the population
- available in adequate quantities to maintain human health

WATER SUPPLIES IN EPIDEMIC / DISASTER SITUATIONS

Focus attention on:

- · Protecting the source of water
- Ensuring optimal use of treatment facilities
- Emergency disinfection
- · Ensuring adequate household treatment and storage

Drinking Water Quality Surveillance

This is the process of gathering systematic information on hazards in water supplies which could pose a risk to health. Quality control and sanitary surveys are integral parts of surveillance. Water supply systems should be tested regularly to make sure that the water supplied is free from any chemical, biological or physical contamination. Testing should be done at least for residual chlorine, turbidity/ suspended particles, and coliform pathogens. Surveillance enables appropriate preventive measures to be taken before a failure of supply due to contamination of water, or any other related cause occurs.

Action to be taken by the PHI - Drinking water quality surveillance

Following actions should be taken by PHI with a view to improve and maintain water quality in drinking water sources;

- a) Maintain the sanitation register up-to-date
- Maintain a register and a map that include all common drinking water sources in his area, with their distribution perimeter identified

A map that depicts the distribution areas of respective water supplies must be maintained at the MOH office.

The Register should be in the following format:

Serial No	PHI area	Name of the water supply	Responsible authority/ person	Address	Covering population (number)	Contact telephone number
					6299	

- Inspect drinking water supplies regularly and obtain water samples from the main outlets and from selected peripheral outlets, for microbiological, chemical and residual chlorine analysis.
- d) Based on the findings of sanitary inspections, water sample analysis, and disease surveillance data, implement appropriate disease prevention actions whenever required.

Steps to be taken in water quality monitoring

1. Sanitary inspection

It is an on-site inspection of the physical structure, and the purification mechanism of the water supply, and any environmental factors which may pollute the water source (latrines, factories etc.,) using a questionnaire. PHII should carry out sanitary inspection of all new sources at the time of construction and all existing sources on a regular basis.

2. Places of sampling for testing

- · From the main outlet of the water supply facility
- From selected outlets (point of use) at periphery

2.1 Testing for chemical parameters

Testing for residual free chlorine

Testing for residual chlorine should be carried out at the drinking-water supply premises by the respective PHI using the Comparators and reagents provided to them. The MOH is responsible for maintaining adequate quantities of reagent, in order to carry out uninterrupted testing.

Testing for basic chemical parameters

A panel of chemical tests should be done

- 1. At the time of commissioning
- In situations where health authorities have not verified a water supply before
- 3. Thereafter annually.

1500 ml of water should be collected in to a clean bottle. Refrigeration or cold transportation is not necessary.

2.2 Testing for bacteriological parameters

Testing for bacterial parameters is usually carried out in a laboratory having relevant facilities. The procedure to be followed is to collect a sample adopting proper procedure from the water source and transport it to a designated laboratories under the Ministry of Health outlined in table 1 and Regional Laboratories of the National water Supply & Drainage Board.

In case of interruptions in testing samples at peripheral laboratories, samples can be sent to the MRI with prior agreement.

Table 1: Laboratories to which the samples from districts for bacteriological testing should be sent

Laboratory	District		
Medical Research Institute (MRI)	Colombo, Gampaha, Kegalle, Nuwara Eliya, Badulla, Moneragala, Ampara, Kalmunai, Trincomalee, Bautealor		
Food laboratory- Kalutara	Kalutara, Galle, Matara, Hambanthota		
Food laboratory -Kurunegala	Puttalam, Kurunegala, Kandy, Matale		
Food laboratory -Anuradhapura	Anuradhapura, Polonnaruwa,		
Food & Water Laboratory - Ratnapura	Ratnapura		
Water Laboratory Vavuniya	Vavuniya, Mannar, Kilinochchi, Mullaitivu, Jaffna		

2.2.1 Procedure for sample collection

A sterile bottle should be used for this purpose. Keep the bottle unopened until sampling procedure begins. Minimum volume needed is 300ml.

Sampling from a tap in a distribution system

(preferably from the outlet of the water supply facility (source) and selected points of use the area of distribution)

- 1. Use a bottle containing 4-5 drops of Sodium Thiosulphate
- Remove from the tap any attachments that may cause splashing and wipe the outlet with a piece of cloth to remove any dirt.
- Wash your hands with soap and water.
- 4. Open the tap and allow the water to run for 30 seconds.
- Flame the mouth of the tap for 30 seconds with a lighter or an ignited cotton wool swab soaked in alcohol. If the tap is plastic swab with surgical alcohol and leave it for 2 min.
- Open the tap and allow the water to run for 30 seconds.
- Open the lid of the bottle and fill the bottle while leaving a small air space in the bottle. (The bottle should not be rinsed before collecting water)
- 8. Replace the lidFill up the request form and paste it on to the bottle.

Sampling water from a dug well

- 1. Prepare a sterile bottle with an attached string for emersion.
- Immerse the bottle into the woll and collect the sample.

Use "Lovibond apparatus" for water sample collection where there is a legal implication.

2.2.2 Frequency of sampling

A minimum of six samples from different water sources in an MOH area each month. If the number of samples exceed the number routinely sent to the Medical Research Institute (MRI) or the designated laboratory, informing them in advance (Food & Water Division of MRI, telephone, 011 2693532 Ext. 342).

2.2.3 Transportation of water samples

The samples should be immediately placed in a lightproof insulated box such as rigiform box containing ice cubes or ice-packs with water to ensure rapid cooling. If ice is not available, the transportation time must not exceed 2 hours, it is imperative that samples are kept in the dark and that cooling is rapid. If these conditions are not met, the samples should be discarded.

When water containing even traces of chlorine is sampled, the chlorine must be inactivated. If it is not, microbes may be killed during transit and an erroneous result will be obtained. The bottles in which the samples are placed should therefore contain sodium thiosulfate to neutralize any residual chlorine.

The form sent with the water samples for bacteriological investigation should follow the following format. A copy of this form should be kept at the MOH office.

	ality Surveillance	45 45
Water sample for ba	acteriological inve	stigation
RDHS	мон	PHI
Division:	area:	area:
Name of the water supply / location ;		
Date of sampling:	Time of	sampling:
Whether the water is subjected to chlorination:	Yes / No	
Residual chlorine level:		
Sender's name	Designation	Date

2.2.4 Interpretation of results

Relevant SLS standards that can be used in interpretation of test results on water quality are given in the following table.

Table 2: Interpretation of results of bacteriological testing

Source	APC	PCC	ECC
Pipe borne public water supplies (>2000)	No Standard	Throughout any year 95% of the samples shall not contain any coliforms /100ml None of the samples examined shall contain more than 3 coliforms per 100ml Coliforms shall not be detected in 100ml of any 2 consecutive	Should not be detected/100 mi
Individual and small community supplies		samples. Should be < 10/100ml	Should not be detected / 100ml

APC- Aerobic Plate Count, PCC- Probable Coliform Count, ECC-Escherichia Coli Count

Household water treatment

Drinking water can be purified at home using following methods;

i, Boiling

Boiling drinking water is a simple way of killing microorganisms. It should be encouraged in all circumstances where it is possible. Small bubbles appearing in the water and steam appearing over water does not mean that water has been sufficiently treated for subsequent cooling and drinking. Water must be brought to boiling and kept so for at least for one minute. For turbid water it should be kept boiling for at least five minutes. Water should be boiled, cooled and stored in the same container to avoid re-contamination. The container should be regularly cleaned and disinfected

ii. Filtration

Several types of filters are available, and include candle filters, stone filters and household sand filters.

iii. Disinfection

The commonest method of disinfection is to add 1% chlorine solution to the water and leave for 30 minutes to allow sufficient contact time for chlorine to act. Three drops of liquid chlorine solution should be added to each 1 litre of water. After 30 minutes taste water to detect a slight chlorine taste. If there is no slight taste of chlorine, add one more drop of chlorine solution to every litre of water already treated.

Solar Water Disinfection

Solar water disinfection is a water treatment method which uses solar energy to destroy the microorganisms in water. It may used at household level to treat small quantities of drinking water. This is an old, but hardly applied water punfication method.

The treatment process involves simple technology, and uses solar radiation to inactivate and destroy pathogenic microorganisms present in the water. The treatment basically consists in filling transplant containers with water and exposing them to direct strong suntight for about 5 hours.

Solar water disinfection does not change the chemical quality of water, the odor, nor the taste of the water. Microorganisms are heat sensitive, 99,9% of microorganisms present in water do not require that water be boiled, for their destruction, but heating up water to 50-60 °C for one hour is sufficient. However there are few limitations to this method.

- It is not possible to treat large volumes of water
- requires relatively clear water (turbidity less than 30 NTU)
- needs solar radiation (exposure time: 5 hours under bright sun / sun with 50% cloudy sky, or for 2 consecutive days under 100% cloudy sky)

Rural Water Supply and Sanitation

Effective and sustainable programmes for water supplies require the active support of local communities, which should be involved at all stages of such programmes. These stages include initial surveys, monitoring and surveillance of water supplies, reporting faults, carrying out maintenance, and taking remedial action / supportive actions including sanitation and hygiene practices.

The appropriate sources and technology options for rural water supply

Water sources

- a. Surface water sources
- b. Ground water sources
- c. Rain water

Technology options for household water supply

The most appropriate technology options include,

- i. Household Wells
- Fully lined wells (Annexure- 1).
- Wells lined with concrete rings (Annexure- 2)
- Partly lined well brick masonry (Annexure- 3).
- ii. Communal water supplies

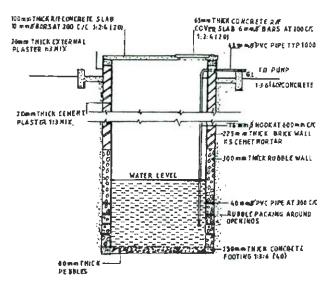
The most appropriate technology options include

- iii. Common wells
- Fully lined wells
- Half lined wells
- Wells fined with concrete rings.

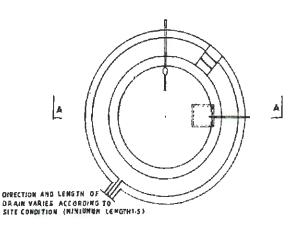
Major difference between household wells and common wells is that common wells are larger in size compared to household wells.

Gravity System (Annexure- 4)

In gravity and pumping systems, surface water as well as ground water is used depending on the situation.



SECTION A-A

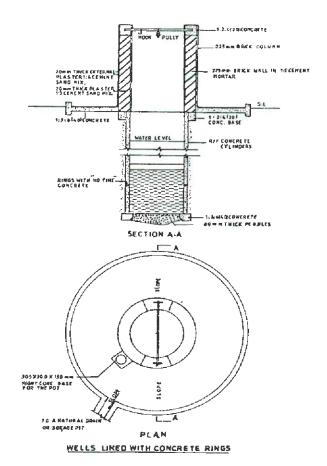


FULLY LINED WELL

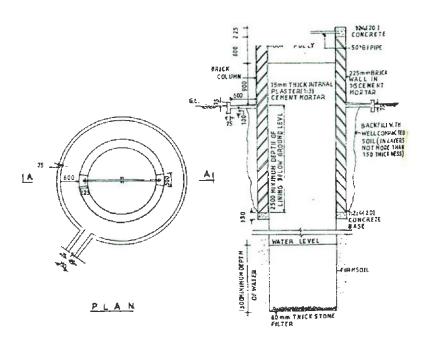
PLAN

SCALE - 1:50

Annexure -1



Annexure - 2



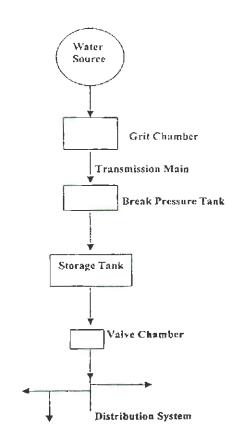
SECTION A A

6 SCALE 1:50)

PARTLY LINED WELL
BRICK MASONRY

(1200 mm AND 1500 mm DIA METER)

ANNEXURE- 3



GRAVITY WATER SUPPLY SYSTEM

ANNEXURE- 4

2.3 Disposal of Human Excreta

Many infectious diseases are caused by pathogenic organisms found in the excreta of infected persons, finding their way to other human beings, by water, food and soil. Human excreta, both faeces and urine, should therefore be disposed of in such a manner that they do not reach water sources or food. They should also be prevented from reaching the soil, and be out of reach of insects and other animal vectors that can help keep pathogenic organisms in circulation. The provision of sanitary toilet facilities is essential for this purpose, and therefore every household should be provided with a sanitary latrine. Several systems have been developed for the purpose of excreta disposal in this country. The commonly adopted systems are described briefly.

Excreta Disposal Systems

In urban areas the method of choice is the water carriage system, which removes excreta and liquid waste, through a system of pipes (sewers) to a common disposal point, where disposal is carried out after treatment. However in Sri Lanka such systems are in operation only in the municipal area of Colombo and its suburbs.

Households in the majority of urban areas and in all rural areas require individual disposal systems. The most common types of excreta disposal systems in use are as follows:-

COMMONEST TYPES OF EXCRETA DISPOSAL SYSTEMS IN USE

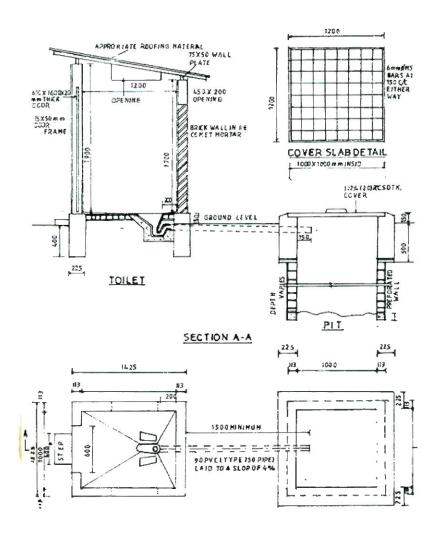
- . The pit toilet method
- . The direct-pit water-seal toilet method
- . The water-seal toilet method
 - Cesspool toilet method
 - Septic Tank toilet method

Many households, particularly those in rural areas, do not have any form of excreta disposal system. It is the PHI's responsibility to persuade householders to build sanitary latrines and use them, and to advise householders in the selection and construction of the most suitable type of latrine.

Selection of suitable type of latrine

In recommending a latrine to suit individual requirements, PHI should consider the following factors:

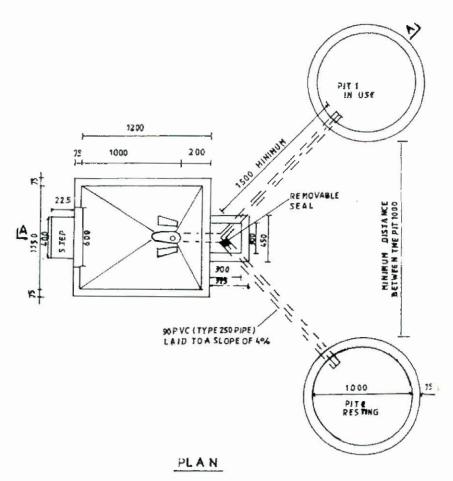
- 1. Cost of construction
- 2. Operation and maintenance cost
- Water requirements
- 4. Health benefits
- 5. Maintenance requirements



PLAN WATER SEAL POUR FLUSH LATRINE

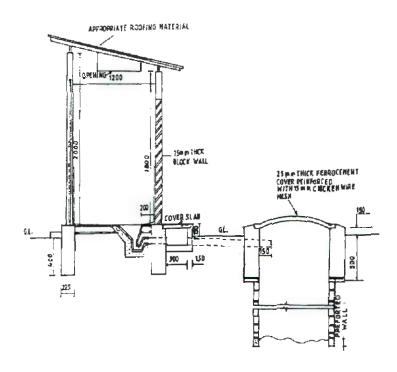
Annexure - 5

101



WATER SEAL POUR FLUSH LATRINE

Annexure - 6



SECTION A-A

Annexure - 7

These factors are evaluated in the table below:

Type of latrine	Construction cost	Operation & maintenance cost	Health benefits	Water requirement	Maintenance requirements
Pit	Low	Low	Satisfactory	None	Dig new pit & move super structure
Direct pil water-seal	Low	Low	Good	Water close to toilet	- do -
Water-seal with soakage pit	Medium	Low	Good	- do -	Dig new pit
Water-seal with septic tank	High	Medium	Very good	- do -	Dislodging

1. Pit toilet

The pit toilet method is the commonest method of on-site excreta system used in rural areas.

Type of pit toilets

- Single pit; sealed lid
- Single pit; ventilated
- Twin pit; ventilated

In all types of pit toilets, excreta fall directly or indirectly into a hole in the ground, or into a built pit. In the pit excreta decompose, and the resulting decomposition gases like Carbon dioxide and Methane, escape to the atmosphere or are absorbed by the soil.

2. Cess pool toilets

- Pour flush single pit off set
- Pour flush twin pit

These types of toilets are used in village areas and semi urban areas. When the tank is full with excreta it can be disconnected and the toilet pan joined to a new cesspool. But if the land space is not sufficient this pit can be emptied and reused.

3. Septic tank toilet

This is a more advanced on-site excreta disposal system in which a rectangular septic chamber constructed below ground level, or a cylindrical pre-constructed tank placed underground, receives both excreta and other waste water from the household.

The septic tank is usually divided into two compartments, the volume of the first compartment being twice the volume of the second compartment.

PHI Manual - Chapter 2

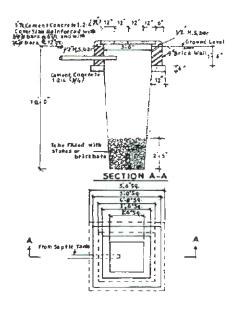
The septic tank is built water-tight and the depth is around 1-2 meters and length to breadth ratio 1:3. The sludge accumulation in a septic tank is around 0.03-0.04 m³ per person per year. (Annexure -9)

The discharge from the septic tank is either led to a soak away pit which is dug 2-3 meters into the ground, or to a drain field which disperses the effluents through perforated pipes 0.5 -1 meter below the ground level. The latter system is more suited for high ground water level areas, as a low cost option. (Annexure -8)

Periodic emptying of the sludge from the septic tank is necessary, frequency depending on the designed volume. Normally one septic tank can serve up to 300 persons.

De-stedging interval (in years) = 1/3 tank volume (m³) | sledging accumulation x population

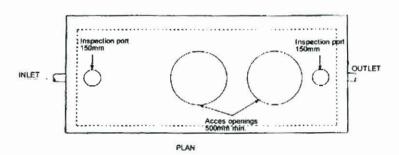
Total tank volume $(m^3) = 3 \times maste flow x0.1 m^3 per head per day x population$

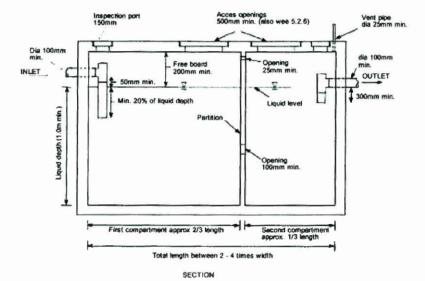


PLAN OF SOAKAGE PIT

ANNEXURE - 8

TYPICAL SEPTIC TANK ARRANGEMENT





ANNEXURE - 9

Urine Diversion Dry Toilet

Dry sanitation or eco-sanitation is an onsite disposal method that requires the separation of urine and faeces This type of latrines are suitable for dry zones with scarce water supply resources and can be constructed in the compound attached to the house or inside the house. In contrast to conventional latrines, Urine Diverting Dry Toilets (UDDT) can be constructed in areas with less than 30m distance to need drinking well and water table depth less than 3m.

For urination and anal washing the respective sections are used. For defecation the chamber is used. One chamber shall be used for 1 year or until the chamber is full. A hand full of ash, sand or wood chip shall be added to the chamber after every usage. Care shall be taken not to add water into the faecal chamber. The chamber shall be closed with a lid after each use.

The other chamber shall be used for the next 1 year and the cycle be continued.

Soil or straw shall be spread to about 0.02 m (2 cm) at the bottom of the chamber before the first use. Soil or straw shall be added to the pile after 1 year of usage to cover title pile.

The full chamber shall be let to rest for a period of 10- 12 months before emptying. The emptied material shall be used as soil conditioner (compost) or shall be buried under the soil.

Non-biodegradable materials, including tampons and sanitary pads, shall not be disposed in the faecal chamber in any case. Separate collection bins shall be provided in the toilet for this purpose.

2.4 Waste Water Treatment

In the past the amount of waste water produced in the country was small, and could be safely disposed into surface water and lands. Now the volume of waste water discharged has much increased due to population growth and industrial expansion, which ultimately has caused failure of self purification in many areas in the country. Consequently, waste water treatment methods have gradually been installed.

CATEGORIES OF WASTE WATER TREATMENT

- Pre Treatment
- Primary treatment
- Secondary treatment
- Tertiary treatment

Pre treatment - This is done to remove larger objects from raw waste water, and may also include screening or grit removal.

Primary treatment - Usually refers to the removal of suspended solids by sekkling or floating. Primary treatment reduces the BOD up to 35% and suspended solids up to 65%.

 Screening - Bigger particles cannot be digested by bacteria, and have to be removed using screens e.gs. clothes, paper, timber logs etc.

- Grit removal Sand and stones which come with the influent are settled here
 using grit chambers. Settled particles lay on drying beds.
- III. Primary settling Sekklable particles which come with the influent are settled in primary settling tanks. For industrial waste water, aluminum sulphate, Ferric chloride, and lime are added for coagulation, in coagulation tanks (detention time up to 2 hrs).
- IV. Digesting In these tanks the settled solid matters are kept for 40-50 days, for the digesting process
 - V.Drying These tanks are prepared with layers of sand and stones, with an under drain system in the bottom. The water in the solid matter goes down through the sand beds and the solid matters dry naturally. Sludge drying period is 3-4 weeks.

Secondary treatment - This is generally done by biological processes and is capable of achieving BOD removal by 35% to 95%.

- Activated studge aeration supply O₂ by sending compressed air, or using mechanical stirrer, to encourage the growth of bacteria in waste water. These bacteria will digest solid particles and break them into pieces.
- II. Final settling Waste water with broken-up solid particles come to the secondary or final settling tanks, and these particles settle in these tanks.

Tertiary Treatment - Tertiary treatment is intended to polish the effluent from secondary treatment plants in order to effect further removal of BOD and suspended solids, etc.

2.5 Solid Waste Management

Introduction

Any unwanted item in a given place at a given time is defined as waste. Any solid item which is unwanted, with no productive use and requires disposal is considered as solid waste. Solid waste is generally known as non-liquid waste, rubbish or garbage.

Solid waste is generated from domestic, commercial, industrial or agricultural activities. Solid waste may consists of food waste, garden waste, paper, plastics, glass, metal, wood, rubber, leather, discarded clothes or small pieces of cloth, ceramics, construction waste and factory off cuts.

The composition of waste in households depends mainly on the consumption pattern of the inhabitants of the households. In general 60%-75% of bio-degradable or organic waste is found in domestic solid waste, which includes food residue and garden waste.

Solid waste can be categorized in to two groups. They are Municipal Solid waste and Hazardous (scheduled) waste.

Municipal Solid Waste

This is generated from households, commercial and other establishments which are not considered as hazardous but requires sanitary disposal. Municipal waste consists of the following:

- 1. Bio degradable waste eg, food waste
- Inert waste eq. demolition waste.
- 3. Recyclable waste -eg. paper, plastic
- 4. Composite waste made up of two or more different materials eg. toys
- Domestic hazardous waste eg. Electronic waste, chemicals, fluorescent tubes, injection needles, bandages

Hazardous Waste (Scheduled Waste)

Hazardous waste is generated from industries, research institutions, laboratories, healthcare institutions and transport sector. They can be by-products of manufacturing processes or simply discarded commercial products, like cleaning fluids or pesticides. Hazardous waste has properties that make it dangerous or potentially harmful to human health and to the environment. Hazardous waste can be liquids, solids, gases or studges and will have one or more of the following characteristics;

They can be explosive, flammable, exidizing, texic, infectious, or corrosive.

Some of the hazardous waste are paints, pesticides, electronic waste (e-waste), florescent tubes, batteries, asbestos, detergents, waste oil and infectious waste.

This waste has to be treated and disposed in a secure manner, in a hazardous waste management facility, to avoid adverse health impacts caused to human beings and the adverse impacts to the environment.

Issues related to waste management

- Haphazard disposal of solid waste.
- Lack of suitable lands in major cities to develop sanitary and secure landfills.
- · Public protests on establishing landfills.
- Lack of financial and human resources in certain municipal councils and local authorities.
- Fluctuations in the market of recyclable items.

Health Impacts caused due to haphazard disposal of solid waste

- Dengue: Disposal of tins, cans, tyres or other receptacles of fresh water provide breeding grounds for Aedes egypti and Aedes albopictus the vectors of dengue fever.
- Urban Filariasis: Drains get clogged and pools get polluted due to accumulation of waste. This polluted water bodies provide a breeding ground for Culex fasciatus, vector for urban filariasis.
- Fly borne diseases: Breeding of flies in a solid waste dump is another health impact which can lead to spread of diahoreal diseases.
- Rabies: Accumulation of food residue in solid waste dumps attracts stray dogs and cats which influences the increase in the population of these dogs and cats, increasing the threat of rabies.
- Leptospyrosis: Breeding of rats in solid waste piles can influence the incidence of leptospyrosis. Also the rats and other insects in solid waste piles

also attract predators like snakes and other reptiles, which is a risk to people who live nearby.

- Social problems: Haphazard disposal of waste causes social problems and mental stress to some householders, when solid waste is dumped in front of houses and private properties at times.
- 7. Cancer: Toxic materials in the waste can cause cancer, eg heavy metals,
- Respiratory diseases: Inhalation of pollutants from waste causes respiratory problems.
- Occupational Health Hazards: waste handlers are exposed to occupational health hazard.

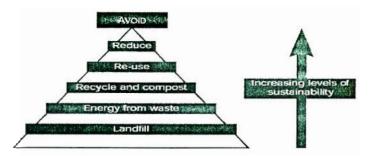
Therefore it is essential that solid waste and hazardous waste are disposed in a sanitary and secure manner. The PHII should create awareness among general public and provide necessary guidance to the community to manage their solid and scheduled waste properly.

Waste Management

In managing solid waste life cycle approach (cradle to grave) has to be adopted. That is steps should be taken to mange waste from waste generation to treatment and disposal. The following steps will help to minimize the waste generated in their households and other establishments. Reduction of waste generation will in turn reduce the burden of disposing huge amounts of waste by individuals and local authorities.

Waste hierarchy

Adhering to following steps will bring about sustainability in waste management.



- 1. Avoidance of waste: Waste generation can be avoided.
- Reduction of waste: This is a very important step in waste management.
 The people should be educated and encouraged to take action to reduce
 waste generation by behavioural and attitudinal changes, eg. To avoid
 bringing in unwanted items and excessive amount of packaging material in to
 households.
- Re-use: Some unwanted items can be reused instead of disposal, eg. Glass bottles and containers.

- Re-cycle and Composting: Some items can be recycled, eg. Paper and plastics can be recycled to make recycled paper and plastic.
 Bio-degradable or organic waste can be converted to compost, which can be used as a soil conditioner.
- Energy from waste: Waste can be converted to energy. The biodegradable
 or organic waste under anaerobic conditions can be converted in to bio-gas.
 In addition waste can be converted to electricity using plasma pyrolysis
 technology.
- Landfill: The waste that remains after following all the above steps has to be disposed in a sanitary land fill.
 Sanitary Landfill is an environmental friendly way of waste disposal.

Important steps in Waste Management

i. Waste Segregation:

Waste has to be segregated at the source of generation, in to different categories.

ii. Waste Collection:

Plastic or metal garbage bins with a lid and polythene garbage bags can be used to store garbage until disposal. Perishable garbage should not get accumulated for more than two days in a collection bin. The public bins located in urban areas should be managed properly to avoid overflowing of garbage.

iii. Waste storage:

Waste should be stored in ventilated rooms, it should be locked to avoid scavenging by people & animals. These rooms should have washing facilities.

iv. Transportation:

The waste transportation vehicles should be closed vehicles, to avoid waste falling on to roads while transportation and also to avoid emission of bad odours causing nuisance to the people traveling on roads.

Waste transportation should avoid traffic as much as possible.

v. Treatment & Disposal:

Waste should be treated and disposed in a sanitary manner.

The general public should be encouraged to segregate waste as per the National Colour Code on Solid Waste segregation, to bring about a uniform system within the country.

The PHII should work closely with the general public and local authorities to educate them to take necessary action in this regard.

National Colour Code on solid waste segregation

Biodegradable waste – Green Plastics – Orange Paper – Blue Glass – Red Metal – Brown



The waste disposal is the responsibility of the municipal councils and the local authorities, where adequate legislation is available under these authorities.

Management of bio degradable waste

Once the bio-degradable waste is separated they can be composed. Composting can be carried out using several methods. Composting is carried out under aerobic conditions, in the presence of oxygen.

Compost bins can be used to compost bio-degradable material of households. There are plastic, metal and cement barrels available in the market. Plastic barrels could be obtained from the Central Environmental Authority at a subsidized rate.

Compost Bin

Plastic compost bins should be kept on a perforated cement slab which is provided with the bin and waste has to be fed from the top removing the lid.

It is advisable to keep metal bins under a roof to avoid rain water getting in to the bin and to avoid rusting of the barrel.

Cement bins can be kept on open areas.



Degradable waste (kitchen waste and garden waste) should be put to the barrel daily. The moisture content of the compost barrel should be maintained properly to avoid breeding of worms. If the moisture level is high in the compost bin, leaf litter or saw dust could be added to reduce moisture content. If the waste is dry and moisture is not sufficient for composting small amount of water could be added. Mixing of waste using a rod once in a white will improve the aeration process.

After few weeks waste will be converted to compost and could be taken out from the window at the bottom of the bin. Compost can be used as a soil conditioner for home gardening.

The PHB should provide the necessary education and the guidance to manage compost bins, and encourage the community to compost bio-degradable waste. The local authorities should be encouraged to provide compost barrels to households at a reasonable price or encourage the community to make their own compost barrel at a low cost. Used motal bins could be obtained from chemical industries for this purpose.

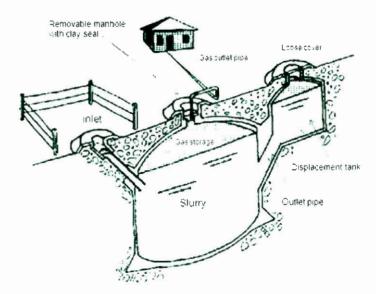
If a considerable amount of bio-degradable waste is generated in households and land area is available, open composting can be carried out using pits or "jeewa kotu".

Preparation of Bio- Gas

Bio degradable waste can be digested under anaerobic conditions to prepare biogas.

Bio-gas could be prepared by:

- Vegetable waste/ Kitchen waste
- Cattle shed waste/ Cow dung, straw
- Night soil/ sewage



Bio-degradable waste can be converted to bio-gas using anaerobic digestion. The above digesters should be made to suit the quantity of waste generation. If required technical assistance could be obtained from NERD Centre of Ministry of Science and Technology or other government agencies/ NGOs implementing such projects island wide.

Bio-gas preparation will reduce the fuel cost of the households providing a good solution to the waste problem.

Management of non bio- degradable waste

Non bio-degradable waste such as paper, plastic, glass and metal can be recycled. Glass bottles can be reused. Used plastic is converted to pellets for making other plastic products and used paper is converted to recycled paper. Similarly metal and glass are recycled. National Paper Company and Glass Company are major buyers of used paper and glass.

Collection centres: Some local authorities have established collection centres-"Sampath Piyasa" for recyclable items. The PHII should encourage the general public to make use of these centers for disposing recyclable items.

Collection of segregated waste: Some of the Municipal Councils and local authorities collect the segregated recyclable items at regular intervals using trucks. If a such system exists, the community should be encouraged to handover all recyclable items to the local authority. Some authorities collect only non biodegradable waste, allowing all households to compost their bio-degradable waste.

Buyers of recyclable and reusable items: In certain areas buyers of recyclable items visits homes, where the people can sell recyclable items. Most of the recyclers

are registered under the Central Environmental Authority. A list of waste recyclers could be obtained form the Central Environmental Authority (CEA).

Recyclable Waste Transportation

The vehicles which collect recyclable items should have the truck partitioned for categories of waste and painted as per the National Colour Code.

The PHI should encourage the community to adhere to environmental healthy solid waste management systems by improving the existing waste management system in his area.

The benefits of waste recycling are as follows:

- Saves money, raw materials, and land.
- Encourages individual responsibility.
- · Reduces pressure on disposal systems.
- · Lowers demand for raw resources,
- Reduces energy consumption and air pollution.

The following steps have been considered by industries in the view of minimizing the generation of waste (Shrinking the Waste Stream).

- Action has been taken to produce less waste by reducing excess packaging of food and consumer products.
- Increase use of photo-degradable and bio-degradable plastics.

Unhealthy practices of waste management

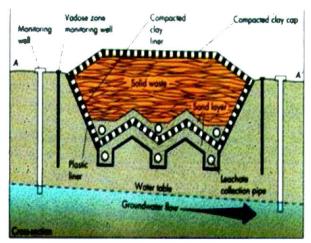
- Dumping: Waste collected by local authorities is dumped on a land with out adhering to sanitary guidelines. This is a common practice at present, carried out by local authorities and municipal councils, which should be discouraged at all times as this creates many health and environmental problems including contamination of the ground water and causing visual pollution.
- Open Burning: Open burning of mixed waste has to be avoided, as far as possible. Burning of mixed waste can emit toxic gases. The paints, PVC containing plastics, used batteries and other toxic substances should not be burned. They can be buried in a secure manner or be given to collectors of such items.

Short term solutions for waste management

1. Controlled tipping: under this method waste should be covered with soil just after dumping. This is somewhat a better method compared to open dumping. This too has many risks of contaminating the ground water. This method can be practiced until environmental friendly systems are established. A suitable land should be selected for this purpose to minimize environmental and health impacts (Refer National Guidelines on Solid waste Management — prepared by Central Environmental Authority).

Methods of environmental friendly waste disposal

Sanitary Landfill: Landfills are of many types. The main important features of a land fill are: it should be lined with a suitable lining material to avoid ground water contamination and the leachate that comes out has to be treated to minimize hazardous impacts. The emissions from a land fill also have to be controlled properly.



Schematic Diagram of a sanitary landfill

The following are the legislations available on managing solid waste:

- Local Governmental Laws
- National Environmental Act
- Police Department
- Local Government Laws
- Municipal Council Ordinance Section 129,130,131
- Urban Council Ordinance section 118.119.120
- Pradeshiya Sabha Act No 15 of 1987, section 93,94

Actions taken by the government to improve solid waste management

The following have been developed by the Ministry of Environment and Natural Resources with the assistance of the relevant stakeholders.

- National Policy
- National Guidelines
- National Strategy
- National Colour Code for waste segregation
- Regulations

The agencies responsible for waste management

The main responsible agencies are Local Authorities (Municipal Councils, Urban Councils and Pradeshiya sabhas),

The following are the supporting agencies involved in solid waste management:

- Solid Waste Management Authority Western Province
- National Solid waste Support Centre Ministry of Provincial and Local Government.
- Ministry of Environment & Natural Resources
- Central Environmental Authority

The following are other uses of solid waste:

- 1. Treated solid waste can be used to reclaim land
- 2. Waste is converted to energy. -Generation of electricity.
- 3. Wood waste used to make brickets
- 4. Some of the construction and demolition waste is reused

Relationship with the Local Authorities

It is the responsibility of the PHII to advise local authorities on solid waste management. They should supervise the work force responsible for the collection and disposal of refuse, and ensure that the activities are carried out satisfactorily. The workers should be encouraged to wear masks, gloves and boots/ shoes in handling waste.

Solid Waste Management at Disaster Situations

In an emergency situation the context should be understood well before establishing systems for waste disposal.

The following factors should be taken into consideration:

- type of waste generated (hazardous or general)
- · existing waste management facilities
- the amount of people affected
- present disposal system
- · equipment available
- · opportunities and restrictions of the environment
- whether pits can be dug.
- segregation of waste in to general and hazardous
- land availability
- water table
- cultural factors

Initial assessment

Understanding the context and waste generation



Immediate response
(1 month)
Clearing scattered waste and
Introducing onsite and
community pits



Intermediate response
(6 months)
Developing collection and
disposal
system and building landfill pits
away from settlements.
Consulting and educating users.

Healthcare Waste Management

Waste generated from hospitals, immunization centres, medical laboratories and research institutions is known as healthcare waste.

Only 10% - 25% of the total waste generated from these institutions is hazardous. The rest of the waste (75% - 90%) is general waste which is equal to domestic waste.

The institutions which generate healthcare waste are responsible for its management unider the legislation. The local authorities and municipal councils are responsible only for disposing general waste generated from these institutions which is non-haizarrous.

The categories of risk healthcare waste are:

- 1. Infectious waste
- Sharps
- 3. Pathological Waste
- 4. Chemical Waste

- 5 Radio active Waste
- 6. Pharmaceutical waste
- 7. Waste with heavy metals
- 8. Geno-toxic waste
- Pressurized containers



The life cycle approach should be adopted in managing healthcare waste.

Steps should be taken to:

- Avoid waste generation: By prohibiting bringing certain items into the hospital
 generation of some waste can be avoided, e.g. King coconuts, shopping bags
- Minimize waste: By educating the patients and the visitors, haphazard disposal of waste within the hospital premises can be avoided.
- Recycle: eg. saline bottles and paper can be recycled.
- 4. Reuse: eq. glass bottles can be reused.
- Composting or bio-gas preparation: Kitchen and Garden waste can be composted or be used for bio gas preparation.

Management of risk waste

 Waste segregation: The waste generated at healthcare institutions should be segregated as per the National Colour Code at the source of generation. As the quantity of risk waste generated is small, it is essential that the hazardous waste is segregated from the general waste as the treatment is required only for risk waste.

National Colour Code on Healthcare Waste (Circular No: 01-12/2006)

Infectious waste
 General waste
 General waste
 Black

Sharps - Yellow with a red stripe

Bio- degradable waste
 Plastics
 Paper
 Biue

- 2. Waste collection: waste should be coffected in coloured polythene bags to suit the national colour code. The bags should be of recommended gauge/ thickness made up with HDPE (High Density Poly Ethylene). Mouth of the bag should be tied with a tape, before sending out of the ward, or place of generation.
- Waste labeling: Infectious waste bags should have the bio hazardous symbol displayed on it. In addition the Ward No. and the date should be mentioned on the bag.
- Waste transportation: Waste should be transported in covered carts or secure carts, to avoid spillage of waste and spread of infection.
- Waste Storage: The storage should be painted as per the National Colour Code and have washing facilities; the storage should not have access for scavenging.
- Waste treatment: Hazardous waste should be treated and made nonhazardous before disposal.
- Waste disposal: Treated waste should be disposed in a landfill, and if waste is incinerated, the ashes should be disposed in a concrete pit/ landfill.

Spill management

A spill kit should be available in all wards to clean waste spills. The kit should include gloves, wadding and sodium hyperchlorite solution.

All healthcare institutions are expected to carry out the internal management of healthcare waste as per the National Guidelines.

Refer National Guidelines for Healthcare Waste Management prepared by College of Microbiologists -2007.

Treatment of infectious waste

- Steam Sterilization: This can be carried out by using a direct or indirect steam sterilizers, or autoclave. Waste autoclaves are available for autoclaving waste.
 - Sterilized waste can be handed over to the Municipal Councils or Local authorities to be disposed at a sanitary land fill.
- 2. Deep Burial: High risk waste can be buried in deep concrete pits.
- Chemical disinfection: waste should be shredded and immersed in chemicals such as aldehydes, chlorine compounds, ammonium salts.

- Microwaving: The waste can be treated using microwave technology.
- 5. Incineration: Incineration is burning of waste at a very high temperature. A dual chamber should be used for treating healthcare waste. The recommended temperature of the incinerator is 1000°c 1200°c to avoid emission of dioxins and furans which are known to be carcinogenic. Incinerators can be used to treat many types of waste excluding heavy metals and pressurized containers.

The ashes of the incinerators should be disposed in a sanitary manner in a concrete pit as this is considered to be hazardous. The approval of Central Environmental Authority has to be obtained for installation of an incinerator within the hospital premises.

It is important that PVC contacting plastics or any other chlorinated products are not burned in incinerators where the temperature is lower than 1200°c.

- Disposal at a secure landfill: Hazardous waste should be disposed in a secure landfill.
- 7. Inertization: The waste should be grounded and mixed with cement, lime and water. Then cement blocks could be made. This method can be used to dispose pharmaceutical waste and incineration of ashes and heavy metals. This method prevents toxic substances getting in to the environment.
- 8. Encapsulation: The waste should be filled (%) in to plastic (HDPE) or metallic drums, and filled with plastic foam, bituminous sand, cement mortar. This method can be used to dispose sharps, chemical and pharmaceutical waste. Then these boxes can be deposited in a landfill.
- The radio-active waste has to be disposed as per the guidelines given by Atomic Energy Authority.
- 10. The amputations can be cremated or buried or given to contractors for disposal.
- 11. The cytotoxic drugs have to be returned to the supplier, incinerated at a higher temperature (in a cement kiln) or chemically neutralized.
- 12, Placenta pits: Placenta could be put in to pits and allow for natural degradation.

Short term solutions for healthcare waste treatment and disposal

In the absence of environmental friendly technological options at health institution for waste treatment, the following could be adopted until an environmental friendly facility is available.

- Waste can be buried in deep pits and covered with lime. A suitable place should be identified for this purpose to avoid contamination of ground water and other water sources.
- A low temperature incinerator could be used, where PVC containing plastics or any chlorinated compounds should not be burned in these incinerators.

Transportation of Healthcare waste out side the institution

If transportation is required, healthcare waste should be transported in a covered vehicle, which should comply with the standards for hazardous waste transportation. It is essential that infectious waste symbol (bio-hazard symbol) is displayed on the vehicle and approval obtained from the Central Environmental Authority for healthcare waste transportation. The relevant information forms should be maintained within the waste generator, transporter and disposer.

The PHII who are attached to hospitals should make sure that the healthcare waste is properly stored, transported and treated in a treatment facility in a sanitary manner. He should also make sure that waste handlers use protective gear (glouses, boots) and engage in healthy practices in waste management,

Operation and maintenance of the facility also should be monitored by the PHI. He should educate the general public and visitors to dispose the waste properly within the hospital premises.

All hospitals should develop Healthcare Waste Management Plans, waste audits should be carried out and the waste management process should be monitored regularly.

Waste water treatment in hospitals

- Waste water has to be treated before discharged. Small quantities of waste water can be incinerated, autoclaved or chemically disinfected using sodium hyperchlorate solution.
- For large quantities of waste water, a suitable treatment facility has to be designed considering the chemical composition of the waste water.

A list of registered consultants who can design waste water treatment facilities could be obtained form the Central Environmental Authority.

Regulations on Healthcare Waste Management

All hospitals, medical laboratories, and research institutions should obtain Environmental Protection License (EPL) and Scheduled Waste License from the Central Environmental Authority under the National Environmental (Protection and Quality) regulations (gazette extra ordinary 1534/18 dated 01 February 2008).

- All above mentioned institutions should submit 02 applications to the Central Environmental Authority – Head Office of provincial offices requesting the licenses. (Application could be obtained from the Central Environmental Authority, web site of CEA www.cea.lk or Environmental & Occupational Health Unit (E&OH) / Ministry of Healthcare & Nutrition)
- If the necessary requirements in relation to healthcare waste and waste water management are fulfilled, the licenses will be issued, otherwise recommendations will be given by the CEA for improvement. Once these recommendations are implemented the licenses will be issued.
- 3. The licenses have to be renewed annually.

The requirements that has to be fulfilled to obtain licenses

- All institutions should segregate waste as per the National Colour Code. If it is not possible waste should at least be segregated into 03 categories. (general waste, infectious waste, sharps)
- 2. If incinerators are used for waste treatment, emissions should be controlled.
- Waste water should be treated.

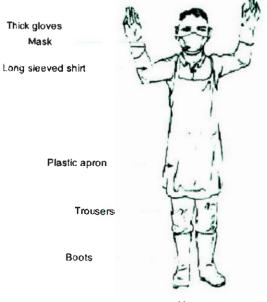
- 4. Sewage should be treated.
- All waste should be disinfected if transported outside the institutions for disposal.

Follow National Guidelines on Healthcare Waste Management in house management.

Healthcare Waste Management



Figure 1 Personal Protective gear of a waste handler



2.6 Disposal of the Dead

It is a responsibility of the PHI to constantly supervise proper method of the disposal of the dead. In this connection PHII are legally and professionally authorized. The practice of the disposal of the dead is based on cultural and religious customs of the people from the beginning. The responsibility of the PHI should be based on social needs which are not a danger to the health of the people and environment. He should give necessary instructions and take action in this regard.

When a dead body is decomposed various gases and microorganisms are formed as a result obnoxious gases forming, smelling and other environmental problems may be created. Therefore most systematic and sanitary disposal methods should be introduced. The results is a formation of a legal background.

The methods of disposal of the dead are as follows:

- 1. Cremation
- 2. Burial

Cremation

This methods is mostly used sanitary method. In this process the dead body is brought to very high temperature and finally the result is a mixture of carbon and ash. For this there are crematoriums constructed in most places.

Advantages:

Dead body is completely burnt to ashes.
Very little space is needed when compare to the burial
Time consumed is less
Most hygienical method
No danger to soil and under ground water table

Disadvantages:

Air is polluted due to smoke Will be expensive

Burial

Although this method is commonly used, it is not a healthy method.

Disadvantages

Need a distinctive land and extensive land is required and therefore land is wasted. Soil and water courses can be polluted and release of land is not possible.

The following legal aspects are available

- Public burial grounds and private burial grounds ordinance No. 231 of no. 26 of 1947.
- Regulation 37 89 framed under (No. 30) Quarantine and prevention of diseases ordinance no.26 published in govt, gazette no. 10713 of 17.3.54
- · Section to 60 and 61 of the above
- Para no. 25 (10) Gazette No. 520/7 of 23.08.1988
- Letter of DDG(PHS) on burial grounds (approval) vide DU circular No. 749 PK 26/70 of 14.03.71

Ordinance No 26 of 1947

Authorize officer is the Minister of Health. Delegated authority to local authorities by the Minister.

No burial be a done in other places 5 (2), Can be exempted (should be gazette) 5/1, Local authorities can provide land for burial grounds (6), Can not be sold (7), Distance of houses be located above 50 feet (8), Religious places can be built within this limit (9), Prepare a wall of 6 feet built round the land (10), Can be transferred (11) Private burial grounds can be banned (34), Re-burial cannot be allowed (35)

Section 60: Cremation or burial of a person died of communicable disease should be done under a qualified persons supervision.

Section 61: Should not be done except the authority of authorized officer on communicable diseases. He should be able to decides regarding the disinfection, route of travel, place of burial and the depth of burial pit.

Disposal of Animal dead bodies

Should be done according to sanitary regulations. For burial of animals died on road Labourers can be obtained from the local authority (if the owner is known, he should be instructed to bury)

Requirements of a burial ground

- 6 ft. parapet wall round the burial ground should be built to prevent animals entering.
- Depth of the pit is (maximum) 4ft. and 6ft. (maximum)
- . For and adult 6'ft x 3'ft x 6'
- For and child 6'ft x 2 ½' x 4 ½'
- Infant 6'ft x 2'ft x 3'ft
- . Burial done with a coffin The place can be reused after 01 year
- distances between 2 burial pit 6'ft

Conditions that should be considered for a burial ground

- Soil should not be impervious. Sandy soil is ideal.
- Ground water level should be more than 6'ft, deep.
- Nearest house should be 50'ft, away
- For cremation, 200yd, away from the nearest house and rood
- Rood access should be available.
- No. of dead for last 10 years to be considered.
- Distance to nearest burial ground to be considered
- Distance to the nearest water course over 50'ft.

When a PHI is called upon to submit recommendation for a burial ground, he should consider the following information.

- Nearest water courses (distances)
- Nearest houses (distances)
- Distance to the nearest town and road
- A map of the area showing above details to be submitted to the MOH
- MOH should give his recommendations based on PHII observations and report

Following actions should be taken when a case of HIV, infe. Hepatitis, Rables and Cholera is reported

- All orifices should be plugged with 5% Lysol solutions.
- Final disposal of dead body done as early as possible
- Handling and hugging is not allowed.
- More attention to be done for cremation.

Regulations for burial of such dead bodies

- . Lay a layer of lime to the bottom of the pit
- Add 5% Lysol to the body and lay the dead body if no disinfection had been used
- · After the dead body is taid, close with a layer of time. Close the pit
- · Ground water level and drinking water supply should be considered
- . Ensure the participants to a minimum
- · No refreshments can be served

Role of PHI in maintenance of burial grounds

- . To inspect and submit a report every 2 months
- To ensure complete burying of dead bodies
- Caretaker of burial ground should register all burials and cremations after supervision and should report to the MOH of the area
- · Supervise the work of the labourers
- · Informed police if there is open burials
- Disposal of Human remains due to following infectious diseases; Small pox, Plague, Cholera, AIDS, Human rabies, Hepatitis-B, and Avian Flu

Duties and Responsibilities of the Public Health Inspectors have been described on the regulations No.37 – 89 under Quarantine and Prevention Diseases Ordinance. These regulations (published by the gazette No. 10713 of September 17, 1954) made by the Health Minister under section 3(1) of the Quarantine and Prevention Diseases Ordinance, No.3 of 1897.

Some relevant regulations

Regulation 60: Corpse of persons who have died of Disease – Should a person die of disease elsewhere than within the limits of a hospital, or place of observation, no one shall touch the corpse except those who undertake the necessary duties of preparing it for the burial or cremation. Such persons shall disinfect themselves in such manner as may be prescribed by the proper authority. The clothes surrounding the corpse of a person who had died of infectious disease shall be disinfected in such manner as the proper authority may direct, the necessity for so doing having been carefully explained to the relatives. The clothing of persons who carry dead bodies shall be thoroughly disinfected.

Regulation 61; Burial, Disinfection, and removal of corpse - No person shall bury the corpse of any one who has died of disease, except in a place approved by the proper authority, and the proper authority may give orders regarding the disinfection and removal of corpse by specified thoroughfares, and for enforcing burial in certain places or at a certain depth.

Cremation is the best sanitary method. If impossible do so bury under the directions given by the health authority. The private cemeteries should not select for bury or cremate the corpse. Before selecting the cemetery should consider regarding ground

water level and away from 50 feet of the residence. Refrain from embalming the corpse. Advices to relatives for bury or cremation as soon as possible within 24 hours after handed over the death body. Refrain from embrace touch unnecessarily or kissing the corpse. Avoid from food and refreshments at the funeral function.

Preparations of human remains keep in the coffin; every openings of the death body from cotton plugs soaked with 5% Lysol solution. Scatter one inch layer of tropical chloride of time or calcium hydroxide on the bottom of the coffin and grave. The dething of persons who carry dead bodies shall be thoroughly disinfected.

Circular No: 749

My No: PK/26/70 Office of the Director of Health Services Colombo 14.03.71

To all Heads of Decentralized Units.

Approval for burial grounds

There are request for approval of burial grounds make directly to me from local authorities and also to you and sometimes to the MOOH from time to time. In such instances, please furnish following particulars for me to give my approval easily.

A burial ground boundary should be at least 50'ft, away from dwelling houses, f is house is situated within 50'ft, a letter of consent from the owner or occupant should be accompanied. Do not give your decision to the local—authority before my approval.

Your recommendations should be submitted within one month and following information should be submitted.

- 1. Situation of the ground
- 2. Extent of the land
- 3. Population of the served
- 4. Road access to the proposed site
- Nature of soil.
- 6. Whether the area is inundated
- 7. Underground water level
- 8. Distance to the nearest house
- 9. Whether area can be extended
- 10. Distance to the nearest water course or well
- 11. Annexure letter request in the burial ground by the local authority
- 12. Recommendation of the MOH
- 13. Observation and recommendation of the RDHS

Sgd. D.A. Jayasinghe DDG. (PHS)

2.7 Pest Control

Pest control activities play an important role in the protection of public health. It will be quite helpful for the PHI to have a sound knowledge on pest control procedures in regard to the insects/ other pests responsible for health problems, and also those pests which cause damage to buildings.

When a pest problem arises the PHI should be able to choose the appropriate method of controlling the pest/s involved. Therefore it is necessary for the PHI to identify suspect the pest/s causing the problem and thereafter to decide which method of control should be applied. It is also necessary to decide how urgent the problem is, and the extent of the problem. The human population affected by the problem has to be identified. In consultation with the MOH, technical advice may be obtained from the Entomology Division of the MRI, or from the relevant specialized campaign.

Pest control could be by means of chemical or biological method. The available methods target either the larval forms or the adult form. Biological control methods are generally environmental friendly, whereas chemical methods cause some degree of environmental pollution. However, when vector-borne diseases are rapidly spreading, chemical methods have to be used as they cause rapid destruction of the vectors involved. Specialized campaigns function for the control of certain vector-borne diseases, and the district-level officers of these campaigns will initiate action to handle any problems within their districts, with approval of the provincial authorities and technical guidance from the relevant Line Ministry Directorate. In instances where such specialized units do not function, the MOH will take action with the assistance from Line Ministry institutions which can provide technical guidance and sometimes resources necessary for the control measures.

For the planning and implementation of pest control activities it is very necessary to be aware of the life-cycle, feeding habits, and the resting habits of the insects/other pests involved. Chemical insecticides are poisonous for the insects, and the persons involved in handling them and also for the public. Therefore it is essential to educate the persons engaged in handling insecticide and also to supply protective materials when such work is done. (eg. overalls, hand gloves, face masks, boots, and soap and water). It is important to educate them not to chew beetle, smoking, and take any foods while operations without hand washing.

PHI should use insecticide only when there is no other method possible to control insects. The fact remains that the nuisance caused by insects could be stopped only by eliminating them. The destruction or minimizing the density of insects can only be done by controlling their breeding. For this purpose spraying of insecticides or using other chemicals is not suitable and also it is not possible to completely eliminate them.

Mosquito control

Control of communicable disease is one of the main functions of the PHI in our health unit set up. There being five important communicable disease transmitted by mosquitoes, in our country, mosquito control is an important activity.

Vector Borne Diseases prevalent in Sri Lanka

Disease Vector

Dengue / DHF : Aedes aegypti

Chickungunya ; Aedes albopictus

Malaria Anopheles culicifacies (major vector)

Anopheles subpictus (secondary vector)
Anopheles subpictus (secondary vector

Filariasis : Culex quinquefasciatus

Japanese Encephalitis : Culex tritaeniorrhyncus

Culex gelidus

In the control of mosquitoes adult forms are controlled by using chemical methods. For the control of larval forms, either biological control methods or chemical control methods could be adopted.

Control of adult mosquitoes

- Use of insecticides.
 - indoor residual spraying
 - space spraying (thermal fogging or Ultra Low Volume)
 - mosquito-net impregnation
- · Control of larval forms
 - chemical (larvicides)
 - biological larvivorous fish
 - Bacillus thuringiensis israelensis (Bti)

Spraying machines used in spraying

- 1. Hand-compression type spray tank (for indoor residual spaying / tarviciding)
- Motorized knap-sack type sprayers (for indoor / outdoor spraying)
- Machines used for thermal fogging / ultra low volume spraying.
 - hand carried
 - truck-mounted

What type of spraying is to be carried out, and what insecticide to be used, will depend on the habits of the mosquito to be controlled. Therefore the PHI should obtain advice from the MOH /Specialized Campaign / MRI, regarding these matters. Space spraying has only a temporary effect, and therefore has to be repeated at short intervals. When targeting the vector of dengue, fogging is to be carried out between 7 am to 10 am and between 3 pm to 5 pm. If largeting the vector of Japanese encephalitis or malaria, fogging should be carried out between 6 pm to 10 pm and 4 am to 6 am.

The flight range of vectors differs. Therefore advice should be obtained from the relevant specialized campaign or the Entomology Division / MRI, with regard to the distance around the foci of transmission that should be covered with fogging.

Chemical larviciding

It is the main method of vector control in the Anti Filariasis Campaign. Breeding sites of the filariasis vector are suitable for application of chemical farvicides. Used as a supplementary vector control method by the Anti Malaria Campaign.

Fenthion is used for the control of filariasis vector larvae and Temephos is used when larviciding targeting the malaria vector larvae. When applying chemical larvicides to water bodies used by humans for drinking and other purposes, by animals for drinking, and also from where people catch fish for consumption, the chemical larvicide used should be one which is non-toxic to humans, and other animals including fish.

Biological control methods

Larvivorous fish may be introduced to stagnant water bodies in which vectors are likely to lay eggs. Two species are currently used in Sri Lanka. Guppy fish (*Poecelia reliculata*) can survive in polluted water, and therefore ideal for the purpose of larval control in blocked drains, canals etc. The wild guppy fish is more suitable than the colourful ornamental varieties. *Aplochellus dayi* ('Nala Handaya') is an indigenous fish commonly found in habitats such as flooded paddy fields and canals. It is not suited for application in polluted waters, and may be used in places such as domestic and agricultural wells, and irrigation channels.

In places where these fish have been introduced, the local authority of the area should exhibit sign boards to indicate that larvivorous fish have been introduced in such places, for the information of the public and health officers engaged in mosquito control activities. The PHI of the area should visit these places at least fortnightly, to ensure that adequate numbers of fish are present. No larviciding chemicals should be introduced to such places, and these water bodies should not be contaminated with pesticide residues as a result of washing spraying machines etc. B. thurengiensis (Bti) can also be used in biological control of mosquitoes. Formulations are commercially available both in solid or liquid form.

When applied to breeding sites, the effect lasts for a longer period than after applying chemical larvicides.

Rodent control

Rodents are responsible for causing diseases such as Leptospirosis. They also cause heavy losses by consuming stored food materials like grains. The PHI should be aware of rodent control methods. Cournatetratyl is mixed with food and kept in the areas where rodents gather, specially at night. This could be continued for several days. Coumatetratyl is a poisonous substance and therefore precautions should be taken to avoid contamination of food consumed by humans and other non-target animals.

Cockroach control

Spraying of S.bioallethrin and D. deltamethrin in areas where cockroaches thrive will result in their destruction. The most popular method is to use boric powder in such places. The cockroaches will die after eating the powder. Boric powder is non-toxic to burnan.

Ticks and Mites and other insects Spraying of Permethrin 25% EC

Wasps

Fogging with S.bioallethrin and D. deltamethrin mixed with diesel. It is directly sprayed to the nests.

White ants

They destroy buildings and other materials. Deltamethrin 25% solution is used to control white ants. Borehole the ground about 4 ft deep and with a high pressure motorized sprayer spread the insecticide to cover about 1 sq.m. Even concrete floors inside the houses can be bored.

Most of these chemicals cannot be obtained by the general public, and therefore have to be purchased by local authorities.

When using chemicals always follow the instructions of the manufacturer appearing on the label

Trade Name	Chemical Name	Dosage Per Litre	Remarks
Baytex EC 50	Fenthion	1.6 ml per litre of water	A farvicide used for surface spraying
Baygon EC 50	Propoxor	25 ml per litre of water	An adulticide used against flying and crawling insects
Abate	Temephos	2 ml per litre of water (polluted water) 1 ml per litre of water (mildly polluted water) 0.5ml per per litre of water (clear water)	A larvicide
Cisilin EC	Deltamethrin	6 ml per litre of water	For flies & cockroaches
Cisilin	Deltamethrin	5 – 10 grams per litre of water	For flies & cockroaches
Deltacide(Fogging)	Deltamethrin	10 mt per ltr. for outdoor fogging 20 ml per ltr for indoor fogging	Against mosquitoes
Coopex wp	Permethrin	5 – 10 grams per litre	Ants & crawling insects
Peripel 10	Permethrin	0.2 - 0.5 gms of active ingredient per sq.mtr	Mosquito net impregnation
Solfac EC 50	Cyfluthrin	5 ml per ltr. of water (outdoor) 8 ml.per ltr of water (indoor)	For flying & crawling insects

Instructions and Precautions to be followed by persons handling insecticides

- Always use eye guards, hand gloves, over coats, and gum boots when insecticide mixtures are prepared, and when carrying out spraying
- Refrain from consuming food, smoking, and betel chewing during spraying operations
- 3. Outdoor spraying should be always done in the direction of the wind
- 4. Use the correct quantity of chemicals and follow the instructions of the supervisor
- At the end of operation all equipment should be washed and waste water should not pollute any water resources

Technical advice regarding pest/ mosquito control may be obtained from:-

- Specialized Campaigns handling vector control (Directorate and the Regional Offices)
- Pest Control Division of the Colombo Municipal Council (also gives technical advice to Hotel personnel)



CHAPTER 3

Food Safety & Hygiene

Introduction

Effective Food Control Services are required to promote a safe and honestly presented food supply and protect the consumer against food which are contaminated, decomposed or adulterated; which may be injurious to health; or which are deceptively packaged or labeled with false or misleading statements, or are otherwise fraudulent.

To be effective, a Food Control Service required basic Food Laws designed to protect consumers against health hazards and fraudulent practices, supplemented by appropriate regulations. For the effective implementation of legislation an infrastructure providing administrative, inspection and analytical services is essential.

Promotion of public education and consumer participation play a vital role in achieving goals of food safety.

The PHI plays an important role in Food Safety. As an Authorized Officer appointed under the provisions of the Food Act, he assists local authorities in the implementation of the Food Act; he is also responsible for creating consumer awareness through consumer education and promoting consumer participation, and advising the trade on technical matters connected with food safety. Therefore the PHI should acquire the necessary competence to carry out these functions efficiently.

Promotion of public education and consumer participation play a vital role in achieving goals of food safety. Some important aspects of the Food Act that are relevant to a PHI's work, the procedure to be followed when inspecting food handling establishments, and the records that should be maintained and the returns that should be submitted by the PHI in respect of inspections done by him, are dealt with in this section.

It's very important to give a feed back and necessary instructions to stakeholders.

3.1 Inspection of Food Handling Establishments

Food inspection at the manufacturing, storage, sales and service levels forms an important part of a preventive public health strategy. Improperly prepared, packaged, stored or mishandled food is frequently a source or vehicle of food-borne illness (contamination). Adulterated, underweight, or mis-branded food also cheats the consumer and must therefore be stopped before widespread retail dispersion takes place. Inspection at the manufacturing level provides the best opportunity for preventing an unsatisfactory product from reaching the retailer, and thus being widely dispersed.

Carrying out food inspections at manufacturing level enables the inspector to follow through all steps of production. Such inspections tend to place the manufacturing personnel on alert, ensuring a quality product manufactured from acceptable raw materials in accordance with Good Manufacturing practice (GMP). This type of follow through inspection permits the selection of samples on a coherent basis as the inspector could evaluate conditions that could contribute to a product being unsafe, insanitary, or adulterated.

The techniques described in this manual should be taken in the context of the existing food control structure in Sri Lanka. It will not be possible to bring many establishments into compliance with regulations or to international standards immediately. The upgrading of general sanitary standards is essential. This should be commenced with reducing flies and insects, and improving sanitary food handling and storing methods. The more technological and expensive aspects could be introduced gradually.

Preparing for the Inspection

Legal Authority

The Food Act No. 26 of 1980, Section , provides broad prohibitions against the manufacture, import, sale or distribution of a food that is adulterated, unfit for human consumption and manufactured under insanitary conditions.

Section 14 gives the power of entry, to inspect, and take samples.

In preparing for an inspection, it is important that an inspector thoroughly familiarizes himself with applicable regulatory requirements. In carrying out inspections at the manufacturing, factory, and food service level, the regulations concerning preparation, storage and sale of food are especially important. The broad requirements found in section 2 of the Act plus the detailed regulations, form the legal base on which an inspector must assess the compliance of a manufactory or a storage facility.

Carrying out the Inspection

Officers are advised to inform the plant Manager well in advance of the date of inspection and inquire whether this date is suitable. Then he should be well prepared for the inspection with relevant documents and equipment.

Initial contact at the plant or factory

In Carrying out an inspection, the public health inspector should contact the person in charge of the establishment in a dignified, cordial manner identifying himself as an authorized officer. Appropriate credentials should be presented upon request. The purpose of the visit or inspection should be explained to prevent any misunderstanding.

Use of statutory and Regulatory Authority

The Food Act, as noted above, provides extensive authority to prevent the sale of unsafe, adulterated, insanitary or misbranded food products.

These provisions and the regulations put a great deal of responsibility on the Food Inspector, and the authority must be used with considerable professionalism and judgment.

It is impossible to define in a purely quantitative or numerical manner when manufacturing plant is operating under insanitary conditions.

In carrying out factory inspections, the inspector must never lose sight of the basic goal of food inspection, which is to provide the consumer with a safe product, free from adulteration and economic fraud. The goal of an inspection program is not to initiate prosecutions. Prosecutions may result, but they should be considered as a last resort, when counseling has failed. There is a considerable responsibility on the part of the inspector to provide advice and counsel to food manufacturers. Then the food manufacturer would understand that the food inspector is a technical helper to him.

However, working with both large and small producers in the food industry, and explaining requirements, is generally far more cost effective than going to Court. Even if a prosecution is successful it is doubtful whether the offender will be motivated to comply with the Food Act. He will very likely view the Food Inspector as an enemy and offer little cooperation during the course of future inspections.

Factors to be considered when inspecting food factory or establishment

- · Review and study findings of previous inspections
- Legal status of the company; Licensing, Business regulation etc.
- Estimation of the size or the status of the company, area of distribution, number of employees (number of employers should be noted for their occupational health needs)
- Environmental conditions and sanitation (conditions outside the plant relating to drainage, insects, rodents, other pests, and disposal of soiled and liquid waste)
- Raw materials used to produce the food
- Processing procedures with special attention to those steps where deviations could affect the quality and safety of the final product
- General sanitary conditions in the plant, including evidence of insects, rodents, birds or other pests.
- Personal hygiene and hygiene practices of plant personnel.
- Source and safety of water used in processing; samples of water should be obtained frequently for necessary procedures
- General conditions of the factory with respect to construction, maintenance, lighting, safety measures, washrooms, and adequacy of precautions to prevent entry of pests

- Review of formulation of product, in comparison to labelling; special attention should be paid to food colours and preservatives. Use of textile and industrial (non food-grade) dyes may be encountered as well as the use of non-permitted preservatives such as formalin and boric acid
- Reuse of containers that may have been used to store or transport toxic material (e.g., pesticides)
- General review of labelling (date marking, etc.,) and food stands, for compliance with regulations
- Reasons for taking samples, based on the assessment of production and storage facilities
- Records on the above should be maintained.

Inspection Approach

The Inspector should sit down with the Plant Manager or Technician and draw a flow chart (See annexure-1) of the process making inquiries regarding the Critical Control points (CCP) and what type of safeguards or sampling is done at these points. This will provide the inspector with a useful understanding when doing the tour of inspection.

A preliminary tour with the plant Manager is often useful to get an overall view of the process and procedures. This probably applies more to a larger complex plant than a cottage industry or food service operation.

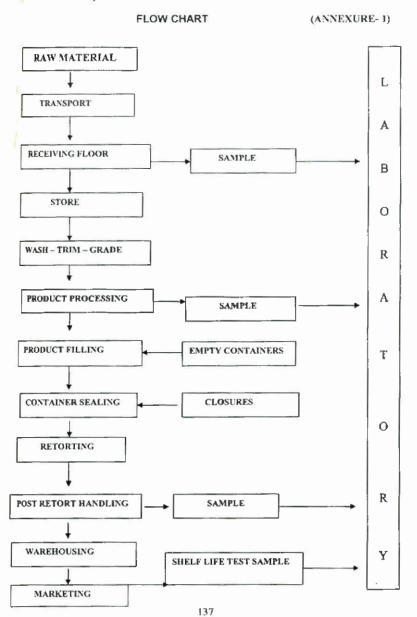
It takes considerable experience for an inspector to become familiar with even the more common aspects of food processing and technology. The inspector should not be afraid to ask questions about how a machine operates, temperatures used, food additives used in processing and similar technical information. By asking intelligent questions, the inspector develops that base of knowledge and experience that cannot be acquired completely in classrooms or through reading books.

However, because a food inspector is in a privileged situation with respected to gathering information, he must treat such information as confidential and strictly for the use of the food control agency that requires such information to enforce the food Act and Regulations passed under the Act.

The inspector should also sketch out a rough floor plan of the operation to show the placement of equipment, storage areas, toilets, employee facilities, etc. Such a plan is very useful when making subsequent visits to determine if corrections have been made.

Report to plant owner or Manager following the Inspection

At the conclusion of an inspection it is usual for the inspector to discuss his findings with the plant owner or manager. These findings should be summarized into a form-style report that simply records unsatisfactory conditions.



A report to the Plant Manager on the lines set out in (annexure-2) should be prepared and the original sent to the Plant Manager. The duplicate should be clipped to the Form H-800 and filed. Further correspondence should also be attached as a record of action taken

Significance of the Report sent to the plant owner

The written report to the plant owner is simply an advisory action or warning. It does not necessarily signify an intention to prosecute for a violation of the Food Act or regulations. If a plant is operating in the unsatisfactory range, and no improvement is seen as a result of counseling during the course of further inspection, then prosecution may be considered. It is vital for the inspector to retain complete notes in a bound notebook as several charges for insanitation or other violations could be laid, based on the findings of several inspections, including the initial inspection. It should be borne in mind that the Section 20 (1) (b) of the Food Act states that no action can be instituted for an offence under the Act or any regulation there under. When considering the strategy of prosecution, it is important that the PHI is in possession of reliable evidence (written and personal).

2. Inspection Records - Food Handling and Trades

- i. The inspection of food handling trades should not be restricted to inspections required in connection with recommendations for licensing by the local authorities, only. A rigid set of rules framed under the by-laws can be used as guidance. Some of these by-laws do not differentiate between a large and a small establishment. For example, the by-laws regarding restaurants cannot be applied to five star hotel, or to street vendors.
- ii, The inspector does not have a record of the inspection in his office after the licensing and inspections are over. Therefore a new officer will not know the position of the food handling trades in his area till he inspects them. This will take quite some time. Maintenance of the register of licensed trades in the area is very important
- iii. The advisory role of the inspector has not been emphasized. This is the most important aspect in ensuring safe food to the public. It will change the image of the inspector from that of a prosecutor to an advisory official whose advice, if followed, will prevent prosecutions. Manufacturerers and Traders will then have more cordial relations with the inspectors.
- iv. Inspections at the manufacturing and handling level provide the best opportunity of preventing an unsatisfactory product reaching a customer, and enables the Inspector to follow through all stages of production, and learn the various methods of food production. A standardized inspection recording system is necessary to evaluate progress and transfer information to the relevant authorities.
- v. In the past, more prosecutions meant better assessment of the PHI's work. But the current practice is to give as much weight to the advisory role too, and provision has been made in the Monthly Report, to enter corrections achieved through persuasion.

Inspections and Recording [Inspection Rating form H- 800 (REV)]

The above matters have all been considered in the new Inspection Recording System. The Inspector is considered a person knowledgeable in food hygiene principles and trade methods, having adequate competence for judging a situation according to certain priorities.

Judging priorities

The following example will enable the PHI to make a proper assessment of different situations met with during inspection.

Example 1

In a hotel

- Clean and safe equipments and utensils.
- ii. Proper and safe handling of final food products
- iii. Fly proof storage
- iv. Hand washing facilities including detergents
- v. Facilities to ensure optimum standard of personal hygiene
- vi. Foot operated dust bins
- vii. Annual colour washing and painting
- viii. Safe drinking water
- ix. Safe water for washing utensils will gain high rating in the inspection

In a small tea kiosk or a street eating place, the same or a close rating could be obtained, if on inspection the following are found;

- i. Undamaged, clean equipment and utensits.
- ii. Facilities to ensure optimum standard of personal hygiene.
- iii. Storages of food in clean glass cupboards or fly proof cupboards.
- iv. Soap and water for hand washing.
- A closed dust bin (preferably foot operated) or clean box to deposit refuse
- vi. Colour washed, uncracked walls
- vii. Safe water for drinking and washing utensils

Example II

In a factory where fish or meat is processed, hygiene must be at a very high level. If it is bottled or canned, retort sterilizing at 120° C is a must to kill any botulinum spores. Drying of fish or meat or high acid curing will not need very high standards of hygiene.

Example III

Sugar based products like sweetmeats and follies need not have sterile handling as bacteria do not thrive in high sugar media. The ingredients used, however, should receive more attention.

Example IV

A bakery whether large or small, must have clean ingredients, sufficient baking time to make the product palatable, and clean storage with no handling with bare hands after baking. If bare hands are used they should be washed thoroughly with soap and water. The premises should be free from birds, insects, rodents and other animals.

Example V

A kitchen where pastries are made will need protection from birds and insects, and will need hand washing and clean utensils. Storage should be hygienic. Rodent control is also necessary.

Example VI

In the production of ice cream, sherbet, cordials, and the preparation and bottling of aerated waters, safe water is essential. Boiling, chlorinating, testing etc. are necessary. Personal hygiene of workers is also a high priority need.

Example VII

Packaging and labelling of food items is a requirement under the law and hence those trades that pack or label should adhere to these requirements. While these trades should be rated according to the existing conditions, other trades which do not have this requirement should be scored as satisfactory.

Use of checklist

An inspection done according to a check list is a must to identity the existing problems if any, facing any food handling establishment and to correct and solve them and to maintain sanitation records to a proper standard. Those inspections may be done once a week or at least once a month. The managers, supervisors and care takers should also be trained to do inspections according to a check list. Two-way process is more effective than one- way process.

The officer can impart his capabilities in order to develop the check list as it requires. Accordingly the basic facts that should be available in a check list is given below for consideration. They may be developed according to the requirements.

Receiving and storage

- All food supplies are inspected for damage, spoilage or infestation, freshness, temperature, colour, odour, contamination, expiry date and labelling upon receipt.
- Perishables should be refrigerated promptly.
- 3 Empty crates, cartons, containers, etc. should be removed to the disposal area promptly.
- Frozen chilled food should be stored in proper temperature with in 15 minutes
 of delivery.
- 5 Dented, rusted, blown cans should be rejected.
- 6 Supplies should be stored in a neat and orderly manner.
- 7 The receiving area should be kept clean.
- 8 All foods and supplies should be stored on shelves and racks, at least racks of platform should be 18" height from floor level.
- 9 Shelves should be placed at least 9" away from wall.

- 10 The dry stores should be kept cool, clean and well ventilated.
- 11 The floor of the dry store should be kept clean and dry.
- 12 Shelves and racks should be free of dust and debris.
- 13 The shelves should be designed to facilitate easy cleaning of the floor beneath.
- 14 The dry store should be free from moisture or dampness.
- 15 The first-in, first-out (FIFO) mode of issue should be adhered.
- 16 Non-food items should be stored separately from food supplies.
- 17 All poisonous substances like pesticides, cleaning agents, etc. should be stored. In a separate store with their original containers or conspicuously labeled.
- 18 Poisonous substances should be stored in a special cupboard well away from food.
- 19 Vegetables not requiring refrigeration should be stored in ventilated containers on elevated platforms.
- 20 Stores should not over stock.

Refrigeration

- 1. All refrigerators in use should be in good working condition.
- 2 They should have accurate thermometers.
- 3 High risk foods should be maintained at temperatures between 1-40 C.
- 4 Refrigerators should be defrosted and cleaned regularly.
- 5 They should be free from objectionable odour.
- 6 Foods should be stacked in such a way that it allows adequate ventilation and ample circulation of cold air.
- 7- Foods should be stored mode of issued to allow first-in-first out use (FIFO).
- 8 Any visibly spoilt foods should not be stored in the refrigerator.
- 9 Cooked foods should be kept apart from raw foods.
- 10 All parts of the refrigerator should be easily accessible for cleaning.
- Shelves should be clean and free from spills.
- 12 All foods should be covered to protect them from contamination.
- Refrioerators should not be overstocked.
- 14 The refrigerator door should not be opened frequently and longer duration.
- 15 Raw foods should be stored below cooked foods.
- 16 Opened cans of food should not be stored in the refrigerator.
- 17 All food items should be covered with a date code separately.

Freezer

- They should be fitted with accurate thermometers.
- 2 Internal temperature should be maintained at -18° C or lower.
- 3. There should not be excessive frost build up.
- 4 Food should be stored in such a way that first-in, first-out can be followed.
- 5 Freezers should not be opened very often and for longer duration.
- 6. Food should be wrapped so as to prevent freezer burn and contamination.
- 7 Proper cleaning and maintenance should be done.
- 8 There should be date code on the frozen food.

Food preparation and handling practices

- 1- Tongs should be used to pick up foods like ice, sugar cubes, butter pats, bread, etc.
- 2- Separate spoon should be used to test food.
- Employees should not blow on paper / plastic bags to open them.

- 4- Any cleaning operation like sweeping or dusting should not be carried out during food preparation or service.
- 5- Proper care should be taken to keep raw and cooked food separately during preparation.
- 6- High risk foods should not keep in the room temperature for long duration.
- 7- Fruits, vegetables, grains, etc. should be washed thoroughly before preparation.
- 8- Frozen foods should not left in the room temperature to thaw.
- 9- Foodstuffs, utensils and equipments containing food should not be placed on the floor
- 10- Pots and pans which are not in use should be cleaned, sanitized and stored in a manner so as to prevent contamination.
- 11- Toxic substances like pesticides or cleaning agents should not be stored in food preparation or service areas.
- 12- Kitchen sinks should not be used by any person for hand washing or emptying mop water.
- 13- All parts of the equipment should be kept clean, for example, drip trays, etc.
- 14- There should not be any residual build up in ovens, griffs, chapatti puffer, etc.
- 15- All work surfaces should be made of impervious material and they should be free from cracks.
- 16-Soiled linen or dirty dusters/ rage should not be lying around in the food preparation area.
- 17-Food sinks should not be used for dishwashing.
- 18- Sharp equipment like knives, peelers, etc should be cleaned well, before storing after use.
- 19- All equipment which is not in regular use should be kept clean.
- 20-Equipment should be cleaned between changed use.
- 21- Separate chopping boards should be used for meat and vegetables.
- 22-Chopping boards should be in good condition no splits, cuts or holes.
- 23-Chopping boards should be cleaned and sanitized between changed use.
- 24- Equipment used to process meat should be cleaned and sanitized after each use.
- 25- Meat cutting area should be cleaned and free from any objectionable odour.
- 26-Raw meat awaiting pre preparation should not be left at room temperature for long period duration.
- 27-Warm water should not be used to thaw meat, fish or poultry.
- 28- Raw meat should not be left on the floor at anytime.
- 29- Equipments should be in a good state of repair.
- 30- Equipment should be easily dismantled and reassembled for cleaning purpose.
- 31-Surfaces of utensils and equipment should be smooth and free from pits and crevices.
- 32-Hot holding equipment should be maintained food at or above 63°C and should not keep, more than four hours.
- 33-Cold foods should be at 4°C or lower
- 34- The floor of the kitchen and other food preparation areas should be always clean and dry.
- 35- All prepared food items should be kept covered.

Service

- 1- The dining area should be clean and dry always.
- All tableware should be stored in such a way so as to prevent contamination and splashing.
- 3- Tables, chairs, etc should be wiped with clean sanitized clothes.
- 4- Any dust should not be visible in the service area.
- 5- Table linen should be spotlessly cleaned and changed after each use.
- 6- The food or mouth contact surface of glasses or cups should not be touched during service.
- 7- Chipped or cracked chinaware should not be used.
- 8- Clothes used for wiping food contact surfaces should be kept separate from other wiping clothes.
- 9- Single service items (paper serviettes, straws, thermocol cups, etc.) should be stored and dispensed in a sanitary manner
- 10-Single service items should not be used more than once.
- 11-Silverware and serving utensils should be handled and stored hygienically.
- 12-All food containers should be emptied after service and leftovers disposed off or stored immediately.
- 13-The cargo area and trolleys/vehicles used for transporting food should be absolutely cleaned and free from spills or refuse.
- 14-All food spills on shelves or floor of trolley should be washed off after each use.
- 15-Food should be carried in well insulated containers.
- 16-Temperature control should be maintained for potentially hazardous food.
- 17-Service lifts should be cleaned regularly.
- 18-Garbage and food should not be carried in the lift / trolleys at the same time.
- 19-Sauce bottles, cruet sets, sugar, cream containers, etc. should be kept clean.
- 20-Water glasses should be cleaned spotlessly and free from food odours.
- 21-All cutlery, glass ware and silverware should be wiped with a clean sanitized cloth and kept aside.

Waste disposal

- 1- Refuse and food waste should be collected separately
- 2- Garbage containers should adequate in number and size
- 3- They should lined with plastic or wet strength bags
- 4- Containers should emptied frequently into the main garbage bin
- 5- Garbage containers should be emptied and cleaned well
- 6- They should be removed from premises at frequent intervals
- 7- Garbage should not be lying around in the vicinity
- 8- Bins in the kitchen should foot operated and self closing
- 9- Adequate vents and exhaust facilities should be provided
- 10- Grease filters on hoods and exhausts should be cleaned regularly
- 11- Any food or liquid spillage should not be seen near the garbage container
- 12- There should not signs of pests breeding in garbage storage or collection area
- 13-There should not empty crates, boxes, etc. lying in corners, under staircases, etc.
- 14-Outside of the garbage containers should also be cleaned

Personal practices

- 1- The hands of food handlers should be washed clean at the start of the day and whenever required
- 2- The hands of food handlers should be cleaned and free from cracks
- Hands should be sanitized with potassium permanganate (KMnO₄) or sanitizer solution
- 4- Food handlers should not have infected cuts, burns, boils, etc.
- 5- Food handlers should not have picking nose or pimples, scratching head or face
- 6- Adequate hand washing facilities should be provided
- 7- Hands should be washed after blowing the nose and coughing even when a handkerchief is used
- 8- Fingernails should be cleaned, trimmed and unvarnished
- 9- Uniforms / outer garments clothes should be properly cleaned
- 10- Hair should be covered by a cap, hair net or scarf (any hair restraint)
- 11- Should not employ food handlers who are suffering from or just recovered from any contagious or food borne disease
- 12-Food handlers should not smoke or eat in food preparation or service areas
- 13-Employees should not chew gum or take snuff in food preparation or service
- 14- Employees should not cough or sneeze on food
- 15- Employees should not spit on the floor, in sinks or in garbage bins
- 16-Hands should not be washed in sinks used for food preparation
- 17- The dishcloth should not used to wipe perspiration or as a hand towel after using the toilet
- 18- Food handlers should use clean handkerchiefs
- 19-Mope, serviettes, dish clothes, handkerchiefs, etc. should be used for the purpose intended only
- 20-Food handlers should not wear wrist watches, dangling bracelets, bangles earrings or any other jewellery (only a plain wedding ring is allowed)

3.2 Guidelines on Grading Food Handling Establishments using the Health – 800 Format

1. Objectives of Grading of Food Handling Establishments

- To plan out the programme for inspection of food handling establishments.
- To educate and advise the owners and food handlers on safe food practices.
- · To formulate and implement an action plan to improve food safety.
- · To ensure and maintain quality and safety of food.
- To upgrade the Food Handling Establishments.

2. H 800 (Revised) 2011 Format

To achieve the above objectives, Public Health Inspectors should inspect and grade Food Handling Establishments using the Health 800 (Revised 2011) form. The PHI should actively involve the owner/manager in this inspection process by which they would get first hand information on the status of the establishment.

3. Categorization of Food Handling Establishments

Food Handling Establishments should be categorized according to the nature of the business and the H-800 forms should be filed separately according to the 7 categories of establishments. Following are the working definitions for categorization of the food handling establishments.

1. Food Factory (Code -FF)

A premises fully or partially manufacturing, processing or packaging food for human consumption. Bakeries and grinding mills exclusively carrying out grinding are not included in this category.

2. Hotel (Code -HT)

A premises which prepares and serve at least one main meal.

3. Bakery (Code -BK)

A premises which manufactures food items using wheat or other kind of flour.

4. Tea kiosk/Sank bar (Code - TS)

Premises serving food items that are not a main meal.

5. Grocery (Code -GS)

Premises that does not prepare food but sells prepared food items or food ingredients.

6. Supermarket (Code -SM)

A large scale establishment which sells food and variety of consumer items and have facilities for the customer to select items by themselves.

7. Others (Code -OT)

A food handling establishment that does not fall into any of the above categorizations.

4. Grading of Food Handling Establishments

According to the percentage score obtained, Food Handling Establishments can be rated in to 4 grades.

- 1. 75 100% marks A Grade (Good)
- 2. 50 74% marks B Grade (Satisfactory)
- 3. 25 49% marks C Grade (Unsatisfactory)
- 0 24% marks D Grade (Very Unsatisfactory)

In awarding A or B Rating it is mandatory that <u>all relevant sections</u> have obtained minimum of 75% or 50% respectively. When awarding marks if certain points are irrelevant to a particular type of food establishment, those points should not be considered and the percentage of marks obtained should be calculated using the <u>total of</u> the relevant sections.

5. Inspection process and making notes

- During the first inspection two sets of the form should be completed. One copy should be kept filed in the establishment to be produced at any time. Second copy should be filed and maintained in the office of the PHI. During subsequent visits second page of the H 800 should be used and it should be also filled in duplicate as done earlier.
- 2. When inspecting food handling establishments, in addition to technical aspects on food safety attention should be given to provisions in the Food Act 1980, Regulations made under the Food Act, especially the 1988 Food Regulation. For each item inspected the provisions indicated in the regulations should be used as the norms/standards.
- PHI number given to the food establishment should be indicated in the following order - Code for PHI area/Code for type of Food Handling Establishment/Reference Number for the establishment. Eg; Second Bakery in the Mihinthale PHI area -MIN/BK/02
- 4. During the first inspection the rating with the date should be written in the relevant cage in the upper left corner of the form. During subsequent inspections if the rating is changed, the new rating should be indicated with date in the relevant cages. If rating is unchanged no new entry should be made in the cage.
- Inspections should be done once a month in establishments with C and D rating.Once in two months in B rated establishments and once in three months in A rated establishments. Inspection notes should be made in all follow-up inspections.
- During inspection guidance and technical advice should be given for improvement and action taken should be recorded in the relevant section.
- Legal action should be taken against owners/managers of food handling establishments who do not adhere to guidance and advice given and continue to function the establishment in an unsatisfactory manner.

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Type of Trade	i

Grading of Food Handling Establishments Food Factory, Hotel, Bakery, Tea and Snack Bar, Grocery, Super Macket, Others)

(Food Factory, Hotel, Bakery, Tea and Snack	Bar, Grocery, Super Market,	Others)	
1Empf traces		NAME OF THE OWNER, WAS ASSESSED.	
2 Print albert			
EMENUTE S			
Silver & Address of the establishment:			
6 Name & Address of the legal owner of the premises	mannel en minuten mannen version en		
I. Planted by the Local Authority, Number and Yeart	MANAGEMENT AND ADDRESS OF THE PROPERTY OF THE PER	-1174 5-1 - 1-4417 348	
Resises Registration Ner-	9. Number of employees		
		2505	
75 - 100% marks + A 50 - 74% marks + B	25 - 49% marks - C		24% marks - D
(Good) (Satisfactory)	(Unsatisfactory)		hly Unsatisfactory)
A minimum of 75% and 50% marks required to be obtained	from each part to receive A and	R grades	
Part I-Location & Environment (05 Marks)	Condition	Marks	Marks Obtained
11 Sutability for the business	Suitable/Unsuitable	1/0	
12 General clean brook Acticliness	Satisfactory/Unsatisfactory	1/0	
13 Polisting conditions	No/Yes	1/0	
14 Segs/Cats/Other-minuth	No/Yes	1/0	SOUTHWART SAN
15 Smoke or other adverse effects	No/Yes	1/0	(%)
Part 2 - Building (10 Marks)	Condition	Marks	Marks Obtained
21 Nature of the building	Permanent/Temporary	1/0	Marks Distance
22 Space	Adequate/Inadequate	1/0	
23 Light and ventilitions	Adequate /Inaclequate	1/0	
24 Condition of the floor	Good/Satisfactory/Unsatisfactory	2/1/0	10 TO 10
2S Condition of the wait	Good/Satisfactory/Unsatisfactory	2/1/0	
26 Condition of the carilling	Good/Satisfactory/Unsatisfactory	2/1/0	
27 Hazards to employees/customers	No/Yes	1/0	
Total		10	(%)
Part 3 - Area of Food Preparation/Serving/Display/Storage (30 Marks)	Condition	Marks	Marks Obtained
11 Generalekeanhuess	Good/Satisfactory/Unsatisfactory	2/1/0	
32 Safety measures for cleanliness	Good/Satisfactory/Unsatisfactory	2/1/0	
B Ris	No/Yes	1/0	
14 Arts/Coderoaches/Rodents and other desease overlars	No/Yes Good/Satisfactory/Unsatisfactory	2/1/0	
15 Maintenance of floor 16 Maintenance of yealls	Good/Satisfactory/Unsatisfactory	2/1/0	
17 Mantenance of costing	Good/Satisfactory/Unsatisfactory	2/1/0	
18 Space in the working area	Adequate/Inadequate	1/0	
19 Daily doining	Yes/No	1/0	
110 Risk of contamination from totlers	No/Yes	1/0	
11 Adequate number of bins with lids for waste disposal	YesfNo	1/0	
12 Empty hoses/Gureny bugs and other unnecessary stems	No/Yes	1/0	
13 Ataliability of cleaning worls/materials/serviettes etc.	Yes/No	1/0	
14-Objectionable odor	No/Yes	1/0	
150 pendrains and stagnated waste water	No/Yes	1/0	
16 Area used for skeeping or any other unrelated activities	No/Yes	1/0	
17 Use of separate chapping boards/knives etc.	Yes/No Satisfactory/Unemediactory	1/0	
18 Centilines of equipment/utensils 19 Sultability of the layout of the area for the processes.	Yes/No	1/0	
20 Light and ventilation	Adequate/fradequate	1/0	
21 House Keeping	Good/Satisfactory/Unsatisfactory	2/1/0	
22 Water supplied for different task in stabble maniner	Suitable unsuitable	1/0	
235tle food handling practices	Good/Satisfactory/Lineauslactory	2/1/0	
Total		30	(%)
art 4 · Equipment & Furniture (18 Marks)	Condition	Marks	Marks Obtained
1 Equipment/utensils for food handling	Adequate/Inadequate	1/0	
2 Condition of the equipment/utensils	Satisfactory/Unsatisfactory	1/0	
3 Cleanliness of the equipment/utensits	Satisfactory/Unwatedactory	1/0	j j
4 Availability of food tongs/sprions to serve food items	Yes/No	1/0	
5 Storage facilities for cleaned equipment	Yes/No	1/0	
6 Furniture - Tahles/Chairs/Cupboards/Rades etc.	Adequate/Inadequate	1/0	
7 Suisability for required purpose and safety of furniture	Satisfactory/Unsatisfactory	1/0	
8 Cleaning and maintenance of furniture 9 Maintenance of temperature in refrigerators/deep freezers	Satisfactory/Unsatisfactory Satisfactory/Liwatisfactory	1/0	22
10 Cleantiness and maintenance of refrigerators/deep freezers	Satisfactory/Unsatisfactory	1/0	
Total	1	10	(%)

Fact 5 - Storag	ge (10 Marks)		Condition	Marks	Marks Obta	ined
5.1 Storage facili	ites and house keeping		Good/Satisfactory/Linsatisfactory	2/1/0	G 11 AS	-
5.2 Storage of ra	ov materials		Good/Satisfactory/Unsatisfactory	2/1/0		
	oked/partially cooked/prepared food		Good/Satisfactory/Unsatisfactory	2/1/0		
	under suitable temperature		Yes/No	1/0		
	od in the refrigerator/deep freezer	44444	Satisfactory/Unsatisfactory	1/0		
6.6 Measures tai	ken to prevent contamination during food		Good/Satisfactory/Unsatisfactory	2/1/0		
		Total		10		9/
Part 6 - Water	r Supply (05 Marks)		Condition	Marks	Marks Obtai	ned
6.1 Water source		88	Safe/Ursafe	1/0		
62 Water stores			Satisfactory/Unsatisfactory	1/0		
63 Water disper	ensed through taps		Yes/No	1/0		
64 Safety of war	tercertified by analytical reports (Bacteri	ology - 01, Chemical - 01)	Yes/No	2/0		
		Total		05	1 (9
Part 7 - Waste	Management (10 Marks)		Condition	Marks	Marks Obta	ined
	umber of hins with lids		Available/Not available	1/0		
7.2 Lids of the bi			Yes/No	1/0		
7.3 Cleanliness a	and maintenance of waste bins		Satisfactory/Unstatisfactory	1/0	1.	
7.4 Separation/S	Segregation of waste		Yes/No	1/0		
7.5 Final disposa			Safe/Unsafe	1/0		
7.6 Managemen	st of waste water		Safe/Unsafe	1/0		
	umber of toilets and urinals		Yes/No	1/0		
	milets and urinals		Safe/Unsafe	1/0		
	and maintenance of toilets and urinals		Satisfactory/Unsatisfactory	1/0		
	Soakage pit/Direct pit/Lateral pit of toile	Z	Safe/Ursafe	1/0	5.00	
	A CONTRACTOR OF THE CONTRACTOR	Total		10	- 1	9
Part B - Condi	tion, Standard & Cleanliness of E	food (05 Marks)	Condition	Marks	Marks Obta	ned
	food/Raw materials		Satisfactory/Unsatisfactory	1/0	1	
	loging for sale/delivery		Satisfactory/Unsatisfactory	1/0	1	-
	rd/Out dated food and food unfit for hum-	an consumption	No/Yes	1/0		-
	abeling regulations	arcoreon que	No/Yes	1/0		
	Storage of food that are unwholesome/ou	telegad to be est usual	Satisfactory/Unsatisfactory	1/0	-	
25 Septimically 5	individual of the state of the	Total	Satement y) Creates and any	05	(94
Part Q . Healti	h status and training of food hand		Condition	Marks	Maries Obta	
9.1 Personal hyg		iters (Tolerat Ra)	Good/Satisfactory/Unsatisfactory	2/1/0	Platte Cult	iii. u
	rotective clothing		Good/Satisfactory/Unsatisfactory	2/1/0		
2.2 Svearing or p	ble diseases/skin diseases		No/Yes	1/0		-
9.4 Good health I			Practiced /Not practiced	1/0		
	of health records of employees		Good/Satisfactory/Unsatisfactory	2/1/0	100	
	of records regarding training on health o	Complement of the second secon	Good/Satisfactory/Unsatisfactory	2/1/0		-
NO MENINGERENICE	of records regarding training on nearth o	Total	COOC/Salasaciony/Orisausiaciony	10	1	96
hart 50 - Distribut	of Health Instructions, Record Keeping		Condition	Marks	Marks Obta	
0.1 Divoluenti	nstruction and health messages for the co	manner fomolouses	Yes/No	1/0		
A? Engueric	onsumer/employee complaints and sugg	witions	Yes/No	1/0		
					l.	
	to remove the concellence within the proposition			1.40		
10.3 Steps taken	to prevent smoking within the premises		Yes/No Yes/No	1/0		
10.3 Steps taken 10.4 Issuing of bi	ills and record keeping when selling/pur	thasing food	Yes/No	1/0		
10.3 Steps taken 10.4 Issuing of bi		thasing food		1/0		86
10.3 Steps taken 10.4 Issuing of bi	ills and record keeping when selling/pur	thasing food	Yes/No	1/0	(96
10.3 Steps taken 10.4 Issuing of bi	ills and record keeping when selling/pur of accredited certification on food safety	thasing food	Yes/No	1/0	(
10.3 Steps taken 10.4 Issuing of bi 10.5 Availability	ills and record keeping when selling/pur of accredited certification on fixed safety Total Mar	Total Rs of 10 Sections	Yes/No	1/0 1/0 05 100		96
10.3 Steps taken 10.4 Issuing of bi 10.5 Availability Name of Owner	ills and record keeping when selling/pur of accredited certification on food safety	Total ks of 10 Sections N	Yes/No Yes/No	1/0 1/0 05		
10.3 Steps taken 10.4 Issuing of bi 10.5 Availability Name of Owner Signature:	ills and record keeping when selling/pur of accredited certification on food safety Total Mar r/Manager	Total ks of 10 Sections N. Sections	Yes/No Yes/No	1/0 1/0 05 100		
10.3 Steps taken 10.4 Issuing of bi 10.5 Availability Name of Owner Signature:	fils and record keeping when selling/pur of accredited certification on Book safety Total Mar r/Managet	Total ks of 10 Sections N. Sections	Yes/No Yes/No ante of PHI:	1/0 1/0 05 100		
0.3 Steps taken 0.4 Issuing of bi 0.5 Availability Name of Owner Signature:	fils and record keeping when selling/pur of accredited certification on flood safety Total Mar r/Manager	Total ks of 10 Sections N Sq.	Yes/No Yes/No Yes/No ame of PHI:	1/0 1/0 05 100		
0.3 Steps taken 0.4 Issuing of bi 0.5 Availability Name of Owner Signature: Date:	fils and record keeping when selling/pur of accredited certification on Book safety Total Mar r/Managet	Total ks of 10 Sections N Sq.	Yes/No Yes/No ante of PHI:	1/0 1/0 05 100		
0.3 Steps taken 0.4 Issuing of bi 0.5 Availability Name of Owner Signature: Date:	fils and record keeping when selling/pur of accredited certification on Book safety Total Mar r/Managet	Total ks of 10 Sections N Sq.	Yes/No Yes/No ante of PHI:	1/0 1/0 05 100		
0.3 Steps taken 0.4 Issuing of bi 0.5 Availability Name of Owner Signature: Date:	fils and record keeping when selling/pur of accredited certification on Book safety Total Mar r/Managet	Total ks of 10 Sections N Sq.	Yes/No Yes/No ante of PHI:	1/0 1/0 05 100		
0.3 Steps taken 0.4 Issuing of bi 0.5 Availability Name of Owner Signature: Date:	fils and record keeping when selling/pur of accredited certification on Book safety Total Mar r/Managet	Total ks of 10 Sections N Sq.	Yes/No Yes/No ante of PHI:	1/0 1/0 05 100		
0.3 Steps taken 0.4 Issuing of bi 0.5 Availability Name of Owner Signature: Date:	fils and record keeping when selling/pur of accredited certification on Book safety Total Mar r/Managet	Total ks of 10 Sections N Sq.	Yes/No Yes/No ante of PHI:	1/0 1/0 05 100		
0.3 Steps taken 0.4 Issuing of bi 0.5 Availability Name of Owner Signature: Date:	fils and record keeping when selling/pur of accredited certification on Book safety Total Mar r/Managet	Total ks of 10 Sections N Sq.	Yes/No Yes/No ante of PHI:	1/0 1/0 05 100		
0.3 Steps taken 0.4 Issuing of bi 0.5 Availability Name of Owner Signature: Date:	fils and record keeping when selling/pur of accredited certification on Book safety Total Mar r/Managet	Total Rs of 10 Sections No. Sections No. Sections	Yes/No Yes/No ante of PHI:	1/0 1/0 05 100		
0.3 Steps taken 0.4 Issuing of bi 0.5 Availability Name of Owner Signature: Date:	fils and record keeping when selling/pur of accredited certification on Book safety Total Mar r/Managet	Total Rs of 10 Sections No. Sections No. Sections	Yes/No Yes/No ante of PHI:	1/0 1/0 05 100		
0.3 Steps taken 0.4 Issuing of bi 0.5 Availability Name of Owner Signature: Date:	fils and record keeping when selling/pur of accredited certification on Book safety Total Mar r/Managet	Total Rs of 10 Sections No. Sections No. Sections	Yes/No Yes/No ante of PHI:	1/0 1/0 05 100		
0.3 Steps taken 0.4 Issuing of bi 0.5 Availability Name of Owner Signature: Date:	fils and record keeping when selling/pur of accredited certification on Book safety Total Mar r/Managet	Total Rs of 10 Sections No. Sections No. Sections	Yes/No Yes/No ante of PHI:	1/0 1/0 05 100		
0.3 Steps taken 0.4 Issuing of bi 0.5 Availability Name of Owner Signature: Date:	fils and record keeping when selling/pur of accredited certification on Book safety Total Mar r/Managet	Total Rs of 10 Sections No. Sections No. Sections	Yes/No Yes/No ante of PHI:	1/0 1/0 05 100		
0.3 Steps taken 0.4 Issuing of bi 0.5 Availability Name of Owner Signature: Date:	fils and record keeping when selling/pur of accredited certification on Book safety Total Mar r/Managet	Total Rs of 10 Sections No. Sections No. Sections	Yes/No Yes/No ante of PHI:	1/0 1/0 05 100		
0.3 Steps taken 0.4 Issuing of bi 0.5 Availability Name of Owner Signature: Date:	fils and record keeping when selling/pur of accredited certification on Book safety Total Mar r/Managet	Total Rs of 10 Sections No. Sections No. Sections	Yes/No Yes/No ante of PHI:	1/0 1/0 05 100		
0.3 Steps taken 0.4 Issuing of bi 0.5 Availability Name of Owner Signature: Date:	fils and record keeping when selling/pur of accredited certification on Book safety Total Mar r/Managet	Total Rs of 10 Sections No. Sections No. Sections	Yes/No Yes/No ante of PHI:	1/0 1/0 05 100		
0.3 Steps taken 0.4 Issuing of bi 0.5 Availability Name of Owner Signature: Date:	fils and record keeping when selling/pur of accredited certification on Book safety Total Mar r/Managet	Total Rs of 10 Sections No. Sections No. Sections	Yes/No Yes/No ante of PHI:	1/0 1/0 05 100		
0.3 Steps taken 0.4 Issuing of bi 0.5 Availability Name of Owner Signature: Date:	fils and record keeping when selling/pur of accredited certification on Book safety Total Mar r/Managet	Total Rs of 10 Sections No. Sections No. Sections	Yes/No Yes/No ante of PHI:	1/0 1/0 05 100		

FOLLOW UP VISITS

Part 1- Location & Environment (05 Marks)	Condition	Marks	Marks Obtained	Marks Obtained	Marks Obtained	Marks Otnained	Marks Obtained Marks Obtained Marks Obtained Marks Obtained Marks Obtained	Marks Obusined
1.1 Suitability for the business	Supplie/Unsurable	1/0						
1.2 General doubliness & tidnics	Satisfactory/Unsatisfactory	1/0	1	1		7		
L.3. Pedinang candilians	May/les	1/0	į					
1.4 Days/Cats/Other animals	No/Yes	1/0						
1.5 Smelke or other acheene effects	No/Yes	1/0						
Total		90	(%)	(%)	(%)	(%)	(%)	[%]
Part 2 - Building (10 Marks)	Condition	Marks	Marks Obtained	Marks Obtained	Marks Obtained	Marks Obtained	Marks Outsined	Marks Utstained
21 Nature of the Building	Permanent/Temporery	67						
22 Space	Adequate/Inademate	2			1			
23 Latte and wentlation	Adequate/Padeouste	9	-					1
2.4 Constitute of the four	Corel/Caridensey/Incariguage	273.00		***				r i
25 Condition of the outil	Cond Natisfactory / Investigation	2/1/2	ŀ		İ		30	-
26 Condition of the collins	Good Satisfaction / Incultifution	2/1/2						
2.7 Hearth to conditioned Outputs	No.Ves	9		1 1				
Total		9	1 46.1	1 46.1	(%)	(74)	(%)	(%)
Corner 2 . Acces of Food Proposition (Service (Niewless C2) Marches	Condition	Marke	Marke Obstone	Marke Obstand	Marke Obestrad	Mustan Obsestment	Marke Nordrad	Marke Ohishad
At Concent describeration	Coord Catherbutters (I brentisfurtres	2/1/6	Name and Constitution	CONTROL DO CONTROL DO	Pind he obsession	Part of the last	Paris Condition	THE COUNTY OF THE PARTY OF THE
The section of the se	CANAL SHIPMAN P. C.	200		9				
A.C. Nexty increases an occanings.	COOK STREET COOK STREET COOK	2/1/2		11111	1	1000	1	!
3.3 Nbs	Mo/Yes	9/1	1	1111			-	ì
3.4 Artis/Cooketticfles/Madents and other discuse contents	Morres	3	1	man man and a second			-	
35 Maintenance of floor	Good/Sutstartery/Unsutstartory	2/1/0	,		:			
36 Maintenance of walls	Cood/Satisfactory/Unsatisfactory	2/1/2				-		
3.7 Maintenance of ceiling	Good/Satisfactory/Unsatisfactory	2/1/0						
3.8 Space on the worklong area	Arkepatts/fradequate	0/1						
3.9 Daily desning	Yes/No	1/0		2. 0000			1	0,
3.10 Plusk of companients on from todests	Maj/Yes	0/1						
3.11 Adequate mamber of twis with lick for wave disposal	Yes/No	2						
3.12 Empty InsuryCounty bugs and other unmediatelity items	No/Yes	2						
3.13 Availability of can my toolsy nutarists/scroictus etc.	Yes/No	2						
3.34 Objectional Ne odor	No/Vits	1/4						
3.15 Open desire and scappated waste water	No/Yes	1/9						
3.16 Avea used for skyring or any other unrelated activities	No/Yes	1/0			1			
3.1.745sc of separature despining boards/lowers etc.	Yes/No	1/0				2000	2000000	
3.18 Chambions of equipment/stensils	Satisfactory/Unsolutionary	1/0		The second second				
3.19 Suitability of the layout of the area for the processes	Yes/No	1/0			i			
3.20 Light and veryflidson	Adequate/Inadequate	2						
3.2.1 Manuer Morpaing	Good/Satisfactory/Unradisfactory	3/1/0				-		
3.22 Water supplied for different task in autable-manner	Supplies unaugable	1/0					-	
3.23 Safe food banding practices	Goot/Sybsfactory/Uhsativilationy	2/1/0		1				
Total		30	(%)	[%]	[%]	(%)	-	(%)
Part 4 · Equipment & Furniture (10 Marks)	Condition	Marks	Marris Obtained	Marks Obtained	Marks Obtained	Marks Obtained	Marks Olyained	Marks Obtained
4.1 Equipment/Mensils for food harding	/Westande/Redeestatte	3/0						
4.2. Condition of the equipment/luterails.	Satisfactory/Unsatisfactory	1/0					1	
1.3 Combines of the commontal/reposits	Satisfactory/Uncasisfactory	1/8			1			
4.4. Availability of food tangs,/ grouns to serve fund items	Yes/No	1,8					:	
4.5. Skarage facilities for cleared equipment	Yes/No	1/0						
4-6 Eurumer Tahkey/Chairs/Cumbairds/Newbackc	Ask-quate/Insakepate	1/0		-			4	
4.7 Suitability for required purpose and safety of himsiture	Sandony/Institutory	9/1						
4.8 Cleaning and maintenance of furnique	Suited-cory/Insufficiency	1/0						
1.9 Maintenance of temperature in refrigoratory/decyntecours	Suisterney/Unsuistationy	8						
4 HILLOUGHER WAS TRUBELLINE OF PRINCES / LANS TO RECEIVE	Marketony/Hoseledutory	0/1		-	-		-	
Total		10	[%]	(%)	()	1%	176	176

Part S - Storage (10 Murks)	Condition	Marks	Marks Objained	Marks Obtained Marks Ottained	Marke Oblained		Marks Obtained Marks Obtained	Marks Obsained
5.1 Scorpp facilities and bases locying	Cond/Satisfactmy/Unapiglactory	2/1/0					-	
S.2 Sarage of raw multiplies	Lexist/Supplicationy/Unisabelactiony	2/1/0			100		ì	
5.3 Stocoge of coolact/frantially control/prespared front	Good/Ssinshotmy/Unsubshotory	2/1/0	2	,				
SA Find starred under suitable temperature	Yes/No	120						
S.5 Sirenge of Good on the refrigerator/deeps freezer	Satisfactury/Unsaledactory	1/0						
5.6 Messages colors to prevent contrapting kind surving	Gend/Salisfactory/Uncatisfactory	2/1/0		1				
Total		10	136	(76)	1 421	6 96.3	1 96.1	176
Part 6 · Water Supply [05 Marks]	Condition	Marks	Marks Marks Obtained	Maries Obtained	Murica Obtained	Marks Olstan	Marke Histological	Marks Olymprof
4.1 Water waitte	Safe Almodo	170						1
62 Water stange medical	Sotisfactory Almostryfactory	1/0		- B - FF			-	
6.3 Water distributed the base	Vos/No	1,00)	i			1	
6.5 Safety of water certified by anabatical responds (Busterfellows - 01 Oversical - 01)	Vesita	2/0					-	
	200	100	1711	(70)	170	179	-	1 10.1
Part 2 - Waste Manusement (10 Marbs)	Candistan	March	Marke Oberd	The Contract of	Market Charles	The state of the state of	To the second	100
2 Advisor manufactor of high safe falls	Condition of the	CH THE		Piding Officially	marks ulkaling	-	PLATES ARICHISCH	egaryx Lipidalides
7.1 Like with Annual decod	Washington of the state of the	2	-	1	10			
2.2. (Alle of the Later of	(CS/NO	0/1				:	1	
7. C. Continues and maintaining of waste little	Saleketory/oheateductory	1/0				15	1	
2.4 September Astronomical whater	Yes/No	2						
7.5 Pirak diaposal of Marko	Safe/Unsafe	2						
7.6 Management of wante water	Safe/Unrafe	1/0						
7.7 Adequate number of coles and whole	Yes/No	1/0		1 101.1			3	
7.8 Location of tolicits and vertrale	Safe/Unsafe	0/1			ı		1	
7.9 Oceanimese and reprintmentated trailess and usings	Satisfactory/Unstandentory	0/1	,			30	-	
7.10 Septicants/Scaluse oft/Direct (NU) atomical of twices	Sule/Insule	07					Î	
Total		0	1.00	1 00	1 100 1	A TO THE PERSON NAMED IN COLUMN	1	
Breed Condition Chardens & Chardings of Conditions	Condition of		1	1 2 1 2		100	(A)	R
THE COMMISSION STRUCTURE OF CHARLESS OF LOOP INSTALLED	LONGOLION	Marks	Marks Chinaspara	Marks Observed	Mortes Unichigiese	Marky Ulkumed	Marks Oblains	Marks Olstanwsi
ELI CANDIDOR OF MODIFICATION	Nadactory/Unsatisfictory	0/4			1		-	
ILZ Jampy/Podalyngirershe/definity	Satisfactory/Unsutisfactory	1/0	54	-				
8.3 Insect infested/Out dailed food and lood utille for human creasuraption	Ma/Yes	1/4						
B.1 Violation of Labeling regulations	NayYes	1/0						
R.S. Separation / Strenge of food that are ann halesome / outstand to be returned	Substactory/Unsubstactory	1/0						
Total		955	196	(64)	176	(%)	(40)	PAL S
Part 5. Health statist and beginner of fand handlare (10Marte)	Condition	1	Manches Colonians	W. A. Co.	and the Colonial of	1	1	2
of the state of th	Collegition	Marks	Marks (Abcillined	Manual Stranger	Wertes Chalanger	May ky (MM. spines)	Marks Obblined	MAY CONTRIBUTE
O Manual Control of the Party	COMI NUMBER OF THE PROPERTY	6/1/9			•			
The second of th	CARRO SUBSTITUTO STATE S	2/1/4	1	2.0				
4.3 CANTINGECIE CERCUES SAIR CROSCOS	Nay Yes	1/0	,		11.0	:	,	
44 (west facility lating)	Philipping / yet bardion	1,0			,			
9.5 Marnismanus of health received of employeess	Gand/Satisfactory/Unsatisfactory	2/11/0	1					
9.6 Manutum of recently regarding training on health of companies	Good/Natisfactory/Uhrschiefratury	2/1/0		100000000000000000000000000000000000000				Secretary Secretary
Total		10	[%]	(%)	(%)	(%)	(%)	1 %
Part 10 - Display of Hualth Instructions, Record Keeping & Certification (15 Marks)	Condition	Marks	Marks Optained	Marks (Monimed	Marks Objained	Marks Obtained	Marks (Mainet	Marks Obtained
10.1 Display of instruction and hashly messages for the communers/employees	Yes/No	1/0						
STATUS	Yes/No	1/0		1			. 1	
	Yes/No	1/0			ĺ			
10.4 tenum of bills and record locy title when actingly acts remy food	Yes/No	1,10	•	1		,		
10.5. Availability of activities of exhibition on taxis safety	Yes(Ne	1/0					_	
Total		90	196	(%)	156 1	1%	1 961	(%)
Total Marks of 10 Sections	0 Sections	100	(%)	{% }	(%)	(%)	(%)	(-4- 3
Grade								
The state of the s	and the second s							1
	Owner/Manager					-		
Stpanufe	Public Heathly Instruction	-		- 1 A A A			-	
	Finance Heaville Impressor							
								1

3.3 Food Sampling

Food sampling plays a vital role in the implementation of the Food Act and Regulations framed under it. Therefore it is imperative that the Authorized officers (A.O.) should possess a proper knowledge of food sampling.

Objective- To prevent fraud by substitution and injury to health of the consumers

Sampling -Basic a minimum of two samples per month.

This is not a hard and fast rule. The Authorized Officers who work in urban areas with a large population may obtain more than 2 samples. Other than the normal routing sampling the A.OO might have to obtain samples under special circumstances. Sampling should be systematic so that all traders are dealt with. The food items sampled should cover as a wide range as possible.

Arrangements

The A.O.O. should do sampling according to an approved programme. This could be arranged at the monthly conference. The date for sampling may be included in the monthly advanced programme. The assistance of another officer, preferably a PHI should be obtained in all cases of formal sampling to provide corroborative evidence, informal sampling may be done individually as no prosecution is involved.

Equipments

- 1- Wax seal, sealing Wax, a candle, box of matches etc.
- 2- Envelopes, Grease proof paper (grocery bags & shopping bags) twine
- 3- Clean, wide mouthed bottles for items like Ghee, Butter etc.
- 4- Clean, narrow mouthed bottles for other liquids
- 5- A pair of Scissors or a knife, spoon for mixing and a bowl
- 6- A funnel for filling bottles in the case of liquids
- 7- A cleen towel or a duster
- 8- Labels for sampling
- 9- Pocket note book, the authority card & the Food Act
- 10-Preservetives such as formalin, Surgical spirit & some cotton wool

Routine Sampling

Approach the trader in a friendly manner. Inform him about your intention. Inspect the shop without disturbing his other transactions. Ask for what you intend sampling & the quantity required. Pay the shop keeper the market value of food you purchased for examination or analysis. This is a legal requirement according to the Amended Food Act (Miscellaneous) Regulations 1984 published in the Government Gazette Extra – ordinary No. 615/11 of 19th June 1990. Ordering and payment should be preferably done by the officer in whose area the sampling is being done. Write the note book on the spot accurately in detail. Original containers & wrappers should be retained for use in case of prosecution. Shop keeper should be immediately notified that the Article purchased is to be analyzed by the Approved Analyst.

Division of samples- Wherever possible, divide the sample in to requisite three parts. Certain foods require special attention.

Milk- Contents of bottles should be poured into a container and should be shaken well. Transfer the contents in to another container.

This process should be done three times. Let the vendor examine the sample bottles before filling the bottles with the help of a funnel. Add two drops of formalin and shake the bottles before sealing.

Butter- No papers to be used. Place samples in wide - mouthed bottles without pressure being exerted in order that water content does not exude.

Ghee- If purchased in a large bottle, obtain the samples with the help of a clean equipment. Do not hit.

Powders- If purchased in packets of same, make open the packets and put the contents into a bowl and mix thoroughly before division. Put the empty packets in an envelope and seal. May obtain the signature of the seller.

Oils- Sample in bottles; do not use polythene packs.

Sealing of samples

This should be done in good faith. There should be transparency. Mixing, division and sealing should be carried out in full view of the person from whom the sample was purchased. He may be allowed to verify the identity of labels attached to the portion of the samples. He may be permitted to affix his seal or place the thumb impression on all three parts. The A.O. shall identify the three parts as the sample, duplicate and the owner's portion. The part identified as the samples shall be forwarded to the approved analyst for analysis together with the memorandum set out in the schedule hereto. If the sample is sent under registered cover the slip issued by the Post Office must be kept safely. The receipt issued by the shop keeper or the vendor has to be in safe custody. Include the details of sampling in the food analysis register. Act promptly es soon as the report is received from the analyst.

3.4 Household Food Safety

It is very important that food safety should be community based. Action should be taken to maintain food safety from the household level. Community should be educated regarding the safety of food. It is very important to educate community about the "five keys to safe food" declared by WHO.

Keep clean

- Wash your hands properly with soap and water before handling food and often during preparation
- · Wash your hands after going to the toilet
- · Wash and sanitize all surfaces and equipment used for food preparation
- · Protect kitchen areas and food from insects, pests and other animals

Separate raw and cooked

- Separate raw meat, poultry and seafood from other foods
- Use separate equipment and utensils such as knives and cutting boards for handling raw foods
- Store food in containers to avoid contact between raw and prepared foods

Cook thoroughly

Cook food thoroughly, especially meat, poultry, eggs and seafood

- Bring food, like soups and stews to boiling point to make sure that they have reached 70°C. For meat and poultry, make sure that juices are clear, not pink.
- Reheat cooked food thoroughly.

Keep food at safe temperature

- · Do not leave cooked food at room temperature for more than 2 hours
- Refrigerate promptly all cooked and perishable food (preferably below 50° C).
- Keep cooked food piping hot (more than 60 °C) prior to serving
- Do not store food long even in the refrigerator
- · Do not thaw frozen food at room temperature

Use safe water and raw materials

- Use safe water or treat it to make it safe.
- · Sciect fresh and wholesome foods
- · Choose foods processed for safety, such as pasteurized milk
- · Do not use food beyond its expiry date

Awareness Programmes on Food Safety

It should be borne in mind that the easiest and important methodology in achieving Food hygiene promotion is by creating good attitudes and behaviour among people by imparting knowledge in food safety. It is the responsibility of the PHI to prepare programmes and implement.

- School community including children.
- Housewives
- Servants who assists in the kitchen and child care.
- Mothers
- Food handlers (Including those who prepare food at alms giving, weddings etc. in the village)
- Managers, Supervisors etc of food handling establishments
- Street vendors
- Consumers.
- · Government and Private institutions
- Voluntary organizations
- Community larders and other target groups

Awareness programmes should be planned according to targets groups to be addressed. Usage of simple educational materials enhances the effectiveness of the session. Person, who advocate should be a Role Model and enhance the good food handling habits as well as during the session and even in other programmes.

It will be easier to implement these activities by forming a voluntary organization for food safety in the range of PHI. It is important to use a methodology of communication that suits the target group. The flow of the massage could be increased by using a methodology where the participation of the community (participatory methodology) is involved. Further creation of essential skills should be done, eg. correct way of cleaning hands, cleaning of utensits, thawing of freezed food. The correct method is to utilize a lesson plan for every programme.

3.5 Street Vended Food

Street foods are sold in almost every country in the world. The FAOWHO Codex Alimentarius Commission defines "street-vended foods" or its shorter equivalent "street foods" as ready-to-eat foods prepared and/or sold by vendors and hawkers especially in the streets and other public places.

Street food sector

Street foods show great variation in terms of ingredients, processing, methods of marketing and consumption. They often reflect traditional local cultures and exist in an endless variety encompassing meals, drinks and snacks. There is much diversity in the raw materials as well as in the method of preparation of street foods. In addition, there are differences in the places where street foods are prepared and can be broadly grouped as follows:

- a) Food prepared in small-scale food factories or traditional workshops
- b) Food prepared in the home
- c) Food prepared in markets
- d) Food prepared on the street.

The types of street food operations and their time of operation vary. Vendors could be either part-time or full time and can be generally classified as either stationary or ambulatory. Stationary vending stalls may be permanent or semi-permanent structures. Ambulatory vending operations may include carts, bicycles, vans or vendors may simply carry their wares.

Need to improve street foods

The street food sector has become an important component of food distribution system in many cities in both developing and industrialized countries, particularly for midday meals. However, certain street-vended food can pose significant risk to consumers due to microbiological contamination. The risk is dependent primarily on the type of food, the method of preparation and the manner in which it is held before consumption

In addition to microbial hazards, street foods can become contaminated with high levels of toxic chemicals including pesticide residues, heavy metals, mycotoxins and unapproved food additives, such as textile dyes. Contaminants may also enter the food under the street conditions where dust and vehicular traffic raise pollution levels.

These foods have various health implications on non communicable diseases too. It has been found that various carcinogenic chemicals such as acrylamides may be formed when foods containing carbohydrates are fried or baked at high temperatures. Further, using cooking oils several times to cook or fry street food, which is a common practice in this business, increases production of free radicals, various mutagens, trans fatty acids and other various toxic by products which have effects on non communicable diseases, such as Ischemic heart diseases, Cancers and Diabetes mellitus.

Food Act No 26 of 1980 regulates the manufacture, importation, sale and distribution of food in the country. In Sri Lanka the laws governing food safety and quality in authorized and licensed premises (formal sector) are applied to the street food sector too. In Sri

Lanka street food stalls/vendors are not licensed by the local authorities or the municipal authorities; but a permit which could be valid for a period of one year is issued after a payment of a fee. Inspections and Recording Inspection Rating form H- B00 (Rev) can be used to inspect and follow up this sector periodically. However, it has been observed that the provision of acceptable level of urban basic services such as water and garbage disposal facilities; and public latrines by urban local authorities can contribute to improved food safety and standards of this sector.

Requirements in the Hygienic Handling of Street vended food a) Vending units, equipment and utensils

Vending units should be designed and constructed so that they could easily be cleaned and maintained. Preparation should not be carried out on or near the ground. Working surfaces should be hygienic, impermeable, easy to clean (like stainless steel), 60 to 70 cm. from ground (e.g Vending cart shown below). Premises used for preparation, processing and sale should not be used for non food practices such as, sleeping purposes which will lead to contamination of food with biological, chemical and physical hazards. It should be protected from sun, wind and dust.



b) Water supply

Water is a critical raw material in many street food vending operations. The ambulant vendor can carry only limited supplies and even stationary food stalls may not have direct access to a water supply. Water used for drinking and preparation of beverages should be potable, lice to be used in beverages and food should be prepared from potable water transported and stored in a sanitary manner.

c) Transportation, handling and storage of prepared food

The vehicles used for transport of food should be clean and should not carry animals, toxic materials, contaminating materials with the prepared food. Transport, receipt and storage of perishable and potentially hazardous food (like milk, meat, fish, egg jshould be within time and temperature standards (within 4hours) in covered condition. Handling of cooked food should be kept to a minimum to reduce the likelihood of introducing pathogens. Raw, semi cooked and cooked food should be stored separately.

Cross contamination at street food setting can be observed when, e.g. Making Kottu – Rotti- Uncleaned raw eggs are cracked and cooked food prepared at the same cooking table without cleaning it. Extra care should be given when preparing kottu –dirt on the egg shell can contaminate food. Soaps, Chemicals, Sanitizers and foods should be stored separately.

d) Waste disposal and pest control

Liquid waste should be emptied into the nearest sewer or drain. Solid waste should be kept in covered containers to be removed by a public garbage collection system. Area should be kept clean and tidy to avoid pest infestation.



e) Serving food

Food should be handled, served or sold with clean equipment and utensils i.e. tongs, forks, spoons or disposable gloves, never handle with bare hands. Utensils/cutlery should be clean and dry and not handled by touching the surfaces that come in to contact food. Separate utensils (e.g. tongs, scoops etc.) should be used for each type of food and should be covered. Take-away food should be wrapped in fresh paper / plastic which is non toxic.



f) Food Handler

Food handler can often be a major source of contamination. The practicing of good personal hygiene is essential for those who handle food and include,

- Maintaining good personal habits
- Knowing when and how to wash hands correctly
- Wearing clean protective clothing
- Maintaining good health and keeping away from business temporarily when ill to avoid spreading possible infections
- Practicing food hygiene knowledge and principles

Activities that encourage hand/mouth contact such as smoking or the chewing of gum, tobacco, betel nut or finger nails can also lead to food contamination and must be avoided. The same also applies to the tasting of food during preparation. Similarly food handlers should not spit, sneeze or cough over food, or pick their nose, ears or any other parts of the body. Should avoid handling food with cuts or sores or skin infections or having diarrhoea or vomiting or similar infectious diseases

g) Hand Washing

Majority of the vendors use a basin or a can of water to wash their hands and utensils. This is really a contamination system. Further this is inadequate for the use of daily practice Preferably a tap fitted, closed container protected from dirt, dust and insects could be introduced as seen below. This system will produce a continuous flow without having to introduce utensils that might be contaminated.



- Where there is no reuse of water.
- Where water used is collected into a bucket and eliminated

g) Environmental hygiene

In many instances, the vending sites are not included within the city or town plans, and therefore amenities such as refuse collection are not available. Location should be away from rubbish, waste water, Toilet facilities, open drains and animals. Vans / Carts should be stationed only in authorised areas to ensure no interference with vehicular traffic / or obstruct pedestrians



Vendors are often poorly educated and untrained in food safety. They often work under unsanitary conditions with little or no infrastructure support. However research has shown that the majority of food-related illnesses and death could be controlled, or eliminated, by the use of proper food handling techniques. Recently the WHO "Five Keys of Safer Food" have been successfully adopted in training street-food vendors based on the principles of Five Keys to Safer Food. Such training would enable vendors to implement good hygienic practices based on an understanding of some basic messages available at: the following website of the WHO.

http://www.who.int/foodsafety/fs_management/No_03_StreetFood_Jun10_en.pdf



Public Health Legislation

Introduction

One of the oldest functions of government was to protect and promote public health. For this purpose legislation relating to public health became a very important instrument, and practically all countries having health programmes have enacted various public health legislations. In Sri Lanka written laws relating to public health were introduced during the early British period, and the initial legislation mostly concerned prevention and control of major communicable diseases. Strict implementation of these laws was responsible for a reduction in the incidence of diseases such as smallpox, plague and cholera. Legislation drafted in relation to major communicable diseases included measures such as restricting the movements of people during the epidemics, Immunization, and compulsory notification. Notifiable diseases were gazetted and the chief occupant of the house in which a case of a notifiable disease occurred, was expected to inform the health authorities about the case. Police and the Village Headmen were legally bound to extend their cooperation to the health authorities during epidemics.

Public Health Inspector plays a very important role in the implementation of public health legislations. It is he who has to handle the legal proceedings in connection with the implementation of public health legislation. Therefore he has to be quite conversant with the following enactments which have a key relevance to his duties:

- 1 Nuisances Ordinance
- 2 Quarantine & Prevention of Diseases Ordinance
- 3 Cemeteries & Burials Ordinance
- 4 Housing & Town Improvement Ordinance
- 5 Butchers Ordinance
- 6 Food Act
- 7 Act by the National Authority on Tobacco & Alcohol.
- 8 Prevention of Mosquito Breeding Act

The other important enactments the PHI should be conversant with are as follows:-

- 1 Infectious Diseases Ordinance
- 2 Ordinance on Diseases among labourers
- 3 Municipal Council Ordinance
- 4 Urban Councils Ordinance
- 5 Pradeshiva Sabha Act
- 6 By-laws relating to Municipal Councils, Urban Councils, and Pradeshiya Sabhas.

Authority to act under an Act/ Ordinance

Other than in the case of Food Act and the Act of the national Authority on Tobacco and Alcohol, the PHI should get the written authority from the proper source, to perform his duties concerning the other acts.

The Chairman of the local authority is the proper authority for the following Ordinances:-

- Housing & Town Improvement Ordinance
- 2. Nuisances Ordinance
- 3. Cemeteries & Burials Ordinance
- 4. Butchers Ordinance
- Regulations relating to Mosquito Borne Diseases framed under the Quarantine & Prevention of Diseases Ordinance
- 6. Local government Ordinances & By-laws

The Medical Officer of Health is the proper authority under the following enactments:-

- Prevention of Mosquito Breeding Act
- Regulations relating to ankylostomiasis framed under the Q & P Ordinance
- Regulations relating to storage of grain framed under the Q & P Ordinance
- 4. Quarantine regulations framed under the Q & P Ordinance

Unless the PHI is properly authorized by the relevant authority, his reports and evidence would be treated as null and void in a court of law.

4.1 Food Legislation

The most important legislative enactment relating to Food Safety is Food Act No. 26 of 1980, which was amended by Food (amendment) Act No. 20 of 1991, which regulates the manufacture, importation, sale, exposure for sale, storage and distribution of food.

The Director General of Health Services, who is designated as the Chief Food Authority, is responsible for the administration of the Act. He is assisted by the Deputy Director General (Public Health Services) and the Director (Environmental & Occupational Health).

Local authorities are appointed as Area Food Authorities for their respective areas of administration. The Principal Collector of Customs and the Commissioner of Excise, also function as Food Authorities in respect of imported foods and excisable foods respectively.

Medical Officers of Health, Food & Drugs Inspectors (F&DI), and Public Health Inspectors, are designated Authorized Officers under the Act and assist the local authorities in the implementation of the Act, by inspecting food establishments, sampling foods and conducting prosecutions. They also advise the traders on technical matters, and are responsible for consumer education.

Authorized Officers - their powers and functions

Section 13 of the Food Act provides for the appointment of PHII as Authorized Officers. Medical Officers of Health, Food and Drugs Inspectors, Food Inspectors, and Veterinary Surgeons are the other officers who may be so appointed. In the case of Veterinary Surgeons, their powers are restricted to the examination and seizure of meat; whereas other authorized officers are empowered to examine and take appropriate action regarding any kind of food including meat.

An Authorized Officer is empowered to enter any premises at any reasonable time, examine, seize and take samples form any article of food (Section 14). An "article" is defined in section 14(2). "Food" is defined as "any article manufactured, sold or represented for use as food or drink for human beings, and includes any article which ordinarily enters into or is used in the composition or preparation of food".

An Authorized Officer is empowered to act on suspicion (that is if "he believes") that an offence has been committed although after investigation it may be disclosed that such an offence has not in fact, been committed. Legal proceedings cannot be instituted against the Authorized Officer if he has acted in good faith (Section 28).

When there is sufficient evidence to prove that an offence has been committed, action could be taken under the relevant sections on prohibitions (see later) and seizure (Section 15) or under any other relevant regulation.

Sampling

Authorized officers are empowered to take samples of food, in the course of their duties. The Authorized officer should follow the correct procedure regarding sampling, which is published in the Government General Gazette No. 353 of 07.06.1985, and the amendment published in the Govt. Gazette Extra Ordinary No. 615/11 of 19.06.1990. The Authorized officer is expected to pay for the samples they obtain for analysis or examination, according to the Gazette Extra Ordinary mentioned last. This is a legal requirement and the lapses on the part of the Authorized Officer may result in the discharge of the accused. It is important that all Authorized Officers be conversant with these two Gazette notifications.

In addition to the powers provided under section 14, Authorized Officers can exercise the powers of police officers, in terms of the Code of Criminal Procedure Act No. 15 of 1979, for the purpose of discharging their functions under the Food Act.

It must however, be realized that legislation is primarily a deterrent. It is a powerful tool in the hands of the Authorized Officer, and must be used with caution and restraint after all other methods of persuasion and education have failed to correct the faulty practice, unless the fault is of a serious nature. Prosecution is not useful in changing attitudes, but advice and counseling, on the other hand, have tasting effects. An Authorized Officer should have the knowledge, understanding and the skill to change attitudes, in order to bring about the anticipated changes.

However, when compelled to enforce the law, it must be done rigorously. Authorized Officers should study the provisions under the law thoroughly in order to enforce it effectively. To enable more effective enforcement of the Food Act, the following legislative enactments should also be well studied.

- (a) Code of Criminal Procedure Act No. 15 of 1979.
- (b) Evidence Ordinance.
- (c) Interpretation Ordinance.

Provisions of the Food Act

Guidance notes on some of the important provisions in the Food Act are given below. They should be read along with the relevant sections in the Food Act.

Prohibitions – Prohibitions are given in Part 1 (Section 2 to 7), Sections 14(4 to 9) and in the regulations framed under the Act.

If it appears that several prohibitions have been contravened, in framing charges it is advisable to select one of them which the officer is confident, can be proved.

Food injurious to health – Expert evidence of a Medical Officer is essential to prove that a particular food is injurious to health under the section 2(1) (a).

Food unfit for human consumption - Section 2(1) (b)

It is always preferable to get an analyst's report to substantiate the charge. The Authorized Officer is competent enough to satisfy the court regarding the causes which had led to the putrefaction or decomposition of any food resulting from speedy and natural decay and he may give evidence. Other evidence of the MOH, F&DI, or a senior PHI may be submitted.

Adulteration – The provision under Section 2(1) (d) on "adulteration" should be used, only if there are no provisions under the regulations framed in respect of the food standards. "Adulteration" has to be proved in terms of Section 33; using regulations on food standards, on the other hand, is straightforward and conclusive and therefore is preferable.

If a food standard is available the charge should be under section 2(1) (F) as amended by Section 2(1) (A) of the Food (Amendment) Act No. 20 of 1991. Where the standards prohibit an addition, the relevant section used in the change is section 2(1) (e) as amended by Section 2(1)(A) of the Food (amendment) Act No. 20 of 1991.

Insanitary conditions — When the charge is under Section 2(2) or 2(3), it is important to understand the meaning of "insanitary conditions" as defined in Section 33. Detailed notes on the sanitary conditions of the premises, its surroundings and of the manufacturing processes, and the relevant details of various practices involved and on the employees must be made on the spot. These should be corroborated by the evidence of witnesses.

Defective Labeling – The reasons why a label is considered defective has to be proved in accordance with the provisions in Section 3(1). The food (labeling and advertising) regulations 2005 contain directions on labeling and should be studied carefully and consulted whenever necessary.

When a sample is secured for a labeling offence, officer should enter a detailed description of the label in their Pocket Note Book, prior to sealing the sample. Even if the label is subsequently lost or damaged, the notes written contemporaneously will serve as relevant evidence.

Food rendered unfit – The intention of Section 5 is to facilitate the proper disposal of food which is "spoilt or rendered unfit". Once the permission of the Food Authority has been obtained the Authorized Officer should ensure that the food is properly disposed of and never used for consumption.

Notes on the correct weight or measure are essential to avoid embarrassing aliegations.

Warranty – To ensure that charges are brought against those responsible for the offence, it is best to advise traders to obtain a warranty from the distributor whenever goods are bought.

A distributor failing or refusing to give a warranty can be charged under Section 6, if the following conditions are satisfied:-

- (a) The retail trader agrees to give evidence
- (b) The detection is made at the time of the refusal (on a complaint made by the trader)

Registration of Food Handling Premises – The procedure for registration of food handling premises, under Section 7, will be set out in Regulations on Manufacture, Storage and Sale of Food (to be gazetted).

In inspecting establishments for registration, the Food Regulations (1988) dealing with hygiene requirements should be consulted.

Charging some other person – There are three instances when a person other than the accused may be charged with the commissioning of the offence:

- (1) Under Section 21(1), the accused is given the opportunity of bringing before court the actual offender (manufacturer or distributor) prior to the commencement of the trial. Once the commissioning of the offence has been proved, the accused will have to prove to the satisfaction of the court that the other person is the actual offender. It should be borne in mind that both parties are liable to conviction.
- (2) The court may at any time during a trial, withdraw charges egainst an accused and charge some other person, if the court is satisfied, on the evidence adduced, that the other person is concerned with the commissioning of the offence Section 20(2).
- (3) If the Food Authority is satisfied that a person other than the vendor is responsible for committing the offence, and the vendor is able to establish that fact, action may then be taken against the other person – Section 21(3).

In a case where both the seller and the manufacturer are charged, the manufacturer is liable for the offence although the manufactory may be situated outside the area of jurisdiction of the court, in which the offence has been committed. Section 130 of the Code of Criminal Procedure Act applies in such a situation.

Procedure of submitting samples for analysis – Authorized Officers are empowered to take samples for analysis 14(1), and submit them to an approved Analysis - Section 16(1). The analyst is obliged to send a report on the analysis of the sample, to the Authorized Officer- Section 16(2). Section 23 lays down that this report is "sufficient evidence". This is a special procedure applicable to the Food Act. In other legislation, provision is made for samples to be submitted to the analyst through the court, in accordance with the Code of Criminal Procedure - Section 116(2), (3). Yet section 5 of the Code of Criminal Procedure recognizes that special procedures applicable to specific legislation should be followed as directed therein.

Using the Analyst's report as evidence – The most appropriate and practical method of making available a copy of the report of the approved analyst, to the defense, is by handing over it in open courts and requesting the magistrate to make a note of it in the case record. It gives the defense reasonable notice vide Section 23(3), as the evidence would be recorded only at the trial which is on a subsequent day. Handing over a copy of the analyst's report at a place other than the courts might lead to "unnecessary suspicion".

Productions – When a food sample containing the original label is sent to the analyst, the Authorized Officer should make a request to the analyst to preserve a portion of the sample duly sealed, along with the original label on the sample, without being disposed of. The Authorized Officer should visit the laboratory and collect them as the analyst may not return these. The Authorized Officer should mark section 3(3) of the memorandum with a high-lighting pen to make sure that the analyst will keep them safe for collection. It has been the experience in courts that the inability to submit them as productions has led to the collapse of cases. Whenever samples are sent under registered cover, keep the receipt issued regarding the transaction and the slip issued by the post office. They have to be marked and produced before the magistrate at the trial. Lapses on the part of the Authorized Officers in not producing them will lead to being reprimanded by the magistrate.

Division of a sample — The regulations indicate the instances when a sample should be divided into two parts, and only one of the parts of the sample should be submitted. In such a case, one sample should be retained by the Authorized Officer, to be produced at the hearing of the case. The responsibility for the safety of this sample and the proper preservation (e.g. refrigeration if required) will be on the Authorized Officer, and he would be required in his evidence, to mention how he held the sample.

Presumptions – It is very necessary that Authorized Officers familiarize themselves with the presumptions given in 26(1), (2) and (3) as these could be used by both the prosecution and defense in arguing cases.

It should be understood that Section 26(3) refers to a presumption where a charge is based on the facts given on a label. It does not compel the Authorized Officer to charge the person whose name and address appear on the label, but the Authorized Officer can decide whom to charge.

It is to be noted that when a party other than the vendor is to be charged, approval should be obtained from the Food Authority - Section 21(3).

Offences Committed by a Body of Persons – When an offence is committed by a body of persons there is no direction that everyone comprising that body should be charged. The Authorized Officer is free to decide.

Proving good faith — If acting on bad faith is alleged, it will be necessary for the Authorized Officer to provide proof of his acting in good faith (Section 28). For this purpose, reliable witnesses and a well-bound, properly maintained and a page-numbered Pocket Note Book are the best safeguards.

Complaints or reports to Court

A copy of a draft plaint is annexed (Annexure 1, 2, 3). Officers should alter the text according to each individual situation. When drafting the charge, attention should be paid to Sections 164 and 165 of the Criminal Procedure Code. Sufficient information should be included to enable the accused to know the charge he has to face. The date and time, the place, how the offence was committed, the relevant sections of the Act, Gazette numbers, the section which deals with the offence - Section 18(1) and the penal section must be clearly stated.

Annexure- 1

DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

Magistrate's Court	
	Case No
Mr	PHI
Versus	
Mr. /Mrs. /Miss.	
Accused	
200	
I	do hereby report to this
above named accused,	on or about
the jurisdiction of the court, did commit an offence up 26 of 1980 as amended by section 2(1) of the Foo	nder section 2(1) () of the Food Act No. of (amendment) Act No. 20 of 1891, by
(the offence)	
and punishable ;under section 18(1)() of the main the Food (Amendment) Act No. 20 of1991.	
A	uthorized Officer under the Food Act
Witnesses	PHI
1. Mr	
2. Mr	
Productions 1. Receipt No. //Hand written receipt of 2. Report of Govt, Analyst / Approved Analyst / Additi 3. Duplicate of the tood sample No	
	Annexure- 2
Charge Sheet (Sections 164 & 165 of the	he CCP Act)
Accused:	************************
You are hereby charged as follows:-	
You have on or about the(date) a jurisdiction of this courts, did commit an offence under of 1980 as amended by section 2(1)() of the Food	er section 2(1)() of the Food Act No. 26
(offence)and punishable under section 18(amended by section 14(1) () of the Food (Amendme	1) () of Food Act No. 26 of 1980 as ant) Act No. 21 of 1996.
Date:	Sgd. Magistrate

Annexure- 3

Charges

Group

These instructions are designed to provide the PHI with knowledge regarding the basic charges that will be generally framed.

The officer should be able to compile an understandable paragraph taking a statement from groups ABCE and also D as relevant.

A	- Selling to (name of the buyer)
	- Exposing for sale at (place of offence)
	- Storing at (place of offence)
	- Distributing to (name of the recipient)
	 Manufacturing at(place of offence - if the place is within the jurisdiction of Court).
	 Manufacturing and selling through (name of person who sold and address - if out of jurisdiction of Court)
	- Manufacturing and exposing for sale* / storing* at (address where
	detected for out of jurisdiction of Court)
	* delete whichever is inapplicable
В	- an article of food demanded, called
	(name of food) which contained (offensive material)
	(name of food) which contained (offensive material) - adulterated with (type of adulterant)
	- labeled in a manner which is false /misleading/or
	(describe how mislabeled) - relevant section 3(1)
	- labeled in a manner as is likely to be mistaken for the food for which the
	standard has been prescribed - relevant section 4
	- manufactured under insanitary conditions - relevant section 2(2)
	- manufactured under insanitary conditions - relevant section 2(2)
С	- and thereby rendering it injurious to health - if under 2(1)(a)
A	- and thereby rendering it unfit for human consumption - if under 2(1)(b)
D	- in contravention of section of the said Food Act
	 in contravention of section ———— of the (name of regulation) regulation
	No of (<u>year)</u> gazetted by No of (date)
	- in contravention of section (2-7) of the said Food Act read with section
	of the (<u>name of regulation</u>) regulation No of
	(year) gazetted by No. of (date)
	110311 gazetted by 140.

4.2 Housing and related legislation

The PHI should familiarize himself with the relevant legislation relating to the housing, applicable to his area. The Housing and Town Improvement Ordinance is applicable to all the Pradeshiya Sabha areas which are not declared under the Urban Development Authority. He is legally required to get himself authorized either by the MOH or the Chairman of the Pradeshiya Sabha, as the case may be, to perform duties under the Housing & Town Improvement Ordinance. These are discussed in detail, and the other relevant legislation to which reference should be made when appropriate, is also mentioned.

Housing and Town Improvement Ordinance

In areas where the Housing and Town Improvement (H & TI) Ordinance is in force, no buildings can be erected, re-erected or altered without the approval of the Chairman of the local authority (Section 5, 6). A building includes any outer houses or other appurtenances and any masonry boundary walf or gateway.

Alteration of a building could be carried out with the consent of the Chairman. Submission of plans may not always be necessary for this purpose, if the work could be adequately described. The following works are considered as alterations:

- (a) Construction of a roof (or part) or an external or party wall
- (b) Closing or construction of a door or a window in an external wall
- (c) Construction of an internal wall or partition
- (d) Any change affecting the drainage, ventilation, sanitary arrangements and open space attached to a building
- (e) Addition of a building, outer house or room
- (f) Construction of a roof between one or more walls or buildings
- (g) Conversion of a building, not originally constructed for dwelling, into a dwelling house
- (h) Conversion of one dwelling house into more than one dwelling house.
- (i) Conversion of two or more dwelling houses into a greater number of such houses
- Alteration of a building for the purpose of effecting a partition among joint owners
- (k) Re-erection of any part of the building demolished for the purpose of such re-erection, or otherwise destroyed

The following are not considered as 'alterations'

- (a) Re-roofing of a building with cadian or similar material
- (b) Re-erection of any damaged wall or a thatched mud and wattle building rendered unfit for dwelling, by stress of weather or similar reason
- (c) Any minor repair or alteration declared by the Chairman as not requiring consent

Approval and Commencement of operations

The Chairman is expected to grant approval or consent within two months of receipt of an application (Section 9).

Notice of commencement of construction or resumption of construction after suspension for a period exceeding three months, has to be given to the Chairman seven days before commencement / resumption (Section 10). Such operation could be commenced / resumed only if approval for building had been obtained within the preceding one year before the date of notice.

Inspections

During building operations, inspections can be done by the public health officer at any time without prior notice (Section 11).

Certificate of Conformity (C.O.C)

No building can be occupied after construction without obtaining a Certificate of Conformity — except by a caretaker. The Chairman is expected to inform the applicant within 30 days of receipt of the application, of his decision whether or not a certificate will be issued. For the purpose of inspecting the building, the public health officer may enter the building at any time during daylight, after giving prior notice (Section 15).

Unauthorized buildings

In the event of building operations carried out in contravention of the provisions of the Ordinance, the Chairman may require the person carrying out the operations, to show cause either in writing or personally why the building should not be demolished on a specified date (not less than seven days from the date of notice). If the person fails to show sufficient cause, the Chairman may require him to demolish the building or he may himself get the order executed, and recover the expenses (Section 12). Legal action under Section 13 may also be instituted against the offender.

PHII should prepare notices and guide the Chairman, regarding the correct procedure.

Temporary buildings

The Chairman is permitted under Section 17 to issue a permit for the erection of temporary buildings which may otherwise conflict with or contravene the provisions of the Ordinance. The maximum period allowed for the building to stand is one year and the permit holder is required to demolish the building within the specified time. A deposit is kept with the local authority and is refunded after demolition.

Appeal

The procedure for appeal by any person, who is not satisfied with a decision made by the Chairman to refuse approval of a building application, or to refuse the issue Certificate of Conformity etc., is laid down in Section 16.

Insanitary Dwellings

If a dwelling house is considered unfit for human habitation the Chairman can apply to the magistrate to make a mandatory order prohibiting the use of such a dwelling until it is rendered fit for human habitation. This is called a 'closing order' (Section 77). The procedure to be followed after making the closing order is given in Section 77, 78 79, 80, 81 (q.v.).

Offences

Offences are described in Section 13. A person is liable, on conviction, to a fine not exceeding 300 rupees and to a daily fine of 25 rupees for each day that the offence is continued. Magistrate may, on the application of the Chairman, make a mandatory order requiring such person or the owner of the building, or both, within a time specified in the order, to demolish the building in question, or to alter it in such a way so as to bring it in accordance with law. In the event of such a mandatory order not being complied with, the Magistrate may authorize the Chairman to demolish, alter or otherwise deal with the building, in such a manner as to secure compliance with the order and recover expenses.

Streets and Street Lines

All buildings, including masonry boundary walls and galeways (Section 111) should be erected upon 'street lines' or 'building limits' defined or approved by the Chairman (Section 19).

The PHII should obtain particulars from the local authority in respect of each street. For streets maintained by the local authority the building limits are given in the MC/UC/PS ordinance. For streets maintained by the Highways Department details should be obtained from the District Engineer (Highways). It is advisable, unless otherwise directed, to obtain certificates from relevant authorities on this aspect prior to making your recommendations.

Standards for Buildings, Rooms and Streets

Standards for buildings, rooms and streets are detailed in the schedule. PHII should be thoroughly conversant with the rules given in the schedule.

Height of Buildings

In general, buildings other than religious building situated on a street should be of such a height that no portion of the front intersects a line drawn at 63.5 degrees to the horizontal from the opposite side of the street at floor level.

The Chairman is, however, given the power to authorize buildings exceeding this height using his discretion under certain circumstances (q.v.)

Size and Ventilation of Inhabited Rooms

The minimum requirements are as follows:

- (a) Height Average 9 feet; minimum 7 feet.
- (b) Area 1st room -120sq.ft. Other rooms 90sq.ft.
- (c) Minimum width of room 8 ft.
- (d) Height of doors minimum 6 ft.
- (e) Minimum area of windows 8 sq. ft.
- (f) It must have windows and doors of not less than 1/7 floor area, where windows should not be less than 1/15 of the floor area, opening into an external space directly or through an open verandah into a standard light plane.

Open air spaces at side or interior of buildings

The open space referred to in (f) above:

- (a) must not be less than 71/2 ft. in width
- (b) must be reserved for the building or public use
- (c) must be of such a width that no portion of the face of the building intersects a series of imaginary lines drawn at 63.5 degrees to the horizontal from the side opposite to the face at the level of the lowest storey

Two owners of adjoining buildings can register an agreement binding each to preserve a common space of 15 feet.

Open space at rear of buildings

An open space of 7 1/2 feet should be reserved on the face of the building farthest from any street, or when a building is situated on more than on street, from the widest street or lane not less than 20 feet wide.

Road Access

The minimum width for road access that may be sanctioned by the Chairman in respect of a limited number of premises is as follows:

- (a) Not more than four premises minimum width 10 feet.
- (b) More than four but less than eight premises minimum width is 15 feet.
- (c) More than eight but less than 20 premises minimum width 20 feet.

Reporting on a Building Application

When a building application is referred to the PHI for inspection and reporting, the PHI should ascertain whether the Chairman has obtained observations from other officers on any matters not directly related to public health. If so, the PHI need not comment on them unless he observes any glaring errors or omissions. It is the PHI's responsibility to report on all aspects related to public health. He should ensure that the building application contains the three main sections: (a) the site plan (b) the ground plan and (c) a cross-section of each separate building block.

The PHI should note and report on the following:

Site Plan

- (i) Location and distances from proposed building to boundaries and other building, wells, latrines, sewer lines, electricity posts etc.
- (ii) Access vide requirements in schedule
- (iii) Distance form centre of road (PHI need not comment if this has already been done by a competent person

If PHI is expected to report he should familiarize himself with the following information;

- Gazette notification dealing with distances form centre of the roads in the relevant local authority area
- · Street lines and building limits of roads in the area

If the roads are maintained by the Highweys Department PHI should request the Chairman to obtain approval from the Highways Authority

(iv) Rear space (read section 5(1)(2) in Act No. 38 to 1980). A rear open space of 71/2 feet throughout the entire building is required, unless the rear abuts on a 20 foot public street or lane. An average of 71/2 feet may be allowed if the minimum width is not less than 3 feet.

Ground Plan

- i. Comment on size of living rooms, height, adequacy of light and ventilation
- Toilets type, sanitary requirements, soakage pit, septic tank, distance from wells
- Store-rooms beware of habitable rooms being referred to as store-rooms to circumvent requirements of light and ventilation

- iv Area covered by building should not exceed 3000 sq.ft. (vide ceiling on houses)
- v Requirements for open spaces
- Vi Check on proportion of site area covered by building 2/3 for residential, 4/5 for commercial and industrial

Areas under the Greater Colombo Economic Commission (Act No. 4 of 1978)

It should be noted that the provisions of the Municipal Council Ordinance are enforced deleting Sections I, II, III, IX, X, XIV. Other Ordinances in force are:

- (a) Housing and Town Improvement Ordinance (Cap 268)
- (b) Town and Country Planning Ordinance (Cap 269)
- (c) Thorough fares Ordinance (Cap 193)

Areas under the Urban Development Authority (Act No. 41 of 1978)

The Planning and Building Regulations (1986), under the Urban Development Authority (UDA) Act are published in the Government Gazette No. 392/2 of 10 March 1986. PHII working in areas where the UDA Act is in force are advised to study these regulations thoroughly.

In these areas buildings are classified into three categories A,B and C. Only buildings falling under category C are likely to be referred to PHII. These would include residential buildings not exceeding 300 sq. meters in extend with not more than two floors including the ground floor and buildings other than residential buildings not exceeding 100 sq. meters in extent with not more than two floors including the ground floor.

Urban Development Regulations

Internal clear dimensions of rooms.

- i Where there is only one room in a dwelling unit 11sq.mtres, with minimum width 3metres
- ii Where there are more than one room in a dwelling unit
 - a first room 8.5sq.metres
 minimum width 2.4metres
 - b additional rooms 7.5sq.metres
 minimum width 2.4metres
- iii Rooms in non-residential buildings 7.5sq.metres minimum width - 2.4metres
- iv -a Kitchen 5.5sq.metres minimum width -1.8metres

PHI Manual - Chapter 4

- b Kitchen accove minimum length - 0.9metres minimum width - 0.4metres
- v a Bathrooms minimum length - 1.2metres minimum width - 0.9metres
 - b Toilets minimum length - 1.2metres minimum width - 0.9metres
 - c Combined Bath and Toilets minimum length - 1.7metres minimum width - 0.9metres
- vi Light and Ventilation
 - a Bath Rooms & Toilets 1/10
 - b Vehicle parking garage 1/10
 - c Factories & warehouses 1/10
 - d All other rooms 1/7

Road Access to residential units

- a under 4 dwelling units minimum length 50metres minimum width 3metres
- b -more than 4, but not more than 8 minimum length 100metres dwelling units minimum width 4.5metres
- c -more than 8, but not more than 20 dwelling units minimum width 6metres
- di-more than 20 dwelling units minimum width 9metres

Other Relevant Legislations

When reporting on building applications the relevant provisions in the following legislative enactments should also be taken into consideration:

- i. Pradeshiya Sabha Act No. 15 of 1987.
- II. Metric Units (Consequential Provisions) (Amendment) Act, No. 15 of 1983.
- iii. Coast Conservation Act No. 57 of 1981.
- iv. Thoroughfares Ordinance (Cap 193).
- v. Housing and Ceiling on Property Act.
- vi. Town and Country Planning Ordinance (Cap 269).

•	
NOTICE NO.01	Annexure- 4
NOTICE NO.01	My No: Office of the Pradeshiya Sabha
Mr. /Mrs.	Date:
HEATTUODICED CONCEDUCT	TONG NOTICE
UNAUTHORISED CONSTRUCT	TONS - NOTICE
I have been informed that you are effecting / have re-erection / alteration at (place of offence) plans approved in writing from me and violated sec Improvement Ordinance No. 19 of 1915, Chapter 2	without getting ction 5/6 of the Housing and Town
By virtue of the powers vested in me by Section 1: for an agent duly authorized by you is, hereby not from the date of receipt of this notice as to why the not be removed, altered or pulled down.	iced to show cause within 8 days
	Obeles a Desde-blee Belle
Copy to: MOH/PHI	Chairman Pradeshiya Sabha
	Annexure- 5
NOTICE NO.01	
	My No: Office of the Pradeshiya Sabha Date:
Mr. /Mrs	
E7414	
UNAUTHORISED CONSTRUCT	IONS - NOTICE
I wish to invite your attention to my notice subject.	-
I have observed that you have failed unauthorized erection /re-erection/alteration that shall not be removed, altered or de	you have affected/ effecting at
lime specified in the said notice.	
By virtue of the powers vested in me by a fown Improvement Ordinance No.19 of 1915, Cha or remove/alter/pull down the said unauthorized within 8 days from the date of receipt of this notice.	apter 268, you are hereby ordered erection/ re-erection / alteration
by due to remove, after or pull down it and recov	

Copy to: MOH..... /PHI for N.A.

Chairman Pradeshiya Sabha

Annexure- 6

DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

Magistrate's Court	
	Case No
Mr	
Public Health Inspector	
Complainant Versus	
Mr/Mrs	
	} } q y y #d h.
commit an offence under Section 5/6 of the Housing ordinance Chapter 268 No. 19 of 1915 by effecting an ere	of the Code of Crimina accused on or about the risdiction of his courts, die and Town Improvement action/re-erection/alteration
without plans, drawings and specifications approved in Pradeshiya Sabha	writing by the Chairman
	Public Health Inspector Complainant
Witness 1	
Productions 1. Report of MOH/PHI dated	
Production Authorized	
Chairman Pradachiva Sahk	12

Date:

Charge Sheet (Sections 164 & 165 of the CCPA)

	(Case No.
Accused:		
You are hereby charged as	s follows;	
You have on a about the	ence under Sect 268 No. 19 of 19	ion 5/6 of the 015 by effecting
specifications approved in writing by the Chairman, and punishab said ordinance.	Pradeshiya Sab	ha

4.3 Quarantine & Prevention of Diseases Ordinance

The Quarantine & Prevention of Diseases Ordinance chapter 222, No.3 of 1897 makes provision for preventing of the introduction into Sri Lanka of the plague and all other contagious and infectious diseases and preventing the spread of said diseases in and outside Sri Lanka.

The Honorable Minister of Health has been vested with the power of making and revoking or varying any regulation to fulfill the above objectives. The Public Health Inspector should be conversant with the regulations gazetted to perform his duties, as the prevention and control of communicable diseases is his main duty.

In most regulations framed under this ordinance the Director General of Health Services is the proper authority. The Chairmen of the local authorities too have been appointed as the proper authority in relation to certain regulations. The Director General of Health services has delegated some of his powers to the Medical Officer of Health and the Chairman of the local authority vide Govt. Gazette Notification No. 7481 of 28-08-1925 & 10713 of 17-09-1954.

- a) Quarantine Regulations
- b) Regulation relating to the storage of grain
- Regulations relating to Anchylostomiasis give equal powers to the MOH and the Chairman of local Authority.

Offences

The section 4 of the Q & P Ordinance deals with the offences. Contravention of the provisions of the Ordinance or any Regulation framed there under and obstructing the Inspector or other officer appointed under the Ordinance, or any police officer in the execution of any provision of the Ordinance and regulations made there under shall be offences against the Ordinance.

Punishment

Any person convicted of an offence under this ordinance is liable to an imprisonment of either description for a term not exceeding 6 month and rupoes not less than Two Thousand and not more than Ten Thousand (vide page 23 of the Increase of Fines Act No. 12 of 2005) or to both.

Authorized officers under the Quarantine & Prevention of Diseases Ordinance

-Inspectors, Other officers appointed under the Ordinance and Police Officers.

The term "Inspector" for the purpose of this ordinance or any regulation made there under, shall be deemed to include "Sanitary Assistants" of the Department of Medical and Sanitary Services and any Inspector or Sub Inspector of Health Department in any Municipality, District Council or Local Board, or any Inspector appointed by the Director or Deputy Director of Quarantine Department — Gazetted nos. 9134 of 11-06-1943 and 6365 of 22-04-1938. The Sanitary Assistant referred to in this regulation is none other than the Public Health Inspector.

Every Public Health Inspector should study the General regulations framed under the ordinances (from 37 to 89).

Nuisances caused to the people, by the non-availability of latrines, and by the existing defective latrines rendered injurious to the health, are two common problems a Public Health Inspector has to face in his day to day routine work. Therefore he should be conversant with these regulations framed under the ordinance. The MOH or the Chairman of the local authority is the "Proper Authority" under these regulations. Therefore the PHI should prepare the notices according to the sections relevant to the problem.

Regulations relating to Anchylostomlasis 10713 / 17-09-1954

The owner, occupier or lessee of every building shall when notified in writing by the proper authority, provide latrine accommodation sufficient for the use of the occupants of the said building, to the satisfaction of such proper authority, within a peried of two months from the date of such notification.

The proper authority shall have the right to order the demolition or alteration of any pit, trench or other latrine already in use on any land which shall in his opinion, be a nuisance or likely to be dangerous to become a nuisance, or be dangerous or likely to be dangerous to the health of any person or persons residing or employed in the neighborhood.

Every latrine built after these regulations shall have come into force, whether on orders of the proper authority under the preceding regulation or otherwise, shall be built on a site to be approved by the proper authority and in accordance with plans to be approved by the proper authority.

Every latrine shall be all times kept in a clean and sanitary state and in good state of repair and the owner, occupier or lessee of the building which the latrine serves shall cause to be carried out within the time to be allowed by the proper authority any alterations, repairs, additions or other requirements directed by the proper authority which the proper authority may deem to be necessary for the purpose of abating any nuisance artisan or likely to arise from the faulty condition or control of such latrine.

General Regulation 84

Service of Notices — where any notice is required to be served on the owner or the occupier of any house or premises under this ordinance, and if the notice cannot be served owing to the address of the owner or occupier not being known or by his refusal to accept the same, such notice may be posted in some conspicuous part or land and it shall not be necessary in any such notice to name the occupier or the owner.

Among the other regulations gazetted under the Ouarantine & Prevention of Diseases Ordinance, Mosquito-Borne Diseases (prevention) Regulations 9570/ 21-06-1946, 10340- 10-02-1952 and 10395 / 21- 06- 1952 are still in force. They were not repealed by the Prevention of Mosquito Breeding Act No. 11 of 2007.

Notice

		My No:-
		Office of the Medical officer of Health
		\$6.40,00,000,000,000,000,000,000,000,000,0
	T	
181181111111	40,4441181111141141181814181141411414114	
/ Land ca	illed situated at	atrine accommodation at premises No
leased / b	/	sted in me by Regulation No. 119 relating to
Anchylost chapter 2 you are I	tomiasis framed under the C 22 No 03 of 1897 and pub herby noticed to provide la	Quarantine & Prevention of Diseases Ordinance lished in the Gazette No. 10713 of 17-09-1954 atrine accommodation sufficient for the use of 2 months from the date of receipt of this notice.
on convid months o	ction to imprisonment of e	notice you will be prosecuted and shall be liable ither description for a term not exceeding six two thousand rupees and not exceeding ten
	:	Sgø
		Medical Officer of Health (Proper authority)
Copy to:-	· ·	
1-	PHI	pr necessary action.
2-		- (complainant , if any)

DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA Magistrate's Court.....

	Case No
Mr	***************************************
Public H Complai	lealth Inspectorinant
	Versus
Mr / Mrs	Accused
	200
section above r	Public Health Inspector
court dis Disease accommo contrave of said C	d commit an offence under section 4 of the Quarantine & Prevention of s Ordinance No. 03 of 1897 chapter 222 by failing to provide latrine lodation sufficient for the occupants of the said building and thereby ming Regulation No. 120 relating to Anchylostomiasis framed under section 3 ordinance and published in the Government Gazette No. 10713 of 17-09 d punishable under section 05 of the said Ordinance.
	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\
	PHL
	Complainant
V	Vitness:-
	* ************************************
	The state of the s
roducti	
	- Notice No
	other document)
3	
	Prosecution authorized
	Medical Officer of Health
late: -	

Charge Sheet (Sections 164, 165 of the C.C.P. Act)

	Case No:
Accused: You are hereby charged as follows;	
You have on or about the	section 4 of the Quarantine ter 222 by failing to provide ants of the said building and hylostomiasis framed under as Ordinance and published

4.4 Nuisance Ordinance

Public Health Inspector plays a very important part in the suppression of Nuisances. He is guided by the Nuisance Ordinance chapter 230 No. 15 of 1862 in performing this work. There are twelve offences under section 2. Any other offence which does not fall within the above twelve offences could be dealt with under section 10 of the Ordinance.

"Nuisance" includes any act, omission or thing occarring or likely to occur injury, annoyance, offence, harm, danger or damage to the sense of sight, smell or hearing or which is likely to be dangerous or injurious to health or property.

Noticing Authority

According to the 1956 revision of the Nuisance Ordinance people who are responsible for the Nuisance could be noticed by the Board of Health, or Urban Council or Town Council or any of its officers or the Magistrate. There is a discrepancy between the contents of the 1956 revision and the Sinhalese Translation of the Nuisances Ordinance published in 1957 where Urban Council and Town council are not included as Noticing Authorities. As the original ordinance has been printed in English language the court would be guided by the English copy.

According to the section 221 of the Pradeshiya Sabha act No.15 of 1987, a reference in any written law in operation on the date appointed under section of the Act (a) A Town Council or a Village Council shall be deemed to be a reference to a Pradeshiya Sabha. As the Board of Health is a defunct body, a notice signed by the MOH or the PHI as an officer under it might lead to the failure of the court case. Therefore PHI should get himself authorized by the Urban Council or the Pradeshiya Sabha to perform his duties legally.

Public Nuisance

Section 261 of the Penal Code of Sri Lanka defines public nuisance as "A person is guilty of a public nuisance, who does not act on an illegal omission, or guilty of an illegal omission, which causes any common injury, danger or annoyance to the public or to the people who dwell or occupy property in the vicinity or which must necessarily cause injury, obstruction, danger or annoyance to persons who may have occasion to use any public right".

A common nuisance is not excused on grounds that it causes some conveniences or advantages. The Public Health inspector is a key person among those who could take legal action to abate or put an end to the same, the others being Police and Local Authorities, etc. Section 98 of the Code of Criminal Procedure Act No. 15 of 1979 deals with public nuisances.

Section 100-107 of the Pradeshiya Sabhas Act No. 15 of 1987, section 83 of the Urban Councils Ordinances No. 61 of 1947 and the Municipal Councils Ordinances No 29 of 1947 stipulates powers of the local authorities to deal with nuisances. The National Environmental Act No 47 of 1980 and No. 56 of 1988 are also there to deal with nuisances.

Action under section 98 of the C.C.P. Act

When a PHI observes a nuisance he should make comprehensive notes of it. A sketch map showing where nuisance occurs and the dwellings or houses affected by the nuisance should also be marked. Photographs of the nuisance would add to the weight to the case. An affidavit with all the details & productions should be annexed and submitted to the court under Section 136 (1) (b) of the C.C.P. Act.

4.5 National Authority on Tobacco and Alcohol Act, No 27 of 2006

This is an important piece of legislation which provides for the establishment of the National Authority on Tobacco and Alcohol for the purpose of identifying the policy of protecting public health, to which tobacco and alcohol pose a great threat. Special attention has been paid to make provisions discouraging person, especially children, from smoking and consuming alcoholic products.

National Authority on Tobacco & Alcohol comprises 16 members appointed by the Hon. Minister of Health. One of these members will be appointed as the chairman who shall be the Chief Executive Officer of the Authority. It is vested with a lot of powers to deal with tobacco and alcoholic products.

Authorized Officers

The Authority implements the legal part of the Act through the Authorized Officers appointed under section 16 (a) of the Act. The Minister has gazetted all Food and Drugs Inspectors and PHII, by the Extraordinary Gazette No: 1481 / 25 of 24th January 2007.

Powers of Authority Officers

Where any Authorized Officer has reasonable grounds to believe that there has been a violation of any provision of this Act or any regulation made there under, he may –

- a. At any reasonable time enter any place where he believes any tobacco product or alcohol product is manufactured, prepared, preserved, packaged, exposed for sale or stored, examine anything that he believes is used for the manufacture, preparation, preservation, packaging or storing of that tobacco product or alcohol product
- b. For the propose of carrying out effective search operations, stop or detain any vehicle in which he believes that any tobacco product or alcohol product is being conveyed, search that vehicle and examine any tobacco product or alcohol product which is being so carried and take samples thereof!

- Open and examine any receptacle or package that he believes contains any tobacco product or alcohol product
- d. Seize and detain for such time as may be necessary, any tobacco product or alcohol product, by means of or in relation to which, he believes any provision of this Act or regulation made there under has been contravened

Offences and Fines

Sections in the relevant Act

- 31. (1) A person shall not sell, offer for sale, or permit or promote the sale of any lobacco product or alcohol product to any person under twenty one years of age.
- (2) Any person who contravenes the provisions of subsection (1) shall be guilty of an offence under this Act and shall on conviction after summary trial before a Magistrate be liable to a fine not exceeding four thousand rupees or to imprisonment for a period not exceeding one year, or to both such fine and imprisonment.
- 32. (1) A person shall not install, or permit the installation an operation of, any automatic vending machine that dispenses, or is capable of dispensing, any tobacco-product or alcohol product, in any place to which the public have access.

Any person who contravenes the provision of sub-section (1) shall be guilty of an offence under this Act and shall on conviction after summary trial before a Magistrate be liable to a fine not exceeding two thousand rupees or to imprisonment for a period not exceeding one year, or to both such fine and imprisonment.

- 33. (1) A person shall not manufacture, import, sell or offer for sale, any tobacco-product as may be prescribed by regulations.
- (2) Any person who contravenes the provisions of subsection (1) shall be guilty of an offence under this Act and shall conviction after summary trial before a Magistrate be liable to a fine not exceeding two thousand rupees, or to imprisonment for a period not exceeding one year, or to both such fine and imprisonment.
- 34. (2) A person shall not sell or offer for sale, a packet containing tobacco products unless there is displayed on such packet, a label of the prescribed dimensions containing a statement of the tar and nicotine content in each tobacco product in such packet and prescribed health warning. Penalty for contravention of the above section is a fine not exceeding two thousand rupees or to imprisonment for a period not exceeding one year, or to both such fine and imprisonment.
- 35. (1) A person shall not self, not publish or cause to be published, or authorize the publication of a tobacco advertisement or an alcohol advertisement. Penalty for contravention of the above is a fine not exceeding two million rupees.
- 36. This section deals with prohibitions of sponsorships under brand name or trade mark of any tobacco product or alcohol product in connection with certain events. Penalty for contravention of the above is a fine not exceeding fifty thousand rupees or imprisonment for a period not exceeding two years, or both.

- 37. Free distribution of tobacco products or alcohol products is prohibited, and the penalty for violation is a fine not exceeding fifty thousand rupees or imprisonment for a period not exceeding two years, or both.
- **38.** For offences relating to trade marks of tobacco products and alcohol products, the fine is fifty thousand rupees or imprisonment for a period not exceeding two years, or both.
- 39. Smoking in an enclosed area is prohibited, the violation of which carries a fine not exceeding is two thousand rupees or a sentence of imprisonment for a period not exceeding one year, or both.
- **40.** Deals with miscellaneous offences, and the fine is two thousand rupees or imprisonment for a period not exceeding six months, or both.

DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

Magistrate's Court	***************
Case No	
Authorized Officer under the National Authority of	n Tobacco & Alcohol Act, and
PHICompleinant Versus	t
Mr./Mrs./Miss	
Accused day of20	
I,	o hereby report to this court Procedure Act No. 15 of 1979,day of
and punish. National Authority on Tobacco & Alcohol Act 27 o	able under sectionof the said
	Complainant authorized Officer under the N.A. In Tobacco & Alcohol Act, and PHI
Productions:	

Charge Sheet (Sections 164 & 165 of the C. C. P Act)

Magistrate

Case No.

4.6 Prevention of Mosquito Breeding Act No.11 of 2007

The main objective of the Act is to prevent mosquito breeding which is responsible for the spread of Dengue Fever, Malaria, Filariasis and Japanese encephalitis. The incidence of Dengue Fever & Dengue Haemorrhagic Fever is on the increase, and the morbidity and mortality rates pose a problem to the Health Department. As there is neither a specific drug to treat, nor a vaccine available to prevent the disease, prevention through destruction of breeding places of the mosquito, should receive top priority.

Conditions of prevention under the section 2 of the Act are similar to those under section 2 of the Mosquito Borne Diseases (prevention) regulations framed under the Quarantine & Prevention of Diseases Ordinance. Therefore they are not repeated here. The prohibitions in section 2 of the Act should be studied.

Noticing

The Proper Authority and The PHII are empowered to notice under this Act. The guidelines of the notice are to be gazetted. Failing to comply with the notice is an offence.

Fine

Every owner or occupier who fails to comply with a notice is liable, on conviction to a fine not less than one Thousand Rupees and not exceeding Twenty Five Thousand Rupees. In the case of a continuing offence, an additional fine of one Hundred Rupees for each day on which the offence is continued will be imposed. Where a person has been convicted under section 4 of the Act the magistrate may further order accused to rectify the conditions for which accused was prosecuted and fined. The competent authority may appoint any officer or officers to carry out the work or measures specified in the notice sent under section 3 of the Act which the owner or occupier neglected or failed to attend.

In such a situation the officer or officers mentioned above should show the owner or occupier the copy of document issued by the Competent Authority authorizing him or them to carry out such remedial measures. The owner or occupier has to pay the expenses incurred in connection with the remedial measures within 2 weeks of the date on which the demand for payment of same is communicated. If the owner or occupier fails to make the payment within 2 weeks, the competent authority has to make an application to courts with the particulars of the amount due as expenses.

The competent authority may by notice in writing, on any owner or occupier of a premise to spray the breeding places mentioned in the notice with the type of pesticide he specifies and within the time specified. Failure to comply with the notice issued under section 7 of the Act is an offence punishable with a fine of One Thousand Rupees.

Obstructing or resisting willfully, the Competent Authority or any Authorized Officer, in the lawful exercise of their duties is an offence under that and liable to a fine not exceeding 50,000 Rupees or to a term of imprisonment not exceeding 6 months or both.

No person shall knowingly or willfully commit any act which is likely to lessen the efficiency or cause the deterioration of any of the anti-mosquito measures carried out under the act. Violation of this requirement is an offence punishable with a fine of 10,000 Rupees or a term of imprisonment not exceeding 3 months or both.

Prosecutions

A notice specifying the measures to be taken regarding mosquito breeding should be served on the owner or occupier of the premises, giving 2 weeks time for the measures to be attended to. The person on whom a notice is served may request for an extension of time to rectify the defects. The PHI may grant or not grant the extension after consulting the MOH. The maximum period of extension is further 2 weeks after which the PHI should visit the place and inspect as to whether the person concerned has taken action to rectify the defects. If he has failed to carry out the remedial measures PHI should submit a report to the MOH within one week of carrying out the inspection, with his recommendations for prosecution.

When the PHI makes a recommendation for prosecution, MOH shall approve prosecution within one week of the receipt of such recommendation, or if the M.O.H. is of opinion that a prosecution is not necessary he shall himself inspect the place of offence and submit a report with his recommendation to the Competent Authority. The final decision regarding the prosecution would be taken by the Competent Authority within 2 weeks of receiving the recommendation of the MOH.

Serving of Notice

The notice should be served on the owner or the occupier of the premises by affixing the notice in a conspicuous place within the premises.

DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

Magistrate's Court
Cese No
Mr. was a second
Complainant
Authorized Officer under the Prevention of Mosquito Breading Act No. 11
of 2007, and PHL
Versus
Mr. / Mrs. / Miss.
Accused
200
1, Authorized Officer under the Prevention of Mosquito Breeding Act, No 11 of 2007, report to this Court under section 136(1) (b) of the Code of Criminal Procedure Act, No. 15 of 1979, that the above named accused on or about day of 200 at
() within the
jurisdiction of this court, did commit an offence under section
and punishable under the section of the said Prevention of Mosquito Breeding Act, No. 11 of 2007.
Complainant
Authorized Officer and PH1
Charge Sheet
(Sections 164 & 165 of C.C.P.A)
Case No
Accused
You are charged hereby as follows: You have on or about the
200_at
within the jurisdiction of this court did commit an offence under section
NO (1 OI 2007 DY
and punishable under sectionof the said prevention of Mosquito Breeding Act , No. 11 of 2007,

DEMOCRATIC SOCIALIST REPUBLIC OF SRI LANKA

Case	No			Mag	istrate's C	Court	**1********		
	xainent	,,	********						
	rized Officer and PHI				squito Bre	eding Ac	l, No. 1	1	
Mr. / I	Мгэ,			รูนร					
	.200			Accused	l				
Preve section above	ntion of Mo n 136(1) (b) named	squito E of the d accused	Breeding Cade of (on or	Act. No 11 Criminal Pri about	of 2007 ocedure / day	report : Act. No. 1 of	to this 15 of 19	Court u 979, that 200	nder t the
sectio	n.,,	within of the	the juriso said A	diction of th	is court,	did comm	nît an ol	ffence u	nder
(Desc	ribe the offe squito Breed	nce) and	j punisha	ble under t 2007.	he section		the sak	d Prever	ntion
		(5		Charge Sha 164 & 165 c		A)			
						Case No.		·	
Accus	ed		************			***************	414		
You a	re charged h	ereby as	follows:						
You	-	on	or	about					
within the	the jurisdicti Prevention	on of thi	ís court d losquito	id commit a Breeding	an offence Act,	e under s No. 11	ection .	2007	of by
Desc	ribe the offe	nce) and) punisha	ible under	section	of the	said p		

CHAPTER 5

Disaster Management

General

From historical times humankind has been subjected to disasters of varying magnitude, both natural and man-made. Besides the Tsunami of December 2004, a disaster of the highest magnitude faced by Sri Lanka, displacement of people caused by the conflict-situation which prevailed until recently in the Northern and Eastern districts and heavy floods and severe droughts which were experienced at various times, have been disasters of considerable extent, encountered by our country.

5.1 Definition of a disaster

- A disaster is a serious disruption of the functioning of society, causing widespread human, material or environmental losses, which exceed the ability of the affected people to cope using their own resources. (Source: World Health Organization)
- Simplified, a disaster is an emergency in which a community cannot cope using its own resources.

Sri Lanka Disaster Management Act No. 13 of 2005

Provides for a

- national council for disaster management
- · The disaster management centre
- · Appointment of technical advisory committees
- Preparation of disaster management plans
- · Declaration of a state of disaster
- · Award of compensation
- · Matters connected therewith or incidental thereto

'Disaster' - as interpreted in the Act

In this act, unless the context otherwise requires, 'disaster' means the imminent or actual occurrence of a natural or man-made event, which endangers or threatens to safety or health of any person or a group of persons in Sri Lanka or which destroys, damages or threatens to destroy or damage property.

The Ministry of Healthcare & Nutrition, Sri Lanka, has established a Health Sector Disaster Preparedness & Response System, its vision being;

"Least human suffering due to natural and man-made disasters through rapid and effective contributions of health sector."

Classification of Hazards

- Hydro-meteorological hazards: storm, tropical cyclones, floods, sea surge, drought
- · Geological hazards: volcanic eruption, earthquake, Isunami, landslides, avalanche
- · Others: forest fires
- · Biological hazards: outbreaks, deliberate use of biological agents
- Technological hazards: chemical incidents: deliberate use of chemical agents, chemical spills; structure fires; radiological incidents; building collapse; transport crashes; infrastructure failure; pollution
- Societal hazards: complex emergencies; armed conflict; acts of "terrorism"; mass gatherings; stampedes; social unrest Disasters/ hazards can be classified as manmade and natural or as major and minor too.

Some terms with relevance to 'a disaster'

Hazard

Any potential threat to public safety and / or public health.

Risk

Anticipated consequences of a specific hazard interacting with a specific community (at a specific time)

Emergency

An actual threat to public safety and / or public health

Vulnerabilities

Factors which increase the risks arising from a specific hazard in a specific community

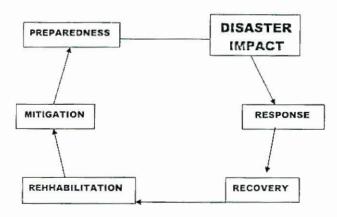
Disaster management

Disaster management is a complex series of activities that include risk assessment, prevention measures and preparedness to cope with future disasters, emergency response to a disaster, recovery and reconstruction. Good development and community preparedness can reduce the impact of a disaster especially for the most vulnerable people, such as those living in hazard-prone areas with few financial resources, to help them recover if they lose their means of livelihood.

Disaster cycle and the different phases of disaster management

Disaster cycle

All disasters follow a cyclical pattern as follows;



In the preparedness phase

- PHI studies his area and gains an idea about any possible risks and vulnerabilities
- A Plan of Action is kept ready (with Line of Command identified) for use if necessary
- · Identifies sources of volunteer help if required
- Identifies what resources need to be in place to respond to a particular kind of event

Much can be done to prepare for future disasters by:

- Modifying or removing the causes of any likely hazard (eg. building houses away from landslide prone areas)
- Taking measures to reduce the effects of a hazard (egs:- developing response plans, defining the roles and training of personnel for emergency services, educating the public regarding the course of emergency action to be taken)

In the response phase

- The mobilization of the necessary emergency services and first responders in the disaster area
- A well rehearsed emergency plan developed
- Victims of the disaster are categorized according to degree of severity of injury or illness and the availability of medical and transport facilities (triage)

In the recovery and rehabilitation phase

- The aim is to restore the affected area to its previous state and the recovery issues are concerned with issues and decisions that must be made only after immediate needs are addressed.
- Efforts are primarily concerned with actions that involve rebuilding destroyed property, re-employment and the repair of other essential infrastructure.

in the mitigation phase

While it is impossible to prevent the occurrence of most natural hazards, it may
be often possible to minimize their damaging effect (egs:- having a plan where to
move people in advance, in areas subjected to regular flooding)

3 major tasks of public health in disaster management

- · Collection, evaluation and dissemination of information
- · Cooperation and collaboration with other disciplines
- Prevention of disease and continuity of care

5.2 Role of the Public Health Inspector in Disaster Management

Disasters have a negative impact on health and greatly increase the demand for public health interventions.

Health Effects of Disasters

The health consequences of hazards include:

- · Increased deaths and injuries
- Population displacement, including missing persons
- · New cases of disease and disability
- Increased number of cases of psychological and social behavioural disorders
- Possible food shortages and nutritional deficiencies
- Contamination or injury of relief personnel.
- Environmental health hazards
- · Damage to healthcare facilities and other health infrastructures
- Disruption of routine health services.
- Disruption of routine disease surveillance
- Diversion of development resources to emergency relief.

How Hazards can affect communities

- · Immediate increase in cases of illness, disability, and death
- Psychosocial stress
- Possible environmental pollution
- Exposure to toxic substances
- Damage to or loss of essential life support services (water, food, shelter).

PHI Manual - Chapter 5

- Displacement of population
- · Breakdown in security
- Breakdown in communication networks and information flows.
- Damage to and loss of facilities, services, and staff
- Risk of infection or contamination for response and relief personnel
- Delay or lack of access to health services
- Increase burden to health personnel and facilities
- Economic impact

Action to be taken in the Response stage

- Search and rescue finding those who may be trapped under debris
- Assessment of needs working out what is required, in what quantities and for whom
- Health interventions —

Providing medical care - mass casualty management

- first- aid
- triage -(Victims of the disaster are categorized according to degree of severity of injury or illness, and the availability of medical and transport facilities)
- transport
- pre-hospital care
- in-patient care
- post care follow-up

Preventing the spread of disease

- immunization
- provision of safe water & food
- disposal of human excreta
- disposal of waste
- burial of the dead
- disease vector control
- Basic needs procuring and distributing food, shelter and clothing

Emergency Planning for the Health Sector includes;

Health assessment Incident management / response coordination Communicable diseases Mass casually management Reproductive health Environmental health Nutrition Mental health

5.3 Assessments

Different assessments to be done.

TYPE	WHEN	WHAT	HOW
Rapid Reconnaissance	immediately after a disaster	a quick, preliminary inspection of the disaster area	satellite imageryflightsmappingdrive / walk through
Rapid Health Assessment	As soon as it is possible, to go to the area	a <u>quick</u> collection of information to confirm the emergency, measure the impact, identify health needs and guide response	 visual inspection analysis of records interview of key informants rapid surveys (MUAC* etc.)
Surveys	When the situation stabilises and response has been activated	A detailed study in which information is systematically collected in a sample of population (morbidity, mortality, nutrition, KAP*)	Probability sampling Non-probability sampling

^{*}Mid Upper Arm Circumference

Rapid health assessment

PHI plays a key role in the rapid health assessment.

What is Rapid Health Assessment?

"Collection of subjective and objective information in order to measure <u>damage</u> and identify those basic <u>needs</u> of the affected population that require <u>immediate</u> response." (Source: Rapid Health Assessment protocols for emergencies, WHO, 1999)

Objectives of Rapid Health Assessments

Collection objectives

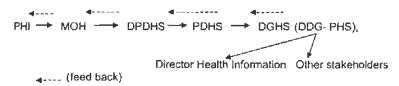
- identify existing and potential public health needs.
- identify gaps and problems in meeting urgent medical needs
- assess existing and potential environmental risk factors
- assess resource and logistics needs
- identify managerial, coordination and organisational gaps, overlaps and problems

Analysis objectives

- set priorities for response / relief
- set priorities for information dissemination and communication.
- identify resources needed to meet priorities external and internal
- identify additional information needs for the response and for planning recovery and reconstruction

Flow of information

Assessor: is the Range Public Health Inspector



Reporting the results of the Rapid Assessment

Rapid assessment: Sanitation Needs

A. Site Information

- 1. Location: 2. Name of the Village/s: 3. DS Division: GND:
- 4. MOH Area: PHI Range: 5. District: Province:
- B. Demographic Information
 - Total Land Area: sq.km
 - 2. Total population: Female
 - Under 5 year population.

C. Excreta Disposal

- 1. Toilet facilities: availability Yes / No. If 'ves'.
- 2. Total number of toilets
 - (i) Type of toilet-Water sealed / Pit - Direct Pit /Trench
 - (ii) Number usable
 - (iii) Number unusable & Number repairable
 - (iv) Separate toilets for males and females Yes / No If separate toilets exist Number for Males /Females
 - (v) Number of urinals
- Number of persons per toilet:
- 4. Cleanliness: Satisfactory / Unsatisfactory
- 5. Continuous water supply to the toilets: Available / Not available Available / Not available
- 6. Lighting (24 hours):
- 7. Proper excreta disposal for children less than 5 years old -

Available / Not available

Females

8. Is there a separate sanitary room for ladies?	Yes / No
9. Hygiene kits provided to the ladies	Yes / No
10. Regular cleaning of toilets (3 times/ day)	Yes / No
11. Disinfectants available	Yes / No
12. Person responsible for sanitation practice appointed	Yes / No
12. Person responsible for satilization practice appointed	162/140
If 'yes', who is responsible:	*******
D. Bathing and Washing	
4. Comments are seen from the Abrican and American and William	Man (M-
Separate rooms for bathing and washing available	Yes / No
2. Separate rooms for males and females available	Yes / No
3. Adequacy- for males	Yes / No:
for females	Yes / No
 Availability of continuous water supply 	Yes / No
Adequate number of buckets available	Yes / No
Soap / washing powder available	Yes / No
= 184 A A A A	
E. Waste water drainage	
1. Is there a drainage system?	Yes / No
If 'yes',	1007140
Is the drainage system draining into a soakage pit?	Yes / No
3. Is the pit covered?	Yes / No
If 'no',	162/140
4. Does the waste water conteminate water sources?	Yes / No
	Yes / No
5. Are there any water collections on the ground?	res / No
F. Solid Waste Disposal	
, , , , , , , , , , , , , , , , , , ,	
Agency responsible for solid waste disposal	
2. Availability of waste collecting bins -	Yes / No
3. Method of disposal Dumping / Burying / Burning/	
Removed by Local Agency/	
Other (specify)	
If removed by Local Agency, how often?	
Daily/once in 2 days/ once a week/other	
	Van / bla
5. Fly breeding sites present	Yes / No
Presence of stray animals	Yes / No
G. Hygiene promotion	
1. Whether there is a hygiene promoting person/ team?	Yes / No
Are there any regular hygiene promotion activities?	Yes / No
Are there any regular riggiene promotion activities? Display/ availability of hygiene promoting IEC materials	
Display/ availability of hygiene promoting (EC materials) site?	Yes / No
andi	1621 MO
Comments:	

Risk Management

It is a comprehensive <u>strategy for reducing hazards and its consequences to public health and safety</u> of communities by:

- preventing exposure to hazards (target = hazards)
- reducing vulnerabilities (target group = community)
- developing response and recovery capacities (target group = community and responding agencies)

Risk assessment

- considers the <u>range of sources of risk</u>, including: natural hazards, technological hazards, biological and societal hazards
- identifies populations most at risk due to higher levels of vulnerability
- analyses risks in terms of <u>likelihood</u> and <u>consequences</u> (quantitatively and qualitatively)
- · determines priorities across hazards and vulnerability
- policies, emergency response and recovery plans, and capability development plans are developed based on risk assessment
- risk assessment is monitored and reviewed regularly
- risk assessments are <u>shared</u> among government, private sector and nongovernmental organizations and individuals involved in the management of risks
 - within and between levels of administration
 - · within and between sectors (such as health, emergency
 - management and security)
 - communities
 - organizations

Response towards Risk

- All-hazard response plans
- Specific plans
- Health Services (eq. mass casualty management).
- Specific types of emergencies (eg. chemical)
- Locations (eg. Airports)

Emergency Medical Services (EMS) System

The Emergency Medical Services (EMS) System is a <u>network of resources</u> linked together for the purpose of providing emergency care and transport of victims of sudden illness or injury to a medical facility for definitive care.

Key stakeholders are;

- Healthcare Facilities
- Ambulance Services
- Fire Department
- Sacurity Personnel
- Laypersons / Community
- Volunteer Groups
- Red Cross Organization
- Aid/ material, equipment etc.

Hospital Emergency Incident Command System (HEICS)

The functions of the Hospital Emergency Incident Command System (HEICS) include:

- Activation of the plan by the "designated person".
- 2. Control and coordination of hospital activities
- 3. Provision of additional resources / Redistribution of available resources
- 4. Liaison with EOC and other hospitals
- 5. Liaison with the evacuation centre.

Handling displaced populations

A Range PHI may encounter the problem of looking after the welfare of displaced populations, resulting either from,

- · A disaster which occurred within his work area
 - OF
- Arrival in his work area, a population displaced following a disaster in another area

The public health effects of a disaster will generally be felt more by persons displaced into an outside area following the disaster, than by people displace within the same area. In case of the former situation the displaced persons will be more helpless, as they are among a strange community.

Collection of data

Collection of baseline data in a camp accommodating displaced persons

- Basic information about displaced persons
- Status of health in the camp
- Status of persons with chronic diseases and disabilities.

Collection of information about the health activities and logistic requirements

- Health promotional activities planned and conducted in the camp.
- Requirement of Logistics and Supplies

Information about displaced people

Name of the camp......

	_	_
oinothO esseseb		
Pregnant anothers		
s169 y 03<		
74 - 60 years		
10 - 24 years		
05 – 09 years		
24 - 59 Months		
sdanom ES – St		
sritnoM ft - 80		
edtnoM 20 – 00		
Female		
Male		
original village		
householder		
Ö		
	Nouseholder Village and Male Molecholder Village All age	

Status of Health in the camp

Name of the camp......

9	Time	Name &	Sta	tuso	sani	tation	and	Status of sanitation and personal hygiene	pual	ygie	ne	Action today	Cignostico
9		inspecting person D W S F P FI R M	٥	3	S	ш	۵.	Ξ	œ	Σ	O	Haven rouse	Signature
Kev		Gd = Good	S.	Sat = Satisfactory	sfact	2			5	Sat a	Jesul	Un Sat = Unsalisfactory	

D=Drinking water Supply W = Water for washing purposes S = Sanitary facilities F = Food hygiene P = Personal Hygiene FI = Fly breeding places R = Refuse disposal M = Mosquito breeding places C = No. of reported cases of communicable diseases

Health promotional activities planned and conducted in the camp

Name of the camp......

Name of the activity	Responsibility	Date & Time planned	Place of the activity	date & time conducted	Output of the activity

Status of persons with chronic diseases and disabilities

Name of the camp

Special needs	
 Treatment & care given	
Disease / disability	
Mate/ female	
Age	
Name of the patient	
Family No.	

5.4 Supplies and Logistics

Critical Health Sector Supplies

- Medical equipments, dressings etc.
- 2. Drugs, vaccines
- Sterilization and hospital equipments
- 4. Special foods
- 5. Surgical equipments
- 6. Personal protection equipments
- Mosquito nets and insecticides.
- 8. Chlorine / Tropical chloride of lime (TCL)
- 9. Shelter, communication material, transport, cold chain facilities and material
- 10. Equipment necessary for administrative matters and reporting
- 11. Items for personal care

Common Supplies Problems

- 1. Huge quantities of non-requested items can arrive
- 2. Many items may be inappropriate and unnecessary
- 3. Items arrive without packing lists or with no labels
- 4. Items are not packed properly and unprotected from the elements
- Airport warehouses and other warehouses may not have adequate space to stock huge volumes of supplies suddenly arriving
- Items are sometimes dispatched to locations which are easily reached by aircraft or truck and not to locations where they are mostly required
- Items may arrive to the disaster area, at multiple sites, in an uncoordinated way and without prior notice of arrival
- 8. Items may arrive at the disaster area unsorted and unclassified
- Many donated items may have to be <u>destroyed</u> and some items need special incinerators to do so

What is Logistics?

Logistics is a system which provides the means to acquire and deliver resources:

- a. To the right place
- b. At the right time
- c. In the right quantity
- d. At the right quality
- e. At the right price

Logistics Systems Requirements

- Communication systems (radio, satellite phones etc.)
- 2. Transport systems (road, rail, air, sea)
- 3. Storage and Distribution systems
- 4. Utilities networks
 - Energy (Electricity, Gas, Fuel, Solar energy system)
 - Water supply systems
 - Waste disposal systems
- People
 - Daily care, accommodation, working conditions
 - Security

Logistics management is a specialized area and there are people specially trained to handle supplies and logistics (i.e., Logistics Experts / Logistics Specialists).

5.5 Disaster Recovery Phase

"Disasters offer an opportunity for development."

Disaster Recovery: ... "focuses on how best to restore the capacity of the government and communities to rebuild and recover from crisis and to prevent relapses. In so doing, recovery seeks not only to catalyze sustainable development activities, but also to build upon earlier humanitarian programmes to ensure that their inputs become assets for development."

(source: United Nations Development Programme- 2001)

Medium-term Health Considerations for the Recovery Process

The necessary considerations that have to be taken into account:-

- contamination of food and water supplies
- emotional stress
- epidemic diseases diarrhoea, measles etc.
- endemic diseases
- reduced health levels
- decline in nutritional status.

Long-term Health Considerations for the Recovery Process

Psychosocial

Concurrent problems due to disaster - decrease in mental health services; increase in the incidence of common mental health problems

- Psycho- physiological
 - Fatigue, nausea, tremors, tics, profuse sweating, chills, dizziness, gastrointestinal upsets
- Behavioral
 - Sleep and appetite changes, increased substance abuse, hyper vigilance, ritualistic behavior, gait change, tendency to cry easily
- Emotional
 - Anxiety, depression, grief, irritability, feeling overwhelmed
- Cognitive
 - Decision making difficulties, confusion, impaired concentration, reduced attention span

Gender and Health

- Equity and diversity (equity = equal chances without discrimination) (diversity = difference from others)
- Discrimination
- Family planning and reproductive health services
- Safety of women and children
- Inclusion of warner in reconstruction planning.

Chronic illnesses

- Monitoring for delayed / long term impacts.
- Continued health care services for long-term disabilities from the events

Emerging and Re-emerging illnesses

- Monitoring for delayed / ongoing health impacts
- Surveillance for potentially emerging and re-emerging endemic diseases or areas

Environment

 Clean-up, hazard reduction and environmental management at the incident site

Housing

- Permanent Accommodation
 - Access to regular Services
- Resettlement and / or Repatriation
 - Worst possible plan is to resettle

PHI needs to look into all the above mentioned aspects during disaster recovery stage.

Some advice to be followed when handling the recovery process:

- People begin almost immediately to re-house themselves and re-establish their social and economic networks after a disaster - build upon, don't obstruct community initiatives!
- People have good ideas of what they want to do to rebuild their lives take their views into account when planning for recovery!
- Take into account the overall context and the changes in this context (political, economic, social and military)
- 4. Establish partnership with all key stakeholders
- 5. Use a 'zoom approach' (medium / long-term time frames, with short-term cycles)
- Assess the functional health system elements of the affected community in relation to the community's health needs
- Develop and formalise arrangements for the effective management of the recovery process
- Facilitate the rehabilitation and improvement of affected infrastructures as quickly
 as possible
- 9. Facilitate the recovery of affected individuals (physical, social)
- Ensure general understanding of planning process and programme (agencies, authorities and communities)
- 11. Describe organisational networks and structures appropriate to recovery process (different types and scale events)
- 12. Be reviewed on a regular basis
- Incorporate performance indicators and measurable results into the plan, in order to readjust the strategy to the outcomes
- 14. Set out appropriate resourcing arrangements
- 15. Define responsibility for the range of specific services to be provided

5.6 How to Communicate Risk?

Communication about the existence of risk factors, to the persons who should be made aware of them, has to be done carefully.

Elements of Risk Communication

Who says what to whom? Through what channels? With what effects?

How media can assist?

Media as a partner in emergency and disaster management, can:

- · Assist in pre-crisis education
- Convey warnings
- · Convey instructions or other information
- · Reassure the public / Deal with the emotions
- Defuse inaccurate information / rumors
- Provide you with updated information
- · Solicit and obtain help from others

Important contact details

Organization/Person	Address	Telephone	Website/ E-mail
Disaster Management Centre	Director General Room No 2- 222 Bandaranaike Memorial International Conference Hall (BMICH) Baudhaloka Mawatha, Colombo 7.	Tel:- 2670002 (Fax:- 2670079)	www.dmc.gov.lk dq@dmc.gov.lk
Disaster Preparedness and Response Unit, Ministry of Health	Ministry of Healthcare & Nutrition, 385, Ven. Baddegama Wimalawansa Thero Mawatha, Colombo 10.	060-2071073	
Health Emergency and Disaster Management Training Centre (HEDMaTC)	HEDMaTC, University of Peradeniya	081-2396550	hedmatc@pdn.ac



Occupational Health

What is Occupational Health?

Occupational health is a multifaceted activity concerned with the prevention of ill health in employed populations. This involves a consideration of a two way relationship between work and health. It is related to the:-

- · effects of the working environment on the health of the workers
- influence of workers state of health on the ability to perform their tasks.



its main aim is to prevent, rather than cure, iff health from wherever it arises in the work.

A joint International Labour Organization/ World Health Organization (ILO/WHO) Committee has defined occupational health as "the promotion and maintenance of the highest degree of physical, mental and social well-being of workers in all occupations; the prevention amongst workers of departures from health caused by their working conditions; the protection of workers in their employment from risks resulting from factors adverse to health; the placing and maintenance of the worker in an occupational environment adapted to his physiological and psychological capabilities".

5.1 Objectives of an Occupational Health Programme

- To eliminate all workplace hazardous situations as related to occupation, work, workers' behaviour and work environment
- Evaluation of work hazards, and control measures, by using simple methods and techniques
- Concerned bodies to be kept informed about the work and environmental hazards in work places
- Be knowledgeable about the principles of control of work hazards and work environment, and to offer advice on selection of appropriate control measures and optimal use of available resources

- Educate workers on the principles of safe conduct at work and prevention of occupational diseases and injuries
- Promotion of healthy work settings in all workplaces
- Establish coordination with other stakeholders on occupational health, in conducting preventive and promotional activities

6.2 Occupational Hazards

Hazard is something which has the *potential to cause harm*, e.g., a piece of equipment (fan blades can cause cut injuries), a form of energy (electricity can cause electrocution), work practices (working without wearing personal protective equipment), or a feature of the environment (strong winds in a foundry).

Types of occupational hazards

The hazards found in work place can be mainly divided into physical, chemical, biological, ergonomical and psychological hazards. An understanding of these hazards can be helpful because routes of entry of the contaminants, applicable Personal Protective Equipments and appropriate control measures will be determined by the type of hazard.

Physical hazards: excessive noise, light, heat, vibration, pressure, radiation

Chemical hazards: acids alkalines, solvents fumes, dust, mists

Biological: bacteria, viruses, fungi

Ergonomical: mismatch between worker and workplace/ workstation

Psychological: work stress, overwork, underwork

Aims of hazard control

- Protection of the health of exposed workers
- Ensuring comfort and safety for workers
- Compliance with legislation
- Protection of workers and the public, from the risks created by the process or workplace
- Reduction of environmental pollution
- Minimizing economic loss from raw materials, products, or valuable wastes

Often there are several options available for the control of hazards. Sometimes, the optimal control may not be the most practicable, and an afternative needs to be considered. More than one control measure may be required to reduce exposure to an acceptable level. Sometimes, control may not eliminate the hazard, but will reduce the magnitude of exposure to some extent.

Controlling hazards can be expensive, especially when the wrong option is chosen, resulting in further assessments and installations to be implemented. To prevent this, a methodological approach to control is required when selecting methods for hazard control.

Taking a methodological approach to control hazards

Following steps should be followed in selecting a hazard control method;

- 1. Identify the nature and source of hazard
- 2. Consider the emission source(s) and nature of emission
- 3. Characterize the worker(s) and workplace
- 4. Identify current controls and assess their efficiency.
- Brainstorm alternative controls that are cost effective, efficient, and acceptable to workplace
- Select the most practicable control option(s) after considering costs, extent of hazard reduction and regulatory requirements
- 7. Trial the anticipated controls
- 8. Seek feedback and evaluate the effectiveness of control
- 9. Re-assess the implemented controls to ensure their suitability
- 10. Regularly maintain controls for continued efficiency and effectiveness

1. Identify the nature and source of hazard

Hazard is first identified and then assessed (i.e., excessive noise, dust, etc.)

2. Consider the emission source(s) and nature of emission

Identify the source of generation and the emission (i.e., which part of the machinery is generating the noise)

3. Characterize the worker(s) and workplace

Identify characters related to the exposure. Some questions that need to be asked include;

- Is the worker sited close to the source of emission?
- What personal characteristics impact on exposure?
 (e.g., height, predisposing health factors like asthma, ability to wear protective equipment)
- What work practices are adopted? (e.g., chewing betel while working, not wearing personal protective equipment)
- What is the level of education and training of workers?
- How is the workplace laid out?

4. Identify current controls and assess their efficiency

Before other control options are fully investigated, existing controls should be identified and assessed. This can be done by:

- Inquiring from workers about existing hazards and current controls that are in place
- Monitoring workers' exposure to contaminants and occupational hazards, (e.g. dust levels, blood lead levels)
- Reviewing health surveillance data, records of incidents of work related injuries or illnesses that can be attributed to insufficient control of the hazards
- Direct measurement of the performance of control systems (e.g., noise levels)

Brainstorm alternative controls that are cost effective, efficient, and acceptable to workplace

Often the best ideas come from those who are exposed to the hazards, and are familiar with the process. Involvement of workers in the identification of hazards, design and implementation of controls, is useful in several ways:

- It promotes consultation between employers, supervisors, and workers
- Workers feel a sense of ownership and empowerment of decisions that they
 have been involved with
- Job satisfaction may increase in the realization that workers opinions are valued and sought after
- Workers have intimate knowledge of the workings of a process or system and whether the proposed controls are practical and usable
- Selects the most practicable control option(s) after considering costs, extent of hazard reduction and regulatory requirements

After considering the merits of optimal control strategies, they should be fully tested and evaluated in terms of their anticipated suitability to control the hazard.

e.g., personal protective equipment (PPE) may be preferred as a short term control for exposure to noise or hazardous substances. But the long term costs far outweigh the cost of alternatives such as engineering controls. In some cases (e.g., emergency rescue) PPE may be the best option

7. Trial the anticipated controls

Once a decision about the controls has been made it should be implemented on a trial basis.

8. Seek feedback and evaluate the effectiveness of controls

Once controls are implemented, a thorough investigation of the effectiveness of the controls should be conducted

9. Re-assess the implemented controls to ensure their suitability

Where deficiencies are identified, alterations to the implemented system may be required

10. Regularly maintain controls for continued efficiency and effectiveness

Regular maintenence is one of the main items in hazard control.

Hierarchy of control

The hierarchy of control is a list of control options that have been placed in a preferred order.

HIERARCHY OF CONTROL

- 1. Elimination
- 2. Substitution
- 3. Engineering controls
- Administrative controls
- 5. Personal Protective Equipment

1. Elimination

Accepted as the best method for controlling exposure, e.g., use of unleaded petrot in place of leaded petrol. However, practical difficulties may arise if the substance is a raw material without which the production cannot be done. In such instances industry may not be able to eliminate a substance or process without compromising its entire production or viability of the company.

2. Substitution

Where the hazard cannot be totally removed, the second preferred option considers an alternative process or material.

e.g., using lead in liquid form instead of powder form to avoid exposure through dust.
Using vacuum cleaner to remove dust than sweeping with a brush, which may disperse dust

3. Engineering controls

One of the most commonly used control method, its advantage lies in the ability to physically after the path of transmission of the hazard, or isolate the worker from the agent. Three alternatives can be used.

Segregation or isolation - Enclosing either the hazard or worker, to restrict
movement of the hazard. Segregation can be achieved by placing a physical barrier
between one area of the workplace to another. For example, relocating a dusty
process to an isolated section of the plant.

isolation requires physical detachment of the process or person, e.g., enclosing a noisy process in a sound insulated booth

- Guarding and signs Reduce the path between the hazard source and the worker.
 Physical barrier is installed to prevent access to a hazardous area, e.g., ventilated both for spray painting. Signs are used to provide information or warnings.

 Therefore it is a barrier conveying instructions or information, which should bring compliance
- Ventilation For atmospheric contaminants, ventilation is the most effective control
 when elimination and substitution cannot be achieved, e.g., Heat Ventilation and Air
 Conditioning (HVAC), Local Exhaust Ventilation (LEV), Forced Dilution Ventilation.

4. Administrative controls

Rely on human behaviour and compliance for success. Useful in situations where the risk is low.

- worker rotation Aims to reduce an individual's overall exposure, by sharing the work with several workers
- job placement Assessing fitness for a particular type of wok, where pre-existing condition or illness is taken into account, when making job placement

- education and training Assist workers in performing their work safely. With
 knowledge and understanding about the risks and methods of combating exposure,
 workers can make an informed decision about their exposure (e.g. making use of
 Material Safety Data Sheets (MSDS) for hazardous substances, Technical
 documents or Brochures about tools, equipments and plants).
- good housekeeping Minimizes safety related incidents, e.g. slips and falls;
 Reduces dusts and other contaminants that may become airborne
- scheduling of work High risk work may be rescheduled so that the least number
 of workers and members of the public are exposed. E.g., demolition of buildings
 during week ends or non-peak hours to minimize exposure of large number of
 persons to dust, noise and vibration, fumigation of buildings during weekends or
 holidays
- maintenance Scheduled maintenance of tools, equipment and plants to minimize wear and tear associated loss of performance
- monitoring and health surveillance Occupational hygiene and biological monitoring can be used to assess risk and track the success of control measures

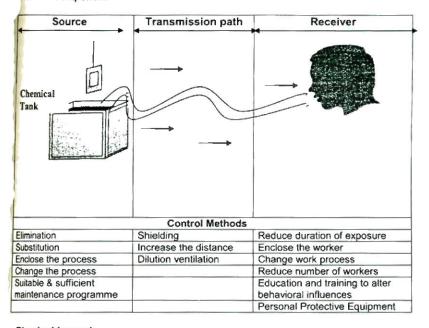
5. Personal Protective Equipment (PPE)

Personal Protective Equipments are worn to protect the human body parts that are vulnerable to attack from external sources, e.g. eyes, ears, skin, respiratory system and aim to minimize exposure at the receiver. However, the PPE option should be taken when control could not be obtained by other methods (elimination, substitution, engineering control, administrative control) or to supplement other methods.

Examples of situations in which the use of PPE may be necessary

- Where it is not technically feasible to achieve adequate control by other measures alone. Control should be achieved by other methods as far as reasonably practical and thereafter PPE should be used as a additional measure.
- Where urgent action is required such as in a plant failure, and the only practical solution is to use PPE
- During routine maintenance operations.
 - Eye and face protection safety spectacles, goggles, eye shields
 - Skin and body protection gloves, apron, overalls, caps
 - Leg and foot protection knee pads, leggings, molded footwear, rubber ankle boots
 - · Respiratory protection face mask, respirators
 - Head protection safety helmets
 - Ear protection earplugs, earmuffs

Movement of a contaminant from a source to a receiver with control techniques for each component



Physical hazards

1. Light

Every workplace should have suitable and sufficient lighting. Lighting levels at work can affect health and safety in a number of ways;

- When people move about, they must be able to see obstacles that could lead to accidents from tripping, falling or by just walking into them
- The tasks must be adequately lit to enable workers to see sufficient detail so that these jobs can be carried out correctly
- Operators of machinery must be able to see the controls, information dials and screens
- Colours should be correctly visible if that forms part of work
- Glare must be minimal
- The colour output of any artificial light source must not distract the colour of the item being worked on, if it is important

Units used in lighting

Luminous intensity: Unit - Candela (cd). A measure of brilliance or brightness, which is the power of a source to emit light.

PHI Manual - Chapter 6

Illuminance: Unit - lux (Ix). This is the unit that expresses the amount of light falling on a surface.

Recommended lighting standards

Area	Recommended light level (Ix)		
Circulation areas - corridors, stairs, lifts	100-150		
Entrances, lobbies, waiting areas	500		
Factories	500		
Offices, Groceries, Show Rooms, Laboratories	500		
Typical outdoor levels	10000		
Warehouses	150		
Mechanical Workshops	750		
Detailed Mechanical Workshops	1000		

2. Heat

Body temperature is maintained within close limits by an efficient homeostatic mechanism. Physical exercise will increase body temperature in proportion to oxygen consumption, the range being 0.5 °C for moderate exercise, up to 4 °C for heavy work. In normal conditions the body temperature stays within the range 36-39 °C.

Recommended work/ rest regimes

	Work load (total) & Temperature			
	Light	Moderate	Heavy	
Continuous	30.0°C	26.7°C	25.0 °C	
75% work, 25% rest each hour	30.6°C	28.0°C	25.9 °C	
50% work, 50% rest each hour	31.4°C	29.4 °C	27.9°C	
25% work, 75% rest each hour	32.2°C	31.1 °C	30.0°C	

Work conditions & metabolic rate: Light 230W, Moderate 230-400W, Heavy 400-800W (W=Metabolic Rate)

Heat control

- Insulation of ceiling to maximize solar heat transfer.
- Reflective blinds within offices or factories to alter the path of transmission of heat
- Glass or tinted windows
- · Exhaust ventilation such as part enclosure or hoods above heat generating process
- Forced air ventilation to increase airflow

Health effects

Excessive heat can give rise to conditions like irritation, discomfort, heat rash, heat cramps, heat exhaustion and heat strokes.

3. Noise

Noise is a physical hazard where excessive noise could give rise to adverse health effects in the exposed worker.

PHI Manual - Chapter 6

Recommended noise ratings

Class room	25dB
Sleeping room	25dB
Conference room, Hospital	30dB
Private office	40dB
Restaurant	45dB
Office with typewriters	55dB
Workshop	65dB

Sound level standard: A weighted continuous sound pressure of 85dB over 8 hours

Recommended maximum noise doses for unprotected ear

Limiting dB	Maximum duration
	Of exposure
85- 90	8h
93	4h
96	2h
97	1h
102	30min
105	15min
108	7min
111	4min
114	2min
117	1min
120	30sec

Health effects

Noise induced hearing loss is the main adverse health effect. It is permanent and is not improved by use of hearing aids. Other effects include headache, imitability and lack of concentration.

Methods of preventing noise generation

- · Substitution for a quieter process: eg. Welding instead of reverting
- Cushion impact plastic parts instead of metal parts
- Improved designs for fans, fan casings, compressors etc.
- Better mechanical maintenance
- Limit the duration for which a noisy machine or part of a machine is used

Control of transmission path

- Use of barriers
- Enclosure of the source
- Increase the distance between the source and receiver.

Control of receiver

- Enclosure of receiver e.g. sound proof booths.
- Use of PPE, e.g. ear plugs, ear muffs.

4. Vibration

Vibration is oscillatory motion about a point. Workers may be exposed to two types of vibrations:

- Hand transmitted vibration Vibration that enters the body through the hands when vibrating tools or work pieces are grasped or pushed by the hands or fingers.
- Whole-body vibration Occurs when the body is supported on a surface which is vibrating (e.g. sitting on a seat which vibrates, sitting on a vibrating floor). Whole body vibration occurs in transport and when working near some industrial machinery.

Health effects

Various health effects ranging from bone and joint disorders, neurological disorders (e.g. numbness, tingling), muscle disorders could occur.

Control

Limit exposure Proper maintenance of machinery Proper usage of machinery

5. Pressure

Main occupational groups exposed to pressure are deep sea divers, tunnel workers, high flying aviators.

Health effects

Limb pain, dizziness, headache, chest pain, convulsions (fits), coma, bone necrosis

Contro

Limit duration of exposure

6. Radiation

Radiation is energy which is transmitted, emitted or absorbed in the form of waves. There are two types of radiation.

- Ionizing radiation Ability to ionize molecules, e.g. X Rays, Gamma Rays. Adverse heath effects occur mainly due to the effects of ionization of cell molecules. Usually occupational exposures are at lower levels, but are prolong.
- Non-ionizing radiation Energy waves that are composed of electric and magnetic
 field components. This energy is insufficient to eject electrons from atoms, thus is not
 able to ionize other matter. Therefore reported health effects are not profound as in
 ionizing radiation, e.g. radio waves, microwaves, high voltage power lines.

Control

Instrument shielding, personal protective clothing, increase distance from source and receiver, reduce exposure period.

Chemical hazards

A chemical substance that can cause potential damage or adverse health effect on someone.

High Risk Occupations

- Industries that produce chemicals or use chemicals as raw materials
 Eq. Chemical industries
- Occupations that use produced chemicals in their work activities
 Eq. Agrochemical usage in agriculture
- Occupations that have a risk of exposing to chemicals naturally released to the surrounding
 - Eg. Exposure to methane gas in mining

Exposure

- Workers can be exposed to chemical hazards at any stage of the industrial process
- At the storage area
- · During the industrial process
- · During distribution
- During application
- During disposal

Workers can be exposed to chemical hazards

- By inhalation
- By ingestion
- By absorption through contact
- Indirectly due to pollution of the environment.

Biological hazards

Any microorganism or material of biological origin that has the ability to cause illness could act as a biological hazard. Certain work activities are associated with an increased risk of contracting infections. This may be due to work bringing an individual into contact with large number of infected people or animals, e.g. health care workers, laboratory workers, agricultural and fivestock farmers.

Health effects

- Blood borne infections; Hepatitis B, Acquired Immune Deficiency Syndrome (AIDS)
- Vector borne infections: Malaria, tic borne disease
- Food and water borne disease: Typhoid, E coll infection, food poisoning
- Infections spread by droplets and close contact: Tuberculosis, Meningococcal Meningitis
- Zoonotic infections: Anthrax, Leptospirosis
- Allergies

Control

- Elimination or substitution of the hazardous agent
- Ventilation
- Isolation of person or microbe
- Administrative controls- Immunization, health surveillance, sterilization of equipment
- PPE- Uniforms, gloves, eye ware

Ergonomics

Ergonomics is matching the job to the worker. It describes the interaction between the worker and the job demands and focuses on how work affects workers.

Ergonomic hazards refer to workplace conditions that pose the risk of injury to the musculoskeletal system of the worker. Ergonomic hazards include repetitive and forceful movements, and awkward postures that arise from improper work methods and improperly designed workstations, tools, and equipment.

The goal of ergonomics and human factors is to make the interaction of humans with machines as smooth as possible, enhancing performance, reducing error, and increasing user satisfaction through comforf. Ergonomics in the workplace has to do largely with the safety of employees, both long and shorf-term. Ergonomics can help to reduce costs by improving safety.

Ergonomics draws on many disciplines in its study of humans and their environments, including anthropometry, biomechanics, mechanical engineering, industrial engineering, industrial design, physiology and psychology.

One of the most commonly encountered health effects of poor ergonomics is musculoskeletal disorders.

Work related musculoskeletal disorders

They can be defined as disorders of the muscles, tendons and nerves that are caused or aggravated by exertions or movements of the body. The primary cause may be work related or non-work related. In either case, work exposure is an important consideration in determining work-relatedness and in return to work from an injury.

Characteristics of musculoskeletal disorders

- they involve both mechanical and physiological process
- they are related to work intensity and duration
- they require periods of weeks, months or years to develop
- they require periods of weeks, months or years for recovery
- their symptoms may be poorly localized, nonspecific and episodic
- they are often unreported
- they may have multiple work and personal issues.

Work related factors of musculoskeletal disorders

- Repeated or sustained exertions
- Forceful exertions
- Localized mechanical stresses
- Work posture.
- Vibration
- Work duration.
- Psychosocial stresses

Risk Assessment

Risk is a measure of the likelihood that the hazard will manifest some degree of harm.

Elements of risk assessment and risk management

- Consider all activities and situations, both routine and non-routine, including foreseeable emergencies and loss of control
- Identify the hazard, both intrinsic and those generated by all of the above activities
- Identify which individuals or groups of workers may be exposed to be at extra risk by virtue of susceptibility, illness and other medical conditions
- Determine and assess the risks to health from the hazards.
- Determine the degree of control of these risks and whether this is adequate
- Can these risks be eliminated or reduced.
- Implement newer improved risk control measures
- Monitor the effectiveness of these controls
- Review and if necessary, implement any appropriate corrective action

Methods of control

Risk control should begin at the design/planning phase of a process or workplace. It is more expensive and inconvenient to attempt to redesign a workplace once it has been built. However, most hazards exist in a workplace that has been run for many years. An alternative approach is needed for the problem by addressing factors required for exposure.

- A source
- · A mechanism or path for movement of the hazard
- An unprotected receiver

Removal of any of these partners will minimize exposure.

Walkthrough Survey (Factory Inspection)

One of the most important and most simple acts in risk assessment is to actually venture into the workplace and "see for yourself" what people do and how they do it. In order to maximize the benefit of the visit, it is common for people to use a walk through survey checklist.

It is generally best to start the walkthrough survey at material incoming/ receiving section, and then following the natural manufacturing or other processes in the workplace. This gives the PHI an understanding of the actual processes that occur. During a walkthrough, it is important to speak to the workers, as they will often have their own ideas regarding health and safety hazards or potential preventive measures. This will also initiate a relationship between the workers and PHI and will give the PHI an indication of the workers understanding of their job and potential hazards and their attitudes toward their work and safety. Appropriate questions for workers might include the following; what kind of hazards are there in your particular job? What measures do you take to keep yourself safe? What kind of preventive measures do you do you think might be helpful in this workplace?

In viewing the <u>(ask</u> the PHI should carefully look at worker factors such as body position and posture. What kind of movements are required by the worker? Observation of the physical effort may include measuring or observing the force required, the direction of the movements (forward, backward, etc.), the location (floor to waist or above shoulder-level), the frequency (once per hour or once per minute), and the duration (sustained for several minutes or intermittent).

Understanding of the task itself should include such aspects of work practices as productivity expectations, variation in physical demands during the day, and how the job

is compensated. For example, is there a quota system or an incentive system? Incentive pay for productivity may increase the risk of cumulative trauma disorders by promoting continuous, sustained exertion by employees.

In evaluating the <u>environment</u>, the workplace conditions such as temperature, ventilation, vessels and pipes, housekeeping, sanitary facilities, and lighting should be reviewed. The degree of crowding, the ambient noise, and the general appearance of the workplace are all relevant to safety and the likelihood of injuries or illnesses. For example, an increase in the ambient noise can stimulate the sympathetic nervous system and increase the likelihood of accidents. There is evidence that a reduction in general noise level is accompanied by a reduction in accidents.

Poor housekeeping may increase the risk of accidents by the presence of oil or water on the floor and the persistence of slip and fall hazards. Signs and labeling, chemical storage, emergency preparations and equipment such as eye-wash stations, first aid and fire equipment can be checked and evaluated for working order, suitability, and location

The <u>equipment</u> with which employees work includes their own equipment and other machines. Hand tools should be inspected for such aspects as ergonomic fit, appropriate use for the job, and maintenance. For example, the design of the hand tool influences its position of use. The shape and composition of the handle influence the comfort of use and the likelihood that the prolonged use of this tool will increase the risk of cumulated-trauma disorder. At work sites where use hand tools extensively, employees should be offered options depending on their own demographics and preferences.

Machinery can be inspected for <u>ergonomics</u>, effectiveness, and maintenance. The presence and effectiveness of safety devices for the machines should be carefully reviewed. Modern machine design has dramatically reduced the risk of major traumatic injuries (power presses and cutting devices), but these safety devices must not be bypassed or modified, and workers must be carefully educated in their use and effectiveness.

In many environments, machines themselves are ventilated. The four basic components of a local ventilation system are *hoods* to capture a contaminant, *ducts* to carry the contaminant away, *filters* to clean the air before it is discharged or re-circulated, and *fans* to power the system. Unfortunately, ventilation systems in workplaces are not always properly designed to control the health hazard. For example, the hood may not effectively capture the contaminant because it is not close enough or encapsulating enough of the process. A duct system may not be properly balanced or maintained. Finally, fans may lack sufficient power to carry the contaminant through the duct system. An effective occupational safety and health program should have a well-designed program to monitor the effectiveness of a local ventilation system, and the PHI should ask enough questions to ensure that the program is effective.

Dilution ventilation is the general exhaust of air from a workplace and the replacement of an appropriate portion with outside, fresh air. The purpose of general ventilation is to maintain comfort for workers by controlling humidity, removing unpleasant odors, and maintaining a comfortable ambient temperature. A portion of air in every general ventilation system is re-circulated to control the costs of conditioning the air.

An insufficient supply of "makeup" air from the outside may contribute to the buildup of carbon dioxide, nonspecific irritants, or identifiable contaminants in the workplace.

PHI Manual - Chapter 6

Dilution ventilation is appropriate to control by-products of the work processes (e.g., smoke) only if these products are not toxic and are present at very low levels. Care must be taken to ensure that the exhaust of the general ventilation is not close to any intake air vents on the outside of the building.

The workplace walk-through provides the opportunity for the PHI to directly observe the workers. A walk-through gives a feel for the workforce as a whole. By observing the age, apparent physical condition, and other demographics of the workforce, the PHI may be able to advise the employer regarding other interventions such as health promotion programs and screening programs. Speaking to the workers during a walk-through can be very enlightening with respect to worker attitude toward health and safety, their knowledge of the hazards, and their feelings about work.

Report writing

After a comprehensive walk-through, the inspector should write a report with observations and recommendations and guide the employer in improving the health and safety of the workplace.

This report should generally contain the following:

- · begin with a summary statement
- identifying the major manufacturing processes
- the important occupational health hazards
- · suggested preventive measures

The body of the report should contain:

- · more detailed discussions of each hazard identified
- the rationale for preventive measures
- · suggestions for preventive measures

The hierarchy of controls should be used. In all cases, worker education and training should be part of the recommended preventive measures.

6.3 Health promotion at workplace

Health promotion has been defined by the WHO as the *Process of enabling people to increase control over, and to improve, their health.* In other words it is a science and art of helping people to change their lifestyle to move to an optimal state of health.

Health promotion intends to address humans as individuals and groups *in the settings*, in which they live, work, and play. Health promotion is supposed to refer to two different levels of social change:

- · improvement of lifestyles and work styles conducive to health
- improvement of working and living conditions conducive to health

The settings approach focuses on the physical, social and organizational environments in which people spend their time (i.e. schools, hospitals, workplaces and communities) and aims to create settings that support and enhance health.

Importance of work site health promotion

Over the years there has been evidence of positive effects of worksite health promotion programmes on health of the worker, healthcare costs, absenteeism, health outcomes

and employee health and work related attitudes. Work place es a setting is important since.

- · the relationship between work and health
- · great amount of productive life spent at the work place
- · can approach workers as a group, easy to approach / intervene

Scope of programmes for health promotion

Programmes can range from heath awareness campaigns, educational seminars biologic screening, behaviour change programmes. The important feature of all approaches is to leverage positive employee health behaviours supported by the workplace environment.

Preventive screening/examinations: Biological screening and preventive examinations are central to essential detection of disease and thereby prevention of effects. The screening should be followed by follow up visits for detected employees.

Diet: Many people do not recognize the importance of heathy diet. Education of workers about the benefits of healthy diet, help with developing skills to prepare healthy meals, and promote healthy diet at worksites are some of the promotive activities the PHI can embark on.

Physical exercise: The goal of physical exercise promotion is to improve cardiovascular fitness, increase strength and improve flexibility. The psychological benefits as well as improved morale, attitudes and productivity are also indirect effects of physical exercise.

Stress management: There is proven association with many illnesses and stress. Stress potentially plays a role in cardiovascular diseases, asthma, skin disorders and gastritis among others. Effective stress management techniques can improve workers sense of well being and reduce likelihood of stress related symptoms.

Accident prevention: Accident prevention is an important area that should be included in health promotion programmes in work settings. There are many accidents taking place in work sites due to negligence of workers which could be easily prevented. The magnitude of this problem is largely unknown as only few work related accidents are being reported.

Sexually Transmitted Diseases: This is one of the areas where lack of knowledge exists. In Sri Lanka especially where segregated industries such as free trade zones which employs large number of youths are vulnerable for spread of sexually transmitted diseases. PHII should organize educational programmes with the participation of other healthcare staff in his MOH division targeting the workers.

Tobacco and alcohol prevention: Workforce largely consists of young adults. This is much true in unskilled workers where physical labour is needed. These young workers, mostly with primary education are vulnerable for being introduced to alcohol and Tobacco. As this group at workplace is a captive population they could be easily reached to address the issues related alcohol and tobacco use.

6.4 Factory Inspection Report

Annexure- 1

Medical Officers of Health/ Public Health Inspectors Factory Inspection Report

1.	1. MOH/PHI area: Date of inspection:						
2.	Name of establishment:						
3.	Address:						
4.	Labour Department Registration						
	Nature of work done:				***		
7. 1 8. 1 <u>Pro</u>	Size of industry: 1. Cottage 2. Small scale 2. Small scale 3. Sma	2.Fem	ales: 2.Fer	nales: .	3. Total:		
у.	Condition of the workpremises	S	NS	NA	Remarks		
1.	Lighting	- 3	113	1828	Remarks		
2.	Space	+		-			
3.	Ventilation						
4.	Heat						
5.	Humidity						
6.	Noise		1				
7.	Dust/Fumes/Smoke			-			
10.1	Housekeeping						
		S	NS	NA	Remarks		
1.	Demarcation of areas						
2.	Safety signs						
3.	Storage of raw materials						
4.	Storage of finished products						
5.	Maintenance of premises						

6. Emergency evacuation procedures

S- Sausfactory, NS- Not Satisfactory, NA- Not applicable

Me	Il Manual - Chapter 6 achinery & safety		
11.	Use of power: Yes	No	
12.	Type of power		
1.	Electricity		
2.	Gas		
3.	Petrol/Diesel/ Kerosene		
4.	Firewood		100
5.	Others (specify)		
13.	Type of machinery 1. Small 2. Medium		3.Large
14.	Guarding of machinery		

15. Machinery operation

Medium

Large

Type of machinery Small

2.

3.

		S	NS	NA	Remarks if any
1.	Easiness of operating the machinery				
2.	Easiness to reach controls				
3.	Heights of working surfaces				
4.	Vibration of equipment				
5.	Noise of machinery				
6.	Heat from machinery				
7.	Safety of mobile equipment				
8.	Exposure of body to continues or repeated motions of the equipment				
9.	Use of hand tools (hard to squeeze, slippery, heavy etc.)				

Yes

No

NA

Worker safety

	Environment

		S	NS	NA	Remarks if any
1.	Workstation comfortable to perform task (does not require unusual positions/stretching/straining)				
2.	Safety of working surface (not slippery of unnecessarily hard)				
3.	Protruding objects which are prone for accidents (handles/knobs/materials etc)				
4.	Demarcation of areas				

17. Personal Protective Equipment (PPE)

		Yes	No	NA
1.	Are PPE available			
2.	If PPE available are they appropriate for the task			
3.	If PPE available are they available in adequate numbers			
4.	If PPE available are they being properly worn			

18. If PPE are provided, do workers wear PPE?

	Type of PPE	Yes	No	NA
1.	Ear Plugs			
2.	Face Masks			
3.	Gloves			
4.	Helmets			
5.	Goggles/Eye protectors			
6.	Overalls			I
7.	Boots			
8.	Others			

Training

19	19. Are employees trained in safety procedures? 1. Yes 2. No 3. NA								
20	If yes; they are trained								
1.	Once in 3 months								
2.	Once in 6 months								
3.	Once a year			30					
4.	Only at the time of recruitment								
5.	Others								

21	Are employees given a formal training before assigning to operate machinery?
	1. Yes 2. No 3. NA
22	Are employees trained in emergency evacuation procedures?
	1. Yes 2. No 3. NA
23.	Are employees exposed to health education programmes?
	1. Yes 2. No 3. NA
\underline{M}	ledical/ Injuries
24.	If a worker is injured or falls sick during work
1.	Treated by company doctor at
	the factory premises
2.	Treated by a Nurse/Healthcare
	worker at the factory premises
3.	Sent to a General Practitioner
4.	Sent to the government
	hospital
5.	Other
	Is a pre employment medical examination done? Yes 2. No 3. NA
26.	Is periodical medical examination done?
1,	Yes 2. No 3. NA
27.	If "yes"; how often
	Once in 6 months
2.	Once a year
	Once in two years
28.	If a worker is injured, is it notified to the Factory Inspecting Engineer (FIE) by management?
1.	Yes 2. No 3. NA
	If yes; how many notifications were made during the past year?

30. Work conditions

		Yes	No	NA	Remarks if any
1.	Work performed in shifts				
2.	Is hours of work reasonable				
3.	Is adequate rest period given/taken				
4.	Is extended period of heavy work required				

31. If shift worker, duration of shift

	Duration	Remarks on off period
1.	8 hours	
2.	9- 12 hours	
3.	13 -18 hours	
4.	19 - 24 hours	

Hazardous exposure

32. Is there <i>seg</i> substances?	regation of w	orkers who are exposed to hazardous activities/
1. Yes	2. No	3. NA
33. Are worke exposure dura		nazardous activities/ substances rotated to minimize
1. Yes	2. No	3. NA
34. Are worker	s exposed to l	nazardous activities/ substances monitored

35. Physical demands

		Yes	No	NA	Remarks if any
1.	Workers required to work at excessive speed				
2,	Workers are required to carry excessive weight				
3.	Workers are required to use excessive force/strain				
4.	Unusual & uncomfortable working positions required				
5.	Can work be performed adhering to safety rules/procedures				

36. Mental demands

		Yes	No	NA	Remarks if any
1.	Lengthy periods of concentration required				
2.	Work pace is too fast		i		
3.	Social interactions possible				
4.	Targets cause mental stress				
5.	Satisfactory labour – Management relationship				

37. Waste disposal

	Method	Yes	No	NA	Remarks if any
	Stored in premises & Removed by local authorities				
2.	Liquid waste discharged to environment without treatment				
3.	Solid waste discharged to environment				
4.	Smoke released to the atmosphere in a hazardous way				
5.	Others				

PHI Manual - Chapter 6

38. Welfare and Sanitation

		S	NS	NA	Remarks if any
1.	Toilets				
2.	Safe drinking water at premises				
3.	Meal rooms				
4.	Changing rooms				
5.	First Aid Facilities				
6.	Trained First Aid workers on site				

39. Waste Disposal

		S	NS	NA	Remarks if any
1.	Solid waste				
2.	Liquid waste				
3.	Gas, smoke, fumes				

40. Reporting of accidents and Occupational Diseases
(Reporting of Accidents/Diseases that should be reported -During past 6 months)

Type of accidents/ Occupational disease	Total No.	Number Reported	Number Not Reported	Remarks if any

Remarks/Observations

Name & Signature of PHI

Annexure- 11

Things to observe during a walk through survey

1. The worker

- 1. How many workers are there?
- 2. What is the age distribution of the workforce?
- 3. What is the turnover rate?
- 4. What educational background do the workers have?
- 5. What is the physical condition of the workforce?
- 6. What medical problems are common in the workforce?
- 7. What psychosocial resources are available to workers in the workplace?
- 8. What psychosocial resources are available to workers in the community?

2. The task

- 1. Is work performed in shifts?
- Are hours of work reasonable?
- Are adequate rest periods provided and used?
- 4. How much overtime is worked? Is it required?
- 5. Are tasks rigidly paced?
- 6. Are changes in work procedures explained to workers?
- 7. Are extended periods of heavy work required?
- 8. Is there any visual strain?

Physical demands

- How much lifting, pulling, pushing is required?
- 2. What is the frequency of the physical task?
- 3. What are the locations of the physical actions?
- 4. Are unusual or uncomfortable working positions required?
- 5. Are workers required or induced to work at excessive speeds?
- 6. Can work be performed while following all safety rules?
- 7. Are workers thoroughly trained?
- 8. Is work done sitting, standing, or walking or is there a combination of positions?

Mental demands

- 1. Are directions easy to follow?
- 2. Are frequent decisions necessary?
- 3. Are lengthy periods of concentration required?
- 4. Are there rest periods?
- 5. Is the work pace too fast?
- 6. Does the job create boredom?
- 7. Are social interactions possible?
- 8. How are labor management relations?

3. The environment

- 1. Is adequate space for working available?
- 2. Is the workstation comfortable to use or does it require unusual positions, straining, or stretching?
- 3. Is a clear path provided for emergency escape and are exits well marked?
- 4. Are working surfaces slippery or unnecessarily hard?
- Are there protruding objects that can cause accidents (handles, knobs, materials, etc.)?
- 6. Is the work space safe from materials handling equipment, such as trucks and cranes?
- 7. Is the work space located in an unnecessarily hot, cold, drafty, noisy, or contaminated area?
- 8. is the temperature comfortable?
- 9. Is the relative humidity comfortable?
- 10. Is there adequate general ventilation?
- 11. Are all ventilation, heating, and cooling devices working properly?
- 12. Is the lighting appropriate for the work?
- 13. Is the housekeeping effective?

4. The equipment

- 1. Is equipment or machinery difficult to operate?
- 2. Are controls hard to reach?
- 3. Does movement of controls require excessive effort?
- 4. Can controls be moved without placing hands, wrists, arms, or body in unusual positions?
- 5. Are controls on materials handling equipment compatible with operator characteristics?
- 6. Are gauges and instruments easy to read and understand?
- 7. Are the characteristics of hand controls compatible with the forces required to operate them (shape, size, surface), and are forces acceptable?
- 8. Are emergency shut-offs accessible from locations where an operator might get caught?
- 9. Are lockouts provided and are they foolproof?
- 10. Are the functions of all controls labeled or readily apparent?
- 11. Are chairs or stools comfortable?
- 12. Are they adjustable for proper height?
- 13. Are appropriate backrests provided?
- 14. Is there adequate space for legs and feet?
- 15. Are working surfaces of the proper height so as not to cause unnecessary reaching, bending, stretching, etc.?
- 16. Do working surfaces cause glare?
- 17. Are all guards and safety devices in use and in good working condition?
- 18. Do they interfere with operation or maintenance in any way?
- 19. Does equipment vibrate or cause excessive noise?
- 20. Is mobile equipment stable?
- 21. Does material handling equipment allow unobstructed vision in all necessary directions?
- 22. Are any parts of the body exposed to continuous or repeated motions of equipment?

Hand tools

- Are tools easy to hold?
- 2. Are tools too heavy?
- 3. Are there sharp edges?
- 4. Are there pinch points?
- 5. Is use of tool difficult (e.g., hard to squeeze, twist, slippery, etc.)?
- 6. Does tool vibrate?
- 7. Are power tools noisy?
- 8. Does use require unusual or uncomfortable hand, wrist, arm, shoulder, or body position?
- 9. Are tools maintained properly?
- 10. Is there a selection of tools?

Personal Protective Equipment (PPE)

- i. Is personal protective equipment provided?
- 2. Is personal protective equipment adequate, comfortable, and effective?
- 3. Are personal protective devices required?
- 4. Are devices selected or fitted properly?
- 5. Are they comfortable or are they causing added irritation?
- 6. Are they properly maintained?
- 7. Do protective devices obscure vision or create other hazards themselves?
- 8. Do protective devices produce false sense of confidence?
- Has the worker been trained on use of PPE?
- 10. Is there good compliance with PPE use?

CHAPTER

Epidemiology

Introduction

From the oldest days, control of diseases, both communicable and non-communicable, has been a key function of the public health system in Sri Lanka. A comprehensive disease surveillance system operates in the country, in which the Medical Officer of Health and his or her health team plays an indispensable role. Accordingly, a Range Public Health Inspector is involved in the general surveillance of all disease within the area, whereas the PHII attached to campaigns/ programmes handling specific diseases or groups of diseases are involved in the surveillance of that particular disease or groups of diseases. The Range PHI has to study the morbidity and mortality pattern in the area of work, and identify the specific causes of morbidity and mortality in the population, along with the possible contributory factors. This would enable him to plan and carry out, along with the local health team, effective interventions necessary to reduce the incidence of disease and the mortality, to the lowest possible levels, with the resources available.

This is accomplished through the system of disease surveillance which continuously scrutinizes all aspects of occurrence and distribution of a disease that has relevance on its effective control.

This section includes an account of disease surveillance system practiced in Sri Lanka in general, and describes the role of the PHI in the disease surveillance system.

7.1 Epidemiological Surveillance

Surveillance

Surveillance may be defined as a systematic collection, analysis, interpretation, and dissemination of data, for the purpose of taking appropriate action

Disease surveillance is important for the following reasons:

- i. It measures progress towards achievement of disease reduction targets.
- It permits priorities to be selected on the basis of demonstrated morbidity and mortality.
- iii. It is essential for good programme monitoring,

- iv. It can give a better understanding of the local epidemiology of the disease, and may suggest the need for programme modification, if necessary.
- v. It can help in identification of and finding solutions to operational problems,
- it is used by administrators for planning, implementing and evaluating of public health interventions and programmes.
- vii. It is used to monitor the occurrence of disease outbreaks or epidemics, and to take the necessary preventive and control measures.

FUNCTIONAL ELEMENTS OF SURVEILLANCE

Surveillance has four functional elements.

- 1.1 Data collection
- 1.2 Data compilation and analysis
- 1.3 Taking action on reports
- 1.4 Feedback

1.1 Data Collection

Some of the diseases are easily recognizable while some others are comparatively difficult to diagnose. Because of these difficulties no single method of surveillance can be used with the same degree of reliability for all the diseases. The methods commonly used for data collection are:

- 1.1.1 Routine reporting of cases and deaths recorded at the treatment centre
- 1.1.2 Special investigations conducted on selected communicable diseases
- 1.1.3 Sentinel Surveillance
- 1.1.4 Active Surveillance
- 1.1.5 Outbreak investigation
- 1.1.6 Sample Surveys

Each of these methods has its advantages and limitations. The different methods can be used either separately or in combination with each other, depending on technical and administrative feasibility, as well as the financial resources available for the purpose.

The Disease Surveillance System in Sri Lanka is shown in Figure I.

Disease Surveillance System in Sri Lanka DIRECTOR GENERAL OF HEALTH SERVICES WHO & Other International Deputy Director General of Public Health Services Agencies Hospital EPIDEMIOLOGICAL UNIT Medical Mortality Statistics Quarterly Epidemiological Bulletin Morbidity Unit Weekly Epidemiological Report -Qrly Weekly Return of Communicable Diseases (H399 & H411a) Registrar General Regional Director of Health Services Regional Epidemiologist 1. Anti-Malaria Campaign 2. TB &Chest Dis, Control Progr. Weekly Return of Communicable 3. Anti-Leprosy Diseases (H399 &H411a) Campaign 4, STD/AIDS Control Medical Officer of Health Medical Research Institute (MRI) & other Regional Laboratories Notification Card (H544) Fever Hospital, Angoda 1. Hospitals 2.General Practitioners 3.Other **Patients**

Figure I

231

1.1.1 Routine Reporting

(a) Indoor Morbidity and Mortality Reporting

Once the patient is discharged from hospital, the Bed Head Ticket (BHT) is sent to the Medical Records Office. The diagnosis on the Bed Head Tickets is entered in the Indoor Morbidity/ Mortally Register (IMMR), according to the International Classification of Diseases (ICD). This register is utilized to compile the Indoor Morbidity and Mortality Quarterly Return, which is sent to the Medical Statistician quarterly. These statistics are processed by the Medical Statistician to obtain information on the morbidity and mortality statistics in government hospitals, by Health Divisions. At present there is no routine system of recording disease statistics from out-patient departments, private practitioners, and private institutions.

(b) Notifiable Diseases Reporting System

The surveillance of Communicable Diseases in Sri Lanka is based on a system of notification of certain selected diseases. Figure II shows the Notification System in Sri Lanka.

The Ouarantine and Prevention of Diseases Ordinance of 1897, and its subsequent amendments, ensure the necessary legislation for the implementation of this system. According to this Ordinance every practitioner treating a case belonging to the category of Notifiable Diseases, should notify such cases to the Medical Officer of Health (MOH) of the area where the patient resides.

The Notifiable Diseases are listed in Table 1. It should be noted that the list can change because diseases may be added or deleted from this list, from time to time. The following list gives the diseases that are notifiable at present.

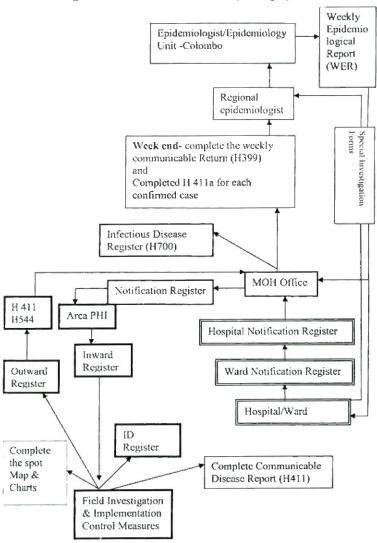


Figure II: Notifiable Diseases Reporting System

Table 1

LIST OF NOTIFIABLE DISEASES

(Approved by the Advisory Committee on Communicable Diseases on 11th February 2005)

Disease	Abbreviation *
GROUP A	
CHOLERA PLAGUE YELLOW FEVER	Chol Pg YF
GROUP B	
ACUTE POLIOMYELITIS/ ACUTE FLACCID PARALYSIS CHICKEN POX DENGUE FEVER/ DENGUE HAEMORRHAGIC FEVER DIPHTHERIA DYSENTERY ENCEPHALITIS ENTERIC FEVER FOOD POISONING HUMAN RABIES LEPTOSPIROSIS MALARIA MEASLES MENINGITIS MUMPS RUBELLA/ CONGENITAL RUBELLA SYSDROME SEVERE ACUTE RESPIRATORY SYNDROME (SARS) OR SUSPECTED FOR SARS SIMPLE CONTINUED FEVER OF SEVEN DAYS DURATION OR MORE TETANUS/ NEONATAL TETANUS TUBERCULOSIS TYPHUS FEVER VIRAL HEPATITIS WHOOPING COUGH	Polio CP OF/DHF Dip. Dys. Enc. E.F F.P. H.R. Lep. Mai, Mea. Meng Mum Rub SARS S.C.F Tet. T.B. T.F. V.H. Wb

^{*}The abbreviations used for different diseases, in filling up the Infectious Disease Register e.g. Lep/3/07 at MOH and PHI office

Acute Poliomyelitis/Acute Flaccid Paralysis - should be notified to

- 1. Epidemiologist
- 2. Regional Epidemiologist
- 3. Medical Officer of Health

By Telephone, Fax, E-mail or Telegram, and notification Form (H544)

Hospital Notification

Most notifications originate from hospitals. Notification of Communicable Diseases in the hospital should be made by the House Officer in charge of the ward, with the tentative diagnosis. Cases are notified using a standard notification card (Form Health 544). The address of patient should be written in the notification card clearly. The details in the notification card should be entered in the ward and hospital notification registers, and the notification card forwarded to the MOH of the area for investigation.

MOH Office

The MOH maintains a Notification Register and the notifications are referred to the Range Public Health Inspector (PHI) for investigation and confirmation. Range PHI should investigate the case and implement control measures in the field, and should send the Communicable Disease Report Part I (H411) and the notification card (Health 544) to the MOH office within 7 days of receipt of the notification card.

All investigation cards are returned to the MOH, and are recorded in the Infectious Diseases Register (Form Health 700). The last column in the Notification Register will be completed. The MOH consolidates the weekly data in the ID register every Friday and prepares the weekly return of Communicable Diseases (WRCD-Form Health 399) and sends it to the RDHS and the Chief Epidemiologist on Saturday, with detailed information on the confirmed cases by means of the Infectious Disease Report - part II (Form Health 411a).

Action taken at MOH Office (Before Investigation of the Case)

On receipt of a notification regarding a case of communicable disease (Notification Card, Form Health 544), the Medical Officer of Health should take necessary action to enter the following particulars in the Notification Register:

- Serial number
- Name of patient
- iii. Address
- iv. Age
- v. Sex
- vi. Disease
- vii. Date of Notification
- viii. Notified by whom
- ix. Date of receiving Notification Card

- PHI area.
- Date of sending Notification Card to PHI.
- Date of receiving Netification Card from PHI.
- iv Remarks

After entering the columns in the Notification Register, except columns 12 and 13, the MOH should send the Notification Card (H544) to the Range Public Health Inspector, for investigation and to implement control measures.

Action at PHI Office and at Field level.

On the receipt of a notification card the PHI should:

- Enter in the Inward Register Serial Number, Name, Age, Sex, Address, Disease, Date and other particulars of the patient
- Should visit the field, investigate, and take action in all cases of Communicable Diseases

Note- Cases reported directly to the PHI should also be promptly investigated.

After investigation:

- Range PHI should enter the following details in the Infectious Diseases Register (ID Register – Form Health 700):
 - i. Senal Number
 - ii. Case Number (abbreviations and serial number for the
 - iii. year, e.g., polio/01, Dys/06)
 - iv. Locality (Address)
 - v. Name of patient
 - vi. Other particulars of the patient
- He should fill the Communicable Disease Report Part I (Form Health 411).
- He should enter the necessary particulars of the patient in the Outward Register
- He should Return the Notification Card (Form Health 544) with the Communicable Disease Report Part I (Form Health 411) to the MOH office, within one week of receipt of the Notification Card
- He should also update the spot map and charts on communicable diseases, maintained at his office.

Action taken at MOH Office (after investigating the case and receipt of Communicable Disease Report –H411)

 On receipt of the Communicable Disease Report Part I (Form Health 411) with the Notification Card from the PHI (after investigating the case), the MOH should take necessary action to enter the date of notification card received from the PHI and remark, in the Notification Register (Column12 and 13).

PHI Manual - Chapter 7

- He should complete the Infectious Disease Register (ID Register Form Health 700) at the MOH Office. The details of the Register are as follows;
 - Serial Number.
 - Case Number (abbreviations and serial number for the year, eq. polio/01, Days/07)
 - iii. Date of Receipt of Notification Card
 - iv. AGA / Div. Secretary Division
 - v. Locality Address
 - vi. Name of Patient
 - vii. Age
 - viii. Sex
 - ix. Race, Occupation, Religion
 - x. Nature of Disease etc.

Only the cases confirmed by the PHI are entered in the Infectious Disease Register.

 The MOH should also update the spot map and charts on communicable diseases maintained at the MOH Office.

Every Saturday, he should complete the Weekly Return of Communicable Diseases (Form H 399) and enter detailed information on the confirmed cases in Form Health 411a, and send them to the Epidemiologist, Colombo. A copy of the Weekly Return of Communicable Diseases (Form H 399) should be sent to the Regional Epidemiologist (RE) and a copy is kept at the MOH office.

Weekly Return of Communicable Diseases (WRCD) - Form 399

i. Dispatch of Form -

This form should be completed by 3.30 pm every Friday, and dispatched by 9.00 a.m on following Saturday, to reach the Epidemiologist on Monday (with a copy to Regional Epidemiologist).

ii. Completion of Form -

All cages should be completed, viz., Province, District, RDHS Division, MOH area, and the last date of the week covered by the Return.

PARTI

All cases notified and entered in the Notification Register for the relevant week, should be entered according to the PHI area. The total number of cases for each disease notified should be entered in the last line in Part I, and line 1 in Part II.

PART II

- Line 1 -Total no. of new cases notified during the week. This is the sum of all cases notified (same as the last line Part 1)
- Line 2 Cases notified earlier and awaiting confirmation at the beginning of the week. This should be the same as cases (figure in Line, 2 of this week = figure in Line, 7 of the previous week)

- Line 3 No. of cases decided as untraceable during the week
- Line 4 No. of cases investigated during the week, but decided as belonging to other MOH areas
- **Line 5 -** No. of cases investigated during the week, and confirmed as a non-notifiable
- Line 6 Cases confirmed during the week should be the number of cases of different diseases, entered in the ID Register (H700) for the same week.

A copy of the Infectious Disease Report part If (Form 411a) should be submitted for every case treated as confirmed during the week.

The notification of TB.

This differs from those other notifiable diseases. TB is notified by using the Form H 816, and the notification should reach the National Programme for Tuberculosis Control and Chest Diseases (NPTCCD). Address: NPTCCD, Public Health Complex, 655/5, Elvitigala Mawatha, Col – 5.

The Specialized Campaigns have separate and different surveillance systems, Morbidity and Mortality data are collected by each of the specialized campaigns and a quarterly return is forwarded to the Epidemiology Unit. The MRI also sends laboratory surveillance data to the Epidemiology Unit.

Acute Flaccid Paralysis (AFP) Surveillance

The last virologically confirmed Acute Poliomyelitis case was reported in Sri Lanka in 1993. The clinical manifestations of Acute Flaccid Paralysis (AFP) which appear in several other neurological conditions are similar to those of Acute Poliomyelitis. Therefore to detect any case of Acute Poliomyelitis, all clinically suspected cases of AFP have to be monitored and included in the Polio Surveillance system.

Acute Flaccid Paralysis is defined as acute flaccid paralysis in.

 Any child less than 15 years of age (including those diagnosed as having Guillain Barre Syndrome or Infective polyneuritis, for which no other cause can be identified)

and

 Any case of AFP (in a person of any age) that appears highly suspicious as Poliomyelitis.

Action to be taken by the Hospital Staff following the detection of a suspected AFP Case

Inform

- 1. Epidemiologist
- 2. DPDHS
- 3. Regional Epidemiologist
- 4. MOH
 - by telephone / fax / e-mail / telegram

Collect 2 specimens of stools, at least 24 hrs apart, within 14 days of onset of paralysis.

- Send specimens to the Medical Research Institute (MRI), with request for Polio Virology investigations
- . Complete Form No. 1 (pink) and send to the Epidemiologist

Action to be taken by the MOH, PHI and PHM

- The case should be investigated within 72 hours of notification, personally by the MOH
- Visit the community in which the case is resident.
- Note down the patient's movements within the last 28 days before onset of AFP.
- Explain the importance of the investigations to parents, family members, and community
- Make a house to house visit and search for additional cases.
- Request parents/ family members of contacts to make samples of stools available
- Collect and dispatch ONE sample of stool from 3-5 contacts
- Samples should be transported to MRI within 72 hrs of collection.
- Complete the yellow form and send to Epidemiology Unit
- Assist in the follow up examination of patients 60/90/180 days after onset of AFP.

Collection and dispatch of samples of stools from contacts

- Containers should be packed in ice.
- Collect 8-10 grams of stools (the size of 2-3 thumbnails /tamarind seeds) in a wide mouthed screw-capped bottle
- Transport to MRI as early as possible (preferably within 72 hours of collection)
- The samples should be kept in a refrigerator till they are ready for transport.
- If a "reverse cold chain box" is available it should be used to transport the samples

Request letter accompanying the samples should have:

- · Name of the contact
- MOH area.
- · Name of the AFP case
- Epid: number of the case if available
- Date of receipt of the last dose of OPV by the contact
- · Date of collection of the sample

Immunization

One dose of Oral Polio Vaccine (OPV) to be given to all children under a specified age (irrespective of their immunization status), depending on the age of AFP case reported in that village/town, within an area of 2 kilometer radius) and covering up to maximum 200 children. Prior to the immunization the public health staff should inform the people about the place, date and time of the activity personally by visiting the area. The public address system and mass media should NEVER be used for this purpose as this would causes undue panic among public.

1.1.2 Special Investigation of selected communicable diseases

In addition to the field investigation during routine surveillance of communicable diseases, special investigations are carried out for certain communicable diseases to obtain more details. It enables to detect confirmed cases out of the notified suspected cases. Investigation includes patient's clinical presentation, laboratory investigation and clinical conclusions.

DISEASES THAT REQUIRE SPECIAL INVESTIGATIONS

- Poliomyetitis / Acute Flaccid Paralysis (AFP)
- 2. Diptheria
- 3. Pertusis
- 4. Tetanus/ Neonatai Tetanus (NNT)
- Measles
- 6 Rubella/ Congenital Rubella Syndrome (CRS)
- 7. Viral Hepatitis-Hepatitis B
- 8. Encephalitis (Japanese Encephalitis)
- 9. Leptospirosis
- 10. Dengue/ DHF
- 11. Cholera
- 12. Human Rabies
- 13. Mumps
- 14. Meningilis
- 15. Chicken pox

Out of the 15 diseases first 7 are vaccine preventable diseases for which protection is given through Expanded Programme of Immunization (EPI). Dengue, Leptospirosis and cholera are important health issues which necessitate detailed investigation for each reported case. Human Rabies is a lethal disease and even a single case is considered as a outbreak and need prompt investigation.

It should be noted that the above diseases have been primarily investigated by the MOH staff and reported routinely to Epidemiology Unit through the WRCD. Epidemiology Unit send special investigations forms to the relevant MOH/ Institution to investigate the cases by MOH and the team (Field based special investigation) and the Infection Control Nursing Officer(Hospital based special investigation) respectively. After investigation, completed forms should be sent back to the Epidemiology Unit as soon as possible to be entered to the central database.

1.1.3 Sentinel Surveillance

Sentinel site surveillance is carried out in specially identified settings and designed to minimize the drawbacks of routine surveillance system. There are many advantages of sentinel surveillance system.

Improves timeliness

Sentinel surveillance is carried out in institutions where surveillance mechanism is already developed which facilitate surveillance activity more efficient than routine surveillance system. Hence it improves timeliness which is essential for notification process for timely initiation of preventive and control measures.

2. Improves accuracy of data

In sentinel surveillance, a secondary inquiry into a case yields more accurate data especially when information is obtained directly from patient's records, laboratory reports and the treating clinician. Hence the data generated from sentinel surveillance is more accurate and complete than routine surveillance.

3. Improves usefulness

Sentinel surveillance system provides an opportunity for information collected, analyzed and used within the institution itself.

4. Strengthen institutional capacity building

It improve surveillance capacities of institutional personnel's and facilitates expanding institutional logistics.

5. Develop intersectoral relationships

It improves intersectoral relationships between public health staff and curative staff for working together to achieve a common goal.

There are major hospitals in the island assigned as sentinel sites to collect data of Acute Flaccid Paratysis (AFP), Neonatal Tetanus, Measles, Rubella/Congenital Rubella Syndrome and Dengue and Dengue Hemorrhagic Fever.

Sentinel surveillance is carried out to assess the HIV status of general population by randomly testing blood samples of pregnant mothers in ante natal clinics and Blood Banks.

1.1.4 Active Surveillance

Active surveillance is looking or searching actively for a particular type or group of disease in a community. The cases with mild or moderate forms of the disease (eg: Diarrhoea, Acute Respiratory Infection) may not seek treatment from the hospital. They may go to a Central Dispensary, General Practitioners or Traditional Healers. These will not be recorded under the routine reporting or institutional surveillance.

The Public Health Midwives inquire from the mothers regarding cases of diarrhoeal disease and acute respiratory infections (ARI) in under five children and submit a monthly report to the respective MOOH. The AMC officers also carry out active surveillance to find out suspected cases of malaria in the field and screening of fever patients for malaria in the out patient departments.

1.1.5 Epidemiological Investigation of Outbreaks

Outbreak defines as an occurrence of large number of cases of a disease more than expected in a given area, among a specific group of people over a particular period of time. The main objective of an outbreak investigation is to control the spread of the disease by indicating the most appropriate preventive measures.

Epidemiological investigations are undertaken to:

- To control ongoing outbreaks
- · To prevent future outbreaks
- To provide statutorily mandated services.
- To strengthen the surveillance at local level
- To advance the knowledge about a disease
- To determine the effectiveness of control measures
- To provide training opportunities

Protocol for investigating a disease outbreak

In the investigation of an infectious disease outbreak speed is essential. It is wise to follow a systematic routine to get the right answer, even though public reaction, urgency and local situation may make this difficult.

The 10 steps of outbreak investigation are presented here in conceptual order. In practice however several may be done at the same time or they may be done in different order. For example control measures should be implemented as soon as the source and mode of transmission are known.

- i. Preparation for field work
- ii. Establish the existence of outbreak
- iii. Verification of the diagnosis
- iv. Define and identify cases
- v. Describe and orient the data in terms of time, place and person
- vi. Develop hypothesis
- vii. Evaluate hypothesis
- viii. Refine hypothesis and carryout additional studies
- ix. Implement control and prevention measures
- x. Communicate the findings including report writing

Step 1: Prepare for field work

Before leaving to the field:

- Do a literature survey of the disease to gather information and organize the supplies and equipment needed eg. stationary, swabs etc
- · Make administrative and personal arrangements
- · Consult with all parties to determine your role in the investigation

Step 2: Establish the existence of an outbreak

Verify that the suspected out break is real. Look whether observed number of cases exceeds the expected number of cases for the area in the given time. Usually you can compare the current number of cases with the previous few weeks or months or from a comparable period during the previous few years.

Source of data: notifiable disease surveillance records, hospital records etc.

If the current number of cases exceeds the expected number the excess may not necessarily indicate an outbreak.

It may be due to:

- Changes in local reporting procedure
- ii. Changes in case definition
- iii. Increase interest because of local or national awareness
- iv. Improvement of diagnosis procedures
- v. Increase health facilities
- vi. Changes of the population size

It should be noted investigation of an apparent problem not strictly tied to verifying the epidemic but other factors such as the severity of the illness, potential spread, political considerations, and public relations may come into play.

Step 3: Verify the Diagnosis

Identify as accurately as possible the specific nature of the disease. Review the clinical findings (the symptoms and features of illness) and laboratory results. Finally you should visit several of the people who became ill. If you do not have the clinical background to verify the diagnosis a doctor or other qualified clinician should do so. You may gather critical information by asking questions from patients,

- What were their exposures before becoming ill?
- What do they think caused the illness?
- Do they know anyone with the disease?
- Do they have anything common with others who have the disease?

Conversations with patients are very helpful in generating hypothesis about the cause, source and spread of the disease.

Step 4: Define and Identify cases

Next task is to establish a case definition. Case definition usually includes four components

- Clinical information about the disease e.g. fever, diarrhoea, vomiting and headache
- Characteristics of the people who are affected e.g. People who attended a wedding or at a restaurant
- 3. Information about the location or place e.g. in a hostel, working plant
- A specification of time during which outbreak occurred e.g. illness within past 4 days

Ideally case definition should include actual cases without capturing "false positives" (When the case definition is met, but the person actually does not have the disease in question)

Example:

People with fever, blood and mucus diarrhea and vomiting who attended a religious ceremony in town A between December 2nd and December 25th 2003

Recognizing the uncertainty of some diagnosis, often cases classify as "confirmed", "probable" and "possible".

- To be classified as confirmed, a case must have laboratory verification.
- A case classified as probable has clinical features of the disease without laboratory confirmation.
- A possible case usually has fewer of the clinical features.

When identifying cases you should use many sources e.g. hospitals, clinics, laboratories, field etc.

Traditionally information is collected on a standard case report form or data. Then selected critical items of the abstraction form are placed in a table called a "line listing "and a line list is shown in Table II. New cases are added to a line listing as they are identified."

Regardless of the disease, following information should be obtained in a line list.

- Identifying information- (name, address, telephone numbers) Address allow mapping the geographical extent of the problem.
- Demographic information- Age, Sex, Race and occupation and provide characteristics of population at risk
- Clinical information- Verify the case definition has been met. Date of onset create a graph of the outbreak.
- Risk factor information: It tailors your investigation to the specific disease in question e.g. in Hepatitis A you would look at exposure to food and water.

Table II- Line Listing

Serial No.	sex Address Time of onset of symptoms			Symptoms			Food consumed at the function							
						Fever	Vomiting	Diarrhoea	Headache	Rice	Fried	Dhai	Fish	Ice-cream
1	A	25	M	Ex	1,30pm	+	+	-	+	+	+	-	+	-
2	В	22	M	Ex	1.50pm	-	-	-	+	+	-	+	-	+
3	C	24	F	NF	1.35pm	+	+	+	+	+	+	+	+	+
4	D	12	M	MO	1.45pm	+	-	+	+	+	+	-	+	-
5	E	58	F	HI	2.00pm	+	+	+	+	+	-	+	-	+
6	F	4	F	HI	-	-	-	-	-	+	-	+		-
7	G	60	F	МО	1.45pm	-	-	-	+	+	+	-	-	+
							200						5	

Step 5: Describe and orient the data in terms of Time, Place and Person

Once you have collected data you can begin to characterize an outbreak by time, place and person which is called "Descriptive Epidemiology". This description lets you begin to assess the outbreak in light of what is known about the disease (i.e. the usual source, mode of transmission, risk factors and population affected)

Time: Time course of the outbreak can be seen by drawing a graph of the number of cases (Y axis) by the unit of time/date of onset (X axis). This graph is called "Epidemic Curve" which gives a simple visual display of the outbreak's magnitude and time frend.

Interpreting Epidemic Curve

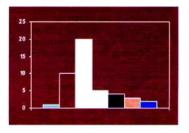
- Shape of the curve (e.g point source, common source, continuing person to person. Figure 3)
- 2. 2.The period of time over which susceptible people are exposed (The minimum, average and maximum incubation periods)

Figure 3- Different Epidemic Curves

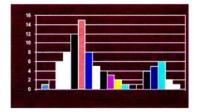
Continuing Common source

15

Point source



Multiple waves – continuing person



- An epidemic curve with a steep slope and a gradual down slope indicates single source or point source. In a point source epidemic all the cases occur within one incubation period.
- If the duration of exposure is prolonged the epidemic called "Continuous Common source" Epidemic has a plateau instead of a peak.
- Person to person spread (a "propagated" epidemic) have a series of progressively taller peaks one incubation period apart.

Cases that stand apart called outliers. An early case may represent a

background (unrelated) case, a source of the epidemic or a person who have exposed earlier than most of the people affected (e.g. cook tasted food hours before serving at table).

Similarly late cases may be unrelated to the outbreak, may have long incubation periods or may be secondary cases. Hence all outliers are worth examining carefully because their unusual exposure may point directly to the source e.g. Hepatitis A (human host) one of the early case may be a food handler who is the source of epidemic.

Place: It provides information on the geographical extent of the problem and may also show clusters or patterns that provide clues to identify the source. A simple and useful technique for looking at geographical pattern is to plot a "Spot Map".

Clustering of cases in a spot map in an institution indicates either a focal source or person to person spread, while scattering of cases through out the institution consistent with a common source (e.g. canteen).

Person: You can determine population at risk for the disease by personal characters (age, sex) or by exposure (occupation, tobacco). These factors are important because they may be related to the susceptibility of the disease and for opportunity for exposure.

Step 6: Develop the hypothesis

Next step to develop the hypothesis on the basis of information obtained from patients, health officials and community and considering the characteristics of outbreak by time, place and person. The hypothesis should address the source of the agent, the mode (vehicle or vector) of transmission and the exposures that caused the disease (risk factors).

The frequency of disease or health outcome is calculated in relation to the age, sex or socioeconomic variables or type of exposure status in Descriptive Epidemiology e.g. Attack Rate of gastroenteritis among people who ate particular food item.

Step 7: Evaluate Hypothesis

The next step is to evaluate the credibility of the hypothesis i.e. why attack Rate of Gastroenteritis is high among people who ate particular food? There are two approaches:

- 1. Comparison of the hypothesis with the established facts
- 2. Analytic Epidemiology

Analytic Epidemiology

Two types of studies

- i. Cohort Studies
- ii. Case control studies

Cohort studies: Compare groups of people who have been exposed to suspected risk factors with groups who have not exposed. It is the best technique for analyzing authreaks in a small well defined population e.g. Food poisoning in a ceremony. In this situation you would ask each attendee the same set of questions about potential exposure (eg. what type of food and beverages he/she had consumed at the function and whether she/he became ill with gastroenteritis).

Then you can calculate an attack rate for those who did not eat (non-exposed) and who ate (exposed).

Attack Rate for Non-exposed = Number of people who did not eat the item but became ill

Total number people who did not eat the item

Attack Rate for Exposed = Number of people who ate the item and became ill

Total number people who ate the item

Dividing the Attack Rates of exposed from non exposed give the mathematical association of Relative Risk. An example is shown in Table III.

Table III- Attack Rates by Items Served at a wedding Party in A city, April 2003

		r of peopl pecified i				Number of did not eat		
Food)III	Well	Total	Attack Rate)III	Well	Total	Attack Rate %
Rice	29	17	46	63	17	12	29	59
Spinach	26	17	43	60	20	12	32	62
Fried potatoes	23	14	37	62	23	14	37	62
Cabbage salad	19	10	28	64	28	19	47	60
Dhall	16	7	23	70	30	22	52	58
Fish Fried	21	16	37	57	25	13	38	66
Chicken	18	9	27	67	28	20	48	58
Beef	2	2	4	50	44	27 .	71	62
Fried Brinjal	19	12	31	61	27	17	44	61
Water	13	11	24	54	33	18	51	65
Pudding	27	13	40	67	19	16	35	54
lce Cream (vanilla)	43	11	54	80	3	18	21	14
lce Cream (chocolate)	25	22	47	53	20	7	27	74
Fruit Salad	4	2	6	67	42	27	69	61

How to calculate the Relative Risk?

Scan the column of Attack Rates among those who ate the specified food items.

Which item shows the highest Attack Rate? Is the Attack Rate is low among people who did not eat that item?

You can identify vanilla ice cream as the source. The Relative Risk is calculated as 80/14=5.7. This Relative Risk indicates that people who ate vanilla ice cream were 5.7 times more like to become ill than those who did not eat vanilla ice cream. Exercise: Calculate the Relative Risks for other food items.

Case control studies: In most outbreaks the population is not well defined and cohort studies are not feasible. Compare the exposure among people with a disease with a group of people without the disease. Then can calculate a simple mathematical measure of association called an Odds Ratio to quantify the relationship between exposure and disease.

1.1.6 Sample Survey

A survey is an investigation which the information is systematically collected. Usually surveys are carried out in a sample of a defined population group within a specified time period. If surveys are carried out repeatedly at regular intervals surveys can form the basis of surveillance system.

A simple method of sample survey- Multistage Cluster Sampling Technique (recommended for vaccine coverage survey by WHO) often use to evaluate the vaccine coverage in Sri Lanka.

1.2 Data compilation and analysis

In order to monitor the incidence (number of new cases in a defined population during a specific period of time) of a disease, it is necessary to maintain charts and graphs which show the number of cases of the disease for each reporting period. With charts and graphs it is easy to visualize the number of cases which occurred in each reporting period. Charts and graphs are useful for diseases which occur more often. A map is commonly used to monitor the location of the disease during investigation.

After the data have been compiled for the most recent reporting period, it needs to be analyzed. The number of cases reported during the period under review should be compared with the data reported during the previous week/month and corresponding period of previous years. Is the number higher, lower or nearly the same? Whatever the answer the analysis is not complete until the most probable reason for the causation and spread of the disease is explained.

1.3 Action

Action has to be taken to correct any problem uncovered during routine reporting, epidemiological investigation or a survey.

1.4 Guideline for writing a report of a disease outbreak

When an investigation is complete, the final responsibility is to provide written documentation of events. This section explains the detailed explanation of a workable format for writing a report and what should be included in the report.

The first section of the report should be the introduction. The purpose of the introduction should be to supply sufficient background information to allow the reader to understand and evaluate results of the present outbreak investigation without having to read or refer to previous reports on the topic.

It should present first the nature of the problem investigated and how and when you came to know about the problem. It should also include the method of the investigation and the method of collection of data of morbidity, mortality, laboratory data from hospital and MOOH etc.

Purpose of the Report

Whether the report is being written in response to an outbreak or a single complaint, complete documentation is important for the following reasons:

1. A document for action

In some cases, control and prevention measures will only be instituted in response to a written report.

2. A record of performance

A well-written report documents the magnitude of health problems and justifies program activities.

3. A document for potential legal issues

An investigative report written by health professionals must be written objectively, honestly and fairly. Information in these investigations is frequently used in legal actions.

4. An enhancement of the quality of the investigation

The process of writing a report and viewing the data in written form may result in new insights.

5. An instrument to present control and preventive measures.

The primary reason to undertake an investigation is to control and prevent disease. The written report is an official medium to present control and preventive measures, and perform needs assessments.

A food borne illness outbreak report should include the following sections:

- Summary
- II. Introduction
- Background
 - A) Epidemiologic
 - B) Environmental
 - C) Laboratory and Clinical
- VI. Results
 - A) Epidemiologic
 - B) Environmental
 - C) Laboratory and Clinical
- VI. Discussion
- VII. Recommendations

I. Summary

The summary should consist of a paragraph or two, that provide the reader with an overview of the investigation (i.e., WHO, WHAT, WHERE and WHEN of the outbreak). It should describe what caused the outbreak or the causal hypothesis based on the evidence.

II. Introduction

Include the specific events that led to the investigation.

- 1) How the outbreak was first reported
- 2) Steps undertaken to confirm its existence
- 3) All who assisted in the investigation?

III. Background

Background information is important and it includes the type of establishment involved in the outbreak (e.g., take-out restaurant, wedding party, caterer, fast food establishment, retail store) and describes the food handlers. Explain epidemiological, environmental, laboratory and clinical factors related to the outbreak.

A. Epidemiologic factors

Explain how cases were defined. For example, even if you are investigating an outbreak of salmonella you are probably not confining yourself to only laboratory confirmed cases. Does a case have to experience diarrhoea or is abdominal cramping sufficient? The issues should be determined and explained in detail. Also describe how cases became known, questions you asked, and how asked. Include descriptions of interview techniques and copies of questionnaires or surveys if used.

B. Environmental factors

Clearly outline the kinds of environmental investigations you have been carried out. Investigation of kitchen, utensils, water sources, presence of pets in and around the kitchen, ventilation, lighting facilities, raw food storage etc. should be explained.

C. Laboratory and Clinical

Discuss any analyses performed. It is important to note what kinds of and how many specimens were submitted for laboratory analysis. Was food available for testing? Did cases submit stool specimens or other clinical specimens for analysis? Were food handlers required to submit stool samples for testing? Note where the specimens were sent, what kinds of analyses were performed and who completed the testing.

VI. Results

These results can be presented as tables, graphs, figures and also as text.

The results of your investigation should be presented under the following main groups:

- (a) Place -Geographical distribution
 - PHI area, Village. Residence, Place of work etc.
- (b) Person Age, Sex. Race, and Occupation of persons affected
- (c) Time -Year, Month, Day and Hour

PHI Manual - Chapter 7

Geographical Distribution

Eg: Distribution of (number) Cases of diarrhoea (Notified cases) in the Polonnaruwa MOH area by PHI areas – November 1986.

Serial No.	PHI Area	Population	No. of Diarrhoea Cases	% from the total	Rate per 10,000 population
1. 2. 3.	Polonnaruwa Minneriya				
	Total				

Age Distribution

Eg. Age distribution of (number) Cases of Diarrhoea (Notified Cases) in the MOH area Polonnaruwa - November 1986

Age Groups	No. of Diarrhoea Cases	Percentage	Cumulative %	Age Specific Rates
0-1				
1-4 years				ļ
5-9				
10 - 14				
15 - 19				
20 – 24 ,				
25 – 29 .,				
etc.				
Total				

Sex Distribution

Eg. Sex distribution of (number) cases of diarrhoea (Notified Cases) in the MOH Area Polonnaruwa - November 1986

Sex	Number	%
Male		
Female		
Total		

Following tables too could be drawn for diarrhoea cases/deaths:

- Distribution of cases/deaths by ethnic group (if relevant)
- Distribution of cases/deaths by occupation

Food poisoning outbreaks

- Draw the epidemic curve in a case of food poisoning outbreak and calculate:
 - · incubation period
 - · food or meal specific Attack Rates
 - · the Relative Risk
- Analyze and present the results of the physical facilities inspection and the presence and status of any food trace backs.
- Analyze and present the results of the culture or other laboratory results on food handlers or other individuals connected to the outbreak and also food tested.

V. Discussion

This section is where all aspects of the investigation are brought together and a conclusion is drawn.

NOTE: Not all outbreaks have a resolution. In fact, it is rare when everything comes together and a cause can be definitively determined. Do not be discouraged. In most cases, there will be enough evidence to present a plausible hypothesis. Be clear and present a detailed explanation on what has contributed to the conclusion.

VI. Recommendation

This is the opportunity to educate. Be detailed because these recommendations hopefully will be read by many people in the establishment that was investigated. The establishment has a vested interest in following the suggestions. If the outbreak has been large and disruptive, the establishment will not want it to reoccur.

In addition to listing general recommendations on good food handling procedures, include specific recommendations that address what might have been overlooked in the particular outbreak (e.g., attempting to transport food long distances at inadequate temperatures).

7.2 Communicable diseases

Introduction

Some diseases can be transmitted from person to person or from objects or animals to people. These are communicable diseases.

Communicable Disease Process

Communicable Diseases result from the interaction of an Agent, e Host and the Environment. This process is also called the "chain of infection", and has six components:

- Causative Agent
- 2. Reservoir
- 3. Portal of Exit
- 4. Mode of Transmission
- 5. Portal of Entry
- 6. Host Susceptibility

Before starting control and preventive measures in a disease outbreak, the PHI should ask the following questions:

(1) What are the agents of infection?

There are six categories:

Protozoa, Metazoa, Bacteria, Virusus, Ricketsia and Fungi

- (2) What is the reservoir of infection? i.e. habitat in which the infectious agent lives, multiplies and grows.
 - (a) Human sources
 - Actual clinical cases
 - · Carriers (in apparent infection, incubatory, convalescent or chronic)
 - (b) Animals, insects
 - (c) Environment (soil, water, etc.,)
 - (3) How do the agents escape from the reservoir? (Portal of exit) Through the:
 - (a) Respiratory system
 - (b) Circulatory system
 - (c) Digestive system
 - (d) Genito-Urinary system
 - (e) Skin and Mucous membrane
 - (f) Placenta
 - (4) What is the path of infection? (mode of transmission)

How is the infection transferred?

- (a) Direct (contact, droplets)
 - (b) Indirect Animate (mosquito, flies, insects)
 - Inanimate (air, water, milk, food, clothes etc.)
- (5) How do the agents enter into the susceptible host? (Portal of entry)
 - (a) Respiratory system
 - (b) Circulatory system
 - (c) Digestive system
 - (d) Genito-Urinary system
 - (e) Skin, mucous membrane
 - (f) Placenta
- (6) Is the host protected?

Is he likely to come in contact with the disease?

Is he a susceptible host?

Host Susceptibility

A person or animal lacking sufficient resistance to a particular pathogenic agent to prevent occurrence of disease is defined as a susceptible host. The following factors can affect host susceptibility:

- (a) Genetic factors
- (b) Nutritional factors
- (c) Pre-existing illnesses
- (d) Immunity
- (e) General factors of resistance (skin, mucous membrane, gastric acid, cough reflex, etc.)

Immunity

Immunity is a property by which organisms resist and overcome infection. Immunity may be active or passive.

- (1) Active (Antigen induced)
 - Natural (After the illness, e.g. measles, mumps, chicken pox).
 - Artificial (After an immunization, e.g. BCG, Triple, Polio, Measles, Japanese Encephalitis)

(2) Passive

- Natural (Transmitted from molher through the placenta e.g. measles, mumps immunity lasts about 6 months)
- Artificial (After giving Anti-serum, e.g. Tetanus, Diphtheria immunity lasts 2 to 3 weeks)

2. Ways of preventing the spread of communicable diseases

- Isolation and treatment By isolating a patient, spread of disease can be prevented by avoiding contact with others. Treatment of patients will eliminate the disease agents and thereby prevent spread.
- Surveillance Supervision of patient's contacts assist in detecting new cases and preventing further spread by isolating and treating them.
- Immunization Effective immunization can block the pathway of many infections for which vaccines are available.
- Disinfection of clothes and bedding Many diseases are spread by contact with contaminated clothes and bedding. Disinfection will prevent such spread.
- Environmental Sanitation This covers many important preventive measures: Supervision of wells and drinking water to prevent contamination; Disinfection of contaminated or suspected water sources; Sanitary disposal of excreta by providing latrines; Personal hygiene – washing hands, wearing shoes, keeping clean.
- Control of Vectors and parasites Destroying the vectors and parasites of diseases including removing the breeding places of these vectors can also block the path of infection.
- Detection of Carriers Find out who are carrying the disease. Check their blood samples, stool samples etc. Treat the carriers to prevent spread.
- Control of Food Ensure that all food supplies are clean and noncontaminated and that food is properly and hygienically prepared, infected persons should not be allowed to handle food. Food should be properly stored to prevent contamination and growth of pathogenic organisms.
- Sterilize Equipment Ensure that all equipment is properly sterilized before use. Contaminated equipment can spread disease.

3. Immunization

The general immunization schedule is shown in Table 1.

General Contraindication for all Vaccines

- 1. Temperature of 100° F or over at the time of immunization
- 2. Progressive neurological illness

Please note

DPT- Temperature of over 103° F with or without convulsions following administration of a previous dose.
USE- DT for subsequent doses.

QPV- Diarrhoea - Repeat dose after six weeks.

Table 1: National Immunization Schedule for EPI Vaccines- Sri Lanka

Age	Vaccine	Remarks					
DURING FIRST YEAR OF LIFE (INFANCY)							
0-4 weeks	BCG	Before leaving hospital, preferably within 24 hours of birth. (If a scar is not present revaccinate after 6 months up to 5 years).					
Soon after the							
completion of 2 nd Month	OPV & Pentavalent (DTP-Hep8-Hib) (1 st dose)						
4 th Month	OPV & Pentavalent (DTP-HepB-Hib) (2 nd dose)	Preferably 6-3 weeks after 1 st dose					
6 th Month	OPV & Pentavalent (DTP-HepB-Hib) (3 rd dose)	Preferably 6-8 weeks after 2 rd dose					
9 th Month	Measles	Measles vaccine should be administered to all infants as soon as they complete 9					
IN SECOND YEAR OF LIFE							
About 18 months	DTP (Booster) - 4 th dose OPV (Booster) - 4 th dose						
PRESCHOOL AGE	OF 4 (DOUSLEI) - 4 GOS						
On completion of 3 years of age	Measles and Rubella (MR)	One dose for all children					

SCHOOL-GOING AGE

At school entry (5 years)	OPV (Booster) – 5 th dose DT	One dose for those who have received the primary course of DTP/DT.				
In school (12-15 years)	aTd (Adult Tetanus and diphtheria)	One dose for those who have received the primary course of DTP/DT.				
In school (12-15 years)	Rubella	One dose of Rubella vaccine should be administered to all children between the ages of 12 and 15 years.				
PREGNANT WOMEN		•				
First pregnancy	Tetanus Toxoid – 1 st dose (TT1) after the 12 th week of pregnancy	Two doses of Totanus Toxoid should be given during the first pregnancy to prevent Neonatal Tetanus				
	Tetanus Toxoid – 2 nd dose (TT2) 6-8 weeks after the first dose	The 2 nd dose should be given at least 4 weeks before the EDD				
Subsequent pregnancies	Tetanus Toxoid for the subsequent 3 pregnancies (TT3, TT4, TT5)	One dose of Tetanus Toxold should be administered during every subsequent pregnancy, up to a maximum of five doses in all (i.e. TT1-TT5)				
FEMALES IN THE CHILD-BEARING AGE GROUP						
15-44 years	Rubella	One dose of rubella vaccine to all females between 15 and 44 years of age, who have not been immunized earlier.				

7.3 Prevention and Control of Chronic Non-Communicable Diseases

Introduction

The major chronic non-communicable diseases (NCDs) are cardiovascular disease (including coronary heart diseases [CHD], cerebrovascular diseases [CeVD] and hypertension), diabetes, asthma, chronic obstructive pulmonary disease. In 2001 chronic NCDs accounted for 71% of all deaths in Sri Lanka, compared with 18% due to injuries, and 11% due to communicable diseases, and maternal and prenatal conditions. Analysis of age-standardized data for 1991-2001 has shown that the chronic NCD mortality is 20-30% higher in Sri Lanka than in many developed countries. Moreover, according to the Register General it also suggests that NCD mortality rates have been rapidly increasing during the past decade. The epidemiological, social and demographic transitions are responsible for the increasing NCD burden in Sri Lanka.

Current situation of chronic NCDs in Sri Lanka

The NCD burden is rising

During the past half-century the proportion of deaths due to circulatory disease (such as heart disease) has increased from 3 percent to 24 percent while that due to communicable diseases has decreased from 42 percent to 20 percent (Figure 1). Mortality rates from NCDs are currently 20–50 percent higher in Sri Lanka than in developed countries. The disparities are most substantial for cardiovascular disease and asthma. Unlike in developed countries, mortality rates from NCDs, especially cardiovascular disease, have not fallen significantly during the past three decades in Sri Lanka.

50

40

40

30

E

20

30

Diseases of the circulatory system

1945 1960 1980 2000 2003

Year

Figure 1 Trend of proportion of deaths due to major causes, Sri Lanka, 1945-2003

The major chronic non-communicable diseases

Cardiovascular diseases (CVD)

- a) Coronary Heart Diseases When considering deaths due to coronary heart diseases (CHD), large proportion of deaths occurs due to myocardial infarction. Currently, ischemic heart disease (IHD) including myocardial infarction is the leading cause of mortality in hospitals in Sri Lanka. Sri Lanka has observed hospital admission rates due to IHD at 330 admissions per 100,000 population.
- b) Cerebrovascular Diseases Hospital admissions due to cerebrovascular diseases (CeVD) and related causes have increased by about 20% from 170,000 in 1999 to 210,000 in 2005.
- c) Hypertension According to a study done during 1998 2002, using a representative national sample by Wijewardene et al (2005), age standardized prevalence rate for hypertension was 19% in Sri Lanka, with little difference between men and women. Many studies that have been carried out in the last decade at district and national levels showed similar results.

Diabetes

Prevalence of diabetes in Sri Lanka has gradually increased over the last two decades. This is evident from many studies conducted over the last 20 years. One in five adults in Sri Lanka has pre-diabetes or diabetes, and one third of them were found to be undiagnosed according to a report by Katulanda et al (2008). The same study indicated that age and sex standardised diabetes prevalence in those above 20 yrs was 10.3%. Higher overall prevalence (age standardized) of 13.9% and 14.1% for diabetes and prediabetes respectively was reported from a study by Wijewardene et al (2005) that involved 6047 participants representing four provinces of Sri Lanka. Hospital admissions due to diabetes and related complications has shown a parallel rise from 86 to 226 per 100,000 over the last two decades.

Chronic respiratory diseases

Chronic respiratory diseases include asthma, chronic obstructive pulmonary disease (COPD), respiratory allergies, occupetional lung diseases and pulmonary hypertension. Prevalence of bronchial asthma among adults in Sri Lanka varies from 15%- 20% depending on the geographical region. Over the last two decades, hospital admissions and deaths due to bronchial asthma have increased significantly.

Chronic renal disease (CKD)

Chronic renal disease of unknown etiology is an emerging public health issues which has been reported from the North Central and North Western provinces. The specific causes are still being investigated and appropriate specific interventions may be required in the future.

Major risk factors for chronic NCDs

There are few shred modifiable risk factors that are responsible for all major chronic NCDs, namely smoking, unhealthy diet, physical inactivity and harmful alcohol use. Prevalence of these risk factors at population level has a major influence on morbidity and mortality due to NCDs.

Smoking

According to the risk factor survey carried out by the Ministry of Health, the prevalence of (current) smokers among adult male is 22.8% while among female is less than 1 %. Although a declining trend is observed over the past few years, this is not reflected in the drop of overall sales for tobacco related products.

Unhealthy diet

According to the risk factor survey carried out by the Ministry of Health, unhealthy food could be defined as foods that contain high-salt content, high-sugar content, high transfatty acids and saturated fat. High consumption of fruits and vegetable is strongly associated with better health outcomes. Although the traditional Sri Lankan diet is vegetable based, a large proportion of adults (82%) do not consume adequate amount of vegetables. Despite the availability of an abundance and variety of fruit in Sri Lanka,

the average consumption is found to be inadequate. Despite a modest consumption of fat (15%-18%) by the Sri Lankans, higher percentage of saturated fats is included in the diet compared to unsaturated fat. Higher saturated to unsaturated fat ratio is an important risk factor for development of cardiovascular diseases. The daily intake of salt (10g /day) and added sugar (60g/day –based on food consumption data, 35 g/day based on individual dietary records) is also high in Sri Lankan diet when compared to WHO recommendations.

Physical inactivity

According to the risk factor survey carried out by the Ministry of Health, moderate level physical activity is a protective factor against many NCDs. Majority of Sri Lankans (78%) are engaged in moderate or higher level physical activities (> 600 Metabolic Min Week). However, only a small proportion is engaged regularly in recreational activity. Female are significantly sedentary (30%) compared to males (19%) and this is also reflected in the higher mean BMI of the former.

Alcohol consumption

Percentage of current drinkers is significantly higher in males (26.0%) compared to females (1.2%). However, less than five percent of male population takes alcohol more than 4 days per week.

Other risk factors-

Stress - stress is an imprecise term which has different scientific meanings and associated with several psychosocial conditions. An Australian Expert Working Group (2003) examined the association between stress and cardiovascular diseases, concluded that only certain conditions (depression, social isolation and acute life events) associated with "stress" are risk factors for cardiovascular diseases.

Air pollution - Air pollutants consist of gaseous pollutants, odors and suspended particulate matter. Air pollution has both acute and chronic health effects which is a known risk factor for chronic respiratory diseases and cardiovascular diseases. In Sri Lanka Industrial emissions and vehicular emissions are the main contributing factors for outdoor air pollution. Indoor air pollution is mainly identified in rural areas mainly in closed kitchens and in industries where air quality is not being maintained properly.

Obesity

Obesity is a risk factor for CVD and diabetes, and it also plays a role in some cancers. Overall obesity levels in Sri Lanka have been increasing for the past 20 years.

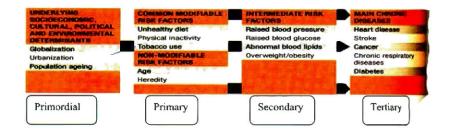
Wijewardene et al. (2005) found that 20.3 percent of men and 36.5 percent of women aged 30–65 years were obese (body mass index [BMI] ≥25 kg/m²), compared with 25.0 percent and 24.7 percent of men and women in the United

States, and 12.0 percent and 28.5 percent of men and women in the Russian Federation.

Prevention and control of chronic NCD'S

The epidemiological principals applied for prevention of NCDs are the same as communicable diseases. This include primary, secondary and tertiary prevention of the diseases. The following diagram shows a useful model to understand the development of chronic diseases and the prevention and control applicable to each stage of paradigm.

Prevention paradigm



National chronic NCD program

The national NCD policy has been approved by the cabinet of ministers in 2010 which lay down the foundation for the national NCD prevention and control program. There are key nine strategic areas which encompass health promotion, primary, secondary and tertiary prevention activities.

Main goal of the national NCD prevention and control policy

To reduce premature mortality (less than 65 years) due to chronic NCDs by 2% annually over the next 10 years through expansion of evidence-based curative services, and individual and community-wide health promotion measures for reduction of risk factors

Key Strategies in the national NCD prevention and control program

The following strategic areas are identified and prioritized for achieving the policy objective:

 Support prevention of chronic NCDs by strengthening policy, regulatory and service delivery measures for reducing level of risk factors of NCDs in the population

PHI Manual - Chapter 7

- II) Implement a cost-effective NCD screening program at community level with special emphasis on cardiovascular diseases
- III) Facilitate provision of optimal NCD care by strengthening the health system to provide integrated and appropriate curative, preventive, rehabilitative and palliative services at each service level
- Empower the community for promotion of healthy lifestyle for NCD prevention and control
- V) Enhance human resource development to facilitate NCD prevention and care
- VI) Strengthen national health information system including disease and risk factor surveillance
- VII) Promote research and utilisation of its findings for prevention and control of NCDs
- VIII) Ensure sustainable financing mechanisms that support cost-effective health interventions at both preventive and curative sectors
- Raise priority and integrate prevention and control of NCDs into policies across all government ministries, and private sector organisations

Main components of prevention and control of NCD

- Health promotion and primary prevention of NCDs.
- 2. Early detection
- 3. Treatment and follow up of patients
- Surveillance

Program coordination and implementation -

The national level planning, implementation and monitoring will be carried out by the NCD unit which is the focal point for NCD prevention and control activities. However, district level activities will be planned, implemented and monitored by the Medical Officer in charge of NCDs (MO/NCD) at the office of the Regional Director of Health Service (RDHS) under the guidance and supervision of the RDHS. At the divisional level, the NCD prevention and control program is conducted by MOH and respective primary and secondary care curative institutions of the area.

Functions of the PHI in NCD prevention and control program

Public Health Inspector, as a member of the Primary Health Care staff has an important role to play in the National NCD prevention and control program. In consistent with the National NCD programme, it is PHI's duty to assist the Medical Officer of Health in implementing the prevention and control of NCD in his respective area.

The following are the main functions of the PHI in his respective area, while he is expected to contribute to coordinated action by all other primary health care staff in implementing the NCD programme in the MOH area.

- Coordinate with relevant departments/agencies to create conducive environment for prevention and control of major NCD at the different settings; Home, School and Community (Collaborative activities with other stakeholders would be; promotion of Home gardening, health promoting schools, Community Recreational areas/activities, anti-smoking and alcohol activities.)
- Enforce Laws/Regulations related to NCD.
 e.g. Tobacco and Alcohol Act, School Canteen Policy
- Contribute in social mobilization and community empowerment for NCD prevention and control
 - Conduct awareness (health education) in the schools, work places and other community settings
 - Create community awareness on NCD prevention and control
 - Promotion of healthy tifestyle to prevent major NCD in the stakeholder sectors/agencies; local authority, youth centers, agriculture sector, social sector, sports and civil organizations etc.
 - Organized health, check up in different settings.
 - Disseminate updated information in relation to NCD.
- 4. Assist in prevention and control of NCD

(PHI should pay attention to the following while attending to his routine duties):

- Detect early symptoms and refer for care
- Follow up of patients' compliance
- 5. Assist in surveillance activities
 - Provide routine collection of data.
 - Assist in special surveys when required (risk factor survey)

Other Non Communicable Diseases

There are other NCDs, prevalent in significant amounts confining to specific areas. The examples are Thalassaemia in Uva, North-western and North—central provinces and Chronic Renal Disease of unknown origin in Anuradhapura and Polonnaruwa districts. Intensified focused interventions to intervene these diseases are launched in these areas, the PHII should assist the MOH in conducting special programmes accordingly.

Prevention and Control of Acute Non-Communicable Diseases (Injuries)

1. Definition and categorization of injuries

The standard definition of an injury as used by WHO is: "a bodily lesion resulting from an acute exposure to physical agents such as mechanical energy, heat, electricity, chemicals, and ionizing radiation or an impairment of function from sudden tack of essential agents such as air, water, warmth as in drowning, strangulation or freezing. Injuries are the acute, physical conditions listed in Chapter XIX and Chapter XX in the *international Statistical Classification of Diseases and Related Health Problems, Tenth revision* (ICD-10).

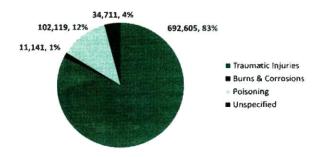
Injuries can be categorized in a number of ways. However for identifying intervention opportunities they are categorized by the intent – intentional and unintentional injuries. Intentional injuries include 'self inflicted, interpersonal violence and collective violence'. Unintentional injuries are sub-divided by the causal mechanism: Road Traffic Injuries (RTI), Drowning, Burns/Fires, Falls and Poisoning, Unintentional injuries can also be sub-divided based on the place of injury – Road traffic injuries, Home injuries, Occupational injuries, Leisure injuries etc.

2. Burden due to injuries

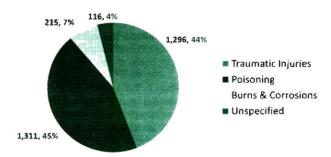
Injuries are a leading cause of death, hospitalization and disability throughout the world accounting for 9% of all deaths and 16% of the burden of disability annually. Injuries ranked 5 th among all causes of death in the Region. More than 90% of injury-related deaths occur in low and middle income countries where unsafe conditions of living, working and travel greatly increase the risk and where prevention efforts, access to high-quality treatment and rehabilitation services are usually lacking. Injuries contribute to significant socioeconomic losses in terms of lost economic opportunity, the heavy and rising demand on national health budget and also in terms of personal suffering. Health sector absorbs a substantial portion of the direct costs arising from injury including emergency care, surgery and rehabilitation.

In 2005, injuries accounted for 23.1% of all registered deaths in Sri Lanka. Traumatic injuries continue to be the leading cause of hospitalization since 1995. According to annual health statistics, in 2007, there were 669,052 admissions (14.5% of the total) and 1389 deaths (3.6% of the total) in the government hospitals due to traumatic injuries. In the same year, there were 62,721 (1.4% of the total) admissions due to poisoning. This includes 17,723 (28.3%) due to pesticides and 44,998 (71.7%) due to substances such as drugs, medicaments and biological substances and non-medicinal substances. Poisoning leads to 4.0% (1561) of deaths reported in the government hospitals. Furthermore, there was a total of 13,409 (0.3%) hospital admissions and 292 deaths (0.8%) due to burns and corrosions.

Injuries - Admissions to Government Hospitals (IMMR, 2008)



Injuries- Deaths in Government Hospitals (IMMR, 2008)



Among unintentional injuries, Road Traffic Injuries (RTI) represents the major fraction. According to statistics from the Department of Police, in 2008, there were a total of 31872 RTI of which 2176 were fatal accidents resulting in 2328 deaths. In Sri Lanka, RTIs kill at least one person in every four and half hours and six road traffic related crashes happen, injuring three persons on the road per day. Industrial Safety Division of the Ministry of Labour reports that every year, Sri Lanka losses around 500,000 man-

days owing to occupational accidents. In 2008, 49 fatal and 1525 non fatal accidents were reported. Home accidents are another important area where due consideration is needed. The exact magnitude of this problem is not known.

According to a community based study carried out in 2003, Galle District, 2% of individuals reported non-fatal injuries during preceding 30 days, giving an age-sex-sector adjusted annual incidence of 24.6 per 100 population. Among those, 93.3% reported non-fatal unintentional injuries. The leading causes were falls 26.7% and mechanical injuries 25.6%, followed by road traffic injuries 20.5%.

3. Prevention of Injuries

Prevention of injuries can be classified according to the epidemiological model of prevention.

- **a) Primary prevention -** Reductions in the exposure to risk and prevention of injuries from occurring, through the adoption of safer behaviours and safer environments.
- b) Secondary prevention In the event of an injury, reductions in the severity of injury and its impact e.g. early diagnosis and appropriate management of an injury by applying basic first aid at the scene of an incident, early transport to a hospital, emergency care and inward trauma care, to stop an injury from having more serious consequences.
- c) Tertiary prevention Reductions in the consequences of injury through physical and psychological rehabilitation to prevent further complications

4. The National programme on injury prevention and management in Sri Lanka

The national policy for injury prevention and management has been drafted and the national programme on injury prevention and management is formulated according to the eight strategic objectives of the National Policy. Key action areas are identified for each of the strategic objectives.

The strategic objectives

- a) Establish a lead agency to strengthen coordination for injury prevention and management within the health sector and with other agencies
- b) Strengthen advocacy and multi-sectoral involvement
- c) Develop population-wide injury prevention interventions
- d) Review, update, introduce legislative and regulatory mechanisms and support for enforcement of safety law and measures
- e) Empower the community and healthcare providers for prevention of injuries and disabilities, and harnessing health literacy
- f) Strengthen the organization capacity to improve pre-hospital care and institutional care for emergency and rehabilitation at all levels of care

- g) Strengthen injury surveillance and information systems
- h) Monitor and evaluate on-going activities
- The key activities identified according to the strategic objectives of the national policy
- Increasing awareness among: general public, school children and preventive health staff (MOH, PHI, PHM) on safety promotion, injury prevention and first aid
- Strengthening pre-hospital care for the injured through establishment of formal and informal Emergency Medical Services (EMS)
- Strengthening institutional care for injured (provision of emergency care and inward trauma care) through regular training to medical & para-medical staff and provision of basic facilities
- Establishment of a National Injury Information System linked with non-health injury surveillance systems (e.g. Registrar General's, Police, Labour, JMO)
- Carrying out research to identify suitable injury prevention interventions suited to Sri Lanka

Implementation of the National programme on injury prevention and management

At the national level: planning, coordinating implementation of the policy, monitoring and evaluation will be carried out by the NCD unit, which is the focal point for both chronic and acute NCD programmes. At the district level planned, implementation, monitoring and evaluation will be carried out by the Medical Officer in charge of NCDs (MO/NCD) at Regional Directors Health Service (RDHS) office under the guidance and supervision of the RDHS. At the divisional level the injury prevention and management program will be conducted by Medical Officer of Health (MOH) and respective primary and secondary care curative institutions of the area.

Trauma Secretariat and National Poison and Drug Information Centre: are the national advisory bodies for implementing strategic objective 6 in the national policy.

Role of the Public Health Inspector in the National Pprogramme on Injury Prevention and Management

The Public Health Inspector shall assist the Medical Officer of Health (MOH) in implementing the National Pprogramme on Injury Prevention and Management within his area.

The following are some of the key activities:

- Assist the MOH to coordinate injury prevention activities with relevant agencies (local authority, Police, schools, factories, youth centers, civil organizations etc.)
- Assist the MOH to develop awareness programmes on safety promotion & injury prevention (safe behaviors, safe environments) depending on the local priorities

- Conduct awareness programmes on safety promotion & injury prevention (safe behaviors, safe environments): to the general public, factory workers, school children (through the existing school health programme), non-health sector staff (e.g. Samurdhi officers, Grama Niladari Officers) and Community based organizations
- Assist the MOH to promote safe environments in collaboration with non-health stakeholders (e.g. placing road signs at Black spots to prevent RTI and placing warning signs at high risk spots to prevent drowning in collaboration with Local Authorities, liaising with Authorized Officers for prevention of occupational injuries).
- Assist the MOH to organize training on First Aid in collaboration with NGOS (St. Jones, Red Cross, Sarvodaya etc): to school children, general public etc.
- Assist the MOH for the establishment and maintenance of basic emergency care in the primary health care institutions within the MOH area (i.e assist in organizing of training of medical and para-medical staff on basic Trauma Care)
- Assist the MOH for the establishment and maintenance of an injury information system within the MOH area (i.e assist in linking with non-health sector injury data police, factories etc.)

7.4 Emerging and Re-emerging Infectious Diseases

<u>Emerging Infectious Diseases</u> have been defined by WHO as the infections, the incidence of which in humans has either increased during the last two decades or unknown and newly identified diseases which cause public health problems either locally or internationally and threaten to increase in near future.

Emerging Infectious Diseases

- HIV infection which causes AIDS
- Ebola Haemmorahagic fever
- New forms of Cholera
- Hepatitis C &E
- Legionnaires' Diseases
- Lyme disease
- Creutzfeldts-Jakob diseases proven to be associeted with Bovine Spongiform Encephalopathy of cattle

Re-emerging Infectious Diseases are those that have reappeared after a significant decline in their incidence and they were no longer considered a public health problem. Appearance of Plague in an explosive form in 1994 after a period of quiescence of almost 27 years is an important example of re-emerging infections.

Re-emerging Infectious Diseases

- Tuberculosis- increasing due to close association with HIV infection.
- Cholera
- Dengue Fever, DHF

PHI Manual - Chapter 7

- Malaria
- Shigella dysenteries [SD1]
- Meningococcal meningitis
- Japanese encephalitis
- Food borne trematodes
- Rift valley fever
- Trypanosomiasis
- Lassa fever.

What causes emergence or re-emergence of infectious diseases? Several factors contribute to the emergence and re-emergence of infectious diseases.

- Increasing population, overcrowding in cities with poor sanitation
- Rapid and intense both national and international travel
- Changes in handling and processing of large quantities of food
- · Increase exposure of humans to disease vectors and reservoirs in nature
- Deterioration of public health infrastructure which is unable to cope with population demands
- · Antibiotic resistance linked with increase misuse of drugs
- · Environmental changes (climate and defrostration)

Key tasks in dealing with emerging diseases

- Evidence based clinical practice
- Surveillance
 - epidemiological
 - laboratory
 - ecological
 - anthropological
- Investigation and control measures
- Implementation of preventive measures
 - behavioural
 environmental
- Monitoring and evaluation

Approaches for better surveillance

- Surveillance standards
- Integrated surveillance systems
- Outbreak verification and response
- Field epidemiology training
- Strengthening of Laboratories

Surveillance of Emerging and Re-emerging Diseases

- Data collection/Information e.g. Notification
- Data analysis: Disease pattern/trend etc.
- Inform relevant authority for action
- Follow up -continuous monitoring.
- Evaluation

7.5 International Health Regulations

The International Health Regulations or HHR are the most important legally binding set of regulations for WHO member states to protect themselves against serious Public Health threats whether of biological, chemical or radio-nuclear origin. At the same time IHR is expected to ensure that there are no unnecessary or excessive restrictions in international traffic or trade for public health purposes.

The latest version of the IHR – which was adopted by World Health Assembly in 2005 defines the purpose and scope of the IHR as to prevent, protect against, control and provide a public health response to the international spread of disease in ways that are commensurate with and restricted to public health risks, and which avoid unnecessary interference with international traffic and trade.

Historical back ground

Travel has always been a means by which disease has spread across the world. In the 14th century in the city-state of Venice it resulted in protective legislation which has evolved over the centuries, into the current International Health Regulations.

The first recorded quarantine regulations were written in Venice in 1377 to protect the city state from diseases carried by ship borne rats.

Nearly five centuries later in 1851, the first International sanitary conference laid down certain principles for protection against disease, but another century elapsed before a wide variety of measures were forged into the International Sanitary Regulations of 1951, providing a frame work on guarantine measures.

These were revised and became the International Health Regulations (IHR) in 1969 with six diseases being included for notification namely Cholera, Yellow fever, Plague, Srnall pox, typhoid and relapsing fever. IHR was further revised to include notification only for Plague, Yellow fever and Cholera. Thus the IHR (1969) which was in force up to 15 June 2007 was limited to notification of just three diseases, and lack mechanisms for collaboration and capacity to take risk-specific measures directed at control of out breaks of diseases. Taking these deficiencies and other weaknesses in the IHR (1969) and changes in health situation in the world into consideration, WHO and member countries revised the IHR, which was adopted by the World Health Assembly in May 2005 and the new regulations came into force in June 2007.

IHR (2005)

On 23 May 2005, the World Health Assembly adopted the new International Health Regulations (IHR). The revised IHR came into force on 15 June 2007 in 193 member countries of the World Health Organization. The goal of the IHR is prevent the international spread of emerging infectious diseases such as severe acute respiratory syndrome (SARS), as well as other public health emergencies such as chemical and industrial accidents, that may affect populations across borders. The IHR (2005) are an update of the IHR (1969), which were limited to the reporting of just 3 infectious diseases, cholera, plague and yellow fever.

The IHR (2005) are broader in scope and require each country to report to the WHO any Public Health Emergency of International Concern (PHEIC), whether nuclear, biological or chemical in nature irrespective of the origin. Diseases notifiable under the IHR (2005) include unusual diseases such as small pox, wild poliovirus infection, human influenza (new subtype) SARS, epidemic prone diseases such as cholera.

pneumonic plague, Yellow fever, viral hemorrhagic fevers, West Nile fever and diseases of special regional concern such as dengue fever.

Requirements of the IHR 2005

The Requirements that need to be fulfilled by WHO member countries to comply with the IHR (2005) include.

- I. Designing a national IHR focal point
- Strengthening core capacity to detect report and respond rapidly to public health events.
- III. Assessing events that may constitute a PHEIC within 48 hours and notifying WHO within 24 hours of assessment
- Providing routine inspection and control activities at international airports, ports and ground crossings.
- V. Examining national laws, revising health documents / forms and certificates and building a legal and administrative fremework in line with the IHR requirements.

Notification Procedure

The IHR (2005) broaden the scope of the 1969 regulation to cover existing, new and reemerging diseases including emergencies caused by non infectious agents.

The revised IHR, unlike the IHR (1969) which requests notification of only three diseases, has a wider scope. Hence the term Public Health Emergency of International Concern (PHEIC) was coined. It requires notification of all Public Health Emergencies of International Concern, including such diseases and public health events on a decision matrix developed to assess and notify such events.

National Focal Points

Designation of a national IHR focal point is a new concept in the revised IHR.

The role of the national focal point includes;

- Direct operational link of member states with WHO for notification and information sharing purposes.
- Implementing the revised regulations.

In Sri Lanka epidemiology and guarantine units are designated as joint IHR focal points.

Definition of core capacities

Another important area of change is defining core capacities required at the various levels for surveillance, early recognition, notification and response to PHEIC. The revised IHR clearly outline the various capacities required at points of international arrivals and departures, at central, district and community levels.

Recommended Measures

The regulations provide temporary and standing (continuous) recommended measures to be applied by member countries during Public Health Emergencies of International Concern.

PHI Manual - Chapter 7

These recommendations will be based on the assessed risk and severity and recommended measures commensurate with the WHO and may make such temporary or standing recommended measures following the assessment of PHEIC.

Routine sanitary measures at ports of arrival and departure would continue to be necessary.

External advice regarding !HR

The revised (HR has provisions for member states to seek external as required and for WHO to offer this support. An advisory panel of experts, an IHR emergency committee (for emergency recommendations) and an IHR review committee to settle disputes that may arise among counting are established. These committees will offer standing recommendation and advice an IHR functioning.

Definition of core capacities

The IHR (2005) set out the basic Public Health Capacities a state must develop, strengthen and maintain at the primary intermediate and national levels in order to detect, report and respond to public health risks and potential Public Health Emergencies of International Concern; In addition, specific capacities are required for the implementation of measures at designated international airports, ports and ground crossings.

These requirements are defined in Annex- 1 of the Regulations. The required public health capacities are summarized below.

- Disease surveillance and response
- Strengthen health security in international travel and airport

Minimum core capacity (Annex- 1.B) requirements

Strengthen Disease surveillance, reporting, notification, verification, response and collaboration activities.

At all times

- Access to medical service
- Transport of ill travelers
- Inspection of conveyances
- Control of vectors / reservoirs

For responding to events

- Emergency contingency plan
- Arrangement for isolation (human / animal)
- Space for interview / guarantine
- Apply specific control measures

Notification

Each member country has to assess disease outbreaks and other public health emergencies using the decision instrument. And if found to be notifiable, should notify WHO within 24 hours of assessment. It is necessary to provide WHO with accurate and detailed public health information available to it on the notified event including case definitions, laboratory results, sources and type of the risk, number of cases and deaths, conditions affecting the spread of the disease and the health measures employed.

Events detected by national surveillance system or reported by media or any non governmental organization Known epidemic Any event of Unusual diseases prone diseases potential Small pox Cholera international public · Wild polio virus Pneumonic health concern · Human influenza plague (new sub type) Viral SARS hemorrhagic fevers Yellow fever West Nile fever Is the public health impact of the event serious? Is the event unusual or unexpected? Is there significant risk of international spread? Is there significant risk of international travel or trade restriction? If yes to any two of these questions National IHR focal point to notify WHO

Simplified version of the decision instruments

According to IHR (2005) "Competent Authority" means am authority responsible for the implementation and application of health measures under the regulations. The Port health officer and airport health officers are the competent authority for Port and Air Ports respectively on matters related to public health.

Port health officer and airport health officers are assisted by Public Health Inspectors and Food and Drug Inspectors to carry out the public health functions under the regulations.

Some of the tasks the competent authority is expected to perform are;

- 1. Monitor vessels and goods to ensure that they are free of infection, contamination, disease vectors or reservoirs, granting of pratigue, ensure facilities such as canteens, toilets used by travelers at the air ports and ports are maintained in a sanitary condition; ensure air ports and ports premises are free from vectors such as mosquitoes and disease reservoirs; be responsible for supervision of fumigation, disinfection of vessels / containers / baggages, safe disposal of waste etc.
- Monitor and control the discharge by ships of sewage, refuse, ballast water and other potentially disease causing matter which might contaminate the water of a port; responsible for supervision of health staff including the conduct of inspections and medical examinations as necessary.

Prepare a contingency plan to deal with an unexpected public health event or public health emergency.



CHAPTER 8

Collection, Storage and Transport of Samples for Investigations

A Public Health Inspector's duties, in connection with food hygiene and safety of drinking water, often involve obtaining and transporting of samples for chemical/microbiological analysis. Adherence to the correct method of obtaining samples, storage, labeling, and conveyance to the laboratory, are all very essential as legal proceedings could commonly ensue. Therefore it is very important to pay attention to all details of the correct procedures that have to be followed.

8.1 Samples for microbiological investigations

Water Samples

Samples of water should be collected in sterile bottles which could be obtained from the Food and Water Microbiology Laboratory, and should be taken care to prevent contamination when collecting the sample. For sampling, chlorinated water bottles containing Sodium thiosulphate should be used, which can also be obtained from the same laboratory.

Collection of a water sample from a tap

- 1. Wipe the outlet of the tap with a clean cloth to remove any dirt.
- 2. Wash your hands with soap and water.
- 3. Open the tap and allow the water to run for 30 seconds.
- Flame the mouth of the tap for 30 seconds. If the tap is plastic clean the mouth with a cotton wool swab soaked in surgical spirit or 70 % alcohol, and leave for 2 minutes.
- 5. Open the tap and allow water to run out for 30 seconds.
- 6. Remove the craft paper covering the lid and open the bottle.
- 7. Fill 3/4 of the bottle with running water while holding the lid downwards.
- 8. Replace the lid and the craft paper.

Collection of a water sample from a well

To collect the water sample from the well, use a clear, colourless glass bottle (preferably wide-mouthed) of approximately 500 ml capacity. It should have tightiting glass lid or a screw-cap type metal lid. After tying one end of a twine thread (long enough to lower the bottle into the well) around the neck of the bottle, boil the bottle along with the thread, for a period of 10-15 minutes. Now lower the sterile bottle into the well, taking care to avoid contamination the bottle, and collect a sample of water from the centre of water surface, about 1 foot below the surface. About 3 of the bottle should be filled with water. After withdrawing the bottle with

water, close the bottle and wrap around the lid and mouth, with a craft paper (refer the circular on collection of water samples for analysis, issued by the Ministry of Healthcare & Nutrition, in 2009).

Collection of a water sample from a stream

- 1. Walk towards centre of the stream as far as possible.
- Collect the sample, holding the bottle with its mouth directed towards the current of water, about one foot below the surface of water.

After collecting the sample from the tap, well or stream, the label duly filled should be pasted on the bottle. A properly filled request form should accompany the bottle when sending it to the analytical laboratory.

Transport

Transport the sample to the laboratory in a cold box with ice packs. The sample could be transported without ice, if it is possible to transport it within 2 hours of collection, The sample should be sent to the laboratory within 24 hours of collection and must be kept in the refrigerator until dispatch.

Food Samples

General guidelines on collection of food samples

- Sampling should be carried out by an experienced, trained person. Care should be taken to prevent contamination during collection.
- Whenever possible samples should be sent to the laboratory in the original, unopened containers or packages.
- If the products are in bulk, or in large containers, representative samples should be collected using sterile sampling apparatus, into sterile containers. The containers should be wide mouthed, leak-proof and dry.
- 4. Collect at least 100g of the food item for each sample unit.
- No preservatives should be added to the samples.
- Label the sample and send to the analytical laboratory, with a request form duly filled.

Storage and Transport and of food samples

Adequate precautions should be taken to prevent any change occurring in the original microbial flora of the food.

- Samples should be transported to the laboratory as quickly as possible.
- Original storage conditions should be maintained during storage and transport.
 - Dehydrated foods, dry foods and canned foods, that are not perishable should be stored and transported without refrigeration. These should be stored in a clean, cool, dust-free place.
 - Refrigerated foods, perishable foods and samples drawn from original packaging and transferred to new containers, should be stored and transported in cold boxes with ice packs. Refrigerated foods should not be frozen.
 - Frozen foods should reach the laboratory in the frozen state. Collect frozen foods in pre-chilled containers (containers kept in the freezer long enough to chill them thoroughly).

Please contact Food and Water Microbiology Laboratory before sending samples. These samples should preferably reach the laboratory during the first 3 days of the week, unless urgent.

Clinical Samples

General guidelines on collection and transport of samples for microbiological investigations:

- Use sterile containers obtained from the laboratory. These should be leakproof containers, preferably screw-capped.
- 2. Avoid contamination when collecting the samples.
- 3. Samples should be collected before antibiotics treatment is started,
- A label, containing following information should be pasted on the container.
 - Name of the patient
 - Reference number
 - Investigations required
 - Date (of collection)
- Samples for Microbiological examination should be sent to the laboratory as soon as possible.
- A request form, duty filled with following information should accompany the sample;
 - Name, reference number, age, sex, hospital and ward, or address (if not hospitalized)
 - · Date and time of collection
 - · Investigations requested
 - · Clinical history/ reason for requesting the investigations
 - . Treatment given, if any
 - Signature, name, designation, contact number (tel ffax) and address of the person sending the sample

Specimens should be packed well to prevent leakage and breakage during transport.

- Make communication with the laboratory (before and after sending sample).
 - · To seek advise on collection and transport of samples
 - To inform about sample/s to be dispatched to the laboratory
 - . To inquire about the report
 - To seek assistance in interpretation of the results of investigations

Stool samples from patients with suspected gastroenteritis/ food poisoning

- A specimen of stools is always better than a rectal swab. A rectal swab should be sent only when it is not possible to obtain a sample of stools.
- A fresh specimen should be sent, if requesting for amoebae ova and cysts (AOC).
- Instruct the patient to pass stools into a clean, dry, disintected bedpan or on to a clean paper.
- Transfer a portion of stools, preferably from an area containing blood, pus or mucus, into a clean, dry, wide-mouthed and leak-proof container.
- Transport the sample to the laboratory as soon as possible. Should there be a
 delay, send the sample in a transport medium such as Carey Blair medium,
 VR medium. Alkaline Peptone Water (APW) could be used if cholera is
 suspected.

Samples sent for the investigation of food poisoning

- Samples of remnants of implicated foods and stools and vomitus of patients could be sent in sterile and wide mouthed containers.
- The request form accompanying samples should contain relevant data such as symptoms, time interval between consumption of implicated food and conset of symptoms.

Stool samples from a patient having Acute Flaccid Paralysis (AFP)

It is mandatory that all patients with acute flaccid paralysis must be reported to the epidemiologist, and subjected to virological examination to exclude polici.

- Two stool samples each should be collected from all patients with AFP, within 14 days of onset of paralysis. As the virus concentration decreases with time all attempts must be made to collect the samples very early in the infection.
- As the viral shedding is intermittent, the two stool samples should be taken 24-48 hours apart.
- The quantity of a sample should be 8-10 g each (size of two adult thumb nails or two tamarind seeds).
- Stools should be collected in a clean, preferably sterile, screw capped, leakproof bottle or in a container provided by the Epidemiology Unit, Colombo.
- Labeled samples should be sent to the laboratory with a request form containing date of onset of paralysis, date of collection of stools, date of dispatch of stools and date of the last polio vaccination dose taken by the patient.
- Stool samples have to be carefully sealed in containers and stored immediately in a refrigerator or packed in a cold box with ice packs, pending transport. Undue delays or prolonged exposure to heat may destroy the virus. Sample should reach the laboratory within 72 hours of collection.
- The samples should be hand delivered to the MRI in a cold box packed with ice. Samples are received at the MRI throughout the day and on all days including holidays. The samples should be handed over to the MLT at the polio laboratory or to the Relief MLT (RMLT) on duty, if it is outside duty hours.

Sputum for diagnosis of Tuberculosis

- When suspecting pulmonary tuberculosis, three sputum samples should be sent for the detection of Acid Fast Bacilli (AFB) and culture.
- Sputum samples should be collected in the open air, away from other people.
 If a room is used it should be a separate and well ventilated room.
- Sputum samples should be collected into clean, wide mouthed, leak-proof, unbreakable containers with tight-fitting lids, preferably screw capped. The container should be easily disposable by burning, after the necessary smears are made and the culture media are plated.

Procedure of collecting sputum into the container

- Explain to the patient, the reason for sputum examination
- Demonstrate how to open and close the container
- Give the labeled container to the patient and explain how to collect the sample

The sample should be an expectorated sputum and not saliva. Advise the patient to deeply inhale 2-3 times and cough out sputum deeply from the chest, into the container held close to the mouth, 3-5 ml of good quality (thick) sputum should be collected without contaminating the outside of the container.

- · Close the container tightly
- if there is a delay in transporting, the samples should be kept at 4° C, to retard the multiplication rate of commensals.

Sputum samples are best collected in early morning as soon as the patient wakes up, if the sample is collected at home. Advise the patient to rinse his/her mouth, before collecting the sample.

Head of a suspected rabid dog

The head separated at the neck should be put into a container with a tightly fitting lid and then this container is put in a bigger container with ice. Specimen is to be labeled and hand delivered to the MRI. Animal heads are received at the MRI throughout the day, on all days including holidays.

Blood films

For the detection of Malaria Parasites

A thick and a thin smear should be prepared on the same slide.

The pulp of the finger should be pricked with a sterile lancet or needle after cleaning the skin with 70% alcohol. The first drop of blood is wiped away with cotton wool, and the bleeding finger is touched with one end of the surface of the slide and three drops of blood deposited. Another drop is taken to the same surface of the slide inner to the area where the three drops of blood are. Then with the clean unbroken edge of another slide, the single drop of blood is spread uniformly into a thin smear. The three drops of blood taken first are then smeared to cover an area of the size of a 25 cts coin.

For the detection of Filaria Parasites

Only a thick blood film prepared as above is needed.

Dispatch of blood films

Blood films should be air dried. Each film should be wrapped separately with tissue paper or separated from each other by keeping match sticks or ekels in between so that they will not stick to each other.

8.2 Samples for Chemical Analysis

Food sampling

Sampling is an important aspect when sending them for laboratory analysis.

Why food samples are analyzed?

To check

- The purity of food.
- the product quality
- contamination
- Adulteration.
- Composition

Why food samples are collected?

- Consumer complaints
- Asses the violation of existing regulations
- Examine the products in the market.
- Preventive action

Who are the authorized officers to collect food samples?

- Medical Officers of Health
- Food and drugs Inspectors
- · Public Health Inspectors
- Veterinary surgeons in relation to examination and seizure of meat

What are the types of samples?

- Formal
- Informal

What does formal and informal sampling means?

- Informal samples are taken for surveillance and monitoring purposes and to provide advice to food manufacturers
- Formal samples are taken for the purpose of legal evidence as laid down in the Food act No. 26 at 1980 or is sent to an approved laboratory

Where the samples are collecting from?

- · Processing line
- Transport
- Storage warehouse
- Retail shelf

What are the forms of food samples?

- · Solids e.g. Rice
- Liquids e.g. Coconut oil
- · Semi solids e.g. ghee
- · Solids in liquid e.g. canned fish

How do we collect a sample for analysis?

Laboratory sample should be a representative sample of the whole food sample. The following steps should be taken when collecting a proper sample;

- Selective sampling If there are visible contaminants or adulterants, collect the sample directly from such containers.
- (ii) Random sampling If there are no visible contaminants and adulterants random sampling is possible.

During random sampling, the number of containers available for sampling at the ware house, or at bulk storage and the type of food item must be considered. The sampling should be according to the SLS standards (SLS 428: 1977 - Random Sampling Methods)

E.g. lodated salt — The number of containers to be selected from each lot shall be in accordance with the following table.

Scale of sampling

Lot size	Number of containers to be selected
Up to 150	4
151 to 280	7
281 to 500	10
501 and above	16

Containers shall be selected at random, by making use of the 'Table of random numbers' as given in SLS 428; 1977, to ensure proper selection.

Points to be considered when submitting a food sample for analysis

- Cereals, Pulses, whole spices and all powdered samples should be wrapped in polythene or polypropylene (do not use paper as wrapping).
- Enclose the sealed sample in a suitable cover and seal latter also properly. Label the sample clearly including the following information:-
 - Name of the PHL/ E & D I.
 - Area
 - Sample number
 - Date and time of sampling (time is important for microbiological analysis)
 - Common name (generic name) of the food item and type of the sample (formal/ informal)
 - Local authority

A letter requesting analysis should be submitted with each sample, containing the following information;

- · Common name (generic name) of the food item
- Type of sample (formal/ Informal)
- Sample number
- Date and time of sampling
- . Name of the PHL/ F & DI
- PHI area.

- · Local authority area
- Address of PHI / F & DI
- Any other complaints like whether the stock scal was there or not, consumer complaints
- Special tests to be carried out
- 3. Submit the sample as soon as possible after the collection.
- Liquid samples should be sent in glass or plastic bottles. Never use polythene bags.
- 5. Do not use glass containers when sending samples by post.
- Frozen foods (ice cream, ice lollies, yoghurt etc) should be sent immediately in frozen state (0° C). This ensures that frozen samples are received at the laboratory in their original state. Vaccine carriers or ice bags can be useful.
- Bread samples must be sent immediately after collection as the moisture analysis should be completed within 24 hours.
- When sending preservatives (e.gs. Cordials, Jams) for analysis, the original seals on the bottle should not be disturbed.
- Submit a reasonable quantity of the food sample, sufficient for duplicate analysis to be carried out.
- Memorandum published in the Govt. gazette of 07.06.85 shall be submitted with the samples.

Specimen form of a label to be attached to the sample

Food Sampling under the Food Act No. 26 of 1980

Signature of the vendor

Pradesheeya Sabha, Municipal/ Urban council	
Chemical analysis/ Microbiological examination	
 Type of sample: Formal/Informal Name of the sample: Reference number of the Inspector: Date and Time of sampling: Name and address of the vendor: (optional) Whether preservatives are added?: yes/no Name of the authorized officer: Area of the authorized officer: Any special reasons for sampling: 	
	Signature of the authorized officer

Specimen Form of a Requisition to be sent to the approved analyst / additional approved analyst, with the food sample

To the Approved analyst /Additional approv	ved analyst
From the PHI/ F& DI of	ofPradesheeya
Sabha / Urban council / Municipal Council	

The following sample is submitted herewith for chemical analysis/ microbiological examination, under the Food Act No. 26 of 1980.

Please send the analyst Certificate / Report to the following address.

(State your address) -----

- i. Type of sample Formal/ Informal
- ii. Name of the sample:

- iii. PHI reference number:
- iv. Date and Time of sampling:
- v. Name and address of the vendor: (Optional)
- vi. Whether any preservatives for insect contamination (formaldehyde) are added?: yes/ no if yes; quantity added:
- vii. Please indicate any special tests to be carried out (infestation/moulds/extraneous matter/colouring matter/artificial sweeteners/suitability for consumption etc.)
- viii Lot size of the food article seized under the Food Act No. 26 of 1980 (actual quantity should be declared):
- ix. Specimen seal of the actual seal on the sample:

Vendor's specimen seal	authorized officer's specimen seal
Vendor's signature/thumb impression	

	14919191141141141414
	Name and signature of the
	authorized Officer

Sample quantities required for chemical analysis of food

	Food Item	Minimum quantity required
1.	Baking powder	50g or the original pack
2.	Bee's honey and treacte	50ml
3.	Bread	1 loaf
4.	Butter, cheese, margarine and ghee	100g
	Cereals and pulses	250g
6.	Chocolate	50g (container sealed)
7.	Fish, Ory Fish	250g
8.	Foods made out of flours and cereals	100g
	(papadam, biscuits, etc.,)	-
9.	Fruit Juices / Soft Drinks	200m((for preservative
		Testing)
10.	Ice - cream	150ml or 2 cups

PHI Manual - Chapter 8

11. Ice Lollies / Ice packet	200m
12kij. lodized Salt / Salt	100g (original pack required)
13. Jam/Jelly	100g (original pack required)
14. Milk	200ml
15. Milk Powder	250/400g (original pack required)
16. Milk Toffees	200g
17. Oils	100ml
18.Spices (whole / powdered)	100g
19. Sweets	100g
20. Tea, Coffee, and Cocoa	100g
21. Vinegar	375ml
22. Water	2.51
23. Yoghurt	150ml or 2 cups

Please Note

- a. Sending a sufficient quantity of food material will help to carry out duplicate analysis and confirmatory tests.
- b. Cereals, pulses, whole condiments and all powders should be wrapped in polythene or polypropylene(do not use papers).
- c. Label the sample clearly, with the name of the PHI, area, Local Authority address etc.
- d. Laboratory sample should be a representative sample of the whole food sample.
- e. Liquid sample should be sent in glass or plastic bottles.
- f. Frozen Foods (Ice cream, Ice Lollies, Yoghurt etc.) should be sent immediately after collection, under frozen condition (below zero degrees centigrade), so that frozen samples are received at the laboratory, in the original form.
- g. If preservatives are to be tested, send samples intact in their original container.

CHAPTER 9

School Health Programme

Healthy children are an asset to a nation, and needless to say, their well-being is of paramount importance. Sri Lanka has around 10,000 schools in which a total of around 4 million children seek their education. The Department of Health Services runs a special school health programme, coordinated by the Family Health Bureau.

9.1 Short history of School Health in Sri Lanka

Medical inspection of school children in the country commenced in 1919, following a motion which was carried in the Legislative Council. At the beginning only one Medical Officer was functioning to carry out school health work, based in Colombo. By 1927 a lotal of five medical officers were functioning, based in Colombo, Northern division, Central division and Southern division.

In the earliest days common diseases among school children had been oral diseases, hookworm, inflammation of tonsils and adenoids, malnutrition, pediculosis, eye defects, and scabies. Control of communicable diseases has been a priority issue, and for convenience the diseases were classified into 5 groups, as follows:-

1) Common acute infectious diseases: chickenpox, measles, German measles,

whooping cough, mumps, diphtheria, influenza, smallpox, typhoid, dysentery

2) Helminthic intestinal infections: hookworm, roundworm, whipworm,

threadworm

3) Infectious skin diseases: scabies, impetigo, taenia, pediculosis

4) Infectious eye diseases: conjunctivitis, trachoma

Special diseases: malaria, tuberculosis

Following the creation of the Health Unit system in 1926, the subject of school health came under the purview of the Medical Officers of Health. At present a limited number School Medical officers who are engaged exclusively in the promotion of school health, have been appointed, and are based in Colombo, Kandy, Jaffna, Galle and Matara.

In 1980, the Family Health Bureau was vested with the responsibility of acting as the focal point to the programme. In 1931 the first school dental clinic was started in Colombo. By late thirties the school children were subjected to three routine medical inspections, at school entry, mid-way in the school carrier and again at the end of the school carrier.

Even in the early stages of the school health programme, the significant degree of mainutrition among the school children was noticed, and the school medical officer recommended a free mid-day meal for affected schools. However, it was following the unprecedented degree of malnutrition suffared by school children in affected areas, during the 1934/35 malaria epidemic, that provision of the free mid-day meal by the government, covering selected areas was introduced.

9.2 The Present Programme

Goals:

- To ensure that school children are healthy, capable of self-promoting their own health and also promoting the health of the family members and of the community
- To enable school children to derive optimal benefit from the educational opportunities provided to them
 - Engage health and education officials, teachers, teachers' union, students, parents, health providers and community leaders in efforts to make the school a healthy place.
 - Strive to provide a healthy environment. It is difficult to teach a child the value of health if the school environment is not conducive to healthy behaviour and if there are no resources with which to practice health skills.
 - Implement policies and practices that respect the well being of school children and staff.
- Health Education provided through the curriculum and by special programmes to develop life skills among school children.
- Provision of school health services including medical inspection of school children, treatment, immunization, referral to specialist clinics, follow up for correction of defects and counseling services to needy children.
- 6. Involvement of the school in activities aimed at improving the health of surrounding communities. Parents and community leaders are represented in the health advisory committee of the schools. Teachers are expected to disseminate health messages in the community through the students, and students also carryout health projects in the village through the School Health Clubs.

Responsibility of the district Health Officers on the School Health Promotion Programme

The Medical Officers of Health, School Medical Officers and their staff, MO/MCH and other district staff (RDHS, RE, , MO/MH, MO/NCD, MO/Planning, D/SPHI and HEO) should all provide necessary technical guidance to the school community, at all stages of planning, implementation, monitoring and evaluation of the school health programmes.

9.3 Role of the Public Health Inspector in School Health Programme

The Public Health Inspector is the officer at the grass root level who is responsible directly to the MOH, for school health activities.

PHI should collect data to plan school health activities for the forthcoming year E.g.:-

- Information about school medical inspections which were conducted during the current year, and also not conducted during the current year
- Data about the health problems of school children which were identified during the year (both corrected and not corrected)
- Analysis of common health problems encountered during correction, in order of magnitude of the problems
- Problems and short comings identified during the School Sanitary Survey, which have to be communicated to the Education authorities
- · Special information on health programmes needed by the schools
- Information on parental education needs
- Details on the areas in which school participation needs to be strengthened

2. Preparation of the Annual advance programme

PHI should discuss with all school principals in the area, and decide on the tentative dates for the School Medical Inspection in their respective schools and prepare the annual advance programme accordingly. The annual programme (in two copies) should be forwarded to the MOH, for approval, before 25th of October of the preceding year. One of the approved copies should be filed in the office of the PHI.

3. Preparation of the Quarterly School Health Advance Programme (H1016)

All School Medical inspections (SMIs) to be conducted during the forthcoming quarter should be planned and the quarterly advance programme should be prepared in consultation with the school principats and other field health staff participating in the SMIs (PHNSs, PHMM, MOOH and other Medical Officers). It should be prepared in two copies and submitted to MOH for approval, before the 20th of the last month of the preceding quarter. The copy approved by the MOH should be displayed in the PHI's office.

4. School Sanitary Survey

All PHII should complete the School Sanitary Survey in all the schools in their respective areas, during the first quarter of the year. Reporting on the following areas are very important:

- Sanitation facilities not available / inadequate / no mechanism for cleaning-no water supply to toilet
- ii. Availability of drinking water / water for washing not available / no water for washing
- iii. Unprotected wells
- iv. Sale of unhealthy foods and drinks within school premises (refer school canteen circular)
- v. Mosquito breeding places
- vi. Garbage disposal and waste management
- vii. Condition of school buildings

PHI should inspect the school canteen and food selling outlets within / around school premises and take necessary action if not up to appropriete standards (according to H 800 specifications).

PHI prepares the school sanitation survey forms (H 1015) in triplicate and hand them over to the MOH, with his recommendations, before the end of the 1st quarter of the year. MOH too, should give his final recommendations before the end of the first quarter for the year, with one copy being handed over to the school principal. One copy is filed in the MOH Office, and the other copy filed in the PHI's office. The PHI should discuss the findings and the recommendations with the school principal and guide him in the implementation of the corrective actions towards improving sanitary facilities within the school premises.

The findings of the school sanitation survey should be analyzed by the PHI, and should be subsequently submitted to the MOH for discussion at the meetings of school principals and at the meetings of Zonal / Provincial school health committees.

9.4 School Medical Inspection (SMI)

- PHI should meet the school principals two weeks before the appointed date of the SMIs in the quarterly advance programme (H 1016) and confirm the date.
- Should always try to conduct the SMI as planned in the quarterly advance programme. Should it be impossible due to unavoidable circumstances, the PHI should inform the principal in advance, and fix a new date suitable to both parties, after discussing with the principal.
- During the SMI, all the children should be annually examined in schools with less than 200 children and in schools with 200 or more children, annual examination is conducted on children in grades 1, 4, 7 and 10. Additionally, children even from other grades who have been suspected / identified by teachers or perents, as having a health problem, should be examined. It is very important to conduct medical examination on the teachers as well, during the SMI.

SMI is done in two stages:

Stage 1

Screening has to be completed by the PHI, 2 - 3 days before the SMI, during which the following are done:-

- Identification of visual, hearing and other health problems
- · Assessment of nutritional status
- Provision of treatment for scables and helminthiasis.
- · Treatment for vitamin deficiencies

On the day/days of screening for nutritional assessment (using Growth Charts), vision should be examined by the PHI and the necessary entries should be made at the relevant section in H 457.

Important

Children in whom learning difficulties and behavioral problems have been identified by teachers, should be seen, and their examination to be carried out by the medical officers, arranged for the day of the SMI.

Stage 2

Actions to be taken in advance

- · Keep all parents informed about the SMI and immunizations to be carried out.
- · Inform parents of children in Grade 1 to attend the SMI.
- Children in Grade 1, 7 and 8, and any other children needing immunization should be informed to bring the CHDR on the day of the SMI.
- Request school principal to arrange for the active participation of all class teachers at the SMI, to assist the medical officer/s.
- Arrange with the Dental Therapist to conduct a dental clinic on the same day.
- Health Education programmes targeting parents to be organized on the day of SMI.
- Organize involvement of the School Health Clubs / School Community, in activities to assist the medical staff to conduct the SMI.

School Medical Inspection - some important considerations

- Should always be conducted by the Medical Officer of Health / School Medical
 Officer / Hospital Medical Officer / Registered or Assistant Medical Officer, who
 has been identified for this purpose when preparing the quarterly advanced
 programme.
- All children in the designated classes should be examined by the medical officers and special attention should be paid to the defects identified by the PHI, for confirmation of the diagnosis and referral to specialist clinics if so required.
- Children identified by teachers as having learning and behavioral problems, should be examined and referred to relevant specialist clinics whenever required.
- PHI should assist the Medical Officer to complete the H 606 Referral Card of children who are referred to specialist clinics, and advise such children and their

- parents, explaining the reason for referral and the importance of following the medical advice given.
- PHI should immunize all the children in Grade 1, who have not been previously immunized, with DT/OPV. The assistance of the other field health staff (PHNSs, PHMM) could be obtained for conducting immunization.
- All children in Grade 8 should be given Rubella.

It is essential that the PHI obtains a proper history from child/parents to find out whether the child has had any adverse reactions to prior immunizations, or whether the child has any allergic tendencies. If so, the decision whether or not to give the immunization, and whether immunization has to be conducted in a medical institution with emergency facilities, to treat any unforeseen conditions following immunization, should be taken by the Medical Officer.

- All children in Grade 7 to be given a Tetanus Toxoid immunization.
- Entries of re-immunizations should be made in the CHDR.
- Worm treatment, vitamins and iron folate supplementation should be provided to the children.
- Health Education and other promotional activities on prevailing health problems should be conducted on the same day.

Follow up activities

- PHI should conduct follow-up home visits to children with special problems (e.g. heart disease). Assistance of the PHM could be obtained under special circumstances. Class teacher would assist the PHI during the follow-up process, to ensure correction of defects.
- For children with financial difficulties, the school principal and PHI can assist in the process of the students obtaining spectacles and hearing aides, by referring such children to the Director / Special Education at the Zonal Education Office.
- The PHI can discuss with MOH and organize special programmes (out reach programmes) in circumstances where such services are needed.

Healthy School Environment - Role of the PHI

A safe, clean, and well-maintained school with a positive psychosocial climate and culture can boost health of the student and the staff as well as students' educational achievement.

PHI should adhere to the following steps, to help school authorities to maintain a healthy and safe school environment:

Should guide and assist education authorities to provide sanitation facilities
according to the norms identified by the Ministry of Education. An adequate supply of
water for drinking, toilet purposes and for washing is essential.

- Should assist the school to develop and implement health promoting policies for the prevention of mental and physical abuse, bullying against children and prevention of trauma.
- Should help the development of a caring, peaceful, and loving environment in the school, which would be conducive to learning.
- Should promote the development of life skills among school children, which would lead to the reduction of risk behavior (tobacco, alcohol, drug use and sexual abuse) and prevention of non-communicable diseases.
- Provide guidance to the school community to ensure safety of children from abuse and accidents.
- Should guide school authorities regarding the provision of adequate physical activity to all school children.
- When School Mid Day Meal is provided (see Circular on School Mid Day Meal), the mid day meal programme should be supervised, including inspecting the food preparation sites and the preparation procedures, to ensure hygienic conditions and good quality of food.
- If the school has a student hostel, sanitary conditions within the hostel including the kitchen and meal rooms should be supervised.
- Make recommendations re- granting of approval to food handlers, school canteen, and to other food sales outlets, with view to provide healthy and safe food for school children.
- School premises should be inspected to make sure that there are no unprotected wells, pits etc. posing a danger to students.
- Ensure that there are no mosquito breeding sites within or around the school premises.
- Ensure availability of adequate supply of water for drinking and washing.
- Advise and guide the school authorities on acquiring adequate sanitation facilities to their schools, if not already available.
- Advise on proper garbage disposal.
- Advise on maintenance of a well kept school garden, with cultivation of vegetables, fruits and flowers.

9.5 Establishment of Health Promoting Schools

A health promoting school is one that constantly strengthens its capacity as a healthy setting for living, learning and working- WHO

The PHI should make the school community aware of the health promoting school concept and its advantages. He should assist the school principals/ health clubs to identify the prevailing health issues among the school community.

PHI shall

- provide guidance for the preparation of the School Health Action Plan and assist and guide in its implementation.
- be the focal point representing the health sector, in the School Health Advisory Committee, and attend its meetings to provide assistance and guidance. He shall get guidance from the MOH for solving problems, whenever required.
- monitor the implementation of the School Health Action Plan.
- assist in the preparation and implementation of healthy school policies.
- organize and implement special programmes for adolescent children, on Reproductive Health, and Life Skills, to reduce chances of their adopting a highrisk behavior (e.gs. occurrence of teenage pregnancies, STD/HIV, smoking, and substance use).
- organize training programmes for school teachers, to be conducted by the MOH, and other relevant medical officers.
- implement special programmes to promote health in general, and to reduce the prevalence of communicable and non-communicable diseases.
- maintain a Monthly Calendar for the inspection of Dengue breeding sites in and around school premises.
- maintain a Monthly Calendar for the inspection of food outlets.
- assist and guide the School Health Clubs, in organizing "special health activities" (e.gs. debates, exhibitions, dramas, nutrition programmes).

Community Involvement

- assist in the establishment and continued functioning of the School Health Clubs.
- assist the school principals to establish School Health Advisory Committees.
 (PHI is the focal point from the Health Ministry)
- conduct programmes to educate parents on health matters and organize programmes to get community participation in school health activities.

Counseling

- assist school teachers and counselors to refer children, through MOH to medical clinics/hospitals ,whenever necessary.
- organize community support for children-in-need.
- provide counseling whenever required.

Attending meetings relevant to school health

The PHI shall attend the following meetings:-

- i. Monthly meeting of the MOH, with data regarding SMI and school environment
- ii. Local conferences at which school health matters are discussed
- Meetings of School Health Clubs

 Meetings of School Health Advisory Committees (PHI is the focal point from the Ministry of Health)

Attending training programmes relevant to school health

The PHI should attend the training programmes conducted by the RDHS/ MOMCH or by the FHB, with the objective of improving the knowledge and skills.

Preparation of Programmes

a) Annual Advance Programme (H 1016)

Annual School Health Advance Programme for the following year should be prepared in two copies and submitted one copy to MOH before the 25th of October of the current year.

b) Quarterly Advance Programme

Quarterly Advance Programme for the next quarter should be prepared in two copies and one copy submitted to MOH for approval, before the 25th of the last month of preceding quarter. One copy is filed in the MOH office (with SPHI) and the other in the PHI's office.

9.6 Record Keeping

School Sanitation Survey/ Summary of Data (H 1016)

On completion of the quarterly advance programme of the second quarter, this summary should be forwerded to MOH with a copy to MOMCH.

School Sanitation Survey (H 1015)

To be completed for all schools in the PHI area, before the end of the first quarter of the year. Three copies of the report should be prepared and submitted for comments and recommendation by the MOH. With the comments and the recommendation of the MOH, one copy covering each school is handed over to the relevant school principal, one copy kept in the MOH office (with SPHI) and the third copy filed in the PHI's office.

MOH should prepare a summary report and hand it over to the zonal director and discuss the report at the Zonal Health and Nutrition Committee. The report is to be compared with the previous quarter's report, and emphasis paid on any uncorrected defects.

Student Health Record (H 457 revised in 2006)

A card should be maintained for each schoolchild, kept with the school in a safe manner. In schools which have less than 200 children in each, the card will be endorsed annually at the SMI. In schools with 200 or more children in each, the card will be endorsed at the SMI conducted at Grades 1, 4, 7 and 10

Referral Card (H 606)

This card (blue in colour) is maintained for all children referred to specialist clinics. As mentioned in the card, children who have been issued with this card can report directly

to the relevant specialist clinics in the hospital. It is stated on the top of the card the child should be examined at the clinic, on a priority basis. The PHI shall make the student, parents and the leachers, knowledgeable on this issue. After the completion of the necessary treatment, the card should be handed over to the class teacher, and it is important that the student, parents and the class teacher be made knowledgeable about this by the PHI.

PHI can make use of this card to obtain necessary information for him to fill the "correction of defects" column in his report.

Adolescent School Health Record

This card is completed for all children at the SMI conducted when they are in Grade 10. This card has 3 sections, which are to be filled as follows:-

Section 1 - by the student

Section 2 - by the PHI / health staff, on interviewing the child

Section 3 - by the Medical Officer who examines the child

Record of Health Problems (H 456)

This form is used for the purpose of following up the children who have health problems and to ensure necessary corrective action.

At the end of the School Medical Inspection this form should be completed for each class, in two copies. One copy should be in the relevant file of the PHI and the other copy in the relevant file of the class teacher, to enable them to follow up the student's progress with treatment. The PHI should make at least 3 follow-up visits per child (to the school) at 2 weeks, 6 weeks and 12 weeks, respectively.

Students having dental problems

A list of names of children who are detected with dental problems should be submitted to the School Dental Therapist (SDT).

Monthly statement of school health activities (H 1014)

Summary of all school health activities conducted during the month has to be recorded by the PHI in this format. At the end of every month this form has to be submitted to SPHI, for completion of the master sheet. Once the data has been entered in the master sheet, the PHI should collect his form and file it in the PHI office file.

Quarterly School Health Return

The SPHI should complete this form, in three copies, at the end of each quarter, using the data on the master sheet. This data should be duly completed for quality and coverage of all school health activities before completing the quarterly return. The 3 copies of H 797 should be submitted to MOH at the end of the quarter.

The MOH shall carefully analyze and study the data and sign the 3 copies after making observations. One copy is kept in MOH office, one copy is sent to the MOMCH and the other copy is sent to the School Health Unit of the Family Health Bureau (before the 25th of the first month after completion of the quarter). This data is used in the planning of the school health programme.

CHAPTER 10

Health Education and Health Promotion

Introduction

Health education is an essential component of any programme aimed at improving the health of a community, it includes communication of information and development of skills, which facilitate the adoption of behaviour conductive to health. The community is also made aware of what they should do for the purpose of the successful completion of any health programme.

As an example, to achieve Dengue control, community should destroy the mosquito breeding places. To get this done through health education, health workers should inform, motivate and help people to adopt and maintain healthy practices and lifestyles.

Definition of Health Education

Health education is a broad operating consolidated tool of <u>education theories</u>, <u>communication principles and social marketing approaches</u> that supports country's priority health programmes and establishes through the behavioural change process in the PHC context <u>healthy lifestyles</u> in the communities to develop <u>healthy individuals and environment</u> and achieve health for all with broad strategies of health advocacy and health promotion.

Health education has a major role in promoting;

- (a) good health practices; For example; environmental sanitation, food hygiene, safe drinking water, complimentary feeding, etc.
- (b) The use of preventive services; For example; immunization, primary eye care, antinatal and post natal care, child health, adolescent health, NCD Risk Factor Screening, etc.
- (c) Correct use of medication and pursuit of rehabilitation regimes; For example; tuberculosis, leprosy, strokes, myocardial infarction
- (d) Community support for primary health care and health promotion

10.1 Concept of health promotion

The term 'health promotion' is now used to encompass a wider range of activities including social mobilization and advocacy.

Definition of Health Promotion

"Health promotion is the process of enabling people to increase control over and to improve their health" (Ottawa charter 1986).

Health promotion emphasizes on social, economic and environmental factors, as determinants of health.

The five elements critical for health promotion were listed as:

- Healthy public policy
- Supportive environment
- · Community action
- Development of personal skills.
- Reorientation of health services

Role of the PHI in health education/ health promotion programmes

As a person in direct contact with the community, it is important that the PHI is familiar with the basic techniques of health education during implementation of health programmes, in addition to the knowledge on the health problems and related socio-cultural issues that are being dealt with.

Implementing health promotion

'Setting' approach

A setting is a physically or geographically defined area, with a range of individuals with defined roles and an organizational structure, in a healthy setting the people are continuously creating or solving health problems, resulting in an improvement of the physical and social environment, and expanding those community resources which enable people to support each other in performing all the functions of life and in developing themselves to their maximum potential.

Settings include schools, work sites, hospitals, villages and cities, and special communal groups.

Healthy village

This project focuses on a rural health issues, for example safe water and sanitation, vector-borne diseases, access to health care, misuse of agrochemicals, transport and accidents etc.

Healthy work places

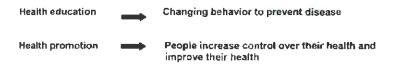
The aim is to create conditions and environments that are supportive to health. These benefit not only workers and their families, but also the employers, owners of the enterprises and the community.

Prevention of occupational diseases and injuries is not the only issue concerning a healthy work place, but additional issues strive to address the multidimensional determinants that influence physical, mental and psychosocial health, including issues related to social justice, human rights and gender issues.

Healthy schools

A health promoting school is a setting where education and health programmes create a health promoting environment which in turn promotes learning. A health promoting school strives to build health in to all aspects of life at school and in the community. It uses it's full organizational and educational potential to promote healthy development of students, staff, families and the community.

Relationship between health promotion and health education



Peer pressure
Advertising
Social pressure
Alcohol
Stress

10.2 Basic Principles and Concepts of Health Education

- Bringing about change through the educational approach is a slow process.
- Health workers must be accepted by the people.
 Thus, before attempting to change people's behavior, it is very important that the PHI should establish a good rapport with the community members, so that the community identifies the PHI as a colleague at their level, and not as an evasive, authorative figure.
- People do not act purely on scientific facts, but their actions are guided by their attitudes, values and benefits etc.
- People rarely act on their own, but are influenced by family members, friends, other individuals, social groups and the community etc.
- The individual must perceive a long term or short term benefits from the proposed actions.
- Health education involves informed voluntary change and not something achieved by force.
- Health education assumes people are willing and able to take responsibility for themselves to change.
- Community participation and mobilization are essential in solving health problems in a sustainable mannner.

10.3 Communication

Skills in communication are very important to the Public Health Inspector, as he needs to be able to communicate effectively the facts and help people to improve their health.

Definition of communication

Communication is a process by which two or more people exchange ideas, facts, feelings or impressions in ways that each gains a <u>common understanding</u> in meaning and the intended use of a message

Basic elements in the communication process



Methods of Communication

- Intrapersonal and Interpersonal communication
- Group communication
- Mass communication

Intrapersonal communication	Interpersonal Communication	Group communication	Mass communication	
e.gs:-	e.gs:-	e.gs:-	e.gs:-	
Making a choice	Interpersonal discussions Home visits	Lecture discussions Group discussions	Pamphlets News letters	
Self attitude changes	Official letters Personal letters	Demonstrations Role plays Study tours Meetings	Bill boards	

For a communication process to be effective, it should conform to the following:-

Seven "C "s for effective communication

- 1. Command Attention
- 2. Clarify the message
- 3. Communicate a benefit
- 4. Consistency counts
- 5. Cater to hearts and heads
- 6. Create trust in the audience
- 7. Call for action

10.4 Participatory Learning and Action (PLA)

PLA can be described as a family of approaches, methods and behaviors that enable people to express and analyze the realities of their lives and conditions, to plan themselves what action to take and to monitor and evaluate the results. Thus, the knowledge and opinions of the people are incorporated into the management of projects and programmes.

Methods:

- Participatory Mapping
 - Social mapping
 - Body mapping
 - Physical mapping
 - Historical mapping
 - Semi- structured Interviewing

PHI Memual - Chapter 10

- Focus Group Discussions
- Transect Walk
- Daily Activity Chart
- Seasonal calendars
- Venn Diagram
- Preference Ranking
- Matrix Ranking and Scoring

10.5 Health Learning Materials (HLM)

It includes all the materials used in any situation of communication, whether it may be of a classroom or other teaching situation, to facilitate the understanding of written and spoken words and abstract symbols.

The Need and importance of HLM

- · Facilitate learning in a more faster and thorough manner
- 85% of human knowledge is acquired through sight
- 40% of teaching and learning time is saved
- Better retention
- Abstract subjects and complicated mechanisms can be readily explained
- · Attract and hold attention of the audience
- Arouse and hold the interest of the audience (due to colour, animation, spot lighting and closeness to realism)
- Overcome the language barrier
- Stimulate thinking and motivate action

Steps in the preparation of HLM

- Identify the need or the subject
- 2. Decide on the objective
- 3. Identify the structure of the group (characteristics)
- Ou*clline the messages
- Decide on the aid/s
- Visualize the key points.
- 7. Plan the work
- 8. Prepare the miniature aid/s
- 9. Prepare the specific aid/s
- 10. Pre-testing
- End product

10.6 Concept of Behavior Change Communication (BCC)

BCC strategy is one of the most effective methods in health promotion.

Steps in Behavior Change Communication Planning

(a) Identify risk factors

Study the knowledge, attitudes, practices, and beliefs of the individuals/ groups, to gain an insight on risk regarding the respective topic or problem

Individual risk factors;

 The risk situations that result from an individual's attitudes, behaviour and actions (e.gs:- engaging in unprotected sex)

Biological risk factors

 Risks that exist because of the biological facts concerning the human body (e.g.- age)

Social risk factors.

 All the social risk factors that exist in the community (e.gs:-migratory habits)

(b) Sclect the target audience

- Who are the people, your communication project is aimed at?
- What are the different segments in the audience?

(c) Identify the desired behaviour and attitude changes

- Identify the existing behaviours
- What are the desired behaviours?
- How can the gap be filled?

Several factors help people to make changes and sustain them over a period of time. Recognizing them and planning for the improvement of the following three factors are beneficial:-

- Personal commitment to make the desired changes
- Acquiring the skills necessary to implement the changes
- Creation of a supportive environment, in which to practice and make the new changes

(d) Barriers / Challenges against adopting healthy behavior

- How to overcome the challenges?

The behavior change process

- Unaware.
- Awareness created
- Acquiring knowledge and attitudes
- Motivation
- Trial
- Success
- Sustaining
- Advocating



An individual will go through this process several times before adopting the desired behavior.

(e) Initial planning

1. A strategy or a project goal is the statement of the intent.

2. Objectives

All objectives needs to include the following information:-

- 1. Who?
- 2. What?
- 3. How much?
- 4. When?

3. Messages

Messages should be able to appeal the target audiences and help their movement toward the desired outcome.

4. Communication Channels and Media

Communication channels are the methods which use to reach the target audiences

Communication media are the materials which reach the target audiences.

Intervention

Plan the most effective intervention to reach the audience. Use a combination of interpersonal type, small group type, mass media type and other type of activities to achieve the best results.

6. Monitoring and evaluation

Monitoring

- Process documentation
- Monitoring meetings with gatekeepers and partners
- Random impact assessment studies

Evaluation

- End-line Focus Group Discussions / Formative Research (analysis of factors which determine the behaviour of target audiences)
- Final impact assessment
- Behaviour observation

10.7 Planning a Health Education Programme

The following steps are involved in the planning of a health education programme,

Step i - Identification of the problem

- Identify the health programme and the health problem for which health education is to be planned
- identify the cause immediate cause
- Assess the magnitude of the problem

Step ii - Social diagnosis

- population in the area
- age groups
- health status
- ethnic and religious composition
- economic status
- social and cultural characteristics of the people
- assessment of resources etc.
- stakeholders.

Step iii - Educational diagnosis

- Identify the behaviours linked to the health problem
- Identify the knowledge and attitudes linked to the health problem

Step iv - Identification of Target Group (primary / secondary

e.gs:- Mothers School children

Step v - Programme objective

e.gs:-. To decrease the prevalence of diarrhoea among pre-school children living in a given area, from 25% to 10%, within a period of 6 months from 1st December 2008

Step vi - Establish educational objectives

- -area of knowledge to be imparted
- e.g.- Ability to state four ways by which diarrhoea could spread

-behavior to be changed

e.g.- 80% of the target population should be drinking boiled, cooled water

Step vii -Health messages to be conveyed

e.g.- Four ways in which diarrheoa spreads

Step viii -Identify necessary services

 e.g.- Ready availability of oral rehydration solution 'Jeewanee', to the households in the affected community

Step ix -Prepare Plan of action

When	What	Who	Whom	Where	How	Outcome
					1	
				1	1	

Step x - Monitoring and evaluation

- Process evaluation
- Outcome evaluation
- Impact evaluation

10.8 Recording and Reporting of health education activities

i. Identified health education needs and problems in the area

The health education activities carried out by the Public Health Inspectors need to be recorded and reported.

Summary of health education activities

	(a)				
	(b)	***********	*****		
	(c)				
	(d)				
Acti	vities which have t	peen implem	ented to so	ve the problems	S
	1	1	111	1.5	10

Activity	Target group	Method	No. of participants	Resource persons	Outcome

- iii. No. of schools in the area :
 - a. No of active schools health clubs:-
 - b. No. of programmes conducted with school health clubs:-

Activity	Target group	Method	No of participants	Resource	Out come

- iv. No. of active health volunteers in the area :
 - a. No. of programmes conducted with the health volunteers:-

Seminars
Practical exercises
Campaigns
Any others

Date	
Date,	

Signature:-Name & Designation (with Station)

CHAPTER 11

Health Management

A Public Health Inspector is in-charge of so many responsible duties. To perform his duties successfully, it's important that he acquires skills in the art of delegating tasks to others. To do this effectively, he has to make use of the management theories learnt by him. By proper management, responsibilities are discharged effectively and efficiently, ensuring both the quantity and the quality of end results.

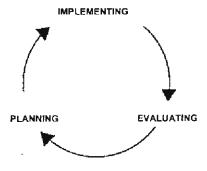
11.1 What is management?

There are different definitions.

Management is

- getting thing done by others
- efficient use of resources available

Main functions of management



The functions form a cycle

In order to perform his duties in an efficient and effective manner, the PHI should adhere to this cycle, when carrying out his tasks viz.

- i. Plan
- ii. Implement
- iii. Evaluate

11.2 Planning

What is planning?

Planning is to make the decisions before commencing the implementation process. That is deciding

Where are we now?

- Present situation
- Where we want to be? Desired improved situation

Present Situation Desired future situation (improved)

Goal

One needs to achieve the expected result (quantitatively and qualitatively), using the minimum resources.

In a scientific planning process there are five steps to be followed;

- 1. Situational analysis
- 2. Identification of problems, prioritization and analysis
- 3. Setting Objectives
- 4. Review of Constraints and limitations
- 5. Formulating a plan of action

1. Situational analysis

Situational analysis is to study the situation and main task being to collect relevant data. For completeness of data collection there are several different methods to be used. A very important thing to be remembered is that the data should be of right kind and of right quantity. This means collection of only the important and necessary data, and avoiding collection of data in excess of your requirements and without any relevance to your subject under study.

Different methods of data collection

- i. Surveys
- ii. Discussions
- iii. Interviews
- iv. Listening to people
- v. Receiving complaints
- vi. Observations
- vii. Records, returns and publications
- viii. Mass media
- ix. Conducting Participatory Health and Sanitation Transformation (PHAST) method etc.

Survey

Survey is to collect data by using a questionnaire with a specific scope. A Public Health Inspector who assumes duties in a new area should carry out a survey (situational study), as required by his duty list, by conducting a Health Survey method. It is advisable to do surveys whenever required due to any special occasion. A Range Public Health Inspector should repeat the initial Health Survey, at least once in five years in addition to routine update process. (Please read the portion on Health Survey for more details)The initial survey should always be according to the above mentioned circular, but if it is for a subsequent particular need, it should be according to the information required for your particular task.

Discussions

Useful information may be gathered by having discussions with the relevant personnel, such as:

- Your supervisors, i.e., Supervising Public Health Inspectors, Medical Officer of Health
- Members of the Health Team, i.e. Other Public Health Inspectors in the division, Public Health Nursing Sister, Public Health Midwives
- Members of the community, especially the community leaders i.e. Religious Leaders and other informal leaders in the area
- Officials in other relevant sectors, i.e., Divisional Secretaries, Rural Development Officers, Grama Niladharies, Principals and the Teachers of Schools, Samurdhi Niladharies and Agricultural Officers, etc.
- Members of Non Governmental Organizations, Community Based Organizations
- Political Leadership, ie. Parliament Members, Provincial Council Members, Pradeshiya Sabha Members

Interviews

Interviews may be conducted with

- Medical Officers- in- Charge at the government medical institutions and private medical institutions in the area
- Programme Managers of other health-related programmes in the area

Listenina

To the different categories of members of the community could be very useful.

Complaints

Receiving complaints from members of the community and/or different institutions in the area may provide you with useful information.

Observations

Direct observations made by the PHI at the MOH Office, or during his visits may be a valuable source of information

- In households and public places
- Scrutinizing available records, returns and publications i.e., Infectious Diseases Register, Sanitation register, other relevant registers and records maintain by other institutions (e.g.: Notification Register in the Hospital)

Referral to mass media

Mass media reports can be a quick source of information regarding events taking place in the area, concerning health-related issues.

- News Papers, Radio, Television

PHAST method

Conducting Participatory Hygiene and Sanitation Transformation method (PHAST method) is an approach for promoting hygiene, sanitation and community management of water and sanitation facilities. It builds on peoples' ability to identify, address, and resolve their own problems. This method is used to fight against diseases related to unhygienic behaviour and hazardous sanitary conditions.

Irrespective of whatever the method/s used, it is important to use well planned and pre-tested tools.

Proceeding with the situation analysis

After collecting and compiling data with regard to your area, although information such as the number of families- 483, total population- 3381, males- 1538, females-1843, infants- 38, Pre-school children- 336 etc., diseases prevalent during the current year: Diarrhoea- 37 cases, Infective hepatitis- 11 cases, Dengue- 19 cases, etc. Accessibility of safe drinking water: 41 families, No of Water Sources- 26, etc. this data may not give you a clear picture of your community. After analyzing the data collected, it gives you more precise picture and the information you needed for the development activities in your community.

However, in order to get a more meaningful picture of your community and precise information that would enable you to develop steps required to improve the health status of your population, it is necessary to analyze your data and categorize them as follows:

Population data is further analyzed according to the localities in your area. e.gs:-

Locality	Age in Years									
	0 -1	2 - 5	6 - 10	11 - 15	16- 20	21 - 30	31 - 60	> 60	Total	
Thenna	3	21	45	79	91	231	619	137	1226	
Wewapahala	6	34	76	97	108	264	693	141	1419	
Landawatta	1	14	18	49	48	138	341	57	666	
Total	10	69	139	225	247	633	1653	335	3311	

The morbidity data is analyzed according to the localities.

Locality	Diarrhoea	Inf. hepatitis	Dengue	Total
Thenna	18	6	11	35
Wewapahala	14	5	8	27
Landawatta	1			1

Morbidity data is also analyzed according to time frame.

Disease		Year 2008											
	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	
Diarrhoea	8	1	9	2	-	-	-	-	-	-	-	4	24
Infectious hepatitis	-	-	4	3	4	-	-	-	-	-	-	-	11
Dengue	-	-	-	-	-	11	8	-	-	-	-		19

Then the morbidity data can be analyzed according to age groups

Diseases	Age in Years									
	0 -1	2-5	6 - 10	11 - 15	16 - 20	21 - 30	31 - 60	>60		
Drarrhoea	-	1	2	15	6	-	-	-	24	
Inf. hepatitis					6	5	-	-	11	
Dengue	-	2	11	6	-	-	-	-	19	

Thus, data should be analyzed according to a scientifically manner in order to obtain useful and precise information. These examples illustrate only a few types of analysis, it it is useful, you may also analyze according to gender or the lifestyles etc. When you analyze according to the given example, it is possible to get the following information:

- There is a risk of diarrhoea, infectious hepatitis and dengue, in the communities under the study.
- Localities Thenna and Wowapahala are vulnerable to diarrhoea and also to infective hepatitis and dengue.
- Diarrhoea is most prevalent during the period December to April, whereas
 infective hepatitis is most prevalent during the period March to May and
 dengue during June July.
- Most affected age groups for diarrhoea are 11 15 yrs and 15 20 yrs respectively.
- Most affected age groups for Infective Hopatitis are 15 20 yrs and 20 – 30 yrs respectively.
- Dengue mostly affects the age groups of 15 20 yrs and 20 30 yrs respectively.

Analysis of information in this manner is of immense value to the Public Health Inspector who has the responsibility of prevention and control of communicable diseases, within his range. He can use this information for planning and problem solving processes too. Following the identification of the problem/s, they are arranged in the order of priority for his subsequent action.

11.3 Identification of problems and prioritization

Now the PHI has identified the problem/s prevailing in the area. A problem perceives existing gap between what it is now, and what it should be. Here are some problems you may have identified.

- · Some community members are suffering from diarrhoea.
- · Some community members are suffering from infective hepatitis
- · Some community members are suffering from dengue fever

Successfulness of problem identification will depend on the sharpness of your tools which are used to identify the problems. If there are more than one problem it is always necessary to prioritize, and decide which of the problems is to be tackled first because it is not advisable to address all the problems at the same time.

For example, take some observations you would have made, i.e.

- There are lots of flies
- · High mosquito density in the village
- Number of sanitary toilets is inadequate
- No access to safe drinking water
- Lack of healthy habits among the community.
- Poor literacy rate

What are these? They are the underlying causes for problems. Sometimes these types of underlying causes may be considered as problems.

If a problem can be solved without much of effort, it can be addressed first and prioritize others. Prioritization should be done according to criteria which you may develop according to the situation. When developing such criteria following factors may be considered, among others;

- Are Infant deaths caused?
- Are maternal deaths caused?
- High mortality and morbidity pattern?
- Degree of severity of the diseases present?
- High prevalence of the diseases present?
- is condition present creating disability?
- The impact of the condition on development?
- Negative social impact of the condition?
- Is the condition leading to discrimination? etc.

The problem which is getting the maximum number of "yes" responses should be considered as the priority problem. Next step is to analyze the selected problem. If you want to solve a problem successfully you should know what the deficiencies responsible for the problem are, and then you should know underlying cause/s for each deficiency noted. Thereafter you have to decide on the possible solutions for the removal of these underlying causes.

Analyzing the problem

There are various methods to analyze a problem. Stated below is one such method. After identifying a problem it is useful to have a written statement of the problem. which could be added to a project proposal, if one is prepared.

Statement of the problem will answer the following questions:

What? - Problem Where? - Place When? - Time period
Whom? - Whom affected
Magnitude? - Extent and severity of the problem

Example of a Problem statement

"In the village of Thenna in MOH division Udayalapatthuwa, 15% of the population under 20 years of age suffered from diarrohea, during year 2008"

The priority problem being diarrhoea, analysis may as follows:

Sometimes the data already collected by you may not be sufficient to carry out this type of analysis, in which case another round of data collection has to be conducted in order to complete the analysis.

Problem Analysis (Table method)

Deficiency	Underlying Cause	Solution			
Lack of safe drinking water	- No protected wells	 Renovate existing wells 			
	 Negligence of the community 	- Educate the community			
2. Lack of safe food	- Unsafe food habits	Educate the community			
	- Poverty	- do -			
	 Negligence of the community 	do			

This analysis should be done very carefully because your future activities will totally depend on this process. Neglecting even one underlying cause and the appropriate split of correct it, could sometimes lead to the failure of your whole project, or to the failure to sustain the activities that have been launched to improve the situation or it will create some negative impact to the sustainability of the outcome.

11.4 Setting Objectives

The objective is a desired future achievement to be accomplished after a programme or set of activities. Objectives should be "SMART", i.e.

Specific

Measurable

Achievable/ Accurate

Relevant

Timeliness

An objective should be in accordance with the solutions identified with the problem analysis. It should be clearly worded so that everybody will have the same understanding. It should be measurable at any level, should be achievable (leasible) and should be with accurate figures. It should be relevant to the problem to be addressed, and should have a time frame. Normally the time duration may be within one year, because the situation could change if a long duration of time is included.

In formulating an objective, the following questions should be answered;

What? - Problem
Where? - Place
When? - Time period
Whom? - Whom affected

Magnitude - Extent and severity of the problem

In the previously identified problem of diarrhoea in the village of Thenna, the objectives may appear as follows:

General Objective:

"To reduce prevalence of diarrhoea among population under 20 years of age, in the village of Thenna in MOH division Udayalapatthuwa, from 15% to 0%, by the end of second guarter of year 2009"

After developing a general objective, we should formulate specific objectives which would enable us to be more certain about the activities to be identified in the planning process. To progress in this manner, reconsider each of the solutions identified in the problem analysis. To achieve the General Objective all the solutions should be addressed by the specific objectives.

Specific Objectives

- Ensure accessibility to safe drinking water, for the community in Thenna.
- 2. Ensure accessibility to safe food, for the community in Thenna.
- 3. Ensure practice of safe lifestyles by the community in Thenna.

When all the specific objectives are achieved, the general objective will be achieved automatically.

Review of Constraints and Limitations

In this step, take each specific objective and consider how it should be achieved, and the constraints / obstacles / limitations if any, likely to obstruct achievement of the specific objective. Then decide on alternative / additional strategies / activities, to overcome or minimize the difficulties.

11.5 Formulating a plan of action

To decide on an action plan we must decide what strategies should be adopted to achieve each specific objective. When selecting the strategies, we have to consider their feasibility, effectiveness, efficiency, quality of end results, sustainability of the outcome. The possibility of obtaining maximum community participation and the associated community empowerment are also to be considered,

After deciding on the strategies, next exercise would be to find the answers to the following key questions pertaining to all specific objectives and to any alternative activities decided on, when reviewing the constraints and/or limitations.

It is also very important to decide on the evaluation activities to be performed, according to the evaluation needs arising in relevant situations

How to do? - the Activities

When is to be done? - the Time factor

Who is doing? - the Responsibility for each activity
Which things are needed? - the Resources needed for each activity

What will be the output? - Expected result from each activity

PHI Manual - Chapter 11

Activities necessary for the pre-requisites, like obtaining necessary approval from authorities, i.e., from the DPDHS, MOH, SPHI, and getting support from other members of the health team, other sectors, and the community etc, also should be decided on and included in the plan.

A set of answers for above questions, compiled in a table, is termed an action/ activity plan.

An Action / Activity plan

Ser. Activity		Time	Responsibility	Resources	Expected Result Approval Support ensured Support ensured	
1.	Make MOH aware about the Plan of Action	1 st Aug. 08 PHI ,Mawewa		- SPHI - Activity plan		
2.	Health Team		МОН	- SPHI - Range PHI - Activity plan		
3.			мон	- SPHI - Range PHI - Activity plan		
4.	Meeting with the Community	11 th Aug. '08	PHI ,Mawewa	- SPHI - Range PHI - Activity plan	Community participation ensured	
5.	Survey to decide re- sites for wells	12 th Aug. '08	Tech.Officer, *NWS&DB	- Community - Range PHI	- Decision re- site for wells made	
6.	Preparation of estimates	3" & 4" Weeks of Aug. '08	Tech. Officer, NWS&DB	District Head of NWS&DB	Estimates Prepared & approved	

^{*} National Water Supplies & Drainage Board

The activity plan is to be completed as above, to each specific objective. The activities stated above are only meant to serve as an example.

Gantt chart

The Gantt chart is a tool to display the progress of a project, in the form of a chart.

If a Gantt chart is also prepared, it will help you to be within a schedule, and to monitor and evaluate the project.

Example:-

Gantt chart

Ser.	Activity		Ye	ar 20	80		Year 2009			1		
,,,		Aug	Sep	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun
1,	Make MOH aware about the Plan of Action	X										
2.	Meeting with Health Team	×										
3.	Meeting with Divitional Secretary, Chairman Pradeshiya Sabhawa, Representatives of NGOO, Grama Niladhan	×										7
4.	Meeting with the Community	×										
5.	Survey to decide re- sites for wells	×										
6.	Preparation of estimates	x										

Now the planning steps have been successfully completed.

11.6 Implementation

Implementation is to put into practice the formulated plan. Though the plan is the result of a team effort of the stake holders or representatives of the stakeholders, it is always advisable to review the plan with the relevant stakeholders, before implementation. During implementation of the plan, your attention should be drawn to the following;

i. Delegation of work

Most people do not like to delegate work, due to many reasons such as poor management skills, lack of experience, tack of confidence on team members, negative attitudes, desire to take all the credit and intentions of malpractice. But for the efficient manager who expects effectiveness and quality in the outputs, delegation is an important part of implementation. All members of the team should have a good understanding about each individual's roles and about the action plan as a whole.

ii. Leadership

In teamwork, leadership role is most vital to guide the members of the team effectively.

iii. Supervision

Proper supervision is an important role in a process, in order to identify the difficulties and help the learn members responsible, to fulfill their tasks in the correct manner. Supervision should be carried out with the intention of helping them, and not as a fault-finding activity.

iv. Motivation

Motivation is needed to make individual undertake responsibilities with willingness and without stress, and to make them feel that they are not functioning alone. In most instances motivation does not demand any financial resources, but only a smile or an encouraging faithful word. Ensuring the wolfare of your project team is a good motivating factor.

v. Communication

A good communication process should be practiced among the team members, to achieve better understanding of each other, better progress of the project and to improve self responsibilities. Without a proper communication mechanism, unpleasant situations can develop and work may be interrupted leading to major disputes.

vi. Monitorina

An efficient manager always tries to monitor the activities of the process. It will facilitate smooth functioning of the activities and ensure the effectiveness, efficiency and quality of output/ outcome. During this process checking should be both qualitative and quantitative. The available resources should be mobilized to places where they are needed. Sometimes the manager may have to change strategies or decide on more resources. Sometimes it may even so happen that he would decide to terminate the project, due to poor achievements or any other unexpected reason responsible for leading to such a decision.

vii. Evaluation

Evaluation is also very important and vital to a project or a programme. Evaluation activities also should be included during the planning process, for a better out come. Purpose of evaluation is to assess the progress, to find out any difficulties, short comings and/or gaps, delaying or hindering the reaching of the objectives. Evaluation is a must throughout the project or the programme. According to evaluation findings, a manager will be able to take the decision whether he can continue with the programme or whether he has to stop it. Role of the evaluator is to identify above situations, find out the resons for any unsatisfactory situation which may have arisen and to recommend the decisions that should be taken regarding the future of the project/ programme.

Evaluation can commence before the project starts, which is sometimes called a baseline survey. If you carry out such an exercise, the results may help you to make a comparison of the original situation with end results. That helps to assess the progress.

You may include an evaluation component at the end of each activity, which is called *concurrent evaluation*. At the end of the project an evaluation is done to compare the outcome with the project objectives, which is called *summative evaluation*.

This will show the extent of success/ progress you have achieved, and also the shortcomings if there are any.

If you want to assess the impact of your project, you can decide to do an evaluation after a reasonable period of time after the completion of the project, to check whether there is an impact on the community, as expected from the project Such type of evaluation is called *impact evaluation*.

The evaluation can be conducted by the project manager, or by any other stakeholder, or an experienced team or an individual. Basically the elements of effectiveness, efficiency and the quality of achievement are checked through an evaluation. This type of evaluation is also useful for future planning. It is important to add suggestions at the end of the evaluation report.

11.7 Report Writing

Report writing is one of the most important tasks that should be attended to, after implementing a project. This process is also called documentation. Many implementers either totally neglect or pay less attention to this important task, resulting in their achievements being underestimated. Sometimes they meet with unexpected trouble, even after accomplishing an excellent job, due to the failure to document the work.

A report is essential to assess the work carried out with regard to its efficiency, effectiveness, quality, quantily and also for cost-effectiveness. Often large sum of money and much time may have been involved in the project, and the implementer should bear the responsibility for the money and the time spent. Perhaps you may have received your monthly salary during the time period you spent on the project.

Sometimes you may have even received special allowances, as per diem, transport allowance, etc. It should not be forgotten that you have a responsibility towards every single cent you received and spent on the project implementation. Your immediate superiors would need well documented evidence to account for the money they have allocated for the task, because they are, in turn, responsible to their superiors who have granted approval for the task/s carried out by you. Ultimate fact is that the money spent is public money which belongs to the citizens of Sri Lanka including the most vulnerable persons who live far away in the most remote areas, undergoing thousands of hardships. Even if the project was funded by a foreign agency, facts remain the same

Reports should be scientifically and precisely written. First decide what should be reported on, and what need not be. Your project report should include following topics, in order to be complete and comprehensive;

i. Introduction

- Background of the situation.
- Why this project should be implemented, or the justification.
- List of problems identified, relevant to the situation.

Problem

- a. Problems identified
- b. How problems were prioritized, and criteria for prioritizing
- c. Problem/s that have been selected for solving
- d. Justification for the selection (why this problem/s was selected?)
- e. How was the problem analyzed?
- f. Statement of the problem/s

ii. Objectives

- a. General Objective
- b. Specific Objectives
- iii. Review of Constraints and Limitations.
- iv. Alternative strategies available for each specific objective
- v. Selected strategy each specific objective
- vi. Activity Plan
- vii. Time Schedule (Gantt Chart)
- viii. Implementation details

Here you can elaborate on following topics;

- Delegation of work
- b. Leadership
- c. Supervision plan
- d. Motivation plan
- e. Communication plan
- f. Monitoring plan

ix. Evaluation

- 1. Type of evaluation (Concurrent/ Mid-term/ Summative)
- 2. Effectiveness, efficiency and the quality of achievements
- Impact (this may not appear in the report, because normally an impact evaluation will be conducted after sometime, giving a reasonable period to get such impact)
- 4. Short comings, if any
- Barriers or constraints which had influence on effectiveness, efficiency and the quality of achievements
- Evaluation findings
- 7. Recommendations
- Acknowledgements
 (express your gratitude to persons whom you think should share the credit with you for successfully completing the project)
- Annexures

11.8 Community Health Survey

From the inception of the Health Unit System in Sri Lanka, the slogan of all public health staff has been "Know your area – Know your people". This type of information is gained by undertaking a house-to-house survey.

Within three months of assuming duties in an area, a PHI should carry out a health survey, prepare the survey report and submit it to his supervising officer. The survey findings should form the basis for the preparation of the programme of work which would subsequently be implemented by him.

An outline for a health survey is given below, initially a questionnaire should be planned for collecting the necessary information. The Participatory Rural Appraisal Methods may also be used to collect information and data. PHI should endeavor to obtain already available, all information from other health workers in the area, medical institutions, specialized campaigns, local authorities, other government institutions, Divisional Secretariat, Grama Niladharis, Field officers, Community Leaders and NGOO involved in health and wolfare activities in the area.

If a survey has been already done, the PHI should, on assuming duties, review and update the survey findings and submit a review report to the supervising officer.

PHI Manual - Chapter 11

The report should be in narrative form and should include the relevant maps, tables, graphs, etc. Photographs may also be included. In the event of a PHI continuing in the same station for more than four years, a review report should be submitted once in every five years.

Outline for health survey report

1. Introduction

- Purpose
- References to any previous surveys
- Administrative structure; Province, District, DS Division Electorate, Local authority

2. The area

- Name, Location
- Extent (in square kilometers)
- Boundaries and sub divisions
- Topography; hills, valleys, plains, elevation
- Geology; top soil, sub soil, special features
- Hydrography; rivers, lakes, steams, canals
- Vegetation
- Animal life
- Use of land and water
- Roads, Transportation, Vehicles
- Parks, 'Osu Uyans' (gardens of medicinal plants)
- Sanctuaries
- Plantations
- Rainfall pattern & figures
- History of Floods, and other Disasters (indicating disaster-prone areas)

3. Health Administration

- Provincial Health Care Delivery System
- District and Divisional Health Care Delivery System
- Curative and preventive services present situation in the range
- NGOO involved in health care
- Special health projects, if any

4. Community Organizations

- Rural Development Societies
- Youth clubs
- Community- Based Organizations etc.
- Health volunteers
- Community Leaders

5. Population

- Population by village and GN divisions.
- Classifications of population Age, sex, religion, race etc.
- Population Density

	Population				
Serial No.	GN Name of division Village		No. of Dwellings	Population	
			Estimated	Actual	
/rs =/					

6. Vital Statistics

- Birth rate (preferably for the last 10 years; at least for 5 years).
- Death rates -
 - Infant mortality
 Maternal mortality
- Leading causes of death in the area
- Leading causes of hospitalization in the area
- Classify morbidity and morfality statistics due to major diseases by months, for five years

7. Economics status

- Classification of major sources of income
- Industries
- Classification of employment
- Physical resources in the area

8. Religions

- Classification of the population by religion
- Temples, churches, mosques, kovils and other places of worship, located in the area
- Historical and archeological sites found in the area
- Religious and cultural centres

9 Culture

- Cultural and social functions held
- Festivals held
- Cultural behaviour patterns
- Traditional beliefs among the population groups

10. Education

- Educational levels
- Educational Institutions (Schools, Pirivenas, Monasteries).
- Formal, Informal, Non-formal education.

11. Communication

- Use of Radio and Television

- Postal and Telecommunication facilities
- Pattern of mobile phone and Internet/ web usage
- Newspaper reading habits
- Are community meetings held?
- Are public address systems available?
- Availability of Electronic Alarm Systems and conventional communication methods

12. Environmental Sanitation

- Water supply
 - Drinking Water Sources by House units
 - · Quality and Quantity
 - · Common Drinking Water Sources
 - Catchment areas and authorities responsible for protection
 - Covering population for each Community Source of water
 - Purification systems at household level and in Common Drinking Water Sources
 - · Consumption patterns and trends
 - Availability of water for personal hygiene activities

- Drainage of rain water in urban areas

- Disposal of waste water
- · Disposal of other liquids such as industrial waste

Disposal of human excreta

- Present systems in the area (types of latrines).
- Latrine construction strategies (methods/ materials/ techniques)
- Public Latrines
- · Adequacy of latrines

Disposal of Solid Wastes

- · Classify solid waste in urban and rural
- Present waste disposal systems in urban areas
- Present rural domestic waste disposal systems
- · Final waste disposal sites and responsible authorities
- Disposal of dead animals
- · Utilization of solid wastes
- Composting
- · Application of R 3 (Reduce, Re-use, Recycle).
- Land fillings
- Present Health problems due to waste disposal.
- Disposal of Human remains
- · Burial and burial grounds
- Cremation and crematoriums

Housing

- Types of buildings
- · Techniques and materials of building Construction
- · Application of health requirements

- Implementation of H&TI Ordinance and UDA act.
- · Unauthorized constructions and problems
- Light and ventilation
- Drainage and waste water disposal
- · Toilets, septic tanks and spakage pits
- Overcrowding
- Housing schemesPublic buildings
- Kilchen and kitchen garden
- Food Hygiene and sanitation
 - General statement with regard to the diet pattern and types of food consumed by people in the area
 - · Food preparation techniques
 - Food production, storage and distribution.
 - Classify and grade Food Handling Establishments
 - · Implementation of Food regulations
 - Food-borne diseases; prevalence during previous 5 years
 - · Sanitation in Public markets, Public Fairs ('Polas'), Wholesale markets
 - Sanitation in Slaughter Houses, Meat Stalls and Fish Markets
 - Street Vendors (sanitary status)
- Occupational health and safety
 - · Occupations of the people in the area
 - Occupational hazards and accidents
 - · Dangerous and offensive trades
 - Factories
 - · Estates and agricultural plantations
 - · Public complaints regarding nuisance caused
 - · incidents of Chemical and Pesticide poisoning
- Vectors, Animals and Pests
 - · Domestic pets
 - . Stray dogs, cats, cattle, other animals and nuisance caused by them.
 - · Poultry and birds
 - Rodents
 - Mosquitoes and other insects
 - · Poisonous snakes
 - Immigrant birds

13. Disease control

- Incidence of Communicable Diseases for last five years (by month)
- Present surveillance system
- Deaths due to Communicable Diseases
- Special diseases control programmes
- Vaccine Preventable Diseases
- Prevalence of Non-Communicable Diseases
- Clinic facilities

14. Medicine and treatment

- Popular Medical Systems and treatments methods
- Patient care services Hospitals, Dispensaries and Clinics
- Ayurveda Hospitals, Homeopathy medical facilities
- Accessibility to hospital facilities
- Staff, Equipments

15. Community Health Care

- Maternal and Child care services
- Elderly care services
- Nutrition
- Immunization
- Rehabilitation of disabled
- Early Childhood Development
- Day-care centers
- Health care for displaced persons
- Primary Health Care services

16. School Health

- Number of schools
- Classification of schools-
 - total students less than or more than 200
 - · for Boys, for Girls, Mixed
 - Sinhalese, Tamil, Muslim
- Location and accessibility
- School Building light and ventilation
- Furniture
- Adequacy of Latrine and Urinal facilities
- Playgrounds
- School gardens
- Number of school children in each school
- Findings of Medical Inspections carried out in schools
- Health Promotion Programmes
- Meal patterns of children, Food hygiene, Condition of School Canteens

17. Health Education and Health Promotion

- Community Participation
- Community empowerment

18. Community Health Problems

- 19. Problem prioritization
- 20. Apalysis the health problems
- 21. Action Plans/ Programmes/ Project proposals developed
- 22. Acknowledgements
- 23. Annexes
- 24. Certification and Forwarding

CHAPTER 12

Care of the Youth, Elderly and Disabled

Introduction

A disability is any restriction or lack (resulting from an impairment) of ability to perform an activity in the manner or within the range considered normal for a human being.

12.1 Persons with Disability - The Prevalence

There is a wide variation, ranging from 11 to 23 %, in the global estimates of persons with disability. This is mainly due to different definitions applied and different research methodologies. According to the WHO it is estimated that 10% of the children are either born with or acquire a disability during their lifetime. It is estimated that 10% of children with disability have an impact on at least 25% of the total population, taking into account only the family members and caregivers. In Sri Lanka data regarding persons with disability is not very reliable as most of it is based on findings from small scale studies. According to the Census of Population and Housing (2001), 1.96% of persons are reported to have some form of disability, which is also an underestimated figure. A disabled person is defined as "a person who is unable to or limited in ability in carrying out activities that he or she should be able to normally carry out, due to congenital or long term physical / mental disabilities". This includes a wide variety of categories of persons with disabilities, such as those with impairment of vision, hearing and speech; problems in mobility; mental retardation; behavioural problems; learning difficulties and also those having multiple disabilities.

The physical problems faced by persons with disability, are developmental delays, malnutrition, growth retardation, frequent illnesses, chronic illnesses, problems due to immobility such as pressure sores and the inability to perform their activities involved in daily living. Most of them face psychological problems too, such as foneliness, anxiety, depression, tack of self esteem and being socially excluded by general consent (ostracism).

THE PROBLEMS FACED BY THE DISABLED

PHYSICAL

- Developmental delays
- Malnutrition
- Growth retardation
 - Frequent illnesses
- Chronic illnesses
- Problems due to immobility

PSYCHOLOGICAL

- Loneliness
- Anxiety
- Depression
- Lack of self esteem
- Social isolation

Programmes for the benefit of the disabled

Our programmes should be aimed at the prevention of all forms of disability, early detection, treatment and rehabilitation. The objective of rehabilitation is to make them free of medical complications, make them establish activities of daily living as much as possible, and integrate them into normal society by overcoming the physical, environmental and social barriers. During this process, financial needs and the need to provide assistive devices such as wheel chairs, crutches, walking aids and spectacles, etc., will arise, and would need to be addressed through acts of intersectoral coordination and community mobilization.

12.2 Elderly Persons

In Sri Lanka the population is ageing rapidly and currently 10% of the population is over 60 years. This will be doubled in 20 to 25 years time. At present the life expectancy for males is 70 years and for females 75 years. This is expected to increase up to 75 and to 80 years respectively for males and females, by the year 2025. The median age of the population will increase from 26 years at present, to 46 years in 2025. The old age dependency ratio will increase from the present value of 14, to 32 by the year 2025.

As a result of these changes, the demand and the cost of healthcare for the country would increase. There will be overcrowding at the OPDs and at the Specialist Clinics, with the demand for laboratory services and drugs increasing greatly. The bed occupancy rate will rise and prolonged stay in hospitals will be more frequent. Therefore, the need to establish and strengthen programmes on health promotion, disease prevention, early detection and treatment, community follow up and rehabilitation is most imperative. Such programmes would result in a reduction of the healthcare expenditure for elders, and postpone the onset of disability, enabling older persons to remain active, productive and healthy as long as possible. This will also enable the older persons to remain a resource to the family and community.

PHI Manual - Chapter 12

One of the leading causes of disability among elderly is following accidental falls. Therefore, in houses where old persons are living, every step should be taken to design the household arrangements in a manner that falls would be prevented. In the designing of houses and public buildings it is necessary to consider the factors of accessibility, safety, and usability, by elderly and disabled persons. For example, it should be possible for wheel-chair users to gain access to the building and to a toilet, with built-in ramps if necessary. The floor tiles should be the non-slippery type. Hand rails and door knobs should be such that they can be gripped with minimum effort, and the taps should be of a type which can be operated easily. It is important that the lighting is adequate.

The gazette notification no: 1467/15 of 17th October 2006, states that it is necessary to make all public buildings accessible to persons with disabilities.

The PHI can play an important role in the following greas, with regard to elderly persons and disabled persons:-

- disease prevention
- early detection of diseases / associated complications
- referral to medical advice when necessary
- care and
- arranging for rehabilitation programmes

Therefore the PHI has to perform many functions improving the quality of life of the disabled and the elderly.

i. As an educator/ facilitator

- Advising local authorities to ensure that, during initial construction of or effecting
 alterations to public buildings (state/ commercial sector) including places of
 worship, such buildings are disabled/elderly friendly. The necessary guidelines
 in this regard are contained in the Standards and Guidelines on Accessibility (
 a copy will be sent to each MOH office).
- To arrange and conduct awareness and advocacy programmes on 'elderly care and care of persons with disability', targeting elders, their family members, school children and community leaders.
- To educate the public on prevention of disabilities.

at birth - Counseling to prevent consanguineous marriages
school children &
out-of- school youth - Prevention of injuries due to home accidents,
sports injuries, road traffic accidents, violence

young adults and adults

 Prevention of injuries due to road traffic accidents, violence, occupational injuries (agricultural workers, especially construction workers engaged in working at heights, coconut pluckers, toddy tappers etc.)

elderiy

- Early identification of cataract formation and the need for early intervention, prevention of home accidents, modification of home environment to make homes ciderly & disabled triendly
- On reducing stigma & discrimination against elderly and persons with a sability in the community.

ii. As a coordinator and an organizer in the community

- Assisting the MOH to establish 'day centers' for the elderly, in collaboration with
 other community stakeholders, using available physical infrastructures in the
 area such as temples, kovils, churches and community centers, and also to carry
 out a sustainable programme by mobilizing necessary resources.
- Assisting the MOH to establish a 'day center' for rehabilitation of disabled
 persons. Such a center would enable rehabilitation of persons with disability, by
 means of mobilizing a Physiotherapist / Occupational therapist from a nearby
 hospital, it would also facilitate a programme for the lending of assistive devices
 such as wheel chairs, crutches, and commode chairs, to persons with disability
 on a short / long term basis, with the cooperation of the Department of Social
 Services and NGOs in the area.
- Arranging Screening Clinics for the elderly and disabled in his area, with support
 of other primary health care staff, especially to detect persons with visual
 impairments and hearing impairments and to provide them with the necessary
 aids

iii. As a befriender

Befriending elders, disabled, and the parents of children with disabilities, in his area.

iv. As a facilitator

 Identifying elders and disabted in his area, and referring them to 'day centers' established in the MOH area.

v. As a trainer

 Identifying and training suitable persons as volunteers, to care for elders and disabled in the area who are in need of help from volunteers.

12.3 Young Persons

The estimated country population of 19 million comprises 28% of young persons who are in the age group of 10-24 years. This includes 19.7% who are between the ages of 10-19 years (adolescents). These young persons constitute a significant group in the population, which has specific health needs which require specialized services. This being the category of the population that will invariably take on important responsibilities on behalf of the country eventually, their physical and mental well being would be most assential for the optimal development of the country in the future.

Rapid and drastic changes from the past traditional life styles have resulted in young people having to face many challenges in today's dynamic and complex environment. The increasing time lag between age at menarche and marriage for females, urbanization, migration (both internal and external) and globalization, all tend to affect their general well being.

As young persons are a heterogeneous group, their needs differ from one person to another and their health seeking behaviours are also quite diverse. In addition they have only limited opportunities to discuss their concerns and issues in the community, in an open manner. There is limited access to information and specific services to address the health needs, especially the sexual and reproductive health (SRH) concerns of young persons.

Common problems faced by young people in Sri Lanka are stress-related, and are in relation to factors such as education, examinations and unemployment. At many discussions conducted with young people, giving them the opportunity of asking questions in a written manner maintaining their anonymity, their dissatisfaction or overconcern regarding their outward appearance was highlighted. These included matters such as the presence of acne, height, obesity, thinness, complexion, excessive body hair and size of the breasts/ penis. They were also affected by myths and misconceptions, along with fear and guilt related to their physical, sexual and psychological changes such as those concerning menstruation, cervical mucous discharge, nocturnal emissions, masturbation and homosexuality.

A large proportion of young people also are psychologically affected with problems involving a breach of relationships with parties such as their parents, teachers, siblings, peers and also due to broken love affairs. Being bullied, sexual harassment, and problems due to gender bias, are also issues faced by young people, causing immense stress. School children are often punished or reprimanded by teachers / parents, for being absent from school without permission, lying or stealing.

Young people may be faced with more significant problems such as sexual abuse through incest or commercial sexual exploitation, pregnancies and need for abortions faced by unmarried young couples and addiction for the habit of substance abuse. These persons invariably need proper support and guidance, to prevent disruption of their education / career or to prevent mental illness, or even to prevent their committing suicide. Out-of-school young people who are sexually active, need counseling on methods of contraception (even if unmarried) to prevent unwanted pregnancies, and on avoiding risky sexual behaviour which would expose them to sexually transmitted diseases including HIV infections.

All young people need age-appropriate information, life skills, and clinical services, including guidance and counseling, to lead a well-balanced healthy life.

The PHI should be knowledgeable regarding the issues pertaining to young people, to enable him to provide efficient youth friendly health services and to assist the MOH in the provision of such services to the youth.

Supporting young people who are faced with issues / problems

At present (end of 2008) there are 16 'Youth-Friendly Health Service Centers' in the country. Majority have been set up in the hospital OPDs and a few in the MOH offices. Youth-Friendly Health Service (YFHS) provides necessary information, basic counseling and clinical services that young people need and rightfully deserve to receive, from a competent and youth problems sensitive provider, in a youth friendly environment / setting.

Prior to establishing the Youth Friendly Health Service, many consultative workshops were conducted during the years 2005 to 2007, involving young people, by the Directorate for Youth Affairs in the Ministry of Health, on their needs and concerns. The following issues were highlighted in these discussions.

Factors that hinder youth seeking advice on their problems and issues

Operational barriers faced by those seeking advice/treatment

Though young people are affected with these problems and issues need help, they may not seek help due to operational barriers such as the lack of a separate area to report at, tack of privacy and confidentiality during consultation, and inconvenient hours available for consultation, if they have to go to the private sector, the cost of services is high.

Avoiding stigma

They will be encouraged to seek services from a center which is not depicted as a "mental health unit / psychiatric unit", as this would stigmatize them or label them as mentally ill patients. Young people would very much appreciate if this service is exclusively intended for them.

How best to run the YFSC

This health facility should have separate places for examination and for counseling. A library or resource room will go along way in encouraging them to improve their knowledge both on general matters and on topics related to their own issues. Ideally, the waiting area should be equipped with a TV and a DVD player, and the resource room, with educational and story books, news papers, leaflets, magazines, audio visuals and research reports. The waiting time could be used to advantage if this center is also provided with recreational facilities such as equipment for playing indoor games such as draughts, chess and carom. This would very much help the people seeking clinical services, as they can visit this center on the pretext of patronizing these facilities, thus avoiding any speculations that they may be suffering from illnesses and the associated stigma.

This facility should have the 'YFHS' name board conspicuously displayed, indicating the days and times during which the centre functions. At least the minimum furniture and equipment required (tables, chairs, weighing scale, measuring tape, etc.) for the provision of the package of health services expected according to the location (hospital or MOH office) should be in place. Availability of drinking water and accessibility to toilets are important. The implementation guideline, protocols, and records and data base on the clients should be available at the centre. A 'Suggestions Box' for the clients to deposit their suggestions that would help in effecting continuous improvements to the YFHS, too, is a requirement.

It is imperative to engage a service provider who has been specially trained in techniques of 'youth friendliness', and who is receptive, sensitive and empathetic to youth needs. The service provider shall possess good interpersonal and communication skills and should be motivated enough to provide adequate time to each client.

12.4 Role of PHI in the provision of services for young people

As an Educator, a Facilitator and an Organizer

At present the PHI's work covers young people between the ages of 10 to19 years attending school, through the school medical inspections and other health promotional activities. PHI must also support the MOH to conduct awareness programmes with the aim of life skills development among young persons and to train peer communicators and volunteers for working at the YFHS.

PHI can also play a pivotal role in organizing and conducting awareness programmes targetting out-of-school youths, their parents and community leaders on issues pertaining to health of young people, such as :-

- Sexual and Reproductive Health (SRH) issues including STD and HIV/AIDS
- Nutrition
- Prevention of violence and accidents
- · Prevention of alcohol, tobacco and substance use
- Life skills
- Promotion of environmental health.

The PHI can assist the MOH in identifying the target groups, and the knowledge that should be given to them, and subsequently in organizing and conducting necessary programmes, to cover most at-risk and vulnerable young population groups in the community (drug users, juvenile delinquents, those in the IDP camps, street children, and children of parents who have migrated etc.).

With the leadership of the MOH, and the cooperation of other health team members, PHI can play a major role in setting up a YFHS centre in the MOH area.

Befriending

Many young people, especially male youth, will much benefit if there is a health provider in the community who is approachable, to discuss their issues, particularly concerning SRH including STI and problems associated with substance use.

PHI Manual - Chapter 12

As the PHI is already involved in working with youth, both in-school and out-of-school, involving them as health volunteers in the control of diseases such dengue and filariasis, and in organizing environmental cleaning campaigns, it is easy for the PHI to build a good rapport with them. He can befriend and help young people having problems, or help them by referring them to the MOH.

PHI, after the necessary training, can be a team member to work in the YFHS, as people who can provide reliable sources of information to guide young people are lacking, especially with regard to reproductive health. The PHI should receive training in such a manner so as to provide services in a non judgmental, and non threatening manner enabling the young persons to maintain their privacy and confidentiality. Registers and records at the centre can be maintained by the PHI, while ensuring confidentiality and he can also help the MOH in the preparation and submission of regular returns to the respective authorities.

As a resource mobilizer

PHI can play an important role in mobilizing resources for the development of IEC materials such as banners, posters, leaflets, booklets, fliers, and handouts, which can facilitate the provision of services to young people.

As a coordinator

PHI can also help the MOH in strengthening the linkages and referral systems, concerning the following, in order that the young people may be supported in a holistic manner.

- Provision of legal advice/aid required in situations of gender based and sexual violence
- 2. Community support centers (e.g., mental health)
- 3. Rehabilitation Centers for those addicted to substance use
- Networks of people living with HIV/AIDS [PLWHA].
- 5. Youth networks and groups
- 6. Educational institutions and employment agencies
- Religious leaders / other community leaders
- All other officers related to health of young persons (eg: social services, divisional secretariat, police department)

In all these activities, it is important to plan, design, implement, and monitor the activities, with the active participation of youth in the community.

The need for the establishment of a Youth Friendly Health Service is highlighted in the Policy on Health of Young Persons. The Minimum standards and guidelines for the establishment of youth friendly services have been developed by the Directorate of Youth, Ministry of Health.

CHAPTER 13

Mental Health

13.1. Introduction to Mental Health

The World Health Organization (WHO) defines health as a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity. Thus the definition of health includes mental health as an integral part of health.

Mental health implies more than simply absence from mental illness. It is defined as a state of wellbeing in which the individual realizes his or her own abilities, can cope with the normal stresses of life, can work productively and is able to make a contribution to his or her community.

The present state mental health services provide care mainly for people with mental disorders. Though certain non-governmental organizations carry out some mental health promotion activities, they are beyond the reach of the great majority of people having psychosocial problems. Hence, promotion of psychosocial well being and prevention of mental disorders should appear high in the agenda of the mental health programme.

Mental Disorders

Of the 10 leading causes of disability worldwide, fifth is mental disorder. Many do not recognize that they are ill, white others do not seek help because of misconceptions about these diseases. Learning about mental illness would be most important before embarking on initial identification of various mental illnesses during house/field visit

Of all discharges with a Psychiatric illness in all hospitals in Sri Lanka including the Mental hospital, majority (34%) are having some type of a Psychotic illness (Schizophrenia and Schizotypal and delusional disorders). This illness category is closely followed by mental and behavioural disorders due to alcohol/substance use (24%) and mood disorders (20%).

13.2 Mental Health Policy

A national mental health policy was approved by the cabinet of Ministers in October 2005. The vision of the Mental Health Policy of the Ministry of Healthcare and Nutrition, is the establishment of an affordable, accessible, comprehensive, community based service that will promote the mental wellbeing of the community.

Emphasis is on the prevention and promotion activities based on the principles, that services will be available at primary, secondary, and tertiary levels; services of good quality provided where and when they are needed; services will be organized at community level with community, family and consumer participation; mental health services will be linked to other sectors; mental health services will be culturally appropriate and evidence based; and the human rights and dignity of people with mental illness will be protected.

13.3. Mental Health services

The Directorate of Mental Health which functions under the Deputy Director General of Medical Services (1) of the Ministry of Healthcare and Nutrition is the focal point for organization of Mental health Services in the country who is directly responsible for policy development, advocacy, human resources, training and coordination, nine provincial health administrative structures oversee implementation, monitoring and evaluation.

There is one Mental Hospital which is situated at Angoda, the Colombo district, and 18 community-based psychiatric in-patients units, 78 out-patient clinics, in other hospitals and 200 out-reach (Extension) clinics and 13 community residential facilities in island wide to provide patient care.

The process of integrating evidence based psychosocial support mechanisms into the well-established primary health care system in the country has been initiated. The Provincial Director of Health Services/ Regional Director of Health Services (PDHS/ RDHS) are the Programme Managers for development of Mental Health Services in their respective areas.

Provincial structures include Provincial Directors and Regional Directors, District Mental Health tearns. Each district has a Medical Officer as the focal point under the Regional Director of Health Services, assisting planning, implementing, monitoring and evaluating Mental Health Services. The District Mental Health Team is a multi-sectoral group consisting of the Consultant Psychiatrist, Medical Officers trained in Mental Health and Psychiatry with their staff, and representatives from other related sectors such as education, Social Services Department. Representatives from Non-Governmental Organizations and community-based organizations are too members of the team. Field staff, headed by the Medical Officers of Health (MOH) supports community-based activities of the Montal Health Team.

The establishment of a Community Support Centre (CSC) in every Medical Officer of Heafth (MOH) area, for coordinating all the activities in the community for the promotion of mental well-being by providing support to those in need, is an initiative that has already been undertaken by the several RDHS with the support of the other Government and Non Governmental agencies in the area. MOH is administratively in charge of the CSC and is responsible for providing support services in the community. All primary care level workers including the public health staff, volunteers and other community leaders are involved in providing support services and referring clients in need, to the CSC. By helping individuals to practice life skills, especially in times of distress, by organizing community activities and by providing information and knowledge, support services can improve the mental well-being of the individual and thereby the well-being of the entire community and society at large.

Medical Officers (Mental Health), i.e., MO/MH supervised by the District Psychiatrist provide the technical guidance to those providing community support services. They provide treatment to those referred with mental disorders to the Mental Health Clinic in a hospital of the area, on an out patient basis as far as possible. The early identification and treatment of common mental disorders hitherto undetected or undiagnosed, can increase the wellbeing of all individuals.

Addressing the social determinants of health by networking with external agencies helps in the attainment of total wellbeing by every individual. Multi-sectoral collaboration for mental health development is organized at various levels with the leadership of the respective health authority. At divisional level the Medical Officer of Health is the leader of the Divisional Mental Health Development Committee. This enables provision of practical help from non-health sectors as well, to clients according to their specific needs.

Promotion of mental health and prevention of mental disorders are two significant components of mental health services. These are two key responsibilities of health workers in the community.

13.4 Mental health promotion

Mental health promotion includes actions to empower the community to enhance the mental wellbeing of individuals, families, organizations or communities. Mental health promotion contributes to enhancing the quality of life. While increasing happiness and wellbeing, there is also evidence to show that mental health promotion can contribute to the prevention of certain disorders, for example anxiety, depression and substance abuse. Improving mental health also enhance physical health and productivity.

Over the last two decades, numerous studies in mental health promotion and mental disorder prevention have proven that a wide range of well designed interventions can be effective and lead to improved health, social, and economic development. These have been found to reduce risk factors, strengthen protective factors, decrease psychiatric symptoms and disability and the onset of some mental disorders.

Promoting mental health in an individual will enhance:

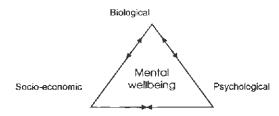
- Happiness
- Independence
- Enthusiasm
- Life skills
- Ability to enjoy life
- Emotional resilience
- Self-esteem
- Capacity to learn
- Productivity
- Ability to control ones life
- · Ability to form loving, supportive relationships
- · A sense of belonging to the community
- Physical, social and spiritual wellbeing

The attainment of the above status by the individuals could bring about improvements in the overall health status of the population. A happy individual with good life skills and the capacity to learn and work productively will look after him: will not harm him; will learn and practice good life skills. Individuals of a family in a loving, supportive relationship can reduce incidents of domestic violence, child abuse and neglect. Ability to control ones life, good self esteem and emotional resilience can reduce alcohol related harm, gender base discrimination and suicides. These in turn contribute to happy, enthusiastic individuals in the family, in the current generation and also in the next generation in a virtuous cycle.

13.5 Factors affecting mental wellbeing

Mental health and mental disorders are determined by multiple and interacting biological, social, economical and psychological factors. (Fig.1)

Fig.1 Factors affecting mental weilbeing



Some of the common psycho-social factors leading people into mental distress situations are:

- Not having enough money / time / an employment
- Failure in job or school
- · Relationship problems with:
 - Spouse (marital discord)
 - Parents, teachers
 - Friends
 - Siblings
 - Workmates, peers
- Domestic violence
- Child abuse and neglect
- Alcohol and substance use
- Wars, conflicts and disasters
- Thoughts of self-harm
- Medically unexplained symptoms
- Living in fear
- Limited education
- Stressful work conditions
- Gender discrimination
- Unhealthy lifestyle
- Human rights violations

13.6 What can be done to promote mental health and wellbeing?

The types of interventions, which are useful in promoting mental health and preventing mental illness, are many. Interventions can be grouped into individual, family and community interventions.

Strategy 1 - Individual interventions (High risk approach)

People with unmet needs may seek help from community support centres, clinics and at home visits. Some may have encountered problems in their lives, which they cannot solve on their own. Others may need to express emotions and feelings and expect a sympathetic hearing. People will also seek help with practical problems such as securing a job or seek treatment for illness.

It is necessary to build good interpersonal and therapeutic relationships with the client. It is the responsibility of the PHI to provide practical information to the client and to recognize when protection for the client is called for. Situations may arise where PHI / Community Worker may have to act on behalf of a person being abused or exploited, with the person's consent.

Strategy 2 - Family interventions

Family interventions are necessary in the care and support of individuals in distress. The role and responsibility of each member of the family, who cares for the wellbeing of another member in distress, should be recognized and supported.

Strategy 3 - Community interventions

It is also important to consider the social context in which the client lives and involves the social support mechanisms.

Strategy 4- Develop partnerships

Promoting mental health involves not only working with people in the health sector. The development of partnerships between a range of agencies in the public, private, and non-government sectors is essential. It is necessary to network with them to design and implement interventions that will promote mental health and prevent mental disorders.

13.7 Role of the PHI towards the promotion of mental health in the community

- Mental disorders can be controlled by early identification and proper management.
- This would prevent complications and life long disability

PHI should be aware of the features of common mental disorders. It is important to watch for warning signs of mental illness and refer those having such signs to medical advice as soon as possible.

These symptoms would include:-

SYMPTOMS OF MENTAL DISORDERS

- Marked personality changes
- Inability to cope with problems and daily activities.
- Strange ideas of delusions
- Excessive anxiety
- Prolonged feelings of sadness
- Marked changes in eating or sleeping patterns
- Thinking or talking about suicide
- Extreme highs and lows
- Abuse of alcohol, drugs
- Excessive anger, hostility
- Violent behaviours
- Irrational fears

13.7.1 Promoting Mental Health in the Workplace

Mental health of individuals can be improved through simple workplace interventions. Workplaces include a wide variety of places such as the hospitals, schools, government offices, industries, hotels, prisons, police stations, and army camps. Many such places have not only the workplace employees and their managers but also others who seek services. For example, in a hospital, apart from the hospital staff, there are others such as patients and visitors who come to the hospital for services. The hospital therefore, is a workplace which offers many opportunities to implement promotive and preventive activities, which will improve the wellbeing of all the categories of people concerned.

Many workplaces are keen to carry out programmes to increase productivity. Promotion of wellbeing could be incorporated into such programmes. Promoting mental health in the workplace will improve productivity of the organization through:

- improving physical wellbeing.
- improving social relationships through better co-worker and supervisor support
- reducing absenteeism
- reducing workplace conflicts

Employees, students in schools, and patients who develop better mental health, can act as change agents in their families and in their communities.

The Public Health Inspector is already involved in monitoring standard of cleanliness in workplaces and in ensuring workplace safety. Under the guidance of the MOH, PHI is expected to promote mental wellbeing at the workplaces. Other sectors in the community and other agencies also could be involved in such activities.

Common problems in the workplace

These may be related to the individual, to the organization and to the job. Some of the examples are:-

- alcohol and tobacco use
- stress
- lack of job satisfaction
- staff getting divided into disruptive groups / cliques
- · violence and harassment
- maladaptive behaviour
- · some members of the staff not receiving respect
- conflict among co-workers and management.
- absenteeism
- discriminating practices
- accidents
- unpredictable working hours
- intense and repetitive type of work
- · lack of personal safety measures for workers
- lack of adequate welfare facilities
- unhealthy working environment

Several strategies can be implemented to promote the mental health of people in a workplace.

Strategy 1 – Assessment of wellbeing and identification of factors affecting the well being of different categories of people in a workplace

Staff in the workplace should identify the indicators, which measure their own mental wellbeing and, in addition, the wellbeing of others who seek services. They should also list the criteria they could use to measure their own wellbeing and that of the others

The next step would be to identify the factors in the workplace that influence the wellbeing of staff and the others.

Strategy 2 - Behaviour change interventions for wellbeing

- Creating awareness among workers can change their behaviour positively.
 Mental health awareness programmes can be implemented in several ways such as by lectures, by the provision of educational material, etc.
- Discussions/workshops focusing on common problems in a workplace, observational visits
- Create space for behaviour change activities such as facilities for meditation and exercise

Strategy 3 - Helping individuals in distress

 The appropriate interventions can be carried out to help people in distress, after making a proper assessment

Interventions may be in the following areas:-

- Anger management
- Stress management
- Relaxation techniques
- Management of people
- Time management
- Life skills
- Organize a help-desk by networking with resource groups to provide individual help

Strategy 4 - Engage workplace staff in implementing the activities

- Groups of people with common needs may decide to get together to support each other, i.e., self-help groups
- Implementing rules and regulations within the workplace by the staff, on a volunteer basis

The staff could be encouraged to take steps to change certain factors they have identified as having a negative impact on their wellbeing. Promotion of wellbeing can be carried out as a formal activity or incorporated into the routine work, based on the decisions arrived through employer-employee dialogue.

Follow-up is the best way to ensure success of an activity. Identify ways of determining if a change in the culture has occurred after a period of time, as a result of their interventions. At follow-up sessions, see if staff has attempted such changes. If not, you could discuss the factors that have impeded the necessary change in the workplace. It may be that only a few staff members participated initially in discussions with you, and that the majority of staff is unaware of the activities. If so, the staff that was initially involved in the activity could discuss about the process of promoting wellbeing, with all staff.

13.7.2 Promote Mental Health among Children

The factors that promote wellbeing in children are also the basic needs necessary for growth and development. These needs change with age, maturity and circumstances of the child. While providing the physical health needs such as good nutrition, and prevention and treatment of illness, parents should also provide the psychosocial needs of children.

Parents or other caregivers should try to use every opportunity to help the child to appreciate and enjoy the world. They also need to give the relevant inputs to help the child to understand and make sense of the world. They have to provide opportunities to help the child to learn by doing things and by offering guidance. Appropriate things to be provided depend on the child's age and maturity.

Development of parenting skills and engaging the parents and the community in activities, which promote the wellbeing of children, can greatly enhance the mental health of children.

Groups made up of mothers, fathers and care givers, in each, could be encouraged to discuss the basic needs a child should be provided with, e.g., healthy parenting practices. This can be done from pre-pregnant stage or even from adolescence. Parents and caregivers need to understand that it is not only knowledge that should be provided, but that there is a range of activities that children can learn from. They could be encouraged to discuss how opportunities to learn through experience and doing, could be enhanced in children.

Public Health Inspectors and Public Health Midwives meet mothers, in many settings. Promotion of child wellbeing could be discussed at the antenalal clinics, postnatal clinics, family planning clinics, mother support groups, community support centers and during home visits.

Parents and caregivers could be encouraged to expand the range of learning opportunities provided for their children. At subsequent visits they could discuss what new opportunities they have been providing for their children. Mothers could also learn the sharing experiences of each other.

While engaging in the School Medical Examinations, PHI can lead a discussion with students and assure that there is always provisions for seek help if and when they need. Also, it should be explained to children about the Community Support Centers, MOH Offices, and Youth Friendly Services available in the country.

Children can present with behavioural problems such as enuresis (bed wetting), encopresis (faecal soiling), fears and phobias and school refusal. If these disorders are suspected by the primary care workers during home visits or in a clinic setting, it is important to refer them to the closest Community Support Center or to the Medical Officer/ Mental Health, for assessment, diagnosis and appropriate care.

13,7.3 Developing Life Competencies for Psychosocial Wellbeing

Life competencies are the abilities of an individual to meet the needs and demands of day-to-day life in a productive manner; they are the positive behaviours necessary for psychosocial wellbeing.

Developing life competencies can help in preventing many psychosocial problems such as alcohol and drug use; risky sexual behaviour; poor academic performance; uncontrollable anger and social adjustment problems.

Life skills can be categorized into:

Social skills	Cognitive skills	Emotional skills
Effective communication Interpersonal relationships Empathy	Self awareness Decision making Problem solving Creative thinking Critical thinking	Coping with stress Coping with emotions

Although these life skills have been categorized into three groups they are used together in many situations, and they reinforce each other. For example, a programme aimed at anger management would teach ways to communicate feelings (a social skill), understanding the consequences of action (critical thinking - a cognitive skill), and to manage reactions to conflict (coping with stress - an emotional skill).

Theories about the way children and adolescents grow, learn and behave, provide the foundation of the life skills approach. These theories find these specific skills to be essential components of healthy development, and the skills that define a resilient child.

Decision making

Decision-making is a complex process. Management of difficult choices, especially under stress, involves other skills. Cognitive skills, which are important in decision-making, are identifying issues or problems, determining goals, generating atternative solutions and envisioning possible consequences. Emotional skills for calming oneself under stress, listening carefully and accurately, and determining the best choice, are also important for good decision-making. Social skills like empathy are necessary for understanding others.

Problem solving

This process requires that the decision maker be able to identify possible courses of action or solutions to a problem and to determine which the best alternative solution is. It involves taking into account accurate facts and not depending on past experience alone, being able to change one's position when adequate reasons are given, being able to find a joint solution when a group is facing a problem and evaluating whether the solution has worked in the expected manner.

Creative thinking

Creative thinking enables greater ability to understand connections between events, to apply thinking skills, which are appropriate to the situation and the ability to use creative solutions in challenging situations. It also develops the ability to think broadly, to pay more attention to the wider environment and to view events from different perspectives.

Critical thinking

Critical thinking promotes the ability to analyse differences, the ability to look critically at events, situations or media and analyse one's perceptions of social norms and

PHI Manual - Chapter 13

beliefs, to understand the consequences of actions and to analyse peer and media influences.

Effective communication

Effective communication involves listening to the views of others, expressing one's views without hurting the feelings of others and the ability to converse in a cordial manner and understanding the non-verbal communications of others. Ability to negotiate, refuse by saying no and assertiveness are necessary for effective communication.

Good interpersonal relationships

Good interpersonal relationships increase the number of close friends, the number of people you associate with, and increase co-operation with people in the class, workplace and other places.

Self-awareness

It includes understanding one's strengths, abilities, likes and dislikes. Also includes being sincerely proud of one's abilities and skills, readiness to accept mistakes while acting in a responsible manner, and belief in one's self to do what is right. Self-esteem can be achieved through self-awareness, self-evaluation, value clarification and self-maturity.

Empathy

The ability to empathise with others, allows the person to recognize and understand the feelings of others. This enables one to reach out to those with difficulties and to take decisions about oneself.

Coping with emotions

Skills for coping with emotions through self-management and controlling stress (often incorporating social problem solving skills) are an important aspect of day-to-day tiving. Relaxation techniques, managing anxiety, strengthening one's belief in personal control and responsibility for one's life, are skills to be learnt, to enable coping with emotions. Skills for improving the control of emotions, self-management and anger management, improve with the ability to cope with emotions.

Coping with stress

Understanding the reasons and solutions for our stresses, accepting what cannot be changed, and tooking for alternatives, taking part in sports and aesthetic activities, hobbies, increasing one's focus of control, self-management, self-monitoring and engaging in creative pursuits are all, ways of dealing with stress.

13.7.4 Preventing Alcohol Related Problems

Indulgence in alcohol is one of the main factors affecting the mental health and wellbeing of the individual, family, and the community.

When discussing negative effects of alcohol, harm to the individual user is nearly always the focus of discussion. However, the negative effects can also harm even non-users. A significant number of victims who are abused by people, who are under intoxication, do not get counted. Most victims of the habit of alcoholism are probably children, and in many cultures, women. Alcoholism has a major impact on the poorest of the community.

Alcoholism results in higher death rates from injuries, self harm, violence, poisoning, cirrhosis, haemorrhagic strokes, pancreatitis, and cancers of the oral cavity, pharynx,

larynx, desophagus, liver and breast. Many of these deaths towards which alcohol have contributed are not added to the official statistics covering alcohol related deaths. Psychological consequences of alcoholism lead to depression and suicides.

Consuming figuor is promoted by the liquor trade as an enjoyable activity. Consequently individuals begin to rely on alcohol for purposes of relaxation or to enjoy socializing. Thereafter the person's life slowly begins to revolve around alcohol, and his range of sources of happiness, enjoyment and fun become limited.

The use of a sizable proportion of the family income on alcohol has many negative social consequences. It results in malnutrition, inability to spend on children's education, and on borrowing money, often at very high interest rates.

Reduction of alcohol use, or abstaining from it, can prevent mental health problems and promote mental health in the community. Strategies such as promoting awareness about harm caused by alcohol, making the alcohol habit less attractive, encouraging quitting of the habit, and counteracting the forces that promote increased consumption, together with restricting its availability, all contribute towards discouraging alcohol habit in the community.

PHI is one of the three categories of Authorized Officers for Act No. 27 of 2006; National Authority on Tobacco and Alcohol (NATA). PHII are expected to implement law under this Act and to send a summary report of prosecutions done quarterly, to the respective RDHS.

13.7.5 Preventing Domestic Violence

Domestic violence refers to all acts of violence, threatening, or intimidation committed within the home against members of a household, usually by another family member. It is often children, women and elderly, who are subjected to domestic violence. In most cases of domestic violence, it is the men who commit acts of violence against their spouses. When acts of violence are committed against children or the elderly, women too may be responsible for such acts.

Domestic violence may present itself in many different ways, as follows:-

- Suicide or acts of attempted suicide
- Depression
- Unexplained medical symptoms
- Behavioural problems in children

As victims of trauma; domestic violence should be considered as a possibility, when it is observed;

- That the injuries are inconsistent with the patient's explanation
- That injuries have been sustained during pregnancy
- That there has been repeated reporting with injuries
- That there is a substantial delay between the occurrence of injury and the patient seeking the treatment

Strategies to reduce domestic violence

- Shifting community attitude towards non-acceptance of aggression
- Reducing alcohol use
- Teaching life skills

- Creating social disapproval of domastic violence especially related to alcohol use, or gender and community mobilization
- The role of the health worker should be to support and help those affected, help minimize the harm and if possible, look for ways of helping the perpetrator to stop his behaviour
- Health workers who meet people in the community need to be sensitive to the possibility of domestic violence in vulnerable groups, especially during home visits
- The subject of violence/abuse needs to be discussed with care, Indirect questions as given below can be used to start a discussion;
 - Do you feel that your spouse treats you well?
 - Is there anything that goes on at home that makes you feel frightened?
 - Does he throw or break objects in the home during arguments?
 - Does he act possessively? for example, always calling you at work

It is important to listen to the client in a caring manner, providing an opportunity to discuss the subject of violence, and to ventilate the client's emotions.

It is helpful if you are aware of resources available in the community to help victims and refer them. There could be organizations, which support victims of violence, or organizations that help training the persons so that they could support themselves financially.

During the course of your work you may be able to meet with community leaders, especially women who can offer help to women who are experiencing violence in their own community. They could:

- (i) form a support group for women experiencing violence and those who have successfully dealt with violence. All those participating in such groups need to understand that participation is voluntary, and confidentiality needs to be maintained about issues discussed at such meetings.
- (ii) provide a safe space for women and children experiencing violence. One or more families may offer their house as a safe house
- (iii) provide urgent medical treatment for those experiencing violence
- (iv)form self-help groups

Before planning and implementing community interventions it is useful to make a community assessment which should take into consideration the following:

- Do people think that violence is a problem in their community?
- You may ask people to list reasons that they think contributing to increased violence in their community.
- Who are the victims of violence?
- What are the possible causes of domestic violence? e.g., poverty, frustration, stress, tack of life skills, anxiety, worry
- What role does alcohol play?

13.7.6 Preventing Suicide and Self-Harm

At the community level, the suicide rate, alcohol and other psychoactive substance dependence and violence, are indicative of poor mental wellbeing. Many of these factors are intertwined. Alcohol use is associated with domestic violence, and both these factors are being implicated in suicide. Most men who have engaged in self-

harm arrive at the hospital intoxicated. Many women and children who engage in self-harm give, as the trigger event, a violent incident, that involves an intoxicated male family member.

The commonest reason attributed for self-harm in Sri Lanka is inter-personal conflicts. For example, young women may carry out an act of self-harm as a result of parents objecting to a love affair, being falsely accused of having a romantic / sexual relationship or after experiencing continuous violence from family members/ marriage partners. The resulting emotional responses may be anger, sadness, shame, humiliation, frustration and the desire to retaliate against others who have harmed the person in some way. A person for these reasons may contemplate to commit suicide over a period of time. However, the final act of self harm may be impulsive or triggered off by a specific incident.

Although interpersonal conflicts have been identified as one of the main triggers for people to attempt self-harm in Sri Lanka, there may be other types of situations that elicit similar emotions leading to self-harm. Therefore, for each individual, the reasons for engaging in self-harm may be different. It is important to understand the situation from the point of view of the person concerned.

Situations of extreme poverty, disasters and conflict situations tend to increase the rates of suicide and self-harm in a community. In these situations, people may become highly distressed as a result of deprivations, losses or displacement that they experience.

Men may harm themselves following an economic crisis such as crop failure or loan defaults or an event where they have been publicly accused of wrong doing. Women during pregnancy and post-partum period can be in distress due to the sudden demands being thrust upon her.

Sensitizing communities to support people in distress is an important strategy to reduce the incidence of self-harm. Health workers are in a position to offer support to distressed persons.

In conclusion:

You are expected to refer the Manual of Health workers at community Level, "Towards Better Mental Health" published by the Directorate of Mental Health. This manual is a guide for Primary Health Care Worker, for effective contribution towards mental health. You may request for a personal copy from the Medical Officer/Focal Point for Mental Health in your respective RDHS area.

CHAPTER 14

Male Participation

14.1 Introduction

The focus on men's responsibilities in sexual and reproductive health, along with their roles in families and their participation as fathers, is increasing worldwide.

One of the main reasons for men's limited involvement in their children's affairs results from socialization and social construction. Girls and boys learn their gender specific roles from a very young age. Boys and men assume the role of protectors and providers, leaving household work and child rearing for girls and women.

While some researches suggest that women are biologically adjusted to their children's needs, there is a growing consensus that child care is an acquired skill that girls learn at a very young age. Research also shows that if given a chance, boys and men can also demonstrate the same skills.

The present consensus among the professionals all over the world now is that men's participation as fathers, as co-parents and their role as partners of women, in domestic chores, child care, and childrearing do matter. Some studies have suggested that father's presence and participation is associated with higher attainment of school degrees, in the case of boys.

Men, who are involved with their children in meaningful ways, are of the opinion that this relationship is one of their most important sources giving a sense of well-being and happiness. Various qualitative studies and accounts of men from around the world suggest that men, who are engaged in caring and care-giving relationships, including fatherhood, may be less likely to engage themselves in certain risky behaviour types such as criminal activity. This provides men with a powerful, potential motivation for them wanting to become more involved as fathers. In some other instances, we observe that some men, who may have had only limited interaction with their children in the past, become affectionate grandfathers.

There is evidence, world wide, that men's active and non violent participation in the care of children is quite beneficial for children, for the women and for the men themselves. Children of such fathers show better health and developmental outcomes. According to some studies, men who develop positive connections with their children have less mental health problems.

Fatherhood needs to be addressed in conjunction with motherhood, and in the wider context of the family. It cannot be addressed in isolation. It further relates to the larger issue of masculinity and manhood. In order to change traditional notions of fatherhood, self-interest of men and boys in being better fathers needs to be emphasized.

It is essential that we tap men's self interest on being caring fathers. When men agree that they want to play an important role in the lives of their children the chance of resistance from them are minimal. It is also the fathers' self interest that having a close relationship with their children will make the children perpetuate their ideals and values.

Special efforts should be made to emphasize men's shared responsibility and promote their active involvement in responsible parenthood, sexual and reproductive behavior, including family planning, maternal and child health, prevention of sexually transmitted infections including HIV, shared control and contribution to family income, children's education, health and nutrition. Mate responsibilities in the family life should be included in the education of children from the earliest ages. Special emphasis should be placed on the prevention of violence against women and children.

To create a more gender equitable society, we need to work with fathers at home and address the prevalent socialization process, which can make boys prepared for a more caring fatherhood. This intersects with child development as boys and girls gain high self esteem from a secure family environment where both mothers and fathers are involved in child rearing. As such, when fathers participate in child care, there are positive outcomes for children, family, society and the father himself. Working on fatherhood is an effective and a long term investment towards creating a gender equitable and a gender just society.

We need to reinforce the positive forms of fatherhoods that exist in the society, where fathers do care and nurture — we need to promote these practices and make them visible, so that more men/boys take pride in family care and nurturing. Finally, we need to encourage men and boys who are gender sensitive and understand and take responsibility towards their children. Indeed most men want to support their children in multiple and meaningful ways and have the potential to do so. Such men do exist amongst us; the challenge is to identify them, as they often hide behind the facade of societal expectations.

In every society, even where strict gender norms exist, there are voices of men who are willing to take on concerns affecting women and children. The challenge is to find these voices as they can become our entry points in many cases.

At the same time, we need to be realistic, as we cannot pretend to dissolve tradition that is thousands of years old. We need to celebrate small successes. This is an up hill task that requires commitment and resolve, along with a clear strategy.

Community and society at large must be sensitized and made aware of the problem of gender based violence prevalent in Sri Lanka. To begin with, society in general must be educated on the fact that domestic violence is a social issue and not a private one. Health workers should take the initiative and leading role for building up of a non-violent culture. The valuable contribution of the primary health care team is essential, so as to achieve the target of a healthy nation through a violence free culture.

14,2 Benefits of Male Participation

- Enhances the household security in every aspect.
- Improves peace and harmony in the family.
- Increased health and happiness in the family.
- House becomes a pleasant place to live in for all members of the family.
- Man gets a mental satisfaction because his services are appreciated.
- Improvement of health status and educational status of the children.
- Improvement of the nutritional status of the family.
- Improvement of family welfare, since correct and collective decisions are taken regarding family matters.
- · Boosts the spiritual health of the family.
- · Prevention from sexually transmitted diseases such as AIDS.
- Prevention of unintended and unwanted pregnancies and thereby prevention of abortions.
- · Enhances the mental and social development of children.
- Family requirements could be fulfilled easily and successfully.
- · Can set an example to other families.
- Would have a good reputation and acceptance from the society.
- Able to have the desired number of children with adequate spacing.
- · Improved economical status of the family.
- · Self satisfaction with regard to good parenthood/ fatherhood.

Factors that hinder male participation

- Men think that engaging in household chores is an insult to manhood.
- Societal belief that household chores are only the sole responsibility of women.
- Influence of elders, parents etc.
- · Negative attitudes of friends/peers.
- Some women not wanting to get the support of men for their work.
- · Some times work done by men are not appreciated and valued by women.
- Men's unawareness about the day to day happenings at home.
 E.g. If he has not experienced male participation for household chores during childhood.
- Feeling and understanding that child rearing is only the responsibility of the woman.
- Inadequacy of time for the male to participate in household chores.
- Traditional societal myths and beliefs.
- Domestic violence
- Alcohol and drug abuse.

How to recognize that a particular family has the privilege of male participation?

Father's participation is generally measured as availability, engagement and responsibility.

Indications of positive fatherhood will be seen in the family such as -

- Family members look happy and peaceful.
- Husband looks after the security and welfare of the wife and family.
- Husband does not take decisions in family matters alone, always discusses with wife and elders before taking major decisions.
- Pays attention in bringing wife and children for healthcare/clinics.
- Spends time for the happiness and welfare of the family.

- Eager to know about the health of the wife and the children.
- Assists wife in rearing children.
- Interested in the nutrition of the wife and the children.
- · Interested in contraception.
- Believes and respects the wife. Does not let her down in front of others.
- Does not verbally, mentally or physically abuse the wife or children.
- Always works towards the building up of the personality of wife and children.
- In the evening wife eagerly awaits the husband's return after work.
- Wife always praises and appreciates husband's participation.
- · Wife always looks after the needs and requirements of the husband.
- · Couple always maintains mutual respect.
- All members of the family enjoy a tasty meal together at least once a day.

14.3 The role of the PHI in promoting male participation

At the community, family and individual level, positive reinforcements of fatherhood are vital. Awareness campaigns and educational programmes need to be undertaken to sensitize all generations.

Individual Level

In the field, primary health care workers may come across cases of domestic violence or gender based violence, and it is very essential to assist or help the victim and the perpetrator, so as to manage or prevent violence. Some times PHMM may seek PHI's assistance to discuss the matters with perpetrators. It is vital to discuss the matters, listen and assist both the victim and the perpetrator in resolving the conflict.

- In most of the instances of gender based violence the perpetrator is a man, and PHI is the ideal official to discuss matters with him and assist him.
- PHI should be aware (knowledgeable) about the resource network of govt, agencies and other non govt, organizations who are actively involved in management and prevention of gender based violence.
- If the matter cannot be handled alone, the PHI should refer perpetrator to the MOH for referral to the following services according to his needs.
 - counseling
 - anger management skills
 - coping with stress
 - problem solving
 - decision making
 - reducing use of alcohol
 - rehabilitation
- PHI should be an active member of the MOH team, specially in creating awareness among the males on family planning and also should take an active role in providing family planning services to males such as distribution of condoms.

Family Level

- PHI should be able to create awareness among the newly married couples on male participation, the benefits of non violence and how non-violence contributes to the health and well being of the whole family.
- PHI should be able to appreciate, encourage and promote male participation when ever it is observed in a family.

Community Level

As a member of the MOH team PHI should be able to actively involve with the other members of the team in fulfilling the following tasks:

For pre-school children

Children even before they learn to speak begin internalizing gender norms informed by the behaviour of adults around them. Therefore, we need to begin intervening at this stage.

To sensitize the pre-school teachers on male participation, and promote them
to motivate the pre-school children on male participation.

For school children and teachers

An ideal entry point for long term community intervention could be at school level. School children being a captive audience could be used as an effective tool to communicate their knowledge to families as well as the community.

- To sensitize and motivate the school children on male participation.
- Also, it is necessary to empower school teachers through teacher trainings, after school programmes and through other educational activities, as they are in a position to influence school children.

For fathers

Fatherhood provides meaning and happiness to many men's lives.

· To sensitize the fathers on the benefits of male participation

This is the way to change as children who see fathers providing care, are less likely to accept stereotypical roles. It is also vital to work with fathers on anger management and conflict resolutions.

For adolescents and youth

Boys tend to learn good and responsible behaviour from their peers, engaging in tasks that their fathers did not undertake. As such, it is vital to sensitize the adolescents and youth on this matter.

 Community based programmes should be carried out for adolescents and youth, sensitizing them on male participation and gender based violence.

For village leaders, community leaders and religious leaders

We will have to target shifting of community attitude towards positive male participation, towards non acceptance of violence, to reduce use of alcohol and also the disapproval of aggression/ violence after use of alcohol.