

**ASSESSMENT OF EMPLOYMENT AND TRAINING NEEDS IN FISHERIES
AND AGRICULTURE SECTORS**

Inception Report

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1. INTRODUCTION

The Ministry of Higher Education, Employment and Social Security (MHEESS) has launched the Employment Skills Training Project, with support from the Asian Development Bank. ESTP will expand the technical and vocational education system to meet employers long term needs for staff. To support the project, MHEESS has commissioned Click Associate Trainers and Consultants Pvt. Ltd. to conduct sector specific needs assessment studies for the construction, tourism, fisheries and agriculture, social and transport sectors. Employment Needs Assessment Study for Fisheries and Agriculture Sectors is one of these studies.

1.1. Objectives

The primary objectives of the study are to generate for the Employment Skills Training Project the following inputs that reflect and support the needs of the employers:

- Number of people to be trained for jobs in sector priority occupations
- Knowledge and skills required for the jobs
- Mode of delivering (on-the job, formal, short-term or long-term) the training

The above objectives are to be attained by implementing the following activities:

- Review major reports, studies and surveys on the sectors
- Compile profiles of the sectors
- Compile profiles of the most important employment opportunities in the sectors with the required skills and training
- Identify issues and constraints that hinders locals from working in the sectors
- Develop study design and instruments
- Prepare researchers manual and train researchers
- Undertake a pilot study
- Undertake the main study and prepare report

1.2. Outcomes

At the end of the study a report with the following details has to be produced on the fisheries and agriculture sectors:

- Profiles of the sector, outlining the history, scope and boundary of the sectors
- Direction of the strategic employment growth in the sectors, listing all occupations according to ISCO classification and including wage structure and overview of working conditions
- Current and future (2010) employment/occupational profiles of the sector showing gender for the current profiles
- Assessment of present and future training needs and development of a training plan to meet these needs
- Identification of critical occupations for localization
- Identification of attitude change towards employment among youth
- Issues and problems related to Maldivian labour force

2. STUDY METHODOLOGY

2.1. Desk study

Relevant reports, studies, surveys and guidelines are being reviewed to develop sector profiles and provide context for the study. The sector situation and direction of the development are being assessed by examining policy documents and analyzing primary and secondary data. The following flowchart (Fig.1) shows the approach to employment needs assessment, and training needs assessment.

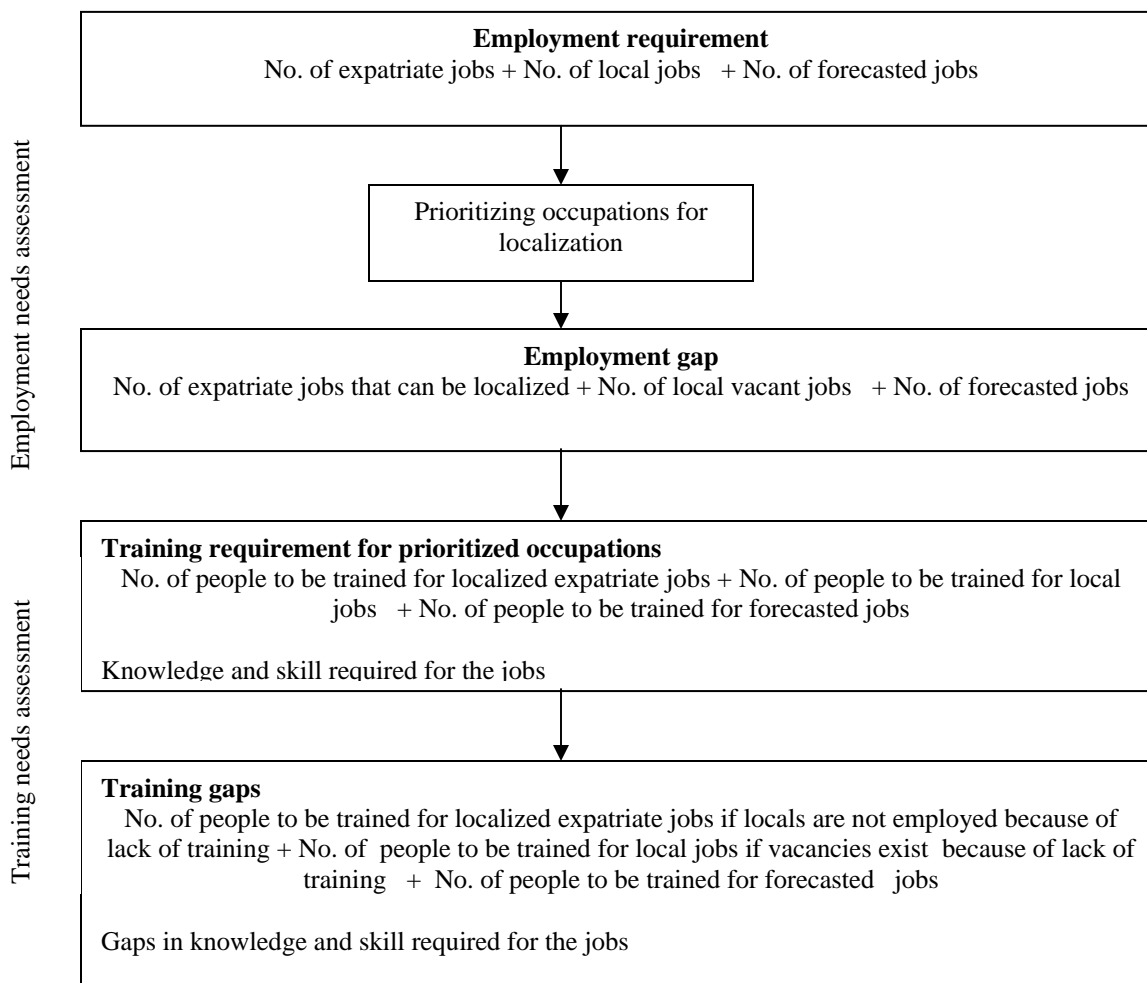


Fig. 1 Approach to employment assessment and training assessment.

2.2. Sample survey

A sample survey will be conducted in the northern and southern development regions, and Male' and adjacent atolls to collect relevant primary data for the study. Sampling design for this survey is outlined below.

2.2.1. Scope and coverage

The sampling survey component of the project covers the following geographical regions.

Northern development region
 Southern development region
 Male' and adjacent atolls

The study has adopted 2 stages of sampling. In the 1st stage, the islands to be enumerated was selected based on the number employed/engaged in fisheries and agriculture. For instance, to identify which islands to select from the North for fisheries and agriculture sectors, all islands in the north (all islands of HA, HDh, Sh and N) was listed with the number engaged fisheries and agriculture. Next a proportion was calculated for each island and the island with the highest proportion was selected as the initial sampling unit (Table 1). Apart from the islands Male', will be enumerated to capture the sector specific information required. A minimum representative sample will be selected from each of the target populations.

Table 1. Islands proposed for sampling in fisheries and agriculture sectors

Islands/Sectors	Agriculture	Fisheries
<u>Northern development region</u>		
Kulhudhuffushi	17	172
Dhihdhoo	32	84
Kelaa	121	22
<i>Total of sample in North</i>	170	278
<i>Total of North</i>	1,148	1,786
<i>% covered</i>	15	16
<u>Male' and adjacent atolls</u>		
Kaashidhoo	220	15
Thulusdhoo	5	54
Himmafushi	12	3
Dhiffushi	4	83
<i>Total of sample in Kaafu</i>	241	155
<i>Total of Kaafu</i>	259	483
<i>% covered</i>	93	32
<u>Southern development region</u>		
Hithadhoo	20	153
Fuvahmulah	236	145
Thinadhoo	24	166
<i>Total of sample in South</i>	280	464
<i>Total of South</i>	741	1,672
<i>% covered</i>	38	28

2.2.2. The frame

The frame and sampling details are summarised in Table 2. The sample size in relation to the target populations is shown in Tables 3 and 4.

Table 2. Summary of sampling details

Target population	Stratum	Basis for stratification	Frame	Selection method	Survey instrument	Administration of the instrument	Main TOR outcome related with the instrument
Fisheries							
Employer	1) Fishing boat operators	A fishing boat operator offers very limited number of jobs to a limited number of people, but as employers they are many.	A list of fishing boat operators from fishery report forms submitted by the selected islands	Simple Random Sampling	Employer questionnaire	Administered by interviewer	Job profile Training need Wage/income structure
	2) Fish buyers/processors and institutions	A fish buyer/processor or institution offers relatively a large number of different jobs to many people; these employers are few Application of different selection methods	A full list of fish buyers/processors, institutions	Population exhausting	Employer questionnaire	Part of the questionnaire administered by interviewer; part (job list and job details) self administered	Job profile Training need Wage structure Localization
Employee	1) Employees working for fishing boat operators	Employees working for fishing boat operators are in the primary	A list of employees working fishing boat operators in the selected islands	Simple Random Sampling	Employee questionnaire	Administered by interviewer	Training need Wage/income structure Opinion

	2) Employees working for fish buyers/processors and institutions	production sector; employees working for fish buyers/processors are in the secondary production sector Two groups have different training needs	Option 1: A list of employees working for fish buyers/processors and institutions Option: 2* A full list of fish buyers/processors and institutions A list of employees working for the selected fish buyers/processors, institutions in	Simple Random Sampling	Employee questionnaire	Administered by interviewer	Training need Wage/income structure Opinion/attitude
Agriculture							
Employer	1) Subsistence farmers	A subsistence farmer offers very limited number of jobs to a limited number of people, but as employers they are many.	A list of subsistence farmers from the island office of the selected islands	Simple Random Sampling	Employer questionnaire	Administered by interviewer	Job profile Training need Wage/income structure
	2) Commercial farmers (long-term leased islands) and institutions	A commercial farmer or an institute offers relatively a large number of different jobs to many people; these employers are few	A full list of commercial farmers and institutions from Ministry of Fisheries, Agriculture and Marine Resources	Population exhausting	Employer questionnaire	Part of the questionnaire administered by interviewer; part (job list and job details) self-administered	Job profile Training need Wage structure Localization

		Application of different selection methods					
Employee	1) Employees working for subsistence farmers	Two groups have different training needs	A list of employees working for subsistence farmers in the selected island	Simple Random Sampling	Employee questionnaire	Administered by interviewer	Training need Wage/income structure Opinion/attitude
	2) Employees working for commercial farmers and institutions	Application of different selection methods	Option 1: A list of employees working for commercial farmers and institutions	Simple Random Sampling	Employee questionnaire	Administered by interviewer	Training need Wage/income structure Opinion/attitude
			Option: 2* A full list of commercial farmers and institutions from Ministry of Fisheries, Agriculture and Marine Resources	Simple Random Sampling	Employee questionnaire	Administered by interviewer	Training need Wage/income structure Opinion/attitude
			A list of employees working for the selected commercial farmers and institutions.				

Both sectors							
Students of Grade 10-12, and school leavers or others seeking jobs**			A list of students in Grade 10-12 in the selected islands A list of households in the selected islands	Simple Random Sampling	Potential employee questionnaire	Self-administered in the presence of interviewer	Opinion/attitude
Parents/guardians of students in Grade 10-12, and school leavers or others seeking jobs			A list of households in the selected islands	Simple Random Sampling	Household questionnaire	Administered by interviewer	Opinion/attitude

*Option 2 is preferred

**The component “school leavers or others seeking jobs” will be treated as a nonprobability sample

Table 3.* Sampling in atolls: size relationship between sample and population

Region	Total			Sample		
	Number of inhabited islands	Number of establishments	Number of households	Number of inhabited islands	Number of establishments	Number of households
1. North	58		9313	03		
2. South	27		8028	03		
3. Kaafu	09			04		
Total	94			10		

Table 4* Sampling in Male': size relationship between sample and population

Ward	Number of blocks in	Number of establishments		Sample size	
		Total	In %	Blocks	Establishment
1. Henveiru					
2. Galolhu					
3. Machchangolhi					
4. Maafannu					
5. Villigili					
6. Hulhumale'					
Total Male' region					

* These tables will be completely filled once samples have been selected

2.2.3. Sampling strategy

The initial selection of islands to carry out the survey is purposive because of the nature of spread of economic activity in the country. The research will be carried out in a manner that islands are selected based on the main economic activities carried out in the island.

The sampling approach for this study will be a scientific approach; however, based on available information some large establishments may have to be purposively included in the sample. In any case, special emphasis will be given to arrive to a sample which is representative of the whole region and the collected data will be raised to the regional level.

2.2.4. Selection method

Selection of enumeration blocks in Male' as well as in the islands will be based on Simple Random Sampling.

Suppose 20 establishments (n) out of a total of 199 (N) were selected based on SRS method, then selection probability p would have been

$$p = \frac{n}{N} = \frac{20}{199} = 0.10 \text{ or } 10\%$$

2.2.5. Estimation of weights

For estimation of regional totals, weights will be calculated separately for Male', North and South regions for the two sectors based on the listing frames used.

2.2.6. Sample Representative level

The sample will be representative to the regional level. The error margin for the estimates will be set to maximum 5% with a sample of 10% with a confidence interval of 95%.

2.3. Study team

The study consists of the following members:

Project coordinator: Ibrahim Shareef

Sector specialist: Hassan Shakeel

Economist: Ahmed Munavvar

Statistician: Idham Fahmy

Enumerators: Five trained enumerators

3. USEFUL REPORTS, STUDIES, SURVEYS AND GUIDELINES

The following reports, studies, surveys and guidelines are being reviewed to give context to Employment Needs Assessment Study for Fisheries and Agriculture Sectors:

Republic of the Maldives Human Resource Needs Study, Final Report, March 2005, prepared by Robert Castley.

Postsecondary Education and Skills Development, Republic of Maldives, ADB TA 3826-MLD, Penultimate Draft, 14 December 2002, COL International and Simon Fraser University, Vancouver, British Columbia, Canada.

Statistical Yearbook of Maldives 2006, Ministry of Planning and National Development

Expatriate labour statistics, Ministry of Higher Education, Employment and Social Security

Expatriate labour regulations, Ministry of Higher Education, Employment and Social Security

Population and Housing Census of Maldives 2006, Media Release Edition, Population and Housing Basic Tables, Ministry of Planning and National Development.

Gender and Development in the Maldives. A Review of Twenty Years – 1979-1999. 2000. BFS Consulting Group Pvt. Ltd.

Third Fisheries Project Documents.

Ministry of Fisheries, Agriculture and Marine Resources, Fisheries Statistics.

Ministry of Fisheries and Agriculture,. Status and Needs of Fisherfolk: Vaavu, Meemu and Faafu Atolls, Maldives. 1991. The extension and Projects Section, Ministry of Fisheries, Agriculture and Marine Resources, Republic of Maldives, Published by the Bay of Bengal Programme, Madras, India.

Discussion on Potential Collaborative Action to Increase Entry of Youth into the Fisheries sector. April 2002. Ministry of Fisheries, Agriculture and Marine Resources

Fisheries Sector Performance, Challenges and Projects. September 1999. Ministry of Fisheries, Agriculture and Marine Resources,

Draft Fisheries and Aquaculture Bill. Ministry of Fisheries, Agriculture and Marine Resources.

Establishment of Institute of Fisheries and Marine Resources. Development of the Fisheries Sector – Phase 2. 2004. Prepared for Ministry of Fisheries and Agriculture and Marine Resources by Canadian Fisheries Consultants Limited in association with Al-Habsi Consultants Office.

Fisheries Diversification Project – Phase II – Mariculture Development Study. 2004. Prepared for Ministry of Fisheries and Agriculture and Marine Resources by Canadian Fisheries Consultants Limited in association with Al-Habsi Consultants Office.

Sixth National Development Plan. Ministry of Planning and National Development.

Maldives Human Development Report- Challenges and Responses. December 2002. Ministry of Planning and National Development, and United Nations Development Programme.

Framework for a Strategic Plan for Gender Mainstreaming in the Maldives. 2001. Ministry of Women's Affairs and Social Security and the UN Interagency Theme Group, Strategic Planning Workshop.

Girl Child in the Maldives – A Survey Report. 1995. Ministry of Youth, Women's Affairs and Sports.

Women's Status in the Maldives: Trends from Secondary Data Sources. Prepared for Department of Women's Affairs, 1991. Miralao, Virginia A., and Khadeeja Ibrahim.

Women's Status and Development Trends in the Maldives: A Survey Report. Department of Women's Affairs, 1991. Miralao, Virginia A., and Khadeeja Ibrahim.

Republic of Maldives. Vulnerability and Poverty Assessment, UNDP, 1998.
1999. United Nations Development Programme and the Maldives Ministry of Planning and National Development.

Agricultural Development Master Plan, Maldives (2006-2020), (Draft), Volumes I, II, & III, September 2006. Ministry of Fisheries, Agriculture and Marine Resources.

4. GENERAL PROFILES OF THE SECTORS

To establish context for this study, a brief introduction to the fisheries and agriculture sectors is provided here.

4.1. Fisheries sector

Traditionally, the life style and economy of Maldives has been dominated by artisanal fishing. Tuna fishery has been the dominant fishery (Table 5), and tuna has been a major export product (Table 6). Recently, the subsistence reef fish fishery has increased in scale and new export-oriented reef fisheries have started.

The milestones in the development of Maldives fisheries can be identified as follows:

- Export of dried skipjack (Maldivefish) exclusively to Sri Lanka until 1970 when a foreign exchange shortage in Sri Lanka essentially brought the Maldivefish market to a standstill.
- Initiation of frozen fish export scheme in 1972 as a reaction to the loss of Sri Lankan market
- Mechanization of fishing vessels in 1972, and subsequent establishment of a cold storage and a tuna cannery on Felivaru in Lhaviyani Atoll.
- Introduction of tourism to the country, which increased the demand for reef fish.
- Establishment of freezing facilities in Laamu Mandhoo and Gaafu Alifu Kooddoo.
- Liberalization of tuna industry and opening of fisheries zones to private companies, ending the monopoly of Maldives Industrial Fishing Company over the tuna industry.
- Introduction of large fishing vessels into the tuna fishing fleet, which increased the tuna catch.

Table 5 Fishing vessels and fish catch

	2000	2001	2002	2003	2004	2005
Composition of fish catch (in metric tons)						
Total	118,963	127,184	163,388	155,415	158,576	185,980
Skipjack	79,683	88,044	115,322	108,329	109,749	132,060
Yellowfin	15,706	15,246	24,525	22,914	24,818	24,571
Other tuna related species	6,339	6,778	7,219	7,508	6,543	8,302
Other marine fish	17,236	17,115	16,322	16,664	17,466	21,047
Average number of vessels engaged in fishing (per month)						
Mechanized Masdhoni	1,137	1,128	1,102	1,104	1,112	1,002
Sailing Masdhoni	41	66	90	117	8	5
Mechanized Vadudhoni	58	49	59	49	61	63
Sailing Vadudhoni	72	40	9	8	25	15
Rowing boats	19	13	16	18	22	18

Source: Statistical Year Book 2006, Ministry of Planning and National Development

Table 6. Export of marine products in relation to other products

	2000	2001	2002	2003	2004	2005
Total exports (in '000Rufiyaa)	896,824	937,325	1,161,683	1445922	1,572,277	1334,060
(Percentage)	100	100	100	100	100	100
Marine products (in '000 Rufiyaa)	481,665	538337	716,706	978,778	1,155,347	1,312,338
(Percentage)	54	57	62	68	73	98
Other products (in '000 Rufiyaa)	415,159	398,988	444,977	467,144	416,930	21,722
Percentage	46	43	38	32	27	2

Source: Statistical Year Book 2006, Ministry of Planning and National Development

4.2. Agriculture sector

The share of agriculture (including mainly the crop sub-sector) in the national economy is low and declining. Its contribution to the GDP was around 7 percent in 1984, 3.6 percent in 1995 and 2.7 percent in 2003. It engages about three percent of the total labour force. However the sector is important in poverty alleviation, people's livelihoods and nutrition.

Agriculture is still traditional in nature and is practiced mostly as means of subsistence. It is mainly practiced as a family activity with minimal use of hired labour. Semi-commercial and commercial farms employ expatriate labour. Women play a major role in

farming activities. It is believed that domestic agricultural production covers only about 10 percent of the country's food requirement and the rest, including staple food items, are imported.

Coconut is the dominant crop which is produced and consumed throughout the country. Other important crops include breadfruit, banana, mango, papaya, watermelon, melon, pumpkin, cucumber, eggplant, chilli pepper, leaf cabbage, small red onion, brinjal, hot pepper, ridge pepper, pumpkin, luffa, taro, cassava, sweet potato, betel leaf, arecanut, Indian almond, finger millet, common millet, sorghum and maize. Livestock raising is only a developing activity. Chicken and ducks are raised in backyards and some poultry have now appeared on large scale farms.

In terms of land use, four types of farming practices are common in the Maldives. These are:

- settled home gardens,
- bush-fallow system of shifting cultivation,
- settled type year-round cultivation and
- small scale backyard chicken raising.

In terms of subsistence-commercial orientation, three categories can be identified as follows:

- Subsistence agriculture
- Semi-subsistence/semi-commercial agriculture
- Commercial agriculture on small to medium scales on relatively larger islands.

5. ISCO OCCUPATIONAL CATEGORIES

Different occupations in the fisheries and agriculture sectors are being identified and classified. Preliminary examination of present sector situations shows some of the occupations that exist in the sectors, namely managers, marine engineers, refrigeration engineers, marine biologists, fishing vessel operators, skippers, chummers, fishing labourers, , subsistence farmers, farm labourers

Some potential occupations related with new developments of the sectors have also been identified: aquaculturists, pathologists , veterinarians, quality inspectors. These occupations are related with the development of marine aquaculture; quarantine services for imported plants and animals; and export of fishery products to more lucrative markets.

In addition to sector-specific occupations, there are cross-sectoral ones that support fisheries and agriculture sectors; for example , statisticians, accountants, economists. These occupations are also important for the employers of the sectors:

Further analysis of the past and present situations of the sectors, and the direction of future sectoral development will reveal specific job requirements of the employers and a suitable training plan in the context of the Employment Skills Training Project.

6. EMPLOYMENT PROFILES OF THE SECTORS

The expatriate employment is increasing in the Maldives (Table 7). In 2005, there were 44,845 foreign workers in the country. Fisheries sector and agriculture sector employed 3 and 1% of expatriate labour respectively in 2005. This is a small proportion compared with the construction and tourism sectors, which employed 25 and 23 % respectively in 2005 (Table 8). Most foreign workers are found in elementary occupations (Table 9).

Table 7. Expatriate employment

2000	2001	2002	2003	2004	2005
27,716	29,201	30,664	33,765	38,413	44,845

Source: Statistical Year Book 2006, Ministry of Planning and National Development

Table 8. Percentage share of expatriate labour by industry, 2005

Industry	Percentage
Construction	25
Tourism	23
Community, social and personal services	15
Financing, insurance, business, and real estate	12
Hotels and restaurants	7
Education	6
Whole sale and retail trade	4
Transport, storage, and communication	3
Fishing	3
Manufacturing	2
Agriculture and forestry	1
Electricity, gas and water	0

Source: Statistical Year Book 2006, Ministry of Planning and National Development

Table 9. Percentage share of expatriate labour by occupation, 2005

Occupation	Percentage
Elementary occupations	46
Crafts and related trade workers	20
Service workers	13
Professionals	10
Technicians and associate professionals	7
Legislators, senior officials and managers	2
Plant, machine operators, assemblers	2
Clerical and related workers	1
Skilled agricultural and fisheries workers	0

Source: Statistical Year Book 2006, Ministry of Planning and National Development

7. PROPOSED STRUCTURE FOR THE STUDY REPORT

The following structure is being developed for the study report:

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2. INTRODUCTION
 - 2.1. Objectives
 - 2.2. Outcomes
3. STUDY METHODOLOGY
4. GENERAL PROFILES OF THE SECTORS
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 - 4.2. Agriculture Sector
5. EMPLOYMENT PROFILES OF THE SECTORS
 - 5.1. Current employment: locals
 - 5.2. Current employment: expatriates
 - 5.3. Employment gaps
6. STRATEGIC EMPLOYMENT GROWTH IN THE SECTORS
 - 6.1. Employment forecast
7. CRITICAL OCCUPATIONS FOR LOCALIZATION
 - 7.1. Problems and issues related to the local labour force
 - 7.2. Attitude change towards employment among youth
 - 7.3. Priority occupations for localization
8. TRAINING PLAN
 - 8.1. Training needs assessment
 - 8.1.1. Training requirement
 - 8.1.2. Training gaps
 - 8.2. Modes of training delivery