

**MULTIPLE INDICATOR CLUSTER SURVEY, 2002**  
**REPUBLIC OF MALDIVES**

Ministry of Health  
Republic of Maldives

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# CHAPTER I

## INTRODUCTION

### **1.1 Background of the Survey**

Heads of State or Government, ministers and senior officials from countries around the world who attended 'The World Summit for Children' (WSC) in 1990, pledged themselves to a Declaration and Plan of Action for Children. The Plan of Action called upon each country to "establish appropriate mechanisms for the regular and timely collection, analysis, and publication of data required to monitor social indicators related to the well-being of children" (Para 34(v))<sup>1</sup>. Further, the Plan of Action identified seven major goals and twenty supporting goals to be achieved by the year 2000.

Following the adoption of the Declaration, the Republic of Maldives marked 1991 as the Year of the Maldivian Child. A national conference on children was held during the year with the objective of formulating a National Plan of Action for the Child up to the year 2000, for the protection of children's rights, and to ensure the survival and the welfare of the Maldivian child. An inter-ministerial council was formed for the protection of the rights of child and to develop national policies and strategies for the implementation of International Convention on the Rights of the Child. In November 1992, a Unit for the Rights of Children was also established with the mandate to implement- the WSC Plan of Action and the National Plan of Action for the Child. The Government further drew up a set of - targets for achieving mid-decade goals ensuring gender equality.

In many developing countries, a routine recording and reporting system in the development sectors are frequently incomplete or often inadequate, and may be collected unevenly across many indicators or goals. Quite often, such data might consistently indicate very high levels of achievement. Also, many such records are not generally verified by comparing with sample surveys or sentinel data.

The United Nations Children's Fund (UNICEF) has developed in collaboration with the World Health Organization (WHO), the UN Statistical Division, London School of Hygiene and Tropical Medicine, and the Centre for Disease Control and Prevention (CDC), an affordable, fast and reliable household survey methodology (called the Multiple Indicator Cluster Survey - MICS) as a tool to assess the standard WSC goals set for the mid-decade and end-decade in areas critical to child survival and development. Accordingly, a set of model questionnaires on different modules was incorporated into a manual that had detailed instructions for planning and implementing the MICS. The questionnaire and the manual were circulated to the UNICEF country offices with the advice that they should carry out a Multiple Indicator Cluster Survey (MICS) if it was of particular relevance and use to the country and if there were no other reliable sources of data to report on the goals.

In 1995, like in many other developing countries, the Republic of Maldives conducted a national survey to assess the achievement and situation of various mid-decade goals

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<sup>1</sup> Annex to 'Ceremony for the presentation of the Declaration and Plan of Action adopted by the world leaders at the World Summit for Children: Note by the Secretary-General', document A/45/625, United Nations, New York, 1990.

using Multiple Indicator Cluster Survey guidelines. The findings of the first MICS indicated that Maldives has achieved all mid-decade goals. After a gap of five years, in 2001, the second Multiple Indicator Cluster Survey (MICS-2) has been conducted to assess the achievements of end-decade goals relating to survival, health, nutrition, education, and protection of children. The survey is intended to provide estimates at the national level. MICS-2 was conducted with financial support from the UNICEF, with additional funding from World Health Organization (WHO) for the survey on Vitamin A. The Ministry of Health, Republic of Maldives, was the survey agency and undertook the responsibility for conducting the survey.

## **1.2 Republic of Maldives: Socioeconomic and Demographic Profile**

The Republic of Maldives is an archipelagic state located 600 kilometres south of India. It extends from the equator to 7° 6' 3" north, has 200 inhabited islands and about 1000 other islands and stretches across 500 miles of Indian Ocean. Most of the islands are small, with only a few having a land area in excess of one square kilometre, and are mostly low lying with an average elevation of 1.6 metres above sea-level. The Maldives has been an independent country throughout its history except for a brief period of 15 years of Portuguese occupation in the 16<sup>th</sup> century. In 1887, the Maldives became a British Protectorate and remained so until 1965, when on 26 July 1965, the Maldives became an independent nation. In 1968, the Maldives established the second Republic, having been a Sultanate for over 900 years of recorded history, except for the short-lived first Republic in 1953. The country has been governed under a written Constitution since 1932. The President is both the head of state and chief executive and is directly elected for a renewable term of five years by universal adult suffrage after endorsement by the People's Majlis (parliament). The Republic is divided into 20 administrative units, also called atolls. Every atoll has an atoll chief, who heads the atoll office and handles the atoll-based administration, and is appointed by the President. Each inhabited island has an island office, which handles the island-based administration on behalf of the atoll office.

The population of the Maldives is estimated to be 276,000. In addition to this there are about 19,000 resident foreign workers and their dependents. About 26 percent of the population live in the capital island of Male'. In addition to Male's permanent population, it also has a floating population of several thousand people who arrive from other islands for commercial purposes, education and medical treatment. In the early 1990's, the population was growing at an annual rate of 2.8 percent. The growth rate had declined to 1.9 percent as per the 2000 census. The high growth rate that had been registered until recently has important implications for public expenditure in the social sectors such as health and education, as well as for the potential growth in per capita income. In addition to the resident population, nearly 500,000 tourists visit the Maldives each year.

Two periods can be identified in the history of growth of the Maldives population. The first transition stage relates to the years before 1965. The country entered its second stage of demographic transition in the late 1960s. The total population was 77,473 in 1911. In 1981, it had reached, 142,832 and 270,101 by 2000. The rate of growth of the population was less than one percent per annum till 1960. However, during second stage of transition, the population had continued to grow from 2.0 percent in 1965 to 3.4

percent in 1990, and thereafter declined to reach 2.8 percent per annum in 1995 and 1.9 percent by 2000.

Male', the capital of the Maldives is the only urban area and it is very important to see the differences between Male' and the rural areas. The percentage of the total population living in the urban area increased from 7 percent in 1911 to 11 percent in 1965 and to 27 percent in 2000.

During the period 1911-1957, the sex ratio of the population in the country had been fluctuating between 119 to 116 males per 100 females and highest ratio (119) was registered in 1931. Thereafter, the sex ratio declined from 113 males per 100 females in 1965 to 107 in 1985 and to 103 in 2000.

The percentage of the population aged 0-14 years increased from 45 to 47 percent, between 1977 and 1995, and declined to 41 percent by 2000. The percentage of the population aged 65 and above increased marginally from 2 to 3.8 percent during the same period. The high volume of young population has important policy implications and puts a heavy burden on government expenditure for education and health.

The population density of the Maldives is 800 person per km<sup>2</sup> compared with 30,000 persons per km<sup>2</sup> in Male', indicating a very high and increasing pressure on land in the capital city.

Fertility and mortality information is available for the period since 1978. The crude birth rate (CBR) increased from 37 per 1,000 population in 1978 to reach a peak of 49 in 1985, but thereafter declined slowly to 20 in 2000. The total fertility rate (TFR) also declined from over 6 children per women in 1990 to 5.3 in 1995. One of the causes for the high fertility is early marriage and early child bearing.

The crude death rate has declined considerably, from 14 to 4 per 1,000 population between 1978 and 2000. The infant mortality rate declined from 120 to 21 per 1,000 live births between 1978 and 2000 and under five mortality from 48 in 1990 to 30 in 2000. Maternal mortality rate has been fluctuating between 6 and 2 per 1,000 live births during years 1978-1993. It declined from 6 per 1,000 live births in 1978 to 1 in 2000. In 2000, life expectancy was 70.7 years for males and 72.2 years for females, indicating substantial increases from the level of 48 years for males and 46 years for females in 1978.

In 1984, the Government had launched a family-planning programme, and subsequently a reproductive health programme, to control the high population growth rate. The family planning policy in the Maldives is to improve the quality of life of Maldivians through reproductive health care and birth spacing to reduce infant, child and maternal mortality. The contraceptive user rate (defined as the percentage of eligible couples protected against pregnancy by using various methods of contraception) in the Maldives was 18.9 percent in 2000, compared with 5 percent in 1971 (Health Report, 2001).

The Maldives economy had been predominantly fishery-based, although this has been changing rapidly. During the past two decades, the country's economy rapidly shifted from the old dependence on fisheries to one which relied extensively on tourism. The potential for other economic activities such as agriculture and industry is very limited due to the lack of resources, such as raw materials, labour and physical space (World Bank, 1995).



Despite the constraints, the country has progressed significantly in most of the socio-economic indicators, including per capita income, infant mortality, life expectancy and school enrolment, during the past three decades. During past decade, the tertiary sector, mainly distribution, communications, and tourism, grew at a rate of 10.2 percent. The average economic growth was sustained above six percent during this period. Recent progress in the Maldives is mainly supported by the two dominant industries of fishing and tourism, sharing 10 percent and 18 percent of GDP, respectively, in 1998. The fisheries sector's contribution to GDP registered a growth of 5 percent during the last five years, with the fish landings increasing by 28 percent during this period. Similarly, tourism sector's contribution to GDP expanded by 53 percent during the last five years, with the tourist arrivals during the period increasing by 85 percent. Consequently the per capita income increased from Rf 4,893 in 1988 to Rf 14,649 in 1998, and per capita public expenditure increased from Rf 2,009 in 1988 to Rf 8,299 in 1998. The Maldives invests more than 20 percent of its GDP on social services (education and health). In the social sector, school enrolment, for example, has increased by 75 percent during the period 1988-1998.

The islands are geographically scattered and are far from one another, making it difficult to deliver effective services due to the high cost of transportation. Lack of adequate communication facilities between islands will remain a major challenge for improving the quality of life of the inhabitants. Despite such inherent constraints, the Maldives has managed to initiate many development projects to broaden the target beneficiaries of on-going development programmes. Distribution of investment projects among the 20 atolls of the Republic, the development of predetermined growth centres, and the expansion of infrastructure development throughout the country, are some of the examples of positive steps taken by the government for achieving better distributive equity.

### **1.3 Objectives**

The main objective of MICS-2 is to provide national-level information on key indicators related to the health and well-being of children in order to assess the achievements of end-decade goals of the WSC Plan of Action. It will provide information on household composition, water and sanitation, salt iodisation, education (including early childhood), adult literacy, child labour force, birth registration and reasons for non-registration of births, breastfeeding, child morbidity and treatment (diarrhoeal diseases and acute respiratory infection), immunisation, nutrition status of women and children, vitamin A deficiency (both functional and biochemical investigation), tetanus toxoid, low birth weight, anaemia among women and maternal health (antenatal and delivery). It also provides information to policymakers and programme administrators for future planning and implementation of strategies to improve health and nutritional status of children and women.

### **1.4 Questionnaires**

MICS-2 used the standard three modules of questionnaires: Household Questionnaire, Questionnaire for Children Under Five, and Questionnaire for Woman of Reproductive Ages (15-49 years), recommended by the UNICEF globally to assess end-decade WSC

goals. The content and format of the questionnaires were similar to MICS surveys in other countries, thus providing a basis for inter-country comparison.

The Household Questionnaire enumerated usual residents in each sample household who stayed in the household the night before the interview date. For each enumerated person, the survey collected basic information on age, sex, marital status, and literacy. For children aged 5-14, information was gathered on paid or unpaid work outside home, household chores and household farm/business i.e., other family work, number of hours per week spent in these activities. For children age 5-17, data were gathered on school attendance, and school dropout. For children under age 15, information was obtained on alternative care and care of orphans. In addition, the Household Questionnaire also collected information on the main source of drinking water, type of toilet facility, and use of iodised salt for cooking.

The Questionnaire for Children under age 5 collected information on various child indicators: information on birth registration, attendance at early childhood learning programme; whether or not ever breast fed, duration of exclusive breastfeeding, data on complementary feeding, prevalence and treatment of common childhood diseases such as diarrhoea, fever, and acute respiratory infection (ARI), availability of immunisation card, and the coverage for specific primary immunisation doses, and anthropometrics.

The Woman's Questionnaire for women of reproductive age 15-49 collected information on indicators relevant to women: nutritional status (height, weight, haemoglobin content, Vitamin A). For women who had delivered during the year preceding the survey, information was gathered on proportion who had antenatal check-up, received two doses of tetanus toxoid injections, assistance at delivery, and incidence of night blindness during pregnancy.

The content of individual modules is described below:

**HOUSEHOLD LISTING FORM:** This form was used to list both usual residents and visitors in each sample household who stayed in the household the night before the interview. For each listed person, basic information on sex, age, marital status, and literacy was gathered. For children under age 15, data was gathered on the living status of parents. The main purpose of this form was to identify the specific cohorts who were eligible to respond to the education module, the child labour module, the questionnaire for children under five, and the questionnaire for women of reproductive aged 15-49 respectively.

**WATER AND SANITATION MODULE:** This module collected household information such as the main source of drinking water, the storing facility for rainwater, the safety precautions taken before drinking water, the type of toilet facilities, and the procedure for the disposal of stools of children of age 0-3 years.

**SALT IODISATION MODULE:** This module collected the enumerator's observation of iodisation of salt used to cook the main meal eaten by members of household the previous night.

**BIRTH REGISTRATION AND EARLY LEARNING MODULE:** This module was used to collect information for all children aged 0-59 months on age, birth registration, reasons for not registering birth, whether a fine was paid for late registration of birth, and for children aged 36-59 months, information on early childhood education programme.

**BREASTFEEDING MODULE:** This module was used to collect information for all children aged 0-59 months on whether they were ever breastfed, whether currently breastfeeding, and the duration of exclusive breastfeeding and of bottle feeding.

**CARE OF ILLNESS MODULE:** This module was used to collect information for all children aged 0-59 months on the prevalence and treatment of common childhood illnesses such as fever, cough and diarrhoea, and on sources of treatment, and on mother's/caretaker's awareness about seriousness of the illnesses of child.

**IMMUNISATION MODULE:** This module was used to collect information for all children aged 0-59 months on immunization coverage including Hepatitis B.

**ANTHROPOMETRY MODULE:** This module was utilised to collect information for all children aged 0-59 months on height and weight.

**VITAMIN A MODULE:** This Module was used to collect information for all children aged 0-59 months on whether they received a vitamin supplement, suffer from night blindness, and on food consumption.

**WOMEN INFORMATION PANEL:** This module was used to collect information for all women aged 15-49 on the current age, weight, height, haemoglobin content, source of water, sanitation and hygiene education, and whether they had a live birth during the previous year.

**TETANUS TOXOID (TT) PANEL:** This module was used to collect information for all women aged 15-49 who had given a live birth in the year preceding the date of interview on whether they received TT and how many doses.

**MATERNAL AND NEWBORN HEALTH MODULE:** This module was used to collect information for all women aged 15-49 who had a live birth in the year preceding the date of interview. Information was gathered on whether the woman received antenatal check-up during pregnancy, assistance during delivery, birth weight of baby, night blindness during pregnancy and mother's awareness of child disability.

**VITAMIN A FOR WOMEN:** This module was used to collect information for all women aged 15-49 who have a child of under 5 years or a live birth in the year preceding the date of interview, difficulties seeing in daylight, night blindness, night blindness during pregnancy and current status of pregnancy.

## **1.5 Sample Design and Implementation**

The standard 'EPI 30 cluster' sampling technique was used (recommended by UNICEF procedures for sampling with PPS-option 2). The 1995 census served as the sampling frame. The Maldives was divided into five geographic regions (based on the 20 atolls of the archipelago) and clusters were selected in each region. A total of 30 clusters were selected based on the population proportion to size (PPS) methodology from sample frame of 200 inhabited islands taking into account the possible non-response rates. The sample was designed to provide national level estimates for key indicators. The overall target sample size was 35 households of each cluster to complete 782 interviews of children under 5 years. The required sample sizes calculated for assessing the bulk of WSC indicators were very much smaller than the required sample for Vitamin A (night blindness) estimation. Details of each target sample size are attached as an Appendix.

An additional sample was taken to meet the target of 50 children aged 24-59 months and 50 women aged 15-49 years in each cluster for the Vitamin A module (night blindness and DBS) estimates.

## SAMPLE IMPLEMENTATION

Table 1.1 summarizes the basic features of the sample and also shows response rates for households and individuals. Non-response can occur at the stage of the household interview, at the stage of the individual woman interview or at the stage of mother/caretaker interview to collect information for children. The survey succeeded in achieving a household response rate of 99.9 percent. As expected, response rate is somewhat lower in individual interviews (98 percent). Information was collected for ninety-seven percent of children under age 5. A total of 1,062 households, 1,949 women aged 15-49, and 854 children under age 5 were covered.

**Table 1.1: Sample features**

Number of selected and interviewed households, women aged 15-49, and children under age 5, and response rates, Maldives, MICS, 2001

<b>Number of household</b>	
Sampled/selected	1063
Interviewed	1062
Response rate	99.9
<b>Number of women aged 15-49</b>	
Selected/Identified	1985
Interviewed	1949
Response rate	98.2
<b>Number of children under age 5</b>	
Selected/Identified	878
Interviewed	854
Percent completed	97.3

### 1.6 Training and Fieldwork

Officials of the Ministry of Health trained the field staff for the survey in Male'. Training consisted of classroom training as well as field practice and additional training for supervisors. Medical doctors gave separate training to clinicians attached to enumerator teams on measuring height and weight, testing for anaemia, and the DBS technique. It included classroom training and extensive field practice in random households in Male'. Five enumerator teams conducted the fieldwork, each team consisting of one supervisor,

four female enumerators and one or more clinician(s). The fieldwork was carried out between 15 March 2001 and 28 March 2001. The Project Coordinator and the senior staff of the Ministry of Health monitored and supervised the data collection operations.

## 1.7 Data Processing



*Fieldwork: Testing salt for iodine content*

Completed questionnaires were sent to the Ministry of Health, Male' for data processing. Before data entry, questionnaires were thoroughly checked which consisted of office editing and coding using the Epi Info software. Data entry was done by four data entry operators under

the supervision of one senior staff of

the MoH. Data entry and editing operations were completed by July 2001. After machine editing under supervision of the UNICEF consultant, data was analysed using SPSS software. UNICEF country office staff assisted in the calculation of nutrition indicators for children using anthro pack. DBS sample collected from children and women have been sent to WHO Geneva for laboratory analysis, and the results are awaited.

## TEAM LIST

Survey Administrator: Ahmed Afaal

Technical Assistant: Ms. Henrietta Allen

Region	Clusters	Team
Male'	Henveiru, Galolhu, Machchangoli, Maafannu (2 clusters)	Supervisor: Maimoona Aboobakuru, Hassan Mohamed, Geela Ali, Satheesh Moosa Clinician: Saadaath Yoosuf, Mohamed Manik Enumerators: Aminath Ihusana, Aminath Sharuma, Amira Moosa, Madheeha Ali, Yoomee Rasheed, Nasiha Ibrahim
North	Ha.Ihavandhoo, Ha.Thuraakunu, Hdh.Nolhivaramu, Hdh.Kulhudhufushi, Sh.Goidhoo, Sh.Komandoo	Supervisor: Waseema Fikuree Clinician: Yoosuf Sujau Enumerators: Aminath Nadha, Aishath Riyaza, Aishath Naaz, Hawwa Zahira Ahmed, Madheeha Abdullah
North Central	N.Lhohi, R.Alifushi, R.Innamaadhoo, B.Dhonfanu, Lh.Olhuvelifushi, Lh.Hinnavaru	Supervisor: Ahmed Afaal, Dhihushana Idhrees Clinician: Nayaz Ahmed Enumerators: Aishath Isha, Hawwa Milna, Leesha Mohamed, Fathmath Shirmeen, Mariyam Jamsheeda
South Central	K.Guraidhoo, Ad.Mahibadhoo, M.Naalaafushi, Dh.Bandidhoo, Th.Kandoodhoo, L.Maabaidhoo, L.Maamendhoo	Supervisor: Ali Shareef Clinician: Mukthar Yoosuf Enumerators: Aminath Rishma, Aishath Enaz, Azma Abdul Kareem, Mariyam Fasana, Fazla Abbas
South	Ga.Dhevadhoo, Gdh.Thinadhoo, Gdh.Rathafandhoo, Gn.Fuvah Mulah, S.Hithadhoo, S.Feydhoo	Supervisor: Mohamed Shaheed Clinician: Ibrahim Rasheed Enumerators: Shahuzana Wajeeh, Sathuna Dawood, Nahula Hassan, Mausooma Hamidh, Hushama Hassan

## CHAPTER II

### QUALITY OF DATA

An assessment of the quality of gathered data would be useful to evaluate the accuracy of the estimates made and the reliability of the conclusions drawn. Together with the information on the adequacy of sample size at various levels, such an assessment would provide an idea about the validity of the observations made from the results. This chapter examines data quality with regard to the selected aspects such as age data, education, work status of children, birth date, and indicators of maternal and child health.

In Table 2.1, the single year age returns of the sample population are presented for male and female household population. In a society that is universally literate but having on an average a low educational status, one could expect slight age misreporting. A look at the age data indicates the existence of age heaping at certain ages especially for ages below 30 years. Existence of age heaping may also be seen from the age distribution given in population pyramid (Figure 3.1). In the absence of age misreporting and given the mortality pattern in the country, the graph should resemble that of the survival function in a life table, i.e., monotonously decreasing. However, the line graph shows a zigzag pattern thus showing that age heaping is present, though to a lesser extent compared to many other developing nations.

In order to evaluate the extent of age misreporting, the Myer's index was calculated for each sex. From these results it can be seen that slight heaping exists at ages ending in digits 5 and 4 and to a lesser extent at ages ending in 6. The extent of heaping is the highest at ages ending in 4. Age heaping is slightly higher among males compared to females (Myer's index being 7.3 for males as compared to 6.5 for females). A comparison with the value of Myer's index for other countries indicates that reported age data in the present survey are of relatively high quality. The fact that the age-not-stated category accounts for only less than one percent also suggests a high quality of data.

The level of education for those aged 5 years or above is not reported in only 0.8 percent of cases while the number of years of schooling is not stated in 7 percent of the cases. Since a considerable proportion of the population does not have formal schooling and because of the high drop out rates, this observation is not surprising. The survey gathered information on working status of children aged 5-14 to examine the extent of child labour in the country. The number of working hours for working children is not reported in 6.5 percent of the cases. As one would expect based on observations from other populations, that complete birth date of women in the reproductive age group is available only in 77.4 percent cases could be due to difficulties in recalling their birth dates. However, the fact that complete birth date is reported in 96.6 percent of the children indicates a high quality of data.

**Table 2.1: Age-sex distribution of the household population**

Single year age distribution of the household population by sex, Maldives, MICS, 2001

Age	Male		Female		Age	Male		Female	
	Number	Percent	Number	Percent		Number	Percent	Number	Percent
<1	99	2.7	95	2.5	40	63	1.7	60	1.6
1	89	2.5	70	1.8	41	26	0.7	28	0.7
2	96	2.7	77	2.0	42	29	0.8	40	1.0
3	92	2.5	77	2.0	43	25	0.7	40	1.0
4	105	2.9	73	1.9	44	17	0.5	23	0.6
5	84	2.3	89	2.3	45	53	1.5	32	0.8
6	102	2.8	106	2.8	46	18	0.5	18	0.5
7	120	3.3	93	2.4	47	21	0.6	20	0.5
8	105	2.9	114	3.0	48	23	0.6	14	0.4
9	126	3.5	107	2.8	49	12	0.3	12	0.3
10	123	3.4	143	3.7	50	41	1.1	59	1.5
11	120	3.3	117	3.0	51	10	0.3	5	0.1
12	128	3.5	105	2.7	52	14	0.4	12	0.3
13	116	3.2	112	2.9	53	14	0.4	13	0.3
14	119	3.3	130	3.4	54	14	0.4	13	0.3
15	121	3.3	116	3.0	55	29	0.8	24	0.6
16	92	2.5	101	2.6	56	15	0.4	19	0.5
17	96	2.7	99	2.6	57	12	0.3	19	0.5
18	84	2.3	96	2.5	58	16	0.4	14	0.4
19	64	1.8	93	2.4	59	12	0.3	5	0.1
20	59	1.6	103	2.7	60	44	1.2	34	0.9
21	70	1.9	80	2.1	61	6	0.2	8	0.2
22	59	1.6	58	1.5	62	9	0.2	9	0.2
23	32	0.9	76	2.0	63	12	0.3	5	0.1
24	55	1.5	59	1.5	64	8	0.2	7	0.2
25	38	1.1	73	1.9	65	15	0.4	14	0.4
26	26	0.7	61	1.6	66	10	0.3	4	0.1
27	41	1.1	62	1.6	67	13	0.4	4	0.1
28	42	1.2	53	1.4	68	8	0.2	5	0.1
29	43	1.2	52	1.4	69	7	0.2	5	0.1
30	51	1.4	68	1.8	70+	93	2.6	66	1.7
31	26	0.7	45	1.2	Missing	32	0.9	14	0.4
32	41	1.1	64	1.7					
33	26	0.7	52	1.4	Total	3613	100.0	3851	100.0
34	33	0.9	39	1.0					
35	51	1.4	60	1.6					
36	31	0.9	40	1.0					
37	30	0.8	32	0.8					
38	27	0.7	70	1.8					
39	30	0.8	46	1.2					

Data relating to maternal and child health, shows the dates of last tetanus toxoid injection are not reported in about 17 percent of the cases whilst the percentage of children having had diarrhoea in the last two weeks was not reported only in less than 1



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## CHAPTER III

### SOCIO-DEMOGRAPHIC PROFILE AND ENVIRONMENTAL HEALTH

#### 3.1 Background Characteristics

MICS-2 covered a household population of 7468 from 1062 households. The gender distribution shows that 51.6 percent of the population are females thus implying a sex ratio of 94. Age-sex distribution by five-year age groups presented in Table 3.1 and the age pyramid in Figure 3.1 suggest a young age structure with about 43 percent of the population being children below 14 years, as compared to 41 percent observed in 2000 census. A comparison of data for different years indicates that over the years there has been a decline in the proportion of children. The aged population (65+) forms only 3.3 percent thus leaving 53 percent in the working age group. Hence the child dependency ratio in Maldives still remains high (81.1) and old age dependency ratio is a low of 6.2. Another notable feature of the age-sex distribution is that more than one-half (51.6 percent) among females are in the reproductive age group.

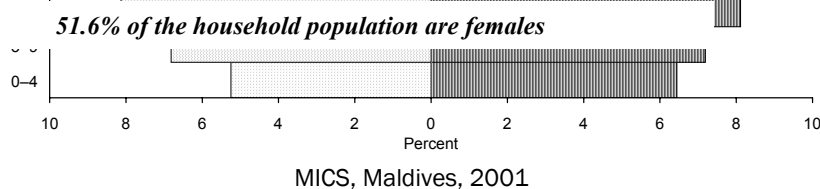
**Table 3.1: Household population by age and sex**

Percent distribution of household population by sex and age from MICS-2 and Census, Maldives, 2000-2001

Age	MICS 2001			Census 2000		
	Male	Female	Total	Male	Female	Total
0-4	13.3	10.2	11.7	11.0	11.5	11.44
5-9	14.9	13.2	14.0	14.1	14.0	14.0
10-14	16.8	15.8	16.2	15.2	15.2	15.2
15-19	12.6	13.1	12.9	12.1	12.5	12.3
20-24	7.6	9.8	8.7	8.5	8.9	8.7
25-29	5.3	7.8	6.6	7.2	7.7	7.4
30-34	4.9	7.0	6.0	6.5	6.9	6.7
35-39	4.7	6.4	5.6	5.7	5.9	5.8
40-44	4.4	5.0	4.7	4.6	4.6	4.6
45-49	3.5	2.5	3.0	2.9	2.6	2.8
50-54	2.6	2.6	2.6	2.2	2.2	2.2
55-59	2.3	2.1	2.2	2.3	2.1	2.2
60-64	2.2	1.6	1.9	2.5	2.2	3.3
65-69	1.5	0.8	1.1	1.9	1.5	1.7
70-74	1.5	0.8	1.2	1.3	0.8	1.1
75-79	0.6	0.4	0.5	0.6	0.4	0.5
80+	0.5	0.5	0.5	0.5	0.3	0.5
Missing	1.0	0.4	0.7	0.6	0.3	0.5
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Sex ratio	NA	NA	94	NA	NA	103
Number of persons	3616	3852	7468	137200	132901	270101

Note: Sex ratio is the number of males per 100 females.

NA: Not applicable.



Region-wise distribution shows a relatively fair distribution of sample population across the five regions, although the share is marginally higher for South central and North central regions (Table 3.2). On an average there are 7 persons per household, which is a large number when compared to many developing nations. The proportion of households having 10 or more members is more than one fifth while 61 percent of the households have 5 or more members. In 58 percent of the households there is at least one child under 5 and in 95 percent of the households there is at least one woman in the reproductive age group. These observations underline the importance of and the implications for planning for maternal and child health in the country.

**Table 3.2: Household characteristics**

Percent distribution of sample households by background characteristics, Maldives, MICS, 2001

Characteristics	Percent	Number
<b>Region</b>		
Male	16.6	176
North	19.8	210
North central	21.2	225
South	19.4	206
South central	23.1	245

<i>Number of members in the household</i>		
1	1.7	18
2-3	12.1	129
4-5	25.2	268
6-7	22.5	239
8-9	18.0	191
10+	20.4	217
Mean household size	7.1	1062
At least one child under age 5	58.4	620
At least one woman age 15-49	94.7	1006
Number of households	100.0	1062

### 3.2 Marital Status

Overall, 31 percent of males and 21 percent of females aged above 15 years remained never married in the Maldives (See Table 3.3). Also, while 7 percent of males are either divorced or widowed, among females the share is considerably higher (11 percent). Among females, even in the reproductive age group, the percentage of those divorced is close to 5 percent. In the reproductive age group, the percentage of never married is 40 percent among males and 27 percent among females. Most of the women in the country are married before the age of 25 while among men about a quarter remains unmarried even by their 30<sup>th</sup> birthday.

As may be expected, the percent of widowed and divorced increases with age; the share, particularly of the widowed, becomes higher among females after 50 years of age indicating a higher rate of male adult mortality. The number of widowed among females ranges from 25 percent in the 60-64 age group through 40 percent in the 65-69 age group to 65 percent in the 70+ age group. These figures suggest that there is a need for social and governmental support for these groups. In the future, one could expect an increase in this share as the gap between life expectancies of males and females widens.

**Table 3.3: Marital status of household population**

Percent distribution of household population by marital status, according to age and sex, Maldives, MICS, 2001

Age	Marital status				Total percent	Number
	Never married	Currently married	Divorced	Widowed		
MALE						
15-19	92.9	3.5	1.0	2.6	100.0	312
20-24	65.6	28.8	4.0	1.6	100.0	250
25-29	23.9	74.5	0.5	1.1	100.0	184

**Table 3.3: Marital status of household population**

Percent distribution of household population by marital status, according to age and sex, Maldives, MICS, 2001

Age	Marital status				Total percent	Number
	Never married	Currently married	Divorced	Widowed		
30-34	13.9	82.1	4.0	0.0	100.0	173
35-39	4.3	92.0	3.1	0.6	100.0	162
40-44	5.1	92.4	2.5	0.0	100.0	157
45-49	2.4	92.8	0.8	4.0	100.0	125
50-54	1.2	86.0	7.0	5.8	100.0	86
55-59	1.2	90.2	4.9	3.7	100.0	82
60-64	2.7	80.8	6.8	9.6	100.0	73
65-69	0.0	77.4	9.4	13.2	100.0	53
70+	7.1	65.9	10.6	16.5	100.0	85
15-49	39.6	56.6	2.3	1.5	100.0	1363
All ages	31.2	61.7	3.8	3.2	100.0	1773
<b>FEMALE</b>						
15-19	81.0	17.4	0.8	0.8	100.0	363
20-24	39.8	54.5	4.9	0.9	100.0	347
25-29	8.6	85.9	4.8	0.7	100.0	291
30-34	7.3	84.4	7.6	0.8	100.0	262
35-39	2.9	90.9	4.9	1.2	100.0	243
40-44	1.6	87.3	6.9	4.2	100.0	189
45-49	1.1	84.2	9.5	5.3	100.0	95
50-54	1.0	76.0	11.0	12.0	100.0	100
55-59	2.5	71.3	11.3	15.0	100.0	80
60-64	3.3	65.6	6.6	24.6	100.0	61
65-69	3.3	46.7	10.0	40.0	100.0	30
70+	0.0	24.2	11.3	64.5	100.0	62
15-49	27.2	66.4	4.9	1.5	100.0	1790
All ages	23.1	65.5	5.7	5.6	100.0	2134

### 3.3 Education

An important sphere where government interventions have been intensive in the recent past is education. Thus an analysis of current educational situation would be useful in assessing the effectiveness of such interventions. Information on general and children's education is presented in five tables (Tables 3.4 to 3.8).

There exist both age and gender variations in terms of educational attainment. Among those who are aged below 18 years, 14.5 percent have not undergone any formal education. In the older age groups this percentage is higher. An important feature that

has a bearing on the labour force structure is the low percentage of people with higher educational status.

**Table 3.4: Literacy and educational attainment**

Percent distribution of household population according to literacy and educational attainment, by age and sex, Maldives, MICS, 2001

Age	Literacy and education									Total percent	Number
	Never attended school	No standard	Basic literacy	Prim-ary	Secon-dary	Univer-sity diploma	First Degree	Master degree or above	DK/miss ing		
<b>MALE</b>											
5-17	4.8	2.3	7.7	70.8	13.2	0.0	0.0	0.0	1.3	100.0	1419
18-49	10.9	0.2	21.8	32.5	30.6	0.9	0.7	0.2	2.1	100.0	1229
50+	37.4	1.5	42.6	12.1	3.6	0.0	0.3	0.3	2.3	100.0	390
Total	11.7	1.4	18.1	47.4	18.9	0.4	0.3	0.1	1.8	100.0	3038
<b>FEMALE</b>											
5-17	4.5	2.4	7.4	70.9	14.1	0.0	0.0	0.0	0.8	100.0	1393
18-49	10.3	0.2	24.7	41.6	21.4	0.4	0.1	0.1	1.2	100.0	1646
50+	33.0	1.8	47.3	13.9	2.1	0.0	0.3	0.0	1.5	100.0	330
Total	10.3	1.3	19.9	50.8	16.4	0.2	0.1	0.0	1.1	100.0	3369
<b>TOTAL</b>											
5-17	4.7	2.3	7.5	70.8	13.6	0.0	0.0	0.0	1.0	100.0	2812
18-49	10.5	0.2	23.5	37.7	25.3	0.6	0.4	0.1	1.6	100.0	2875
50+	35.4	1.7	44.7	12.9	2.9	0.0	0.3	0.1	1.9	100.0	720
Total	10.9	1.3	19.0	49.2	17.6	0.3	0.2	0.1	1.4	100.0	6407

Only 0.6 percent of those surveyed had had education higher than secondary level. Most of those who have had any formal education have completed only primary education. Thus, while the availability of unskilled or semiskilled labour is high, there is a dearth of trained persons. It thus becomes necessary that higher education is given more importance in future educational planning. An important prerequisite for improving higher education is a reduction in the drop out rates especially from the primary classes, which appear to be quite high at present. The share of those having only minimal or no formal education is slightly higher among females. Despite the slight gender difference, among both males and females, the share of persons with higher education (University Diploma/First degree/Masters degree) is quite low in the 18-49 as well as in the 50+ age groups.

The success of the national drive towards complete literacy can be seen from the fact that 98.2 percent of persons aged 15 and above are literate. It may be noted that in the

remaining cases the information is missing; thus one cannot conclude that they are illiterate. Gender difference in this regard is only marginal, the literacy rate being slightly higher for females in almost all age groups and in all five regions. A comparison of literacy rates across regions shows that only the Southern region exhibits a slightly lower rate. Even age differentials are not prominent; only the older age groups of 55-64 and 65+ show relatively lower literacy rates.

**Table 3.5: Adult literacy rate**

Adult literacy rate (15 + years) by sex, according to region and age, Maldives, MICS, 2001

Region/Age	Male			Female			Total		
	Literate	Not Known	Number	Literate	Not Known	Number	Literate	Not Known	Number
<b>Region</b>									
Male	99.7	0.0	587	99.5	0.2	573	99.6	0.1	1160
North	97.2	1.1	282	97.8	1.2	403	97.5	1.2	685
North central	98.1	1.5	269	98.8	0.9	330	98.5	1.2	599
South	94.5	1.2	422	98.8	0.0	423	96.7	0.6	845
South Central	97.8	1.9	269	98.6	0.2	417	98.3	0.9	686
<b>Age</b>									
15-24	99.3	0.1	715	99.4	0.2	871	99.4	0.2	1586
25-34	98.4	0.8	365	99.3	0.2	563	98.9	0.4	928
35-44	98.5	0.3	326	99.5	0.0	435	99.1	0.1	761
45-54	98.1	1.4	216	98.5	0.5	197	98.3	1.0	413
55-64	93.7	1.9	159	95.8	1.4	142	94.7	1.7	301
65+	89.4	3.5	142	90.3	4.3	93	89.8	3.8	235
<b>Total</b>	<b>97.5</b>	<b>0.9</b>	<b>1954</b>	<b>98.7</b>	<b>0.4</b>	<b>2311</b>	<b>98.2</b>	<b>0.7</b>	<b>4265</b>

Educational attendance of children aged 3-4 years indicates that on an average 63 percent attend some kind of organised early childhood education. Attempts to increase this percentage would contribute in the long run to reducing the dropout rates and would thus enhance the average number of years of schooling in the country. Early childhood attendance shows wide variations across regions. Gender differences, though not large, exist in this regard; the percentage of children attending some form of educational institution being higher among girls.

**Table 3.6: Early childhood education attendance**

Percentage of children aged 36-59 months who attending some form of organized early childhood education by background characteristics, Maldives, MICS, 2001

Characteristic	Percent	Number
<b>Sex</b>		
Male	51.3	187
Female	51.1	135
<b>Region</b>		
Male	93.3	45

North	35.0	60
North central	34.6	78
South	73.7	57
South central	40.2	82
<b>Age</b>		
36-47 months	36.5	167
48-59 months	67.1	155
Total	51.2	322

While the capital/urban region (Male') has 93.3 percent of its children aged 36-59 months attending organised educational institutions, the share is low particularly in the North (35 percent), North central (34.6 percent) and in the South central regions (40.2 percent). However, it needs to be cautioned that the sample of children in these regions is lower than 180, the minimum size required to have reliable estimates, thus allowing us only to take these as indications of possible regional variations. As one would expect, the percentage of children attending educational institutions increases with age; while only 37 percent of those aged 36-47 months attend such institutions, the share in the 48-59 months age group is 67 percent.

**Table 3.7: Type of early childhood education programme attended**

Percent of children aged 37-59 months attending early childhood education by type of facility, according to sex, Maldives, MICS, 2001

Type of facility	Boys	Girls	Total
Kindergarten	41.2	43.0	41.9
Edhuruge	10.2	8.1	9.3
Home	5.9	5.9	5.9
Tuition class	4.8	7.4	5.9
Day care center	0.0	0.0	0.0
Doesn't go any where	35.3	31.9	33.9
DK/missing	10.2	8.9	9.6
Total percent	100.0	100.0	100.0
Number of children	187	135	322

**Table 3.8: School attendance by characteristics**

Percent distribution of children aged 5-17 by school attendance, according to age and sex,

Maldives, 2001

Characteristic	Never attended school	Currently attending school	Drop out from school	Missing	Total percent	Number of children
15-17	9.6	83.7	1.4	5.4	100.0	1046
	1.5	94.4	1.1	3.1	100.0	1213
	1.3	72.6	13.3	12.8	100.0	625
10-13	23.4	65.4	1.8	9.4	100.0	381
	1.7	94.1	1.2	3.0	100.0	665
	1.5	94.5	0.9	3.1	100.0	964
14-17	1.4	78.7	10.0	10.0	100.0	874



	4.4	85.7	4.1	5.8	100.0	1452
	4.3	85.8	3.6	6.2	100.0	1432
Total	4.4	85.8	3.8	6.0	100.0	2884

A majority of children attend kindergarten (42 percent) while 9 percent attend Edhuruge<sup>1</sup>. About 12 percent of children aged 36-59 months obtain home based education. Here one should note that about 10 percent of cases fall in to the category of “Don’t Know” or “Missing”. Another educational aspect relevant for educational planning is the extent of drop out from the formal educational system.



*Practical Education*

Overall, 4 percent of children aged 5-17 years dropped out from school with another 4 percent having never attended school. Since children in the country usually begin their school education at the age of 6, it is not surprising to observe that 23 percent of those aged 5-6 years have never gone to school. As noted while examining the distribution by completed level of education, it can be seen that a high proportion of children drop out during and after secondary level, especially after 15 years of age. The dropout rate, contrary to the usual pattern in many developing countries, is slightly higher among males.

### **3.4 Water and Sanitation**



*HDP tanks for rain water storage*

Environmental health has been an area of special concern in health planning during the last five years. Specific strategies were proposed, among others, to make provision for safe water, to promote coverage of and access to safe sanitation, to minimise groundwater contamination from septic tanks, to facilitate the usage of rain water, to provide sanitary means of sewage and waste water disposal for 25 percent of inhabited islands, to expand water supply

<sup>1</sup> Edhuruge: Traditional tutoring at primary school level.

technology to the islands and to identify alternative technologies for water supply.

In the Maldives, 77 percent of the selected households have access to safe drinking water (Table 3.9). If rain is excluded as a source of safe water, then this share falls to 27 percent. The proportion having ground wells as the main source of water is 16 percent as compared to 19 percent observed in 1995 in the rural areas of the country. Rain was the major source of drinking water in 81 percent of rural households in 1995. In the present survey, 49 percent of households have rainwater as the main source of drinking water. Private water connection is the major source for drinking water in 13 percent of the households while 15 percent depend on public taps.

An important feature in the safe drinking water access is the regional variation. While Male' has 76 percent of households having water piped into their dwelling units, 23 percent have rain tanks at home as the major source. In all other regions, the share of households with piped water is zero or close to zero. In these areas, rainwater tanks at home are the major source. However, well water is also used for drinking in a considerable proportion of households especially in the South central region (25.7 percent). In North central as well as in the South central regions public tap is also mentioned as the source of drinking water in a significant proportion of households.



*76% of the households in Male' have desalinated water piped into dwelling*

Well water is the major source of drinking water in 26 percent of households in the South central, 18 percent of the Northern, 17 percent of the North central and 17 percent of the Southern regions. If we compare these figures with data from 1995, it may be seen that only slight improvement was achieved during the past 5 to 6 years on this front. However, the data for 1995 and the current one are not strictly comparable since the earlier data was classified into only two categories: rain and well water. The number of cases in 1995 that used public tap or private piped water connection as water source is not available for comparing the safety in terms of water purification.

**Table 3.9: Drinking water facility**

Percent distribution of households by source of drinking water, method of drinking water purification, time taken to get drinking water, and storing facility of rain water according to region, Maldives, MICS, 2001

Characteristic	Region					Total
	Male	North	North central	South	South central	
Access to safe drinking water <sup>1</sup>	100.0	71.4	73.4	75.6	67.8	76.5
Access to safe drinking water <sup>2</sup>	77.3	8.1	21.4	6.8	31.5	27.5

**Source of drinking water**

Piped into dwelling	76.1	0.0	0.0	0.0	0.4	12.7
Public tap	0.0	8.1	21.0	7.3	31.0	14.7
Rain water tanks at home	22.7	63.3	52.0	68.8	36.3	49.0
Well	0.0	17.6	17.3	17.1	25.7	16.4
Sealed mineral water	1.1	0.0	0.0	0.0	0.0	0.2
Other	0.0	11.0	9.3	6.8	6.1	6.9
Don't know/missing	0.0	0.0	0.0	0.0	0.4	0.1
Total percent	100.0	100.0	100.0	100.0	100.0	100.0

**Method of drinking water purification**

Boil	16.0	5.2	6.7	6.3	11.8	9.1
Chlorinate	0.0	0.5	0.9	0.0	10.2	2.6
Filter	4.6	8.1	6.3	5.4	5.7	6.0
Other	0.0	0.5	0.9	2.4	2.4	1.3
None	79.4	85.7	85.3	85.9	69.8	80.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of households	176	210	225	206	245	1062

**Time taken to get drinking water**

Less than 15 minutes	75.4	83.7	74.5	59.6	71.2
15-60 minutes	24.6	16.3	25.5	40.4	28.8
Total percent	100.0	100.0	100.0	100.0	100.0
Mean time per trip (minutes)	9.1	9.0	9.8	12.8	10.7
Number of households	69	104	47	151	371

**Storing facility of rain water**

Own cement tank	75.0	81.2	68.4	50.4	57.3	65.4
Government cement tank	10.0	5.3	1.7	18.4	11.2	9.4
Fiber tank public leased (HDPE)	0.0	5.3	3.4	9.2	10.1	6.3
Fiber tank brought from market (HDPE)	5.0	3.0	5.1	3.5	14.6	5.8
None	5.0	0.0	6.0	7.8	3.4	4.4
Household carrying container	2.5	3.0	0.9	2.8	2.2	2.3
Other	0.0	0.0	0.0	2.1	0.0	0.6
Don't know/missing	2.5	2.3	14.5	5.7	1.1	5.8
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
Number of households	40	133	117	141	89	520

The present survey results indicate that in more than four-fifths of the household water available from the different sources is used for drinking without any attempt to further purify it. Though it is a possibility that water from public taps or private water connections could be purified to a certain extent, rain water directly collected by the households and well water obviously requires purification before drinking. While 9 percent use boiled water, 6 percent use filtration for purifying. Less than 3 percent of the households reported that chlorination is used for purifying the water. In the urban centre of Male also the percentage of households not making any attempt to purify the water is close to 80 percent. While the Northern, North central and the Southern regions show a higher share as compared to the national average in the percentage of households using water for drinking without further treatment. In the South central region only 70 percent falls into this category. In the remaining 30 percent in this region the methods employed for purifying, in descending order of importance are boiling, chlorination or filtering.

**Table3.10: Source of water, sanitation, and hygiene education**

Percent of women get information about water, sanitation and hygiene education by source, Maldives, MICS, 2001

Source	Percent
Television (TV)	61.0
Radio	70.2
News paper	22.4
School	12.9
Booklet	12.1
Health Facility/health centre	11.1
Health worker	6.6
Family/relative/friends	1.6
Seminar/conference/workshop	0.5
Island chief/island authorities	1.0
Awareness programmes	0.1
Health administration	0.6
Others	1.2
<b>Number of women</b>	<b>1949</b>

The time taken to fetch drinking water if the source was outside the residential premises. shows that in a majority of cases (71 percent) they could cover the distance (to and fro) in less than 15 minutes, the mean time taken per trip being about 11 minutes. However, it may be noted that about 35 percent (371 out of 1062) of households have to travel to fetch drinking water. The fact that 30 percent among them have to travel for more than 15 minutes to bring water is also important. The mean travel time is higher in the South central region while Male has no sample households, which depend on sources outside their premises.

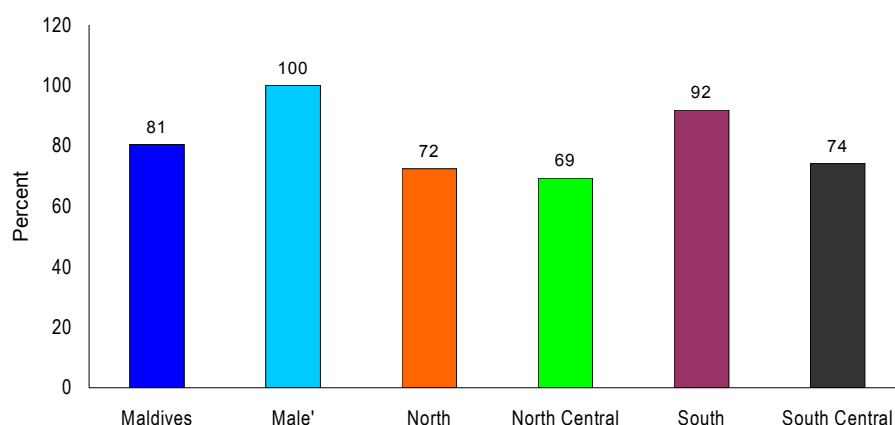
**Table 3.11: Toilet facility**

Percent of households using the latrine or toilet facility by region, Maldives, MICS, 2001

Type of latrine/ toilet facility	Region					Total
	Male'	North	North central	South	South central	
Pit latrine	0.0	4.8	0.4	8.8	2.1	3.2
Flush to sewage system or septic tank	99.4	11.4	6.7	9.3	3.3	22.8
Flush to pit	0.6	56.2	62.2	73.7	68.7	54.5
Beach	0.0	26.2	30.2	8.3	23.5	18.6
Other	0.0	1.4	0.4	0.0	2.5	0.9
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
<b>Sanitary means of excreta disposal</b>	<b>100.0</b>	<b>72.4</b>	<b>69.3</b>	<b>91.8</b>	<b>74.1</b>	<b>80.5</b>
Number of households	176	210	225	205	243	1059

A majority of the households utilise safe measures for storing rain water. In 95 percent of cases some kind of storing facility is available. Two percent of households use containers available at the households to store rain water. Most commonly people use their own private cement tank and in fewer cases (9 percent) government cement tanks are used.

The interventions to educate the masses on environmental health have been underway

**Figure 3.2: Sanitary Means of Excreta Disposal by Region**

MICS-2, Maldives, 2001

in the country for quite some time. The substantial outreach can be observed from Table 3.10. This table attempts to portray the information on the source of knowledge related

to water, sanitation, and hygiene education. There were multiple responses to the question (the total does not add up to 100 percent) indicating that different media have influenced the environmental health knowledge of the people.

Radio (70 percent) and TV (61 percent) are found to be the most popular media from which people get information about sanitation. Though to a lesser extent, newspaper, school, and health facilities/functionaries are also important sources of information. Intensification of the awareness campaign through these media would help in further improving the environmental health awareness among the people.

Another important aspect of environmental health on which data was gathered was the means of excreta disposal (Table 3.11 and Figure 3.2). It may be seen that in approximately 81 percent of the cases, proper sanitary means of excreta disposal are being used. The most commonly used facility is flush to pit (55 percent) followed by flush to sewage system/septic tank (23 percent) and beach (19 percent). As compared to the situation in 1995, the present scene indicates a marked improvement in toilet facilities in the



*81% of the households use proper sanitary means of excreta disposal*

country. In 1995, it was reported that 55 percent had modern toilets, 24 percent used beach and 18 percent used gifili. Regional differences in the availability of sanitary toilet facilities are considerable. While Male records 100 percent and Southern region records 92 percent, the share of households with proper facility is only about 70 percent in the other regions. It may also be noted that while in Male the extent of households having modern toilets is 99.4 percent, in other regions the most commonly used facility is flush to pit.

Universally, people are more concerned about the health of children than their own health. Thus, information on the method used for the disposal of excreta of children could be used as an effective indicator to assess the behaviour related to environmental health. More importantly, this could be considered as a proxy indicator to assess the extent of awareness among the population regarding environmental as well as child health.

Information from the present survey indicates the use of improper methods in a considerable proportion of the households (Table 3.12). Only in 35 percent of the cases are safe methods being practised. In other cases, mostly the stool is either disposed to the beach (39 percent) or buried in the yard (23 percent).

**Table 3.12: Disposal of stool of young children (0-3 years )**

Percent distribution of households with young children (0-3 years) when they don't use latrine or toilet facility by the manner in which children's stool is disposed, according to region, Maldives, MICS, 2001

Region	Manner in which children's stools are disposed							Total percent	Number of households
	Children use toilet/latrine	Thrown into toilet/latrine	Thrown outside the yard	Buried in the yard	Use disposable diaper	Thrown into the beach	Thrown in valu		
Male	(14.6)	(31.3)	(2.1)	(0.0)	(45.8)	(4.2)	(2.1)	100.0	48
North	12.1	17.4	4.0	34.9	0.0	28.9	2.7	100.0	149
North central	8.3	13.4	0.0	19.7	1.3	57.3	0.0	100.0	157
South	8.6	14.9	0.0	17.7	2.9	56.0	0.0	100.0	74
South central	21.6	27.0	1.4	33.8	12.2	4.1	0.0	100.0	175
Total	11.4	17.9	1.3	23.1	6.3	39.1	0.8	100.0	603

Note: Based on households having a child of age 0-3 years.  
( ) Based on 25-49 cases.

### 3.5 Summary

Through summarising the implications of the observations on the sample profile and environmental health, the following points deserve special attention of both researchers and policy makers. First, past high fertility that has resulted in a high proportion of women in the reproductive age group would result in a slightly increasing or stagnating birth rate in the absence of significant fertility decline. Efforts at reducing fertility should gain momentum to offset the effect of the young age structure.

Second, the facts that the percentage of households having at least one child aged below 5 years and those having at least one woman in the reproductive age group is very high, have significant implications for health planning. This means not only that the share of public expenditure on health has to be enhanced, but also that it becomes essential that maternal and child health interventions should receive special attention.

Third, although the nation is yet to experience ageing of its population, the enhanced life expectancies and the higher divorce rates imply that social support for the widowed and divorced females should become a concern for the government. This situation would worsen in the near future as it could be expected that the gap between female and male life expectancies would widen in the future.

Fourth, it is evident from the data on educational attainment among the population that government interventions have succeeded to an extent in improving the educational situation of the inhabitants of the country. Further achievements in both educational and more importantly in the economic front would depend to a large extent on the success in reducing the drop out rates. Also, the introduction in the near future, of vocational courses to an increasing extent would help in producing a skilled work force for the country's economy. Probably, the intervention could start at an early age by enhancing the facilities for early childhood education in the nation and by spreading awareness

about the need for improved educational status for the country and even families. The fact that the educational status is higher among females suggests the possibility of securing faster achievements in this respect if conscious and focused efforts are made.

Finally, in a country that largely depends on rain and advises the people for increased utilisation of rain water, it is essential to make sure that the water so gathered is purified before used for drinking purpose. This applies to the use of well water also, the use of which is still high though it has shown a tendency to decline. Awareness programmes aimed at improving environmental health have to be enhanced in the coming years. The extent of proper sanitary toilet facilities in the country and particularly the disposal of excreta of children show the influence of culture on maintaining healthy practices; only intensified and culture specific interventions could be expected to change this situation.



## CHAPTER IV

### MATERNAL AND CHILD HEALTH CARE

In the Maldives, improvement of the health status of its population, particularly that of women and children, has received deserving concern in the recent health plans. Thus efforts have been underway by using various well-tested strategies to influence the health situation, focusing on selected indicators. In an effort to understand the health situation of children and women, this chapter examines the immunisation status, birth weight, morbidity and its treatment and care taken prior to and during delivery. Findings from this chapter could be considered as the base for further analysis carried out in the next chapter.

#### 4.1 Background Characteristics of Women and Children

Selected background information of the women aged 15-49 interviewed is presented in Table 4.1 and Figure 4.1. The total sample of 1949 women is fairly distributed among the five regions with Male having a higher share (25 percent) and the Southern region having a slightly lower share (17 percent). Age composition of women shows that a large proportion is in the prime reproductive age group of 15-29 years (58 percent). A high proportion is in the adolescent age group of 15-19 years (23 percent) while only 16 percent accounts for the older age group of 40-49 years.

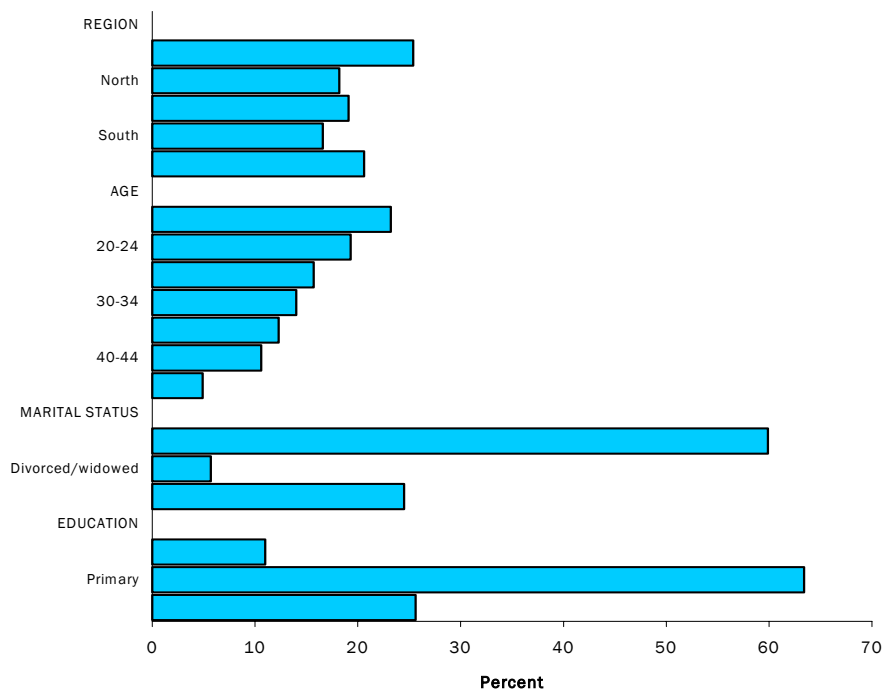
**Table 4.1: Background characteristics of women**

Percent distribution of women aged 15-49 by background characteristics, Maldives, MICS, 2001

Characteristic	Percent	Number
<b>Region</b>		
Male	25.4	496
North	18.2	355
North central	19.1	373
South	16.6	323
South central	20.6	402
<b>Age</b>		
15-19	23.2	453
20-24	19.3	376
25-29	15.7	306
30-34	14.0	272
35-39	12.3	240
40-44	10.6	207
45-49	4.9	95
<b>Marital Status</b>		
Currently married	59.9	1189
Divorced/widowed	5.7	114
Never married	24.5	487
<b>Education</b>		
Never attended school	11.0	214
Primary	63.4	1236
Secondary and above	25.6	499
Number of women	100.0	1949

Most of the women were married at the time of interview and another 6 percent were widowed/divorced. A quarter of the women interviewed had never married. While 11 percent of the women have never attended school, 26 percent had completed secondary level education and another 63 percent completed primary education.

**Figure 4.1: Background Characteristics of Women Aged 15-49**



**Table 4.2: Background characteristics of children**

Percent distribution of children under age 5 by background characteristics, Maldives, MICS, 2001

Characteristic	Percent	Number
<b>Region</b>		
Male	12.4	106
North	21.9	187
North central	21.8	186
South	17.2	147
South central	26.7	228
<b>Age</b>		
< 6 months	10.8	92
6-11 months	9.8	84
12-23 months	20.0	171
24-35 months	21.7	185
36-47 months	19.6	167
48-59 months	18.1	155
Number of children	100.0	854

Age and region-wise distribution of the sample children under 5 years for whom health

related information was collected are shown in Table 4.2. Regional differences in the number of children in the sample appear to be substantial and point to the possibility of regional variations in fertility. The share is particularly low in Male' (12 percent) and the Southern region (17 percent). Thus, the sample size of children is more or less adequate for making accurate estimates by region. Age distribution shows that one-fifth of the sample children are aged below one year, with a comparable proportion in the remaining one-year age groups.

## 4.2 Immunisation Status

The efforts at improving the immunisation status of the children have been successful, as can be seen from Table 4.3 which shows that approximately 85 percent of the children aged 12-23 months are fully immunised (one dose of BCG, 3 doses of DPT, 4 doses of Polio, and one dose of Measles). This figure is close to that observed in the 1995 MICS. It could be seen from the table that the percentage of children aged 12-23 months who have taken BCG vaccine is 96 percent in the present survey as compared to the 86 percent observed in 1995. Likewise, there have been improvements in the share of children given OPV 3 (93 percent in the present survey against 89 percent in 1995), DPT 3 (92 percent against 87 percent in 1995) and measles (92 percent against 82 percent in 1995).

**Table 4.3: Immunization by sex of the child**

Percentage of children aged 12-23 months currently vaccinated against childhood diseases, according to sex, Maldives, MICS, 2001

	Percentage of children who received:													Number of children	
	BCG	Polio			Hepatitis B			DPT			Meas-les	Fully immunised	None		
		0	1	2	3	1	2	3	1	2					3
<b>Sex</b>															
Male	96.4	95.2	92.9	92.9	90.5	95.2	91.7	91.7	94.0	91.7	89.3	91.7	83.3	1.2	84
Female	94.6	94.6	97.3	97.3	95.9	94.6	95.9	94.6	97.3	95.9	91.9	93.2	87.8	1.4	74
Total	95.6	94.9	94.9	94.9	93.0	94.9	93.7	93.0	95.6	93.7	90.5	92.4	85.4	1.3	158

Above observations clearly show a marked improvement in the immunisation status of children during the past five years. Furthermore, the recent drive to vaccinate children against Hepatitis B has also succeeded as can be seen from the fact that 93 percent of children aged 12-23 months were given the third dose. With the caveat that the sample size is relatively small, it may be observed that the immunisation status is better among girls than boys.

Whether the interviewer has actually seen the immunisation cards or has relied on the statements of the respondents in assessing immunisation status of the children, can be seen from Table 4.4. Of the 854 children aged under 5 years, in 91 percent of the cases the immunisation status was ascertained by seeing the immunisation card. Only in 6 percent of the cases did the interviewers rely on respondent's statement that the child was immunised. Also, a small proportion of children were reported as not having the

immunisation card (3 percent).

**Table 4.4: Source of information on immunisation**  
Percent distribution of children aged 0-59 months by source of information on immunisation and place of residence, Maldives, MICS, 2001

Residence	Source of information on immunization			Total percent	Number of children
	Yes, card seen	card Yes, card not seen	No		
Male	91.4	5.7	2.9	100.0	106
North	93.6	4.3	2.1	100.0	187
North central	93.0	4.3	2.7	100.0	186
South	83.4	11.0	5.5	100.0	147
South central	90.7	5.7	3.5	100.0	228
Total	90.7	6.0	3.3	100.0	854

There are no considerable regional differences in the extent of immunisation. Only in the Southern region is it found that the extent of not-at-all-immunised is more than 5 percent (6 percent). Also, with the exception of this region, the immunisation card was seen to ascertain the immunisation status at least in 94 percent of the cases. In the Southern region, however, in 11 percent of the cases, the interviewer had to rely on respondent's statement that the child was immunised.



*85.4% of children are fully Immunised*

### 4.3 Birth Weight

An important factor that determines the immunity power and morbidity during childhood is the weight at birth. Internationally it is accepted that a child should weigh at least 2500 gms at birth. Overall in 87 percent of the births that occurred during the 12 months prior to the survey, the birth weight of the baby was taken (See Table 4.5). Of them, 18 percent weighed below 2500 gms. This proportion is quite high and has

implications for morbidity later in their life, could contribute to a higher infant and child mortality, and could also result in a slower growth. Further, since baby's weight at birth depends largely on the maternal characteristics and care, these observations have implications for prenatal care services.

**Table 4.5: Birth weight**

Percentage of live births in the last 12 months with birth weight below 2500 grams, according to region, Maldives, MICS, 2001

Region	Percent of live births:		Number of live births
	Below 2500 grams	Weighed at birth	
Male	21.7*	78.3*	23
North	(13.2)	(92.1)	38
North central	(5.7)	(85.7)	35
South	(25.9)	(77.8)	27
South central	23.2	91.1	56
Total	17.9	86.6	179

( ) Based on 25-49 cases  
 \* Bases on < 25 cases

The number of live births when distributed across regions shows that regional variations exist in the proportion of babies who were weighed at birth. In Male' and in the Southern regions only 78 percent of the babies born last year were weighed while in the North it was 92 percent and in the South central it was 91 percent.. In three of the five regions, the proportion of births weighing less than 2500 gms is higher than the national average with the Southern region registering the highest proportion (26 percent) of low birth weight babies. However, the observations relating to the regional variations are to be treated with care since the sample of births, based on which the percentages are calculated, is small.

#### **4.4 Morbidity Among Children**

Illness during a certain reporting period is usually used to examine the morbidity pattern in the general population as well as among children. Taking the reporting period as two weeks prior to the interview date, the MICS explored the incidence of diarrhoea, cough, fever, or other health problems experienced by children below five years (Table 4.6). Among the 854 children aged under 5 years, 4.4 percent had diarrhoea during the two weeks prior to the interview. More than a quarter (26 percent) reported having had illnesses other than diarrhoea. Approximately one fifth had illness with a cough and 11 percent had illness with a cough along with abnormal breathing. Difficult/fast breathing was mostly due to blocked nose (58 percent of those experienced fast/difficult breathing) followed by problem in the chest (30 percent of the cases). A comparison with the survey results of 1995 MICS shows that there has been considerable decline the proportion of children reporting as having had diarrhoea. In the 1995 survey 82 out of

1029 children aged 0-4 years (8 percent) reported to have had diarrhoea within the two weeks prior to interview as compared to 4.4 percent in the present survey.

**Table 4.6: Prevalence of diarrhoea, cough, fever, and any other health problem**

Percent of children under age 5 years who had diarrhoea, cough, fever or any other health problem, Maldives, MICS, 2001

	Percent
Had diarrhoea in last two weeks	4.4
Had any other illness, such as cough or fever or any other health problem	26.1
Had illness with a cough	21.9
Had illness with a cough and fast breathing than usual or quick breathing or difficulty breathing:	11.1
<b>Fast/difficult breathing due to</b>	
Blocked nose	6.4
Problem in chest	3.3
Both	1.1
Other	0.2
Don't know	0.1
Number of children	854

Cultural practices and general ignorance of mothers regarding care of children during illness have a significant role in worsening the illness situation further. In order to ascertain the existence of these factors and to examine their relevance to health situation of children, a series of questions were asked regarding the feeding practices when children had diarrhoea (results are shown in Table 4.7). Breast milk was given only in 45 percent of the



*Child Health*

children, possibly on the grounds that giving breast milk could worsen the child's health. ORS packet solution was given in 55 percent of the cases, while in 30 percent of the cases locally defined acceptable fluids like coconut water and lime juice were given. These results are very similar to those observed in the 1995 survey.

More importantly, in 75 percent of the diarrhoea cases, the child was given only water; in another 3 percent of cases the child was not given anything to drink/eat while having

diarrhoea. This is an unhealthy practice and could have great implications even for infant/child mortality in the country. In other words, the multiple responses like giving breast milk, gruel, water with feeding, etc., have been reported only in 25 percent of the cases related to diarrhoea.

**Table 4.7: Diarrhoea in the past two weeks**

Percent of children under age 5 who had diarrhoea in the last two weeks, percentage of children who received various types of feeding, percentage distribution by quantity given to drink during diarrhoea, and percentage distribution by quantity given to eat during diarrhoea, Maldives, MICS, 2001

	Percent
Had diarrhoea in last two weeks	4.4
<b>Percentage of children who received<sup>1</sup></b>	
Breast milk	(44.7)
Gruel	(26.3)
Locally- defined accept-able home fluid (coconut water/lime juice/ home fluid)	(28.9)
ORS packet solution	(55.3)
Other milk/infant formula	(52.6)
Water with feeding	(78.9)
Only water	(73.7)
Unacceptable fluid like Coco Cola	(7.9)
Nothing	(2.6)
<b>Quantity given to drink<sup>1</sup></b>	
Much less or none	(42.1)
About the same (or somewhat less)	(13.2)
More	(36.8)
Don't know/missing	(7.9)
Total percent	100.0
<b>Quantity given to eat<sup>1</sup></b>	
None	(5.3)
Much less	(44.7)
Somewhat less	(10.5)
About the same	(18.4)
More	(13.2)
Don't know/missing	(7.9)
Total percent	100.0
Number of children	854

<sup>1</sup>Based on children who had diarrhoea in last 2 weeks preceding the survey.

( ) Based on 25-49 cases

In a large proportion of the cases the child was given much less than normal to drink (any of the liquids/breast milk usually given). While in 37 percent of the cases the child was given more than normal to drink, in another 13 percent about the same as normal quality was given during diarrhoea. In about 5 percent of the cases nothing was given to eat and in another 45 percent the quantity given was far less than normal while in 11 percent somewhat less quantity than normal was given to eat. In only 32 percent of

cases was the child given food in more or less adequate quantities.

**Table 4.8: Acute respiratory infection (ARI) and health source**

Percentage of children under age 5 who had acute respiratory infection in the last two weeks, whether sought advice or treatment, and treatment by health source, according to sex, Maldives, MICS, 2001

Sex of the child	Had acute respiratory infection (ARI)	Seek advice or treatment	Children with ARI who were taken to :								Number of children
			Hospital	Health centre	Dispensary	Island health worker	MCH clinic	Private physician	Traditional healer	other	
Male	23.5	22.5	7.2	10.8	0.9	3.6	0.0	0.0	0.0	0.0	437
Female	19.9	22.4	9.2	6.6	0.0	3.9	0.0	0.0	1.3	1.3	381
Total	21.8	22.4	8.0	9.1	0.5	3.7	0.0	0.0	0.5	0.5	854

Another frequent illness children experience is acute respiratory infection (ARI). Overall, 22 percent of the children below 5 years experienced acute respiratory infection during the two weeks prior to the survey (Table 4.8). This proportion is significantly lower than reported in the 1995 MICS survey where it was found that 70 percent of children had at least one episode of ARI. As in the case of most of the other health indicators, the proportion experienced was slightly higher among males (24 percent) compared to females. Of those who had experienced ARI, only 22 percent had sought advice or treatment. Gender differences in seeking advice/treatment regarding ARI is negligible. The most preferred source for health care for children appears to be health centre or hospital.

**Table 4.9: Signs of serious illness**

Percentage of caretakers of children under age 5 who know at least two signs for seeking care immediately, Maldives, MICS, 2001

Knows child should be taken to health care facility if child	Percent
Is not able to drink/ breastfeed	1.8
Becomes sicker	11.0
Develops a fever	77.3
Has fast breathing	2.0
Has difficult breathing	7.1
Has blood in stool	8.1
Is drinking poorly	1.2
Is not able to eat	1.6
Has loose motion	8.4
Has tummy pain/vomiting	9.0
Has cold/cough	20.3
Shows other signs	7.3
Percent of mothers/caretakers who know at least two signs for seeking care immediately	20.5

Island health worker, dispensary, and traditional healer are visited only in a few cases. In no case was the MCH clinic or private physician consulted to obtain advice or treatment for acute respiratory infection.

With the objective of assessing the knowledge about child health care, an attempt was made to find out what percentage of the women knew at least two correct signs for



seeking immediate medical care. Overall, only 21 percent of mothers/caretakers knew at least two correct signs when immediate medical care should be sought (Table 4.9). In most of the cases, a child developing a fever is reported as a sign that requires immediate medical attention, followed by cold/cough. Many other signs like not being able to drink/breastfeed, fast/difficult breathing, has blood in stool etc are, in general, not considered as signs requiring immediate medical attention. These results, however, differ considerably from that observed in the 1995 survey.

#### 4.5 Pre-natal and Care During Delivery

Prenatal and care during delivery are two important aspects that have considerable influence on child health. Tetanus toxoid (TT) injection was given to 65 percent of mothers who have had a live birth during the 12 months prior to the survey while 33 percent reported that they did not receive immunization (Table 4.10). Whereas in 45 percent cases the status was ascertained after seeing the card, in 19 cases the mother reported that she was protected against TT. Overall, 47.5 percent of mothers had at least two doses of TT during the last pregnancy.

<b>Table 4.10: Tetanus toxoid (TT)</b>	
Percent of mothers having a live birth in the last 12 months, protected against tetanus toxoid, Maldives, MICS, 2001	
	Percent
<b>Source of information on immunization:</b>	
Yes, card seen	44.7
Yes, card not seen	19.0
No	33.0
Don't know /missing	3.4
Total	100.0
<b>Percent of mothers with a live birth in the last 12 months who received:</b>	
At least 2 doses during last pregnancy	47.5
At least 2 doses at any time before last pregnancy, including during a previous pregnancy or between pregnancies	20.8
At least 2 doses during life time	42.9
Number of women	179

It appears that prenatal care and seeking medical advice is very common in the country. Among the women who had a live birth during one year prior to the survey, a doctor examined 77 percent of them during the antenatal period. It can be seen that trained professionals at the grass root level are also involved to a considerable extent in providing prenatal care. In approximately 2 percent of cases no antenatal check ups were done. Mostly doctors (48 percent), trained traditional birth attendants (45 percent) or ANM/Nurse (22 percent) conduct delivery in the country. Thus in most of the cases (97 percent) trained medical attendance at delivery is available in the country.

**Table 4.11: Delivery characteristics**

Percent distribution of women aged 15-49 who had a live birth during the year preceding the survey by delivery characteristics, Maldives, MICS, 2000

Delivery characteristics	Percent
<b>Conducted the antenatal check-up<sup>1</sup></b>	
Doctor	76.5
Nurse	4.5
Family health worker	10.6
Community health worker	12.3
Trained traditional birth attendant	8.9
Untrained traditional birth attendant	0.0
Other	4.5
None	2.2
<b>Assistance at delivery<sup>1</sup></b>	
Doctor	48.0
ANM/Nurse	22.3
Family health worker	1.7
Community health worker	3.9
Trained traditional birth attendant	44.7
Untrained traditional birth attendant	1.1
Relatives	0.0
Other	1.1
None	0.6
Number of deliveries	179

<sup>1</sup>The percentages may add up to more than 100 due to multiple responses.

## 4.6 Summary



**76.6% of women conduct antenatal check-ups during pregnancy**

It appears from the above analysis that the health situation of children in the country has been improving notably in recent years. This is further evident from the comparisons made with the information available from the 1995 survey. A marked improvement in immunisation status of children could be observed during the past five years. However, it may be noted that while immunisation coverage for specific diseases is very high, full immunisation is only 85 percent. Also, regional variations in the extent of immunisation need attention in future interventions. Another

important finding relates to birth weight; as approximately one-fifth of new-borns in the Maldives have low birth weight (less than 2500 gms). Whether the regional differences observed are real or are due to the low sample size, requires confirmation through further investigations.

The incidence of diarrhoea reduced by about 50 percent during 1995-2000, with a little above 4 percent of children having suffered during the two weeks period prior to the interview. However, the dietary pattern during the episodes of diarrhoea shows that

ignorance and cultural practices tend to result in improper feeding practices and inadequate quantities of food and drink.

There has been considerable decline in the incidence of acute respiratory infection during the past five years (from 70 to 22 percent). In this case, the proportion where medical advice/treatment was sought was only 22 percent of the cases, the preferred sources of treatment/advice being health centre or hospital. An important fact is that more than four-fifths of the mothers/caretakers did not know at least two signs of illness, which should prompt immediate medical attention. In more than three-quarters of antenatal cases, the woman was examined by a doctor. In most of the cases (97 percent) trained medical attendance at delivery is available.

In conclusion, there have been remarkable improvements in child health care in the country in recent years. However, the facts that 18 percent of children are low birth weight babies, dietary pattern during diarrhoea is far from desirable levels, the lower extent of medical advice/treatment during acute respiratory infection, the possibility of further improvements in overall immunisation status, and the regional differences observed, require further research and focussed interventions in the coming years.

## CHAPTER V

## NUTRITION

In December 1992, the Maldives, along with 159 countries, participated in the International Conference on Nutrition (ICN) organised by WHO and FAO of the UN and unanimously adopted a World Declaration which called for the formulation of national plan of action for nutrition by every country for eliminating hunger and reducing all forms of malnutrition. The National Plan of Action for Nutrition 1997-2000 for the Maldives, formulated on the basis of the guidelines given in the ICN Declaration of 1992 was linked to the National Development Plan of 1994-96 of the Maldives, which guarantees health as a basic right of every Maldivian. The national nutritional goals for the Maldives are access to food security, development of a comprehensive nutritional package, prevention and control of micronutrient deficiency diseases, promotion of universal exclusive breastfeeding, promotion of healthy weaning practices and nutritional supplementation and improvement of health and nutritional status of mothers. In MICS-2, data were gathered on the types of food consumed, exclusive feeding practices, height and weight for all women aged 15-49 as well as children under the age of 5 years, anaemia among women, vitamin A deficiency (night blindness and DBS biochemical test) for women and young children and the usage of iodised salt. Trained clinician(s) attached to each interviewing team conducted the height and weight measurements, anaemia testing, and DBS test. DBS samples collected from children and mothers were sent to WHO Geneva office for laboratory analysis and results are awaited at the time of preparing this report.

### 5.1 Children's Food Consumption



*44.4% of children are given ripe fruits 3 or more times a week*

Malnutrition among children and women in the Maldives is mainly due to the lack of a well-balanced diet. MICS-2 asked mothers/caretakers of children under age 5 'How many times did the child consume various types of food (less than 2 times, 3 or more times, or not given) during the one week preceding the survey?' Table 5.1 shows frequency of consumption of specific food items among children under 5 years. In the Maldives,

**Table 5.1: Children's food consumption**

Percent distribution of children under 5 years by frequency of consumption specific foods, according to region, Maldives, MICS, 2001

Type of food	Frequency of consumption during past week:				Total percent
	< 2 times	3 or more time	Not given	Don't know/missing	
<b>MALDIVES</b>					
Green leafy vegetables	21.4	22.0	43.3	13.4	100.0
Cassava	25.1	18.2	43.3	13.4	100.0
Ripe fruits	28.4	44.4	14.1	13.1	100.0
Meat	21.3	13.1	51.9	13.7	100.0
Eggs	27.8	27.6	30.8	13.7	100.0
Orange vegetables	16.6	14.6	54.7	14.1	100.0
Liver (of any animal)	4.7	3.5	77.2	14.6	100.0
Milk	15.3	58.7	13.7	12.3	100.0
Fish	18.7	56.3	12.5	12.4	100.0
<b>MALE'</b>					
Green leafy vegetables	17.3	16.5	59.3	6.9	100.0
Cassava	25.1	21.2	47.6	6.1	100.0
Ripe fruits	13.9	74.5	6.1	5.6	100.0
Meat	40.3	27.3	26.4	6.1	100.0
Eggs	30.7	42.0	20.3	6.9	100.0
Orange vegetables	23.4	42.9	27.3	6.5	100.0
Liver (of any animal)	4.8	5.2	83.5	6.5	100.0
Milk	9.1	85.3	1.3	4.3	100.0
Fish	26.8	59.3	8.7	5.2	100.0
<b>NORTH</b>					
Green leafy vegetables	25.7	29.7	38.9	5.7	100.0
Cassava	27.7	25.0	41.2	6.1	100.0
Ripe fruits	34.8	42.9	16.6	5.7	100.0
Meat	19.3	11.1	63.9	5.7	100.0
Eggs	27.0	32.1	34.5	6.4	100.0
Orange vegetables	15.9	10.8	67.2	6.1	100.0
Liver (of any animal)	7.4	2.7	83.8	6.1	100.0
Milk	21.3	54.7	18.2	5.7	100.0
Fish	19.3	59.8	14.5	6.4	100.0
<b>NORTH CENTRAL</b>					
Green leafy vegetables	24.1	23.6	50.9	1.4	100.0
Cassava	25.0	22.3	51.4	1.4	100.0
Ripe fruits	42.3	35.5	20.9	1.4	100.0
Meat	13.6	15.5	69.5	1.4	100.0
Eggs	37.3	22.7	38.6	1.4	100.0
Orange vegetables	21.8	10.0	66.4	1.8	100.0
Liver (of any animal)	2.3	3.2	92.7	1.8	100.0
Milk	14.1	64.5	18.6	2.7	100.0
Fish	20.5	63.2	15.0	1.4	100.0
<b>SOUTH</b>					
Green leafy vegetables	16.4	12.8	19.6	51.2	100.0
Cassava	20.4	6.4	21.2	52.0	100.0
Ripe fruits	25.6	15.2	8.8	50.4	100.0
Meat	17.6	6.4	22.4	53.6	100.0
Eggs	24.0	12.8	10.8	52.4	100.0
Orange vegetables	14.0	6.0	25.6	54.4	100.0
Liver (of any animal)	4.0	4.4	34.4	57.2	100.0
Milk	24.4	18.8	10.0	46.8	100.0
Fish	25.2	20.0	7.6	47.2	100.0
<b>SOUTH CENTRAL</b>					
Green leafy vegetables	22.4	24.9	49.2	3.5	100.0
Cassava	26.5	16.0	54.0	3.5	100.0
Ripe fruits	25.6	53.4	17.3	3.8	100.0
Meat	17.6	8.0	70.6	3.8	100.0
Eggs	22.7	28.1	45.7	3.5	100.0
Orange vegetables	10.9	7.3	78.0	3.8	100.0
Liver (of any animal)	4.5	2.6	89.5	3.5	100.0

Milk	8.0	70.6	17.9	3.5	100.0
Fish	5.8	75.1	15.7	3.5	100.0

more than half of the children consume fish (56 percent) and milk (59 percent) and one-fifth (22 percent) of children eat green leafy vegetables at least three times a week. Forty-four percent of children eat ripe fruits and 28 percent children eat eggs. Further one-fifth children eat green leafy vegetables, cassava, ripe fruits, and eggs once a week. Liver (of any animal) is not an important part of the diet for the majority of children.

Table 5.1 also shows regional variation in food consumption of children. There is no region where children consistently consume more of all the types of food. More than three-quarters of children under 5 years consume fish and milk at least once a week, in all regions. Children in Male' (the only urban area) are more likely than children in other regions to consume ripe fruits, milk, eggs, and meat at least three times a week. Children in the North region are more likely to eat green leafy vegetables than children in other regions. Children from the South region are less likely to eat all food items (vegetables, meat, fish) even once a week. This regional disparity may be due to non-availability of other food items (green leafy vegetables, cassava, ripe fruits, meat, eggs and orange vegetables) except fish and milk. Three out of four children in Male' eat meat at least once in a week whereas in other regions one out of four children eat meat once in a week. Such wide differences may be due to the non-availability of meat in the islands and the availability of imported meat in Male'.

## 5.2 Breastfeeding Practice

Infant feeding practices have significant effects on both child survival and fertility. Mother's milk is most safe, clean, hygienic and is an antibody. It not only provides appropriate important nutrients to meet all the requirements of the infant in the early stage of life but also protects the child against infection. Proper infant feeding, starting from the time of birth, is important for the physical and mental development of the child. Breastfeeding improves the nutritional status of young children and reduces morbidity and mortality. The timing and type of supplementary foods introduced in an infant's diet also have significant effects on the child's nutritional status. The duration and intensity of breastfeeding practices by mothers suppress ovulation, lengthen the period of postpartum infertility, and hence could influence fertility levels by increasing the length of birth intervals.

**Table 5.2: Breastfeeding status**

Percent of children under age 5 years ever breastfed, currently breastfed, and the mean duration of exclusive breastfeeding by sex of the child, Maldives, MICS, 2001

	Ever breastfed	Currently Breastfed	Mean duration of exclusive breastfeeding (in months)	Number of children
<b>Sex of the child</b>				
Male	96.0	44.0	3.9	473
Female	97.1	51.2	4.0	381
Total	96.5	47.2	3.9	854



*Mean duration for exclusive breastfeeding is 3.9 months*

UNICEF and WHO recommend that infants should be given exclusively breast milk during the first six months of their life without any other foods or liquids. Adequate and appropriate complementary foods should be added to the infant's diet in order to provide sufficient nutrients for optimal growth, by the seventh month. Furthermore, it is also recommended that breastfeeding should continue, along with complementary foods, up to 2 years or more and that the use of feeding bottle with a nipple should be avoided in order to prevent infections.

MICS collected information on breastfeeding and

complementary feeding for all children under age 5 years. Table 5.2 shows the percentage of children ever breastfed and currently feeding, by gender. It

also gives mean duration of exclusive breastfeeding. In the Maldives, breastfeeding is almost universal with 97 percent children under age 5 years having being breastfed at some time, and 47 percent being breastfed at a given time. The sex differentials in "ever breastfed" category are not substantial whereas more female children (51 percent) are among the currently breastfed than male children (44 percent). Children who received nothing but breast milk are defined as being *exclusively breastfed*. Mothers of children under age 5 years were asked how long the child was breastfed exclusively. Results are shown in Tables 5.2 and 5.3. The mean length of exclusive breastfeeding is 3.9 months. The mean durations are about the same for both male and female children. In the Maldives, only 42 percent of children are exclusively breastfed for 4-6 months, of which 10 percent are for the entire 6 months.

**Table 5.3: Exclusive breastfeeding**

Percent distribution of children exclusive breastfed, by completed age (in months), Maldives, MICS, 2001

Completed breastfeeding (in month)	Percent
1	5.7
2	10.7
3	14.1
4	27.3
5	4.7
6	10.4
Number of children	389

Mothers and caretakers of children under 5 years were asked if the child had been given vitamin/mineral/medicine supplement, plain water, sweetened water or juice, ORS,

Tinned/ powdered/fresh milk or infant formula, other liquids, or solid or mushy food at any time during the day or the night before the interview; the results are shown in Table 5.4. The proportion of children who received solid or mushy food increases from 16 percent for children of age 0–3 months to 76 percent for children of age 4–6 months and 85 percent or more for children of age 7 months or more whereas the proportion of children who received tinned/powdered/fresh milk or infant formula increases from 27 percent for children of age 0–3 months to 51 percent for children of age 4–6 months and 80 percent or more for children of age 12 months or more. Other liquids, such as sweetened water or juice, are given more often than tinned/powdered/fresh milk or infant formula to children after 7 months. Only 29 percent of children received vitamin/mineral/ medicine supplement. The introduction of complementary food at the right age is critical for meeting the protein, energy, and micronutrient needs of children. Eighty-five percent of children aged 7–11 months received solid or mushy food, as recommended.

**Table 5.4 Type of liquid/solid food received by children**

Percentage of children under age 5 years who received specific types of liquid/solid food the day or night before the interview and percentage using a bottle with a nipple, by child's age in months, Maldives, MICS, 2001

Age in months	Type of food received:								Number of living children
	Vitamin/mineral/medicine supplement	Plain water	Sweetened water or juice	ORS	Tinned/powdered/fresh milk or infant formula	Any other liquid	Solid or mushy food	Using bottle with a nipple	
0-3	23.6	40.0	16.4	0.0	27.3	9.1	16.4	23.6	55
4-6	26.4	73.6	45.3	5.7	50.9	5.7	75.5	24.5	53
7-11	30.9	92.6	72.1	5.9	57.4	16.2	85.3	26.5	68
12-23	33.9	91.8	86.5	6.4	81.9	28.7	88.3	34.5	171
24-35	28.6	97.3	91.9	5.4	86.5	38.4	91.9	21.6	185
36-47	30.5	93.4	86.2	4.2	85.0	29.3	94.0	14.4	167
48-59	26.5	93.5	91.0	4.5	83.9	30.3	95.5	7.1	155
<b>0-59</b>	<b>29.4</b>	<b>89.2</b>	<b>80.2</b>	<b>4.9</b>	<b>76.5</b>	<b>27.5</b>	<b>85.8</b>	<b>20.8</b>	<b>854</b>

It is often difficult to sterilise the nipple properly, and the use of bottles with nipples also exposes children to an increased risk of diarrhoea and other diseases. In Maldives, 21 percent of children under the age of 5 years were fed from a bottle with a nipple during the day or the night before the interview date. The use of a bottle with a nipple is much more common for children who are aged 12-23 months.

### 5.3 Nutritional Status of Children

Nutritional status is a major determinant of the health and well-being of children. Chronic illnesses are associated with poor nutrition among children. In MICS, all children under the age of 5 years were weighed using a solar-powered digital scale with an accuracy of  $\pm 100$  grams. Their height was measured using an adjustable wooden measuring board to provide accurate measurements (to the nearest 0.1 cm). Children under two years of age were measured lying down and older children were measured standing up. To assess nutritional status of children, three summary indices: weight-for-age, height-for-



age, and weight-for-height are calculated using weight and height data. The values of three indices for sample children were then compared with the nutritional status of an international reference population, recommended by WHO. The three indices of nutritional status are expressed in standard deviation units (z-scores) from the median reference for the international population. Children who are more than two standard deviations below the reference median on any of the indices are considered to be *undernourished*, and children who fall more than three standard deviations below the reference median are considered to be *severely undernourished*. Each of these indices provides somewhat different information about the nutritional status of the children. Weight-for-age is a composite measure that takes into account both chronic and acute under-nutrition. Children who are more than two standard deviations below the reference median on this index are considered to be *underweight*. The height-for-age index measures linear growth retardation. Children who are more than two standard deviations below the median of the reference population in terms of height-for-age are considered short for their age or *stunted*. The percentage in this category indicates the prevalence of chronic under-nutrition, which often results from a failure to receive adequate nutrition over a long period of time or from chronic or recurrent diarrhoea. Height-for-age, therefore, does not vary appreciably by the season in which data are collected.



*7.2% of children are mildly under nourished*

The weight-for-height index examines body mass in relation to body length. Children who are more than two standard deviations below the median of the reference population in terms of weight-for-height are considered too thin or *wasted*. The percentage in this category indicates the prevalence of acute under nutrition. Wasting is associated with a failure to receive adequate nutrition in the period immediately before the survey and may also be the result of seasonal variations in food supply or recent episodes of illness.

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In the Maldives, MICS-2 could not measure 9 percent of children under the age of 5 (see Table 2.2 in Chapter 2) because either children refused themselves or cried so much that clinicians could not measure weight and height. Children whose month and year of birth were not known are excluded from the analysis. Table 5.5 shows the percentage of children classified as undernourished by sex of the child. 30 percent of the children under the age of 5 in the Maldives are underweight and 25 percent of children are stunted. The proportion of children who are severely undernourished is 9 percent

according to weight-for-age and a similar percentage according to height-for-age. Wasting is also evident in the Maldives, affecting 13 percent of children under five years of age. The proportion of children under five years of age who are underweight decreased from 43 percent in MICS-1 to 30 percent in MICS-2, whereas the proportion severely stunted decreased from 30 percent in MICS-1 to 25 percent in MICS-2. The proportion wasted decreased from 17 percent to 13 percent during same period.

The proportion of children who are undernourished increases rapidly with the child's age, after the age 6–11 months, and peaks at 17 percent for wasting, 36 percent for stunting and 38 percent for underweight. Even during the first six months of life, when most babies are breastfed, 2–6 percent of children are undernourished according to the three nutritional indices. It is noticed that at age 12–23 months, when most children have been weaned from breast milk, 17 percent of children are severely stunted and 9 percent of children severely underweight.

**Table 5.5 Nutritional status of children**

Percentage of children under age 5 years classified as undernourished on three anthropometric indices of nutritional status, according to age and sex, Maldives, MICS, 2001

Age (in months)	Weight-for-age		Height-for-age		Weight-for-height		Number of children
	Percentage below -3 SD	Percentage below -2 SD <sup>1</sup>	Percentage below -3 SD	Percentage below -2 SD <sup>1</sup>	Percentage below -3 SD	Percentage below -2 SD <sup>1</sup>	
<b>MALE</b>							
< 6	(0.0)	(0.0)	(2.9)	(5.7)	(0.0)	(2.9)	37
6-11	(0.0)	(13.4)	(0.0)	(16.7)	(0.0)	(8.3)	38
12-23	8.4	38.6	20.0	33.3	5.3	19.7	83
24-35	7.3	38.5	13.3	31.1	1.1	15.3	96
36-47	10.2	34.1	7.1	28.2	1.2	11.9	88
48-59	5.3	32.9	15.8	23.7	1.3	12.0	76
0-59	6.5	30.9	11.6	25.9	1.8	13.1	418
<b>FEMALE</b>							
< 6	(0.0)	(3.1)	(0.0)	(6.7)	(0.0)	(3.2)	32
6-11	(0.0)	(15.2)	(3.0)	(9.1)	(0.0)	(6.1)	33
12-23	9.2	32.9	14.1	39.4	0.0	15.5	76
24-35	6.7	30.7	5.4	16.2	2.7	13.5	75
36-47	10.5	35.1	7.3	18.2	0.0	14.6	57
48-59	19.2	44.2	19.6	35.3	2.0	19.6	52
0-59	8.6	29.9	9.2	23.3	1.0	13.3	325
<b>TOTAL</b>							
< 6	0.0	1.5	1.5	6.2	0.0	3.1	69
6-11	0.0	14.1	1.4	13.0	0.0	7.3	71
12-23	8.8	35.9	17.1	36.3	2.7	17.7	159
24-35	67.0	35.1	9.8	24.4	1.8	14.6	171
36-47	10.3	34.5	7.1	24.3	0.7	13.0	145
48-59	10.9	37.5	17.3	28.4	1.6	15.1	128
0-59	7.2	30.4	10.6	24.8	1.4	13.2	712

Note: Each index is expressed in standard deviation units (SD) from the median of the International Reference Population.

<sup>1</sup>Includes children who are below -3 SD from the International Reference Population median

Overall, girls and boys are about equally undernourished, but boys are slightly more likely than girls to be underweight and stunted.

## 5.4 Vitamin A

Vitamin A is known as a critical factor in child health and survival in addition to the essential role it plays for vision and eye health. All countries attending the World Summit for Children (New York, 1990), the Policy Conference on Ending Hidden Hunger (Montreal, 1991), and the International Conference on Nutrition (Rome, 1992) pledged to virtually eliminate vitamin A deficiency and all its consequences, including blindness. The Maldives National Plan of Action for Nutrition 1997-2000 recommended the control of Vitamin A deficiency, Vitamin B deficiency and Vitamin C deficiency and to conduct cross sectional surveys to assess the situation.

### VITAMIN A SUPPLEMENTATION

MICS-2 asked mothers/caretakers of children under age 5 whether their children had received a vitamin supplement within the 24 hours prior to the interview and also whether their children received a dose of Vitamin supplement within the last 4-6 months preceding the survey. Table 5.6 shows the results according to selected background characteristics. In Maldives, 51 percent of children under the age of 5 years received one dose of vitamin A within the last 4-6 months, but only 15 percent received any vitamin supplement within the last 24 hours. This indicates that over all one-half of children in the Maldives have not received vitamin A supplementation at all.

**Table 5.6: Vitamin A supplementation**

Percentage distribution of children under age 5 years who received Vitamin supplement in the last 24 hours and who received a high dose Vitamin A supplement within the last 4-6 months prior to the survey, according to selected background characteristics, Maldives, MICS, 2001

Characteristic	Percent of children who received vitamin within the last 24 hour:		Percent of children who received vitamin A within the last 4-6 months:			Number of children
	Received	Not received	Received	Not received	Don't know	
<b>Region</b>						
Male	23.6	76.4	29.7	67.1	3.2	231
North	13.9	86.1	57.4	41.5	1.1	296
North central	12.4	87.6	47.2	51.9	0.9	220
South	16.8	83.2	66.7	32.6	0.7	250
South central	10.3	89.7	54.4	41.4	4.2	313
<b>Age</b>						
0-11 months	13.9	86.1	30.1	68.4	1.6	214
12-23 months	14.6	85.4	56.5	42.4	1.1	188
24-35 months	14.1	85.9	54.7	43.3	2.0	256
36-47 months	17.5	82.5	58.1	39.3	2.6	272
48-59 months	13.7	86.3	50.4	46.3	3.4	277
Total	14.9	85.1	50.6	47.2	2.2	1310

The percentage of children who received vitamin A supplementation varies from the lowest of 30 percent in Male' to the highest of 67 percent in the South region. In all other regions, more than 47 percent of children received vitamin A supplementation within the last 4-6 months prior to the survey. Similarly, the percentage of children who received any vitamin supplement within the last 24 hours vary from lowest 10 percent in South central region to the highest of 24 percent in Male'.

## VITAMIN A DEFICIENCY AMONG CHILDREN

Vitamin A deficiency (VAD) is one of the most common nutritional deficiency disorders among the children in the world. More than 250 million children are affected worldwide. According to the Micronutrient Deficiency Information System (MDIS) databank updated by WHO on prevalence of VAD, the Maldives is in the category where no data are available but could be a problem area. MICS-2 administered a Vitamin A module to find out prevalence of VAD in the Maldives and to provide a baseline for monitoring the changes in Vitamin A status over time. Sub-clinical biological indicators (Functional and Biochemical) of Vitamin A were measured for children of age 24-36 months. Biological indicators of vitamin A deficiency defined a public health problem as mild (< 0.0 – 1.0 %), moderate (>1.0 % - < 5.0 %), or severe (> 5.0 %) depending on prevalence levels.

Table 5.7 shows the percentage of children aged 24-59 months who have difficulty seeing in daylight or at dusk or recognising people at dusk. Overall in the Maldives, 2.4 percent of children have difficulty with their vision in daylight and a further 1.2 percent of children have difficulty with vision at dusk. Moreover, another 1.9 percent of children have difficulty in recognising people at dusk. Thus, more than 5 percent of children have reported vision difficulty and are suffering from vitamin A deficiency. This indicates that Maldives has severe vitamin A deficiency among children (under functional classification). Though Table 5.7 also shows vitamin A deficiency by region, the sample size was designed to estimate prevalence rate at a national level. The information by region is shown in the table to give an idea about the possible need to undertake further regional level studies to identify high-risk areas/population for intervention.

**Table 5.7: Vitamin A deficiency among children**

Percentage of children of age 24-59 months having difficulty seeing in daylight or at dusk or in recognizing people at dusk by region, Maldives, MICS, 2001

Type of vision difficulty	Region					Total
	Male'	North	North central	South	South central	
Difficulty seeing in daylight	3.6	1.7	2.0	5.1	1.1	2.4
Difficulty seeing at dusk	3.0	0.6	0.0	2.6	0.6	1.2
Difficulty recognizing people at dusk	3.0	0.0	2.0	6.4	0.6	1.9
Number of children	169	173	147	78	181	748

## VITAMIN A DEFICIENCY AMONG WOMEN

MICS-2 collected information on Vitamin A deficiency from women who have a child under age 5 years or have given a live birth during the year preceding the survey. Night blindness, or difficulty in seeing at dusk, is the result of chronic vitamin A deficiency and is often seen among pregnant women in an area where vitamin A deficiency is endemic. Women were asked about their difficulty seeing in daylight and if they suffered from night blindness. In addition, the survey asked whether they had difficulty seeing in daylight or suffered night blindness, during their last pregnancy. Results from each of these questions are shown in Table 5.8. In the Maldives, 11 percent of women have difficulty seeing in daylight and another 6 percent of women suffer night blindness. During the last pregnancy, 5 percent of women had difficulty seeing in daylight and the same percent of women suffered night blindness. Again, though Table 5.8 shows vitamin A deficiency among women by region, this should be considered cautiously because the sample design does not allow an exact assessment of the prevalence of VAD among women, by region.

**Table 5.8: Vitamin A deficiency among women**

Percentage of women who have difficulty seeing in daylight, suffered night blindness, who have difficulty seeing in daylight during last pregnancy, and suffered night blindness during last pregnancy, by region, Maldives, MICS, 2001

Type of difficulty	Region					Total
	Male	North	North central	South	South central	
Difficulty seeing in daylight	16.0	7.6	13.2	1.5	14.1	11.0
Night blindness	11.1	3.6	8.6	0.5	6.9	6.4
Difficulty seeing in daylight during last pregnancy	9.8	3.2	5.6	1.0	4.5	5.0
Night blindness during last pregnancy	7.4	2.5	6.9	1.0	4.5	4.6
Number of women	244	277	303	199	290	1313

Note: Table based on women who have a child under age 5 years or given a live birth during last one year preceding the survey

### 5.5 Nutritional Status of Women

In MICS-2, the pool of women aged 15-49 were weighed and measured with the same type of scales and measuring boards as were used for children, to assess nutritional status. The weight and height data were used to calculate several indicators of women's nutritional status as shown in Table 5.9. The height of an adult is an outcome of several factors including nutrition during childhood and adolescence. A woman's height can be used to identify women at risk of having a difficult delivery, since small stature is often related to small pelvic size. The risk of having a baby with a low birth weight is also higher for mothers who are short. The cut-off point for height, below which a woman can be identified as nutritionally at risk, varies among populations, but it is usually considered to be in the range of 140–150 centimetres(cm). MICS-2 found a mean height for women in the Maldives of 150 cm. The mean height varies between 146 and 151 cm

for women in different population groups, as shown in Table 5.9. In Maldives 17 percent of women are under 145 cm in height. Differentials are small by age but are more substantial by region. Male' has only 10 percent of women who are below 145 cm, whereas the South region has 36 percent. The proportion of women below 145 cm is 11 percent among women aged 15-24 compared with 26 percent for women aged 40-49.

**Table 5.9 Nutritional status of women**

Mean height, percentage with height below 145 cm, mean body mass index (BMI), and percentage with BMI below 18.5 kg/m<sup>2</sup> of women aged 15-49, by selected background characteristics, Maldives, MICS, 2001

Characteristic	Height			Weight-for-height <sup>1</sup>		
	Mean height (cm)	Percentage below 145 cm	Number of women for height	Mean body mass index (BMI)	Percentage with BMI below 18.5 kg/m <sup>2</sup>	Number of women for BMI
<b>Region</b>						
Male	150.9	9.7	351	24.3	22.5	253
North	150.6	12.5	328	22.7	24.8	258
North Central	149.3	16.0	363	22.0	23.9	305
South	146.0	36.4	214	25.5	17.7	164
South Central	149.3	17.3	394	23.8	22.5	306
<b>Age</b>						
15-19	150.5	11.4	359	19.4	49.6	141
20-24	150.6	11.1	315	20.9	32.9	255
25-29	150.1	15.6	263	21.9	24.1	232
30-34	148.8	18.9	238	23.9	12.2	213
35-40	148.6	22.6	208	24.7	12.5	192
40-49	147.4	26.2	267	28.4	12.6	253
Total	149.5	16.9	1650	23.5	22.7	1286

<sup>1</sup>Excludes women who are pregnant. The body mass index (BMI) is the ratio of the weight in kilograms to the square of the height in metres (kg/m<sup>2</sup>).

Table 5.9 also shows an index that relates a woman's weight to her height. The Body Mass Index (BMI) is defined as the weight in kilograms divided by the height in metres squared (kg/m<sup>2</sup>). In calculating the value of this index women who were pregnant at the time of the survey are excluded. The mean BMI for women in the Maldives is 23.5. Chronic energy deficiency is usually indicated by a BMI of less than 18.5. More than one-fifth (23 percent) of women in the Maldives have a BMI below 18.5, indicating a high prevalence of nutritional deficiency. Differentials by region are negligible. The proportion of women with a BMI below 18.5 is higher among women in the age groups 15-19 and 20-24.

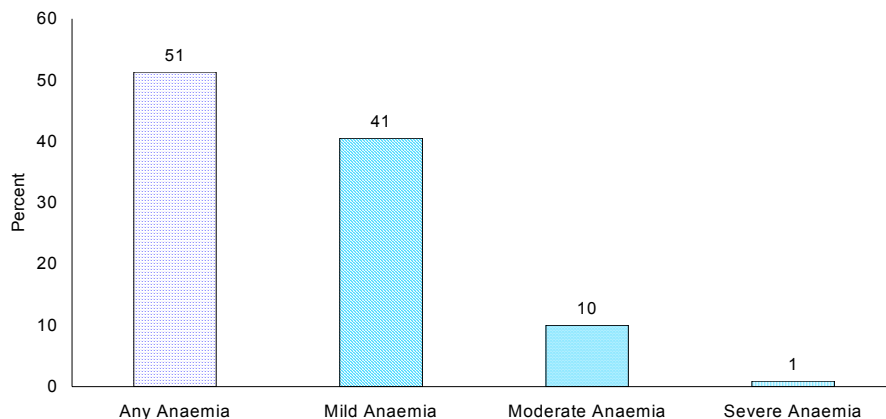
## 5.6 Anaemia Among Women

Iron deficiency anaemia is an outcome of nutritional deficiency of iron, folate, vitamin B<sub>12</sub>, or some other nutrients. This is one of the world's leading health problems among growing children as well as menstruating and pregnant women. Anaemia may have

detrimental effects on the health of women and children, and may become an underlying cause of maternal mortality and perinatal mortality. Anaemia results in an increased risk of premature delivery and low birth weight (Seshadri, 1997). Early detection of anaemia can help to prevent complications related to pregnancy and delivery as well as child-development problems. Information on the prevalence of anaemia can be useful for the development of health-intervention programmes designed to prevent anaemia, such as iron-fortification programmes.

The haemoglobin levels of all women aged 15-49 were measured in the field using the HemoCue system, which is used in DHS and other surveys. This system uses a single drop of blood, from a finger prick, which is drawn into a cuvette and then inserted into a portable battery-operated instrument. In less than one minute, the haemoglobin concentration is indicated on a digital read-out.

**Figure 5.1: Anaemia Among Women**



MICS-2, Maldives, 2001

Table 5.10 and Figure 5.1 show anaemia levels for women aged 15–49. Severity of anaemia is classified as mild anaemia (10.0–10.9 g/dl for pregnant women and 10.0–11.9 g/dl for non-pregnant women), moderate anaemia (7.0–9.9 g/dl), and severe anaemia (less than 7.0 g/dl).

Haemoglobin levels were tested for 85 percent of women in Maldives. More than half (51 percent) of women are anaemic to some degree. Forty-one percent of women are mildly anaemic, 10 percent moderately anaemic, and 1 percent severely anaemic. Differences in the prevalence of anaemia are substantial by background characteristics.

By region, prevalence of anaemia among women ranges from 38 percent in the South region to 64 percent in North region. It is to be noted that three percent of women from South region are severely anaemic. Almost half of women are anaemic in all age groups. The percentage is higher in the youngest of age group of 15-19 (57 percent), and is the lowest in the age group 25-29 (45 percent). Anaemia is more prevalent among shorter women (less than 145 cm) and women with a low body mass index (BMI).

**Table 5.10 Anaemia among women**

Percentage of women classified as having iron-deficiency anaemia by degree of anaemia, according to selected background characteristics, Maldives, MICS, 2001

Background characteristic	Percentage of women with any anaemia	Percentage of women with:			Number of women
		Mild anaemia <sup>1</sup>	Moderate anaemia <sup>2</sup>	Severe anaemia <sup>3</sup>	
<b>Region</b>					
Male	52.4	49.3	2.6	0.6	349
North	64.0	46.3	17.7	0.0	328
North central	49.0	35.5	11.8	1.7	363
South	59.1	41.4	14.8	3.0	203
South central	37.9	31.8	5.9	0.3	393
<b>Age</b>					
15-19	57.2	43.6	13.0	0.6	353
20-24	51.1	42.8	8.0	0.3	313
25-29	45.0	38.1	5.8	1.2	260
30-34	51.5	39.7	11.8	0.0	237
35-40	51.7	38.2	11.1	2.4	207
40-49	49.6	38.3	9.8	1.5	266
<b>Height</b>					
< 145 cm	53.6	39.5	11.6	2.5	276
≥ 145 cm	50.8	40.7	9.6	0.6	1359
<b>Weight</b>					
< 18.5 kg/m <sup>2</sup>	55.6	42.7	11.5	1.4	426
≥ 18.5 kg/m <sup>2</sup>	49.4	39.5	9.1	0.8	1191
<b>Pregnancy status</b>					
Pregnant	55.4	31.1	23.0	1.4	74
Not pregnant	49.6	39.6	9.1	0.9	1287
Total	51.3	40.5	10.0	0.9	1636

<sup>1</sup>Mild anaemia (10.0-10.9 grams per decilitre(g/dl) for pregnant women and 10.0-11.9 g/dl for non pregnant women).

<sup>2</sup>Moderate anaemia (7.0-9.9 grams per decilitre(g/dl) for all women).

<sup>3</sup>Severe anaemia (less than 7.0 grams per decilitre(g/dl) for all women).

More pregnant women (56 percent) than non-pregnant (50 percent) are found to be anaemic. Also, pregnant women are much more likely to have moderate anaemia (23 percent) than nonpregnant women (9 percent). Pregnant women are less likely than other women to have mild anaemia.

## 5.7 Use of Iodised Salt

Iodine is an essential micronutrient required for the normal mental and physical health



of human beings. Iodine Deficiency Disorders (IDD) is the single most preventable cause of mental retardation and poor academic ability of children worldwide. According to WHO, iodine deficiency can cause miscarriages, brain disorders, cretinism, and retarded psychomotor development. Children living in iodine sufficient areas have 13 points higher intelligence quotient (I.Q.) than children living in iodine deficient areas. Every day our body requires around 150 micrograms of iodine over a life span of 70 years. The most common method of iodine supplementation is iodised salt.

**Table 5.11: Iodisation of salt**

Percentage distribution of households by type of salt used for cooking, according to region, Maldives, MICS, 2001

Region	Iodized		Not iodized	No salt at home	Salt not tested	Total percent	Number of households
	< 15 PPM	15+ PPM					
Male	5.7	68.7	19.7	1.1	5.7	100.0	176
North	2.4	30.5	63.3	1.9	1.9	100.0	210
North central	2.2	36.6	58.0	0.9	2.2	100.0	224
South	1.5	58.3	26.7	6.3	7.3	100.0	206
South central	2.4	33.5	54.3	4.5	5.3	100.0	245
Total	2.7	44.1	45.7	3.0	4.4	100.0	1061

In 1995, the Maldives conducted an iodine deficiency disorder survey. A total of 30 schools and 2,834 children were surveyed and it was found that total goitre which 22.5 percent was children were examined and it was found that 66 urinary iodine levels below ( $\mu\text{g}/\text{dl}$ ). It was concluded was a public health



**Iodine Deficiency Disorder**

Iodine levels in salt can be using a standard titration rapid-test kit. In MICS-2, iodine content of cooking household using a rapid-of ampoules of a of a weak acid-based

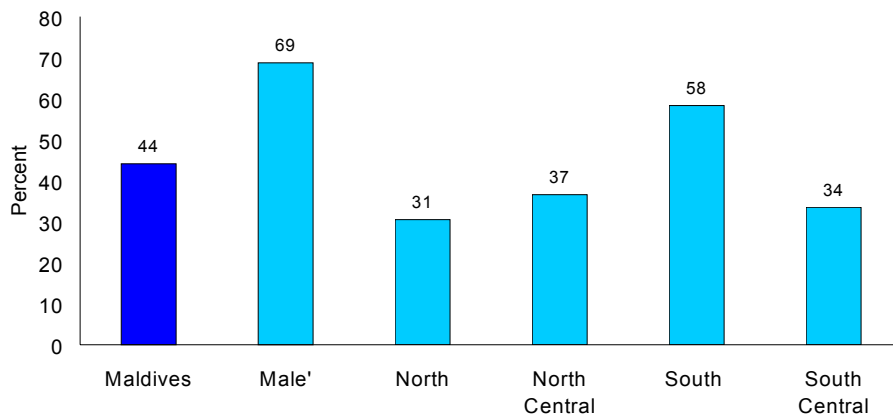
squeezes one drop of the starch solution onto a sample of cooking salt obtained from the household. If the colour changes (from light blue through dark violet), the interviewer matches the colour of the salt as closely as possible to a colour chart on the test kit and records the iodine level as 7, 15, or 30 parts per million (ppm). If the initial test is negative (no change in colour), the interviewer is required to conduct a second confirmatory test on a new salt sample, using the acid-based solution in addition to the starch solution. This test is necessary because the starch solution will not show any colour change even on iodised salt if the salt is alkaline or is mixed with alkaline free-

measured in the laboratory test or in the field using a enumerators measured the salt in each interviewed test kit. The test kit consists stabilised starch solution and solution. The interviewer measured in the laboratory test or in the field using a enumerators measured the salt in each interviewed test kit. The test kit consists stabilised starch solution and solution. The interviewer

measured in the laboratory test or in the field using a enumerators measured the salt in each interviewed test kit. The test kit consists stabilised starch solution and solution. The interviewer

flow agents. If the colour of the salt does not change even after the confirmatory test, the salt is not iodised. Because of the uncertainties and subjective judgment in the matching process, the rapid test should not be considered as giving an exact quantitative estimate of salt iodisation, but it does provide useful information on whether or not salt is iodised,

**Figure 5.2: The Use of Adequately Iodised Salt by Region**



Maldives, 2001

as well as an approximation of the extent of iodisation.

Table 5.11 and Figure 5.2 show the extent of salt iodisation at the household level. In all, 93 percent of households were tested for salt iodisation and 7 percent of households were not tested. Only 44 percent of households in Maldives use cooking salt that is iodised at the recommended level of 15 ppm or more. Approximately 46 percent of households use salt that is not iodised at all and 3 percent use salt that is minimally iodised (less than 15 ppm).

The widest differentials in salt iodisation are observed by region. Over two-thirds (69 percent) of households in Male' use adequately iodised salt, compared with 58 percent of households in the South region, 37 percent of households in the North central, 34 percent of households in the South central and 31 percent of households in the North region. More than half of the households in the North, the North central, and the South central regions use salt that is not iodised at all. Approximately 20 percent of household use non-iodised salt in Male'.

### **5.8 Summary**

While the dietary pattern exhibits considerable regional variations, an examination of frequency of intake of different types of food shows the possibility of inadequate intake of certain types of food. While children are exclusively breastfed for about 4 months, the

adequacy of supplementary food provided is not understood. One-fifth of the children are fed from a bottle with a nipple, bottle feeding being greater among children aged 12-23 months.

In the Maldives, on average, considering the different indicators, more than a quarter of the children could be categorised as 'undernourished'. Severe malnutrition prevails in more than 10 percent of the babies.

Overall, more than 5 percent of children and 17 percent of women suffer from vision disabilities indicating that the country experiences a severe vitamin A deficiency problem.

Chronic energy deficiency is observed among more than one-fifth of women. Also, more than half of the women are found to be anaemic. Regional differences in the prevalence of anaemia are substantial, and require further confirmatory and explanatory studies.

Less than half of the households use properly iodised salt, and there are large regional variations.

In conclusion, while some of the indicators considered in this chapter show significant improvements in the health of children and women, the extent of malnutrition, vitamin A deficiency, prevalence of anaemia, and use of iodised salt remain important areas where intensive government interventions are urgently required.

## **CHAPTER VI**

### **OTHER CHILD RIGHTS INDICATORS**

This chapter discusses three indicators of child rights, namely birth registration, orphanhood and living arrangements for children, and child labour force. MICS-2 collected information for children under the age of 5 years on birth registration, reasons for non-registration, knowledge of how to register child's birth, whether child's birth was registered within seven days, and whether the parent paid fine for late registration; orphanhood and living with natural parents for children under 15 years of age; and economically productive child labour among children age 5-14 years. This chapter examines how far the Maldives fares in these respects.

## **6.1 Birth Registration**

In many developing countries birth registration is incomplete. However, the extent of birth registration is considered as a child rights indicator. Registration of birth provides legal proof of identity and civilian status such as nationality, age, and dependency on which a variety of rights depend. It also helps in computing vital rates, which is useful for national as well as regional planning. In the Maldives, registration of births is mandatory within 7 days after birth.

In MICS, mothers/caretakers of children aged under 5 years were asked whether the birth of a child was registered or not, knowledge regarding the registration of birth, and, if the birth was registered, whether certificate was available for verification. Reasons for non-registration were also asked. Results are shown in Table 6.1. Of the births during last five years preceding the survey 73 percent had been registered, out of which in 53 percent of the cases the enumerator(s) saw the birth certificate. Registration rate is lower for female children (69 percent) as compared to male children (76 percent). Registration of births is the highest in the South central and South regions (80 percent) and high in the North central (73 percent). It is lowest in Male' (61 percent) as compared to the other regions. Extent of registration of birth is found to vary with the age of child. It is relatively higher in younger age groups as compared to older age groups. Birth registration is 91 percent for children aged 0-11 months, 75 percent for 12-13 months and 63 percent for children aged 48-59 months. This indicates that registration of birth is high in recent years as compared to previous years.

### **REASONS FOR NON-REGISTRATION OF BIRTHS**

The various reasons reported for not registering births are: long distances to travel/difficult to go; late and did not want to pay fine; not knowing where to register; not yet completed seven days; birth took place outside home island; postponed for school enrolment; and others. This question was asked primarily to find out whether accessibility, knowledge regarding registration and the law regarding birth registration are the hurdles in registering the birth of a child. Table 6.1 also gives reasons for non-registration of birth, for the entire country and by region. Surprisingly, none of the above factors was found to be the main reason for non-registration of birth. Instead, 24 percent of mothers reported 'other reason' as the main reason for non-registration. Only 1.4 percent of mothers reported that birth registration was postponed for school enrolment; 0.9 percent said that they did not know where to register. Less than one percent of the

mothers reported long distance to travel or difficult to go (0.4 percent) or that the birth took place outside home island (0.2 percent). Reason for non-registration of births by region also shows a similar trend. 'Other reasons' is reported as the main reason followed by 'postponing for school enrolment' in all regions of the country. It is important to note that lack of awareness and inaccessibility are not the main reasons for non-registration of births in the Maldives.

Even though it is mandatory to register birth within seven days of a child's birth, only 54 percent mothers/caretakers reported to have registered their births within seven days. To the question whether or not they paid (in case of non-registration) fine, only 4 percent of mothers reported that they had paid a fine.

**Table 6.1: Extent of birth registration and reasons for non-registration**

Percentage of children aged 0-59 months by whether birth is registered and reasons for non-registration, according to selected background characteristics, Maldives, MICS, 2001

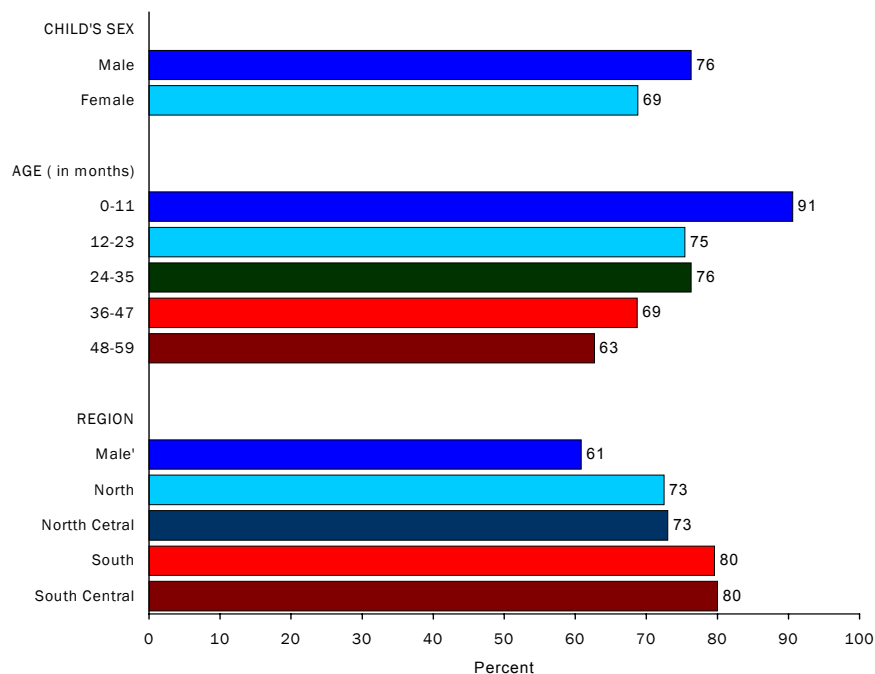
Characteristics	Reason for non registration:								Number of children
	Birth is registered	Long distance to travel/difficult to go	Late, did not want fine	and not pay where register	Not know to Not seven days yet	Birth took place outside island	Post-out enrolment for school	Other	
<b>Sex of the child</b>									
Male	76.3	0.2	0.2	1.1	0.0	0.2	1.3	20.7	473
Female	68.8	0.5	0.0	0.8	0.3	0.3	1.6	27.8	381
<b>Region</b>									
Male	60.8	0.0	0.6	0.6	0.6	0.0	0.0	37.5	176
North	72.5	0.6	0.0	0.6	0.0	0.6	1.8	24.0	171
North central	73.0	0.5	0.0	2.2	0.0	0.5	1.6	22.2	185
South	79.6	0.6	0.0	0.0	0.0	0.0	1.8	18.0	167
South central	80.0	0.0	0.0	1.3	0.0	0.0	1.9	16.8	155
<b>Age</b>									
0-11 months	90.6	0.0	0.0	0.0	0.0	0.0	0.0	9.4	106
12-23 months	75.4	0.0	0.0	0.5	0.5	0.0	0.0	23.5	187
24-35 months	76.3	0.5	0.5	0.5	0.0	0.0	3.2	18.8	186
36-47 months	68.7	1.4	0.0	0.0	0.0	0.7	1.4	27.9	147
48-59 months	62.7	0.0	0.0	2.6	0.0	0.4	1.8	32.5	228
<b>Total</b>	<b>73.0</b>	<b>0.4</b>	<b>0.1</b>	<b>0.9</b>	<b>0.1</b>	<b>0.2</b>	<b>1.4</b>	<b>23.9</b>	<b>854</b>

## ORPHANHOOD AND LIVING ARRANGEMENTS FOR CHILDREN

Orphanhood and living arrangements for children under 15 years of age may also be taken as child rights indicators. MICS-2 collected information for all children under 15 years of age on whether natural father or mother or both were alive and, if alive, whether the child(ren) was (were) living with them. Table 6.2 shows the percentage distribution of children age 0-14 years by living status with natural parents. Over all, 78 percent

children aged 0-14 are living with both parents, 15 percent are living with mother, 2 percent live with father , and 5 percent live with neither parent.

**Figure 6.1: Birth Registration of Children by Sex, Age, and Region**



MICS-2, Maldives, 2001

Living status of children varies marginally by sex. Living status of children with natural parents also differs by age of the child. Approximately 84 percent of children aged 0-4 live with both parents as compared to 82 percent in 5-9 age group and 72 percent in 10-14 age group.

In all, 5 percent of children are not living with a natural parent in the country. Slightly more female children are not living with their natural parents as compared to male children. On the other hand the percentage of children not living with a natural parent increases from 1 percent in the 0-4 age group to 3 percent in the 5-9 age group and 10 percent in age group 10-14. Similar is the trend in living with neither parent, which increases from 1 percent in 0-4 age group to 10 percent in 10-14 age group, even though in large number of cases, parents are surviving.

**Table 6.2: Children living with natural parents**

Percentage of children aged 0-14 years by living status with natural parents, according to sex and age, Maldives, MICS, 2001

Living status of parents	Sex		Age			Total
	Male	Female	0-4	5-9	10-14	
Living with both parents	<b>77.8</b>	<b>78.8</b>	<b>83.6</b>	<b>81.6</b>	<b>71.6</b>	<b>78.3</b>

Living with neither parent	4.8	5.3	1.2	2.7	9.8	5.0
Father only alive	0.3	0.3	0.2	0.0	0.7	0.3
Mother only alive	0.4	0.5	0.0	0.3	0.9	0.5
Both are alive	3.4	4.0	0.9	2.0	7.1	3.7
Both are dead	0.6	0.3	0.0	0.1	1.0	0.4
Don't know	0.1	0.2	0.0	0.3	0.1	0.1
Living with mother only	15.3	13.9	14.1	14.2	15.3	14.6
Father alive	13.2	11.9	13.3	12.7	12.0	12.6
Father dead	1.6	1.8	0.4	1.4	2.8	1.7
Don't know	0.5	0.3	0.5	0.2	0.5	0.4
Living with father only	1.7	1.5	0.7	1.4	2.4	1.6
Mother alive	0.7	0.5	0.2	0.6	0.8	0.6
Mother dead	0.9	1.0	0.4	0.8	1.6	1.0
Don't know	0.1	0.0	0.1	0.0	0.0	0.0
Total percent	100.0	100.0	100.0	100.0	100.0	100.0
<b>Not living with a natural parent</b>	5.0	5.5	1.2	2.8	10.1	5.2
One or both parents dead	0.6	0.3	0.0	0.1	1.0	0.4
Number of children	1950	1483	852	1027	1194	3073

Among those children living with mother only, a large proportion has their father alive (13 percent for male children and 12 percent for female children). In the absence of any parent, a large proportion children are living with mother as compared to father. Overall, less than 1 percent (0.4 percent) of children had lost one or both of their parents.

## CHILD LABOUR

Children's participation in economically productive labour force is not a healthy trend for any country. Participation of children in labour force deprives them of better education, health and even childhood.

**Table 6.3: Children in economically productive labour**

Percentage distribution of children aged 5-14 years working in economically productive work by selected background characteristics, Maldives, MICS, 2001

Background characteristic	Working for someone who is not a member of the household:	Domestic work			Currently working	Number of children
		Other family farm/				

	Paid work	Unpaid	< 4 hours/ day	4 or more hours/ day	business		
<b>Sex</b>							
Male	2.1	3.8	52.4	11.5	7.0	19.9	1143
Female	2.8	4.9	49.2	24.9	8.7	32.5	1116
<b>Age</b>							
5-9 years	1.6	2.3	51.7	11.1	4.4	16.1	1046
10-14 years	3.1	6.1	50.0	24.2	10.8	34.9	1213
<b>Region</b>							
Male	0.0	0.6	40.8	10.8	1.6	12.0	316
North	2.6	3.2	56.3	17.2	7.4	25.5	499
North central	5.1	7.2	36.5	18.1	11.8	31.9	414
South	1.7	6.7	66.2	20.8	10.8	30.7	462
South central	2.8	3.8	38.6	23.6	7.0	30.6	399
Total	2.4	4.3	50.8	18.1	7.8	26.2	2259

In MICS-2, the information was gathered on whether children aged 5-14 years are working for someone who is not a member of their household, and whether they are paid or unpaid during the one week prior to the survey. Also data on child's involvement in housekeeping chores such as cooking, shopping, cleaning, washing, clothing, fetching water, or caring for younger children on a regular basis and engaging in other family work (for example on the farm, fishing, or in a business) were collected. The number of hours he/she spent doing these work during the one week preceding the survey was also obtained. Here, currently working (economically productive work) is defined as any child who is working for someone who is not a family member (whether paid or unpaid) or doing household chores for more than 4 hours a day or working in a family farm or business during the one week preceding the survey.

Table 6.3 shows the percentage distribution of children aged 5-14 years engaged in economically productive work, by selected background characteristics. Over all, 26 percent of children are currently working (33 percent female and 20 percent male children) in the country. This clearly indicates work participation among female children is higher than male children. Furthermore, those children working for someone who is not a member of their households (2.4 percent) are in paid work as compared to 4.3 percent in unpaid. A higher proportion of female children (2.8 percent paid and 4.9 percent unpaid) are currently working for someone who is not a family member as compared to male children (2.1 percent paid and 3.8 percent unpaid).

Differences in work participation of children in both paid and unpaid are substantial by region, with the lowest in Male' (less than 1 percent unpaid) and the highest in North central region (5 percent paid and 7 percent unpaid). More than a quarter of children are currently working in all regions except Male' (12 percent).



Furthermore, the distribution of children in domestic work showed that 51 percent children worked less than 4 hours a day and 18 percent worked 4 hours or more a day. More female children are involved in domestic work (more than 4 hours a day) as compared to male children (12 percent for male children and 25 percent for female children). Overall, female children are working at a higher proportion in household chores, paid and unpaid work, and other family farm/business compared to male children.

**Figure 6.2: Currently Working Children by Sex, Age, and Region**

