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CHAPTER 1: INTRODUCTION

The Statistics Division of the Department of National Planning (DNP/SD) conducts Household Income and Expenditure Surveys (HIES) in the Maldives. HIES 2009-2010 is the second such nationwide survey conducted in the country. It covered 2,060 households from the capital Male' and 39 islands randomly selected from all the 20 Atolls.

The first nationwide HIES conducted in 2002-2003 covered 834 households from the capital Male' and 40 islands randomly selected from all the Atolls.

DNP plans to conduct a nationwide HIES every 5 years in the future.

CHAPTER 2: MAIN AIMS AND PURPOSE

2.1 OBJECTIVE OF THE SURVEY

The main objective of HIES is to produce reliable statistics on different components of income and expenditure of households in Male' and the Atolls to assess the economic well-being of the population. Specifically, the results will be used to bring about improvements in the national accounts, consumer price index and the vulnerability and poverty statistics of the country.

2.2 IMPORTANCE AND USE OF HIES RESULTS

HIES results will be of great statistical significance for socio-economic analysis. HIES results will be particularly essential and used for following purposes:

- HIES data will show the most recent composition of consumption expenditure of households which will be used to update the CPI weights
- GDP estimates will be improved particularly for the components of final consumption expenditure of households, income and outlay and savings.
- HIES will measure the level of living and indicate the gap between different social strata
- Distribution of households will be analyzed in terms of income groups and proper statistical measure of income inequality such as Gini coefficient can be presented.

- Changes in the poverty situation of households to update the existing poverty estimates and indicators

CHAPTER 3: SAMPLE DESIGN

3.1 The Frame

Required data for sampling were obtained from the population and housing census 2006. The country consists of 20 administrative atolls comprising of 194 inhabited islands. For political purpose these 20 administrative atolls are grouped as 7 provinces. The capital Male' has separate administrative status. The frame for Male' consists of 6 wards and 324 enumeration blocks. HIES uses the area frame as a basis, to make the sample representative for the administrative and geographic structure of the country. All the inhabited islands have clearly marked census enumeration blocks, which were used in the sampling. Major characteristics of the HIES sampling frame are given below. A total of 880 blocks and 46,083 households were in the 194 inhabited islands of the country.

Table 3.1: Number of Households and Enumeration Blocks by Region

Regions	Number of administrative atolls	Number of inhabited islands	Number of households	Number of enumeration blocks
Upper North Province	3	44	7,502	126
North Province	4	45	7,330	123
North Central Province	4	32	3,491	68
Central Province	3	20	2,120	39
South Central Province	2	25	3,415	63
Upper South Province	2	20	3,602	55
South Province	2	7	4,426	82
Atoll total	20	193	31,886	556
Male' total	-	1	14,003	324
Republic total	20	194	45,889	880

3.2 Stratification

Stratification allows proper allocation of sample in different groups and makes it more representative. The purpose of the stratification is to divide the population into relatively homogeneous groups and thereby reduce the total variation by the margin of inter-group variation.

First, it was essential to treat Male' separately in the whole sampling procedure. The income opportunities and expenditure pattern in Male' is very much different from the rest of the country. It is also necessary to produce separate estimates for Male' like in all other national surveys in Maldives. So, there are two domains of the survey namely: **Male' and Atolls**.

In order to avoid the listing of all the households, the stratification in Male' was done by wards to make the sample spread over different urban areas. Male' has 6 wards including Vilingilli and Hulhumale'. For each of the 6 strata blocks were allocated according to the proportion of population. A total of 40 sample blocks and 15 randomly selected households from each block were included in the sample.

Earlier the enumeration blocks were estimated at 32 and a total of 20 households from each block. But as some of the blocks do not have minimum 20 households, it was later decided to increase the number of sampling blocks after minimizing the number of households to 15 per block.

Atolls are too big to take as sampling unit and the size of islands in terms of the number of households varies from merely 20 to 1,500. Initially, it was thought to split some big islands and combine smaller islands to get evenly distributed area units. Alternatively, census enumeration blocks were chosen as primary sampling units for practical considerations. The size of enumeration blocks varies from 20 to 64 households. A minimum sample of 20 households was allocated for each selected island less than 1500 population. For larger islands, sampling rate was increased by 20 households for every 1500 population. Stratification in the Atolls were done by population and then by province. Hence, all those islands with a population of above 2000 persons were selected as seen from table 2.

Table 3.2: Stratification in Atolls by population size

Population Stratification	Province 1	Province 2	Province 3	Province 4	Province 5	Province 6	Province 7	Total islands in sample	Total Islands
less than 500	1	1	1	2	1	1	-	7	72
500 - 1000	1	1	2	2	1	1	-	8	59
1001 - 2000	1	1	2	1	2	1	1	9	47
2001 - 3000	3	2	1	-	1	-	2	9	9

3000+	1	2		-	-	1	2	6	6
Total	7	7	6	5	5	4	5	39	193

Table 3.3: Number of households to be sampled by islands

Name of the island	Number of sample households per island
S. Hithadhoo	140
Gn. Fuvammulah	120
Hdh. Kulhudhuffushi	100
Lh. Hinnavaru, Lh. Naifaru, Gdh. Thinadhoo	60
Ha.Hoarafushi, Ha.Ihavandhoo, Ha.Dhidhdhoo, R.Ugoofaaruu, B.Thulhaadhoo, B.Eydhafushi, K.Maafushi, Adh.Mahibadhoo, Dh.Kudahuvadhoo, L.Gamu, S.Maradhoo, S.Feydhoo	40
Hdh.Kunburudhoo, Sh.Feevah, Sh.Komandoo, N.Lhohi, R.Kinolhas, K.Thulusdhoo, Aa.Ukulhas, Adh.Fenfushi, V.Felidhoo, M.Muli, F.Feeali, Th.Vandhoo, Th.Thimarafushi, Ga.Dhevvdhoo, Ga.Nilandhoo, Gdh.Gadhdhoo,	20

3.3 Sample size and sample allocation

Allocation of sample in domains was based in proportion to the number of households identified in the population and housing Census 2006. The sample selected from Male' included 40 enumeration blocks and 600 households as given in table 3.1. This is a 12% sample of total blocks and 4.3% of total households in Male'.

Table 3.4 Sample allocation in male'

Ward	Total Population	Total Number of Blocks	Total Number of Households	Sample	
				Number of blocks	Number of households
Henveiru	23597	77	3316	10	150
Galolhu	19414	60	2633	6	90
Machchangoalhi	19580	57	2573	8	120
Maafannu	29964	108	4132	12	180

Villingili	6956	16	1005	3	45
Hulhumale'	2866	6	344	1	15
Total	102377	324	14003	40	600

The sample selected from Atolls included 72 enumeration blocks and 1460 households as given in table 3.2. This is a 30% sample of total blocks and 11 % of total households in Atolls.

Table 3.5: Sample allocation in atolls

Province / Atoll / Island		Total Population	Total Number of Blocks	Total Number of Households	Sample	
					Number of blocks	Number of households
1. Upper North Province		16325	56	2757	14	280
1	Ha. Hoarafushi	2204	7	376	2	40
2	Ha. Ihavandhoo	2447	7	306	2	40
3	Ha. Dhidhdhoo	2512	9	471	2	40
4	Hdh. Kunburudhoo	85	1	78	1	20
5	Hdh. Kulhudhuffushi	6998	26	1145	5	100
6	Sh. Feevah	746	2	131	1	20
7	Sh. Komandoo	1333	4	250	1	20
2. North Province		14757	46	2388	14	280
1	N. Lhohi	552	2	87	1	20
2	R. Kinolhas	345	1	66	1	20
3	R. Ugoofaaru	2988	8	472	2	40
4	B. Thulhaadhoo	1759	6	313	2	40
5	B. Eydhafushi	2409	8	363	2	40
6	Lh. Hinnavaru	3017	9	482	3	60
7	Lh. Naifaru	3687	12	605	3	60
3. North Central Province		6554	16	843	8	160
1	K. Thulusdhoo	1148	2	187	1	20
2	K. Maafushi	2000	3	180	2	40
3	Aa. Ukulhas	615	2	96	1	20
4	Adh. Fenfushi	560	2	101	1	20
5	Adh. Mahibadhoo	1783	6	205	2	40
6	V. Felidhoo	448	1	74	1	20
4. Central Province		3726	10	625	6	120
1	M. Muli	746	2	115	1	20
2	M. Naalaafushi	321	1	70	1	20
3	F. Feali	741	2	128	1	20
4	F. Dharanboodhoo	279	1	40	1	20
5	Dh. Kudahuvadhoo	1639	4	272	2	40
5. South Central Province		6494	19	1089	6	140

1	Th. Vandhoo	268	1	44	1	20
2	Th. Veymandoo	928	2	157	1	20
3	Th. Thimarafushi	1237	4	222	1	20
4	L. Isdhoo	1559	4	267	1	40
5	L. Gamu	2502	8	399	2	40
6. Upper South Province		6895	19	1255	6	120
1	Ga. Dhevvdhoo	480	1	105	1	20
2	Ga. Nilandhoo	534	1	94	1	20
3	Gdh. Gadhdhoo	1439	5	328	1	20
4	Gdh. Thinadhoo	4442	12	728	3	60
7. South Province		22893	73	3866	18	360
1	Gn. Fuvammulah	7636	27	1332	6	120
2	S. Maradhoofeydhoo	1025	3	183	1	20
3	S. Maradhoo	2043	6	347	2	40
4	S. Feydhoo	2724	9	511	2	40
5	S. Hithadhoo	9465	28	1493	7	140
Total		77644	239	12823	72	1460

Table 3.6: Sample allocation by strata

Population Stratification	Number of islands	Population	Number of households	Sampling islands per strata	Number of households per strata
less than 500	72	21882	4373	7	140
500 - 1000	59	41279	7345	8	160
1001 - 2000	47	64173	10999	9	260
2001 - 3000	9	21829	3406	9	360
more than 3000	6	35245	5763	6	540
Total	193	184408	31886	39	1460

3.4 Weight Estimation

The weighting procedure for HIES required two steps. In the Atolls the first step was calculation of province weights and the second step was calculation of enumeration blocks weight. And then adjustments were made for non-response.

In Male' first step was calculation for wards and the calculation for households as the second step. Male' was stratified in to 6 wards. The total sample was allocated to each ward

using proportional allocation. SRS sample of blocks selected within each stratum. The design weight was computed as;

The proportional sampling design weight does not vary much across the strata. At the estimation stage, design weight may undergo some changes to adjust the difference of the number of households in the frame and in the actual list as well as the non-response.

Table 3.7: Design weight calculation for Male'

Male'	Number of households in totals	Number of blocks in sample	Number of households in sample per block	Number of households in sample	Design weights
Henveyru	3,316	10	15	150	22.11
Galolhu	2,719	6	15	90	30.21
Machchangolhi	2,573	8	15	120	21.44
Maafannu	4,132	12	15	180	22.96
Viligili	1,005	3	15	45	22.33
Hulhumale'	344	1	15	15	22.93
Total	14,089	40		600	

CHAPTER 4: SURVEY PREPARATION

4.1 Work Plan and Travel Plan

Before the beginning of the survey, a work plan for HIES was made. The work plan includes all the activities required for survey preparation, implementation and management, from the inception to the completion of the survey reports. It include purchase of equipment and materials, questionnaire development, drawing the sample, recruitment and training of enumerators and other survey personnel, fieldwork activities, data processing and data management, and data analysis, documentation, and report writing. For each of these specific areas, a list of tasks to be completed, and the targeted dates of for their completion were specified in the detailed work plan.

Many of the survey activities are interrelated and hence they must be properly coordinated and monitored for the smooth implementation. At the beginning of 2010 a travel plan was made for the Atoll/Islands, which details out the timing of the field work in different islands and related tasks. As the survey requires travel within 20 atolls, a travel plan was prepared in reference with the survey work plan. This helped in ensuring that the deadlines set for field operation were met and the field operation went according to the work plan. During the month of May 2010 the work plan was revisited and some of the deadlines were revised.

HIES work plan and travel plan are given in annex 2 .

4.2 Questionnaire Designing and printing

Questionnaires used in HIES 2009-2010 attempted to combine the important aspects from the questionnaires of HIES 2002/03 and the Vulnerability and Poverty Assessment Survey (VPA) 2004.

A new module on Information Communication Technology (ICT) was included in HIES. This module was included with the request of Communication Authority of Maldives (CAM).

Several meetings were conducted to discuss the HIES questionnaires during June to August 2009 among the relevant staff of DNP/SD. Similarly meetings with the CAM were held to develop the ICT module

Attempts were made to include a literacy module in the survey with the request of the Ministry of Education. But unfortunately, this work did not materialize due to the time-constraints. Hence, it is to be pursued in the next survey.

4.2.1 Questionnaires used in the survey

There were 8 different questionnaires. In each questionnaire there is a common identification part. This part includes Atoll/island, block number, household name, household number and in which month this survey was conducted.

- **Listing form (Form 1)** this questionnaire is used to enumerate all the structures and households in the selected EB's in preparation for the actual household survey. One set of forms to be completed for each selected enumeration block.
- **Household form, (Form 2)** consists of information on housing, household composition, household durables, and travel by members of the household, investment and financial status of household. One form has to be completed for each household.
- **Household member form (Individual form), (Form 3)** consists of basic demographic characteristics on all household members, education for those aged 6 years and above and identifies the labour force. One column on the form needs to be completed for each member of the household.
- **Employment and income form (Form 4)** consists of information on employment and income, one form to be completed for each member of the household who is aged fifteen years and over and who is working or is an income recipient.
- **Expenditure forms (Form 5) and, (Form 6)**, For Male' and the Atoll Islands, **Form 5** is used to record the household expenditures and **Form 6** to record the personal expenditures of individual household members over the age of 15. Thus, a **Form 5** will be filled for each household, while every individual member 15 years of age and above, who earns a living, fills a **Form 6** to record his/her personal expenditure diary.
- **Summary form (Form 7)** consist the summary information of the household. After all the information for the household and its members were received, this form was used to calculate the household income and expenditure and to calculate the expenditure per day and expenditure per person for a household.
- **ICT form (Form 8)** consists of information related to the information communication technology. The access , usage and expenditure by members of the household 4 years and over was recorded in this form. It can be used to assess the access and use of ICT at household level.

4.2.2 Printing of Questionnaires

The questionnaires were designed using Coral Draw. After finishing the design of the questionnaire the files were converted to PDF files and outsourced for printing. For each

block 2 sets of listing forms with 5 pages each were printed. For each household 1 household form, 2 individual forms, 10 employment forms, 1 household form, 10 individual dairies, 1 ICT form and 12 loose dairy sheets were printed. Summary forms for Male' were photo copied at DNP/SD in the department, instead of being outsourced for printing. Below is the table for printing forms for Male'. A total of 125,995 pages of forms were printed for Male' enumeration in the first round of printing, details of which are given in table 4.1.

Table 4.1: Number of Questionnaires printed for Male'

Forms	Pages per questionnaire	No of questionnaires	Total number of pages	Colour	Printed on
Listing form 1	5	305	1,525	white	one side
Household form 2	3	630	1,890	light yellow	
Individual form 3	4	1,260	5,040	light pink	one side
Employment form 4	3	6,300	18,900	light green	
Household Diary form 5	8	645	5,160	peach	
Individual Diary form 6	12	6,300	75,600	light blue	
ICT form 8	4	630	2,520	light purple	one side
Loose sheet	2	7,680	15,360	light blue	
TOTAL			125,995		

Based on the experience and usage of different types of questionnaires in the Male' survey, printing of the second round of questionnaires for the Atoll were adjusted accordingly . In this regard 10 employment forms and 10 individual dairies per household were reduced to 6 and printed. Also Listing forms printed for Male' was seen as sufficient for Atolls as well and hence, instead of printing listing forms it was decided to print the summary form (form 7) for use in Atoll survey. A total of 119,220 pages of forms were printed for Atolls enumeration in the second round of printing, details of which are given in table 4.2.

Below is the table for printing forms for Atolls.

Table 4.2: Number of Questionnaires printed for Atolls

Forms	Pages per questionnaire	No of questionnaires	Total number of pages	Colour	Printed on
Household form 2	3	1,600	4,800	light yellow	
Individual form 3	4	2,810	11,240	light pink	one side

Employment form 4	3	4,410	13,230	light green	
Household Diary form 5	4	1,600	6,400	peach	
Individual Diary form 6	15	4,610	69,150	light blue	
Summary sheet form 7	1	1,600	1,600	white	
ICT form 8	4	3,200	12,800	light purple	one side
TOTAL			119,220		

4.3.3 Photo copy

All the agreements used in the survey were printed in the department by our staffs. Household agreement was printed two copies for each household and a circular for each household. This is 1200 household agreements and 600 circulars. Also we printed voucher agreements. This was printed two copies for each HH, for male and atoll/islands. A total of 3880 copies were made. All these agreements were stamped our department's seal. This consumed a lot of time during preparation.

Summery sheets for male' 600 HH was printed by our staffs. For islands we out-sourced the printing.

4.2 Tabulation and Analysis Plan

Preliminary tables for male' are planned to be released during September 2010 and preliminary tables for Atolls during December 2010. Detail tables of the survey are targeted to be released with the analytical report during January 2011.

4.4 Recruitment

In order to recruit enumerators for HIES, an advertisement was placed in the local newspapers, detailing out the required criteria, duration of training and field work and allowances. All the applicants were brought for an interview to the DNP/SD. Based on their education level and prior survey experience, enumerators were selected for training. Applicants with census and survey experience were given higher priority. Selected enumerators had to undergo a six day training program and final selection and recruitment depended on the attendance to this training.

Enumerators who worked in the islands were selected by the island offices. Before each round letters were sent from DNP/SD to the island office, stating the number of enumerators needed, together with the required criteria, job description and an application form. In some cases island offices send the completed application forms to DNP for selection.

4.5 Training

HIES training was carried out in three batches at DNP/SD for a duration of six days each. First batch was trained for Male' field enumeration. In this batch 19 out of 28 completed training. All the 19 enumerators who completed training participated in the field operation. However, due to various reasons enumerators hired had to leave and new ones had to be hired as replacements. Those enumerators that were later recruited as replacements were given a one day training and paired with experienced enumerators during the fieldwork.

Second batch was trained for Atoll enumeration. In this batch 29 were trained and 22 of them fully completed the training and participated in the survey. Another 67 enumerators and 35 coordinators were recruited directly from the surveyed islands for diary maintaining, and for facilitating the survey teams that travelled to the islands from Male' for the enumeration. They were given one day training, with special focus on the issues related to household and individual diary completion.

A training material package which includes questionnaires, presentation slides and exercises were prepared by DNP/SD for use in enumerator training. Presentation slides were prepared using power-point and consisted of the main aims objectives and uses of the survey, elaborate examples explaining the content of all the 8 different HIES questionnaires, question by question; concepts and definitions, interviewing techniques. Practical role play sessions and Mock Interviews were also held as a part of the training. Training sessions were held bilingually in both English and Dhivehi.

The training schedule was arranged in such a way that all the 8 questionnaires were covered in 6 days. Training was organized in two sessions per day with 4hours per day, leading to a total of 24 hours of training per enumerator. At the end of the training a recap was given on

all the forms and the most important points that all the enumerators should remember were highlighted. Table 5 provides the training the schedule used in HIES.

Table 4.3: Training Schedule

		Activity
Day 1		
	Morning	Introduction
	Afternoon	Definition and concepts / Interviewing techniques
Day 2		
	Morning	Listing form, (form1)
	Afternoon	Household form, (form 2)
Day 3		
	Morning	Household form, (form 2)
	Afternoon	Individual form, (form 3)
Day 4		
	Morning	ICT form (Form 8)
	Afternoon	Income form (Form 4)
Day 5		
	Morning	Income form (Form 4)
	Afternoon	Household diary / Individual diary (Form 5&6) Summary form (Form 7)
Day 6		
	Morning	Household diary / Individual diary (Form 5&6) Summary form (Form 7)
	Afternoon	Mock Interview / Recap

4.5.1 Enumerators Manual

The most important guide for interviewers is the enumerator's manual. It serves as quick reference guide during the survey period. The enumerator's manual explains the purpose of the survey and the basic tasks to be performed by the enumerators. It explains how to fill out the survey questionnaires. The entire questionnaires are explained question by question, in the manual. Manual was translated to Dhivehi and photocopied at DNP/SD and used in the field operations in the atolls.

The content and instructions in the enumerator manual were presented during the enumerator trainings for Male' and the actual Dhivehi manuals were used during training for atoll enumerators.

4.5.2 Interviewing techniques

The enumerators were given a special trainings session regarding the interviewing techniques and procedures. This included the roles and duties of the enumerators and supervisors in the field as well as in the office, how the questions should be asked, how to deal with refusals, and how to be an effective interviewer. In addition to this enumerators were trained on how to give a brief door step introduction on the survey. At the beginning of each training round special attention was given on explaining the importance of maintaining confidentiality of the information collected.

4.5.3 Explanation of the questionnaire

Initially a brief introduction of questionnaire was given to the enumerators. Special attention was given to the income form and the diaries. The training was carried out in a very interactive atmosphere which helped the enumerators to clarify their doubts. Strict orders on how to fill the questionnaire, following skips, following instructions, detailing out income activities and expenditures as much as possible was given. During the training sessions enumerators came up with lots of questions and the trainers clarified these by means of examples.

4.5.4 Enumerators Agreement

At the end of each training batch the enumerators were asked to sign a confidentiality agreement with the DNP/SD. The purpose of this was to have a clear understanding between the enumerators and the DNP/SD about the survey rules and regulations, and to ensure that we strictly abide by the confidentiality codes of the statistical regulation of the Maldives. The agreement includes rules and regulations about data collection, discipline at work, confidentiality of the information taken in the survey, payment statements and penalties for violation of these rules. A signed copy of agreement was given to each enumerator for their reference. All the enumerators who participated in editing, coding and data entry process also signed an agreement. One copy of the enumerator agreements were kept at the DNP/SD for official records.

4.6 Publicity

Prior to the commencement of the field operations of HIES, publicity regarding the survey was given through media. Publicity is very important in order to raise awareness of the survey and encourage selected households to cooperate. A supplement, a flair, radio interview, news conference and news on the survey launching at the beginning of each survey round were activities carried out for publicity.

A supplement was published in one of the most widely read local newspaper. This supplement contained information on the timing of the survey, sample size, islands surveyed, aims, objectives and uses of the survey with actual data and some major findings from the previous HIES 2003/2004.

A flare with important information on the aims and objectives of the survey, survey periods and uses of survey results were outlined. These flares were distributed among the selected block in Male' and surveyed Islands before starting each survey round. In case of the atolls, flares were sent to the island offices for distribution to selected blocks, with a map of selected blocks, 15 to 20 days prior to the arrival of survey teams. However, there were instances that the flairs' were not received by the islands, by the time the enumerator teams arrived some islands.

After designing the flare it was outsourced for printing. Flairs for distribution in Male' were printed in 2009 and those for the islands were printed in 2010. A total of 2,000 flares were printed for distribute in Male' and 4,000 flares for the Atolls.

A live interview on HIES was given to atoll radio and a phone interview given to another radio station in Male'.

News on the survey was given prior to the beginning of each survey round. As a result of the publicity activities some people from the general public called DNP/SD to clarify and get more information about the survey.

4.7 Equipments and materials

During the field interviews and in the preparation and management of the survey operation, a lot of materials had to be used. For the islands we made separate packing lists for each island. These sheets were printed in our department.

There were a lot of other administrative sheets used by us. Sheets like hand-over vouchers and other materials to the coordinators in the islands and check lists.

A list of the stationeries procured for use in the survey in Male' and Atolls are listed in Annex: 8

CHAPTER 5: FIELD OPERATION

HIES field operation started in Male' in 2009, spread over three different rounds from September 2009 to January 2010. Expenditure diaries in Male' were maintained during October, November and December 2009. HIES field operation in the Atolls were carried out during 2010, spread over four different rounds during February to September 2010. Monthly expenditure diaries in the atolls were maintained by households during March, April, May and August 2010.

Field operation was carried out regularly except for Fridays. The starting time was 8:30 during weekdays and 9:00 for Saturdays. The finishing time was 18:00.

5.1 Male' Enumeration

HIES field operation commenced with Male' on 27 September 2009. Field operation in Male' was carried out by 35 enumerators who were hired and trained prior to field operation. In Male' HIES was carried out in three rounds: October, November and December 2009. A total of 35 enumerators worked in field operation of Male'. Field work in Male' was completed on 20 January 2010.

Out of the 40 blocks included in the sample for Male', 14 blocks were enumerated in October, another 14 blocks in November and 12 blocks in December. From each of these blocks a total number of 15 households were surveyed. In the first round there were many

refusals and hence a high rate of non-response. A total of 30 percent of households had to be replaced within these blocks to arrive at the required sample size of 15 households from each block.

5.2 Atoll Enumeration

HIES field operations in the Atolls commenced on 24 February 2010. The survey was carried out in four rounds: March, April, May and August 2010. A total of 39 islands were selected for the enumeration. Islands from each of the 20 Atolls were surveyed.

In the first round 8 out of the 34 selected islands were enumerated. These islands were from the in the south of the country. The teams to Seenu Atoll (S) and Gnaviyani (Gn) Atoll travelled together from Male' to S. Gan by flight. And from there Gn team took ferry to their destination. Survey teams travelling to Gaafu Alifu (GA) and Gaafu Dhaalu (GDh) also travelled together from Male' to Gdh Kadehdhoo by flight. From there onwards they took separate routing to their final destinations. After 9 days of field operation the same route was taken during the return trip to Male'.

In the second round survey teams were dispatched to 15 islands. Shaviyani (Sh), Noonu (N), and Lhaviyani (Lh) teams travelled together in the same Launch. Teams to Alifu Alifu (Aa) and Alifu Dhaalu (ADh) travelled together as well. Also teams to Vaavu (V), Meemu (M), Faafu (F) and Dhaalu (Dh) travelled in the same launch. The teams to Thaa (Th) and Laamu (L) travelled by air. They travelled from Male' to L.Kahdhoo and from there onwards they took separate routes to their final destination. Second round teams also took their return trip after nine days of work.

In the third round survey teams travelled to 11 islands. Teams to Haa Alifu (HA) and Haa Dhaalu (Hdh) travelled together. These teams travelled from Male' to Hanimaadhoo by flight. From then onwards Ha and Hdh team took their separate journeys to their final destination by launch. Raa (R) and Baa (B) teams travelled together to their destination by launch. They also followed the same route in their return trip after nine days.

Survey teams travelled to 5 islands in the last round. Teams to Meemu (M), Faafu (F), Thaa (Th) travelled together in the same launch. Teams to Laamu (L) and Seenu travelled by flight.

They also followed the same route in their return trip after eight days except for Laamu atoll, which took nine days. Duration of field work was shorter due to selection of many islands with 1 sample block per island.

A total of 22 enumerators from Male' were trained and dispatched to the Atolls for the field operation in the selected islands. These teams spent duration of 9 days in each selected island. In the first round one staff from DNP/SD went with the enumerators to each island. In the remaining rounds DNP/SD staffs did not accompany the enumerator teams to all the islands. Enumerators were assigned based on the number of sample blocks in the islands. Enumerator per block was send to each island from male'. These enumerators were paired with the enumerators selected from the islands. However two enumerators were sent to islands with one sample block. For islands with three or more blocks, a supervisor was send. Field works in the Atolls were completed on 10th September 2010.

5.3 Monitoring and Supervision

Throughout the survey field operation was monitored by DNP/SD. During the Male' enumeration, all the enumerators have to report to DNP/SD and sign their attendance before commencing their work. Lunch break was given from 12:00 to 13:00 and the field operation work finishes at 17:00. All the enumerators have to return their files with the questionnaires to the respective supervisors before going to lunch break. Enumerators are not allowed to take anything, related to the survey home with them. This is to maintain the confidentiality of the survey.

Supervisors were assigned to organize routes by determining field assignments and locations and assist interviewers. The supervisor reviews level of commitment to the survey program by enumerators. Oftentimes survey teams were unable to meet the household head or anybody and a return trip to the residence was needed. Supervisors also have to report to the DNP/SD and sign their attendance. Unlike previous surveys, supervisors in HIES were assigned sample blocks for which they have to do complete the field work.

5.4 Data Collection

Data collection of HIES was done in Male' and in 39 islands from 20 Atolls. A total number of 136 trained enumerators worked in the field operation of HIES.

The data collection period was from September 2009 to September 2010. To collect data face-to-face method has been adopted with a pre-designed questionnaire. The required data was collected through hired interviewers. They were given a special training and visited the households with an identification card representing the department. The identification card states the name of the department, name of the survey, field operation date and the seal of the department was stamped on the front of the card.

5.4.1 Interview Method

Household Income and Expenditure survey data was collected using face-to-face (personal interview) method. Although this method is time consuming and costly, this method of data collection was considered to provide the most accurate, data because the questions could be lengthy and the interviewer could get a more in-depth response from the respondent. Interviewers can persuade (through motivation) respondents to answer the questions and can stress the importance of the survey.

5.5 Measure to reduce non-response

5.5.1 Voucher

In order to show appreciation for the efforts made by households in completing the diaries for one month and for their participation, a gift voucher was given to households as an incentive. At the end of the month after the monthly diaries were filled, 5 vouchers worth Rf 100 each were given to those household that provided full cooperation. That is Rf 500 worth gift vouchers, which can be used to buy goods from a selected shop. This was practiced as the government regulations prohibit giving money directly to households. Those who refused to fill the diaries were not given any gift vouchers.

The gift vouchers in Male' and some 7 islands were given to one of the biggest trading company in the Maldives, State trading Organizing (STO). For the islands without STO outlets, a well known shop with more variety of goods was selected from each island in consultation with the island offices.

From the total of 3,000 vouchers printed for Male' 2,698 vouchers were given to households and 2,137 of these were used by households. For the 7 islands 2,400 vouchers were printed with the help of STO. For the other 32 islands 4,900 vouchers were outsourced by DNP to a private party for printing. Details regarding the vouchers are given in Annex: 9.

5.5.2 Household Agreements

During the first round of the survey in Male' many households had to be replaced. One of the main causes for refusal was the realization of the actual workload by the household due to the time consumed in maintaining the diaries for a one month period.

Hence in order to reduce the amount of refusals, an agreement was signed with the selected households starting from the second round of the survey. This agreement was attached with a circular regarding the survey. Every household signed two copies of the agreement and one copy with the circular was given to the household for their reference. The other copy of the agreement was kept with DNP/SD. In the second round the agreements were signed one day before starting to fill the questionnaires, to ensure that the households agree to respond to the survey.

When the household agreements were signed, refusals were reduced somewhat. However, some households had to be replaced even after they signed the agreement. For the last survey round in Male' household agreements were signed, household and individual forms were completed and diaries were handed over to the household on the first day of the survey.

Even though the households signed the agreements, some of the households refused to fill the dairies. However, DNP did not take any action towards such households.

All the agreements and circulars used in the survey were printed at the DNP/SD. A household agreement and a circular about the survey were given to each household. A total of 1,200 household agreements and 600 circulars were printed at DNP for use in Male'. In the atolls household agreements were not signed, as the response from households were good.

Table 5.1: Number of Replacement and Rejects in Male'

Island / Ward	Sample Households	replacement	Reject
Male'			
Henveiru	135	36	0
Galolhu	105	41	1
Machchangoalhi	120	42	0
Maafannu	180	50	1
Villingili	45	19	1
Hulhumale'	15	0	0
Total	600	188	3

Table 5.2: Number of Replacement and Rejects in Atoll/Islands

Atoll / Island	Sample Households	replacement	Reject
Ha. Hoarafushi	40	2	0
Ha. Ihavandhoo	40	0	0
Ha. Dhidhdhoo	40	3	0
Hdh. Kunburudhoo	20	0	0
Hdh. Kulhudhuffushi	100	8	0
Sh. Feevah	20	0	0
Sh. Komandoo	20	0	0
N. Lhohi	20	0	0
R. Kinolhas	20	1	0
R. Ungoofaaruu	40	3	0
B. Thulhaadhoo	40	3	0
B. Eydhafushi	40	2	0
Lh. Hinnavaruu	60	1	0
Lh. Naifaruu	60	3	0
K. Thulusdhoo	20	1	0
K. Maafushi	40	6	1

Aa. Ukulhas	20	5	0
Adh. Fenfushi	20	2	0
Adh. Mahibadhoo	40	4	0
V. Felidhoo	20	0	0
M. Muli	20	1	0
F. Feeali	20	1	0
Dh. Kudahuvadho	40	6	0
Th. Vandhoo	20	1	0
Th. Thimarafushi	20	0	0
L. Gamu	40	4	0
Ga. Dhevavadho	20	2	0
Ga. Nilandhoo	20	1	0
Gdh. Gadhdho	20	0	0
Gdh. Thinadhoo	60	1	0
Gn. Fuvammulah	120	14	1
S. Maradhoo	40	2	0
S. Feydhoo	40	4	0
S. Hithadhoo	140	17	0
Total	1,340	98	2

CHAPTER 6: DATA PROCESSING

6.1 Editing

As soon as the forms were received by DNP/SD a unique serial number were given for each household for administrative purposes. After that all the forms were edited. Supervisor check (attached to annex 5) sheet were given as a guide line for use during editing. In this process enumerators were supposed to check for things such as comparing name with sex and skip patterns etc. Some of the items with known missing prices were inserted. The total in the diaries were re-calculated and tallied with the summary sheet. Blank forms were inserted for non response and rejects.

6.2 Coding

6.2.1 Training on coding

Income form and diary forms require coding before they could be entered. In the income form industry and occupation needs to be coded. In the household diary and the individual diaries some of the items were pre-coded. As the forms included spaces to list their expenses, these items had to be coded later. Codes had to be given to each and every item or service bought and/or consumed by the household during the survey month. In order to standardize these activities and items international classification was used for coding.

During the training sessions held on coding, the classifications and coding systems used in the different HIES questionnaires were explained. Examples from local context and exercises were given to familiarize them with the codes. Each enumerator was given a copy of rules for coding of the questionnaires and a copy of most frequent items and related codes.

6.2.2 Coding

The data coding for Male' was done from 18 January 2010 till 11 February 2010 with a group of 12 enumerators who also worked in the survey data collection. In order to reduce the coding errors and also to maintain consistency, 2 staff from the Statistics Division was assigned as supervisors during the coding operation. At the beginning of the coding each coder was given a list of common codes and also a training regarding the coding. The whole team was divided in to two groups, 8 who were assigned to give product code and the rest for the industry and occupation codes. It took two weeks to complete the industry codes, one week for the occupation codes and through out the coding period individual product codes were given. After coding each form the coder was supposed to write their name and date in a given sheet.

6.3 Classifications used for coding

The classification used in coding industry was International Standard Industrial Classification of all Economic Activities (ISIC) Rev. 3, for the occupation of the individuals International Standard Classification of Occupation (ISCO) – 88 was used and Central Product Classification (CPC) Ver.1.0 was used to give code for food and non-food items in the diaries. Atoll Island codes which were used in Census 2006 were also used in the survey. ISIC, ISCO and Atoll Island code was given at four digit level. CPC codes were given at 7 digit level for food items and at 5 digit level for non-food items. Some new codes were created by adding

two digits in order to enter some items which were recorded as expenditure and were not in the CPC. There were also some instances when detailed information were not available to enable coding at the required level of detail.

6.3.1 Difficulties faced during coding

- For the not stated items 99999 was given to the non food items (CPC), 2399999 for the food products (CPC) and 9999 for ISIC and ISCO.
- If a food item was not clearly specified in the diary it was coded as other food products not elsewhere classified.
- Some of the items were recorded as one entry with lump sum figure. During the coding stage such items were disaggregated and given the appropriate codes and expenditure was divided accordingly.
- At a later stage it was noticed that some pre-coded items in the diary were incorrect. Hence all the pre-coded items were double checked and corrected where ever necessary.

6.4 Data Processing

Data entry for the HIES was done manually by key operators using a data entry program. To minimize the data entry errors the data entry forms in the program were designed to resemble the survey questionnaire. Additionally most of the skips in the questionnaire and the answer category ranges associated with the questions were also incorporated in the data entry program. The tested data entry program was resided in a computer server to which the 8 data entry workstations were connected. The data entered by the workstations were stored in the server.

Data Entry of the Male' Households started on 9th of February 2010. One day training was given to the key operators to familiarize them with the forms and understand the concepts of the Household Income and Expenditure Survey. Key operators were hired on contract basis.

600 households of Male' was entered by using 8 operators from 9th February to 22nd March. Entry was done 8 hours per day including 1 hour break. Friday, Saturday and Public holidays

are holidays for the key operators. The designs of the forms were not easy to enter when all forms of the household were stapled together.

CHAPTER 7: Data review and publication

The data entered for Male' was reviewed by the core group of DNP/SD. To Review the data, database was converted to Microsoft excel. Each and every field of the data set was reviewed form by form to check if there are blank fields and out liars. Edit checks were written and carried out by means of computer. Separate document on edit checks was prepared for internal use.

ANNEX 1: CONCEPTS AND DEFINITIONS

The Definitions and concepts of certain terms used in this survey are in some cases different from the general definitions of those terms

1.1 Household

A Household may be either:

a) A **single person household** who makes provision for his own food and other essentials of living without combining with any other person and has no usual place of residence elsewhere.

b) **multi-person household**, i.e. a group of two or more persons who make some common provision for food or other essentials of living and have no usual place of residence elsewhere. The persons constituting the group may pool their incomes and have a common budget to a greater or lesser extent; they may be related or unrelated or a combination of both. The general criterion to be used in identifying the members of a multi-person household relates to whether they **live and eat together and have no usual place of residence elsewhere**.

1.2 Household Members

Household members are all such persons who normally live and eat in the household and are present at the time of enumeration. Also, those who are temporarily absent/present for reasons such as, visiting, traveling in connection with business, attending schools, colleges or other educational institutions, admitted in hospitals, etc., and intend to stay with the household for more than 1 week of the survey period shall be treated as household members.

Normally if a person eats from one household and has sleeping arrangements with another household, he/she should be included in the household where he/she spends most of his/her expenditure. Foreign domestic workers are not to be included as household members.

1.3 Head of household

If a group of persons live and eat together as defined above, the head of the household is the person who makes the main decisions of the household. This person should be a member of the household. Visitors, guests and domestic workers cannot be regarded as household members. If a person lives alone, that person will be considered as the head of the household.

When a household consists of several unrelated persons either the respondent may be relied upon or you may arbitrarily select the eldest one as the "head".

1.4 Industry and Occupation

Industrial classification is based on the main activities done by the company or at the place of their employment. Industries are classified according to the United Nations "International Standard Industrial Classification of All Economic Activities (ISIC)", revision 3. The ISIC classification has been adapted and only codes for activities taking place within Maldives have been given.

The classification of occupations should be based on trade, profession or type of work performed by the individual, irrespective of the branch of economic activity to which he/she is attached. Proprietors or owners who mainly perform the same work as that performed by employees in their own or similar enterprise should be assigned to the same occupational group to which the employees are assigned.

1.5 Employment status

This is defined as the status of an economically active individual with respect to his/her employment. He or she may be classified as an employer, employee, own account worker, unpaid family worker, or other, as defined below:

a) Employer: A person who operates his or her own economic enterprise or engages independently in a profession or trade, and hires one or more paid workers (employees).

b) Employee: A person who works for a public or private employer and receives remuneration in wages, salary, commission, tips, piece rate or any pay in kind, either on casual or regular basis.

c) Own account worker: (employing only unpaid family worker): A person who operates his or her own economic enterprise or engages independently in a profession or trade, and hires **no** paid employees. (He/she may utilize unpaid family workers.) This category also includes persons engaged only in production for own consumption.

d) Unpaid family worker: A person who worked at least one hour during the last week preceding the date of enumeration, without pay, in an economic enterprise operated by a related person living in the same household.

e) Group worker: A person who works as a group worker, whether he/she gets any income or not.

1.6 Consumption expenditure

For household income and expenditure survey purposes, household consumption expenditures are classified into two main categories, that is: "paid" and "unpaid" expenditures.

1.6.1 Paid and Consumed expenditures refer to i) all cash expenditure or ii) exchange (barter) with other goods and services by the household to obtain goods and services which were consumed during the reference period.

1.6.2 Unpaid and Consumed expenditures refer to the market value of goods and services received as "income in kind" by the household or individual members of the household. The unpaid expenditures can be classified into three sub- categories, that is:

a) "wages and salaries in kind" refer to goods and services provided to the employee by his/her employer and consumed during the reference period such as food and drinks consumed at the workplace, gross rental value of free housing occupied by the household, clothing, car, etc.

b) "own produced and consumed" refers to the value of items produced for commercial or non-commercial purposes by the household/non-financial incorporated enterprise and utilized in its own consumption such as fish caught and used by fishing households, shoes produced and used by shoe makers, net rental value of owner occupied housing, small amounts of vegetables produced, knitting wearing apparel, etc.

c) "Received from assistance, gifts, dowry, inheritance and other sources" which refers to goods and services rendered for relief or support or provided as a present by other households, family members living elsewhere, public or private enterprises, government or non-profit organizations. This also includes good received from an inheritance or as dowry.

Excluded from household consumption expenditures made for goods and service in the operation of entrepreneurial activities and for commercial purposes should not be included.

1.7 Household income

1.7.1 Wages and salaries in cash

For household income and expenditure survey purposes, this concept relates to earners' net remuneration or net pay from their occupations. It should include:

a) Direct wages and salaries for time worked, or work done, covering all kinds of premium pay, commissions and overtime and allowances.

b) Remuneration for time not worked comprises direct payments to employees in respect of public holidays, annual vacations and other time off with pay granted by the employer.

For purposes of this survey the wages and salaries in cash concept **does not cover:**

a) Direct taxes and contributions of employees to social security and pension schemes, life insurance premium, union dues and any other similar contribution;

b) Employers' contributions for their employees paid to social security, provident fund and pension schemes and also the benefits received by employees under these schemes;

c) Payments "in kind" which are treated separately.

1.7.2 Other incomes (in cash and kind)

a) Bonuses and gratuities cover seasonal (e.g. Eid bonus) or end-of-year bonuses, additional payments in respect of vacation periods (supplementary to the normal pay) and the profit-sharing bonuses paid by the employers to the employees.

b) Pensions usually refer to recurrent periodical payments received by a person after retirement from government service, private or public enterprise due to past contributions into a pension scheme.

c) Social security benefits are payments made at recurrent intervals to individuals under a social security scheme. This may include benefits for medical care, sickness, unemployment and old age, employment injury, invalidity, etc.

d) Income receipts from lodgers and boarders include the cash receipts in return for living quarters and food provided.

e) Profits (interest) are additional moneys received and paid in respect of banks, post offices and other deposits, bills, bonds and other loans paid and received. For purposes of household income and expenditure survey, profits/interest received in the form of goods and services should be covered in the household consumption expenditure, Form 3, under "Unpaid and Consumed" expenditures 'received from assistance, gifts and other sources'.

f) Rent is the actual money income paid and received for the use of land, buildings (commercial and dwellings), plant, machinery and other equipment, furniture and fixtures, office equipment and other assets. For purposes of household income and expenditure survey, property rented by the household to be used for common household facilities should be treated under household consumption expenditure, e.g. rent paid for household dwelling. Receipts and payments for land and other properties are kept separate, as these constitute different types of payments in national accounting terms.

ANNEX 2: HOUSEHOLD INCOME AND EXPENDITURE SURVEY BUDGET

Household Income and Expenditure Survey (HIES) was initially planned to conduct on 2009 in Male' as well as in Atolls. However due to financial constrains, the full budgeted amount was not obtained. Therefore it was decided to spread out the survey into 2 calendar years. Survey in Male' was done in 2009 and in atolls in 2010.

The total amount received for the survey in 2009 was Rf 1,188,993.94. This budget was used for printing the questionnaires for Male' and Atoll, advertisement and to give the allowances of Male' field operation enumerators and for the ones who participated in the coding of Male' forms. Also most of the stationeries were bought from this budget. Half payment of printing the vouchers and the cost of vouchers was paid from this budget. Almost the entire budget was used up.

In the year 2010 a total of Rf 5,684,180 was received. This budget was used for Atoll field operation. For allowances of enumerators and coordinators, traveling and advertising. A huge percentage was spent on traveling as the survey was done in Atolls in 34 islands; there was a lot of traveling involved.

Table: Questionnaire Printing Expenses

	Amount
Questionnaire printing for Male'	62,733.00
Questionnaire printing for Atolls	39,126.50
Total	101,859.50

2.1 Allowances

Allowances were given to field operations, coding and editing and for the data entry process. All the enumerators who participated in these activities were paid Rf 200 daily referred to their attendance. A minimum of 8 hours have to be put in to working hours by the enumerators to get Rf 200 per day.

In each island an enumerator was hired for each block and a coordinator in each island. This was to maintain the diaries. They were paid an allowance of Rf 100 per working day. A minimum of 5 hours have to be worked by the enumerators and coordinators to get Rf 100 per day.

Table: Allowances Paid to the Enumerators

	Total allowance paid
Male	
Field Operation (diary maintaining)	277,792
Editing and Coding	34,558
Data Entry	41,056
Atoll/Island	
Field Operation (diary maintaining)	430,773
Editing and Coding	40,933
Data Entry	
Total	825,112

2.2 Training Expenses

Training expenses include the allowances paid to the trainees, training materials and refreshments. No expenses were incurred to hire a training venue as the training was conducted in the department. The training of the survey was carried out in 3 rounds and trainees was paid Rf 100 per day of training.

Table: Training Allowances

	Training Allowance
Male'	12,800
Atoll/Island	13,500
Total	26,300

2.3 Other expenses

Aside from expenses above mentioned expenses there was other expenses occurred during the survey. As our country is geographically distributed in to 20 atolls, it consumes a lot of transportation through out the country.

Other expenses	Amount
Transportation	283,458
stationary	13,019
Advertising	18,821
Accommodation	87,800
Food	86,119
Incidental	4,942
Phone Allowance	33,011
Office Staff Allowance	7,735
Total	534,905

ANNEX 3: TIME TABLE (work plan)

ANNEX 4: CLASSIFICATIONS

ANNEX 5: SUPERVISOR CHECKS

ANNEX 6: QUESTIONNAIRE SET ENGLISH AND DHIVEHI

ANNEX 7: STAFFS INVOLVED

No	Name	Questionnaire Preparation & Designing	Tabulation Plan	Survey Preparation & Administrative work	Training materials & Manual Preparation	Enumerators Training (Male' Atoll)	Data Collection	Data Editing & Coding	Data Process & Tabulation	Data Cleaning & Analysis
1	Abdul Rasheed			√						
2	Abdulla Abdul Rahmaan					√	√			
3	Ahmed Nihad *	√								
4	Aishath Aaniya *	√		√	√	√	√	√		
5	Aishath Laila *	√	√	√	√	√				√
6	Aishath Leeza *	√	√						√	√
7	Aishath Shahuda *	√	√	√		√				√
8	Aishath Suzee *	√		√	√	√	√	√		√
9	Aishath Yumna Rasheed			√						
10	Ali Afzal					√	√			
11	Aminath Najma			√			√			
12	Ashiyath Shazna *	√		√	√					
13	Fathimath Hana Mansoor									√
14	Fathimath Hashiya *	√	√	√	√	√	√	√		
15	Fathimath Nihan *	√	√	√	√	√	√	√	√	√
16	Fathimath Shazna			√	√		√	√		
17	Fathimath Shifaza		√	√		√	√			√
18	Fathimath Shifaza Rasheed *	√		√	√	√	√			
19	Haseena Mohamed			√						
20	Hassan Hameed					√	√			
21	Hassan Shiyam Abdulla			√						
22	Hudha Haleem			√				√		
23	Idham Fahumy *	√				√				
24	Loona Abdul Hakeem					√	√			
25	Mariyam Mirfath					√	√			√
26	Mariyam Niyaf *	√	√	√	√	√	√			√
27	Mohamed Mushthaq Saeed *	√							√	√
28	Mubah Mohamed					√	√			
29	Naseema Moosa			√						
30	Rafa Ibrahim Manik			√		√	√			
31	Rasheedha Najeeb	√		√		√	√			
32	Shiunyma Basheer			√						
33	Zumna Hassan Manik			√						

* **Core Group:** Mainly involved in designing the questionnaire.