Skill Mapping in Andaman & Nicobar Islands

Assessing Supply & Demand Gaps

V.V. Giri National Labour Institute

Andaman & Nicobar Administration

Dr. Rakkee Thimothy & Dr. S.K. Sasikumar, the authors of the report, are faculty members at the V.V. Giri National Labour Institute, India. An economist by training, Dr. Thimothy (rakkeethimothy@gmail.com) focuses on issues related to employment, skill development and migration of women. Dr. Sasikumar (sasikumarsk2@gmail.com) is a labour economist; his areas of specialisation include labour market, skill development and labour migration.

Skill Mapping in Andaman & Nicobar Islands

Assessing Supply & Demand Gaps

Rakkee Thimothy
S.K. Sasikumar

2013

V.V. Giri National Labour Institute

Andaman & Nicobar Administration

First Published in India 2013

ISBN: 978-93-82902-05-8

Printed at: Chandu Press, D-97, Shakarpur, Delhi - 110 092

FOREWORD

A proper assessment of the supply of and demand for skills and their effective matching can be an important catalyst for growth in income and investment, particularly in geographically fragile regions. It is in such a context that this study undertaken by the V.V. Giri National Labour Institute and supported by the Andaman & Nicobar Administration attempts to map the demand for and supply of skills in the Andaman & Nicobar Islands (ANI), a fragmented island economy experiencing geographical and climatic adversities.

The study addresses some important concerns: tracing the skill composition of the labour force, evaluating the institutional structures to develop/upgrade skills, estimating the current and future skill requirements, analysing the effectiveness of existing mechanisms to match supply of and demand for skills, and deriving policy prescriptions for more effective matching of skill supply and demand.

The study notes that the existing labour market indicators in ANI are not very encouraging: the region is characterised by a low Labour Force Participation Rate, low Work Force Participation Rate and high unemployment rate. It observes that while ANI has achieved a relatively impressive performance in human development, the provision of quality employment (and the resultant enhancement in income) is crucial to sustain it. Although the service sector and construction are identified as the region's major employment generating sectors, even the workers engaged in these sectors possess skills or qualifications that are not commensurate with their employment. Considering that a significant share of the youth prefer to live and work in the island, the report highlights the urgent need to strengthen and expand the institutional mechanisms pertaining to skill development in order to enhance the employability of the job seekers. There is an immediate need to enhance the outreach and efficiency of the institutional structures dealing with skills and education at different levels, ranging from improving the quality of education at the school level to introducing new courses and trades in the vocational training institutions and updating the curricula of existing trades.

Recommending the stimulation of private investment, particularly in sectors that are employment-intensive and have strong growth inducing linkages, the report identifies some such key sectors for ANI: construction, transport, storage, communication, marine based activities and hotels and restaurants. It highlights the importance of developing more synergy between skill development institutions and industries as a means of improving labour market outcomes and achieving quantitative and qualitative improvement in skill development systems. The report also stresses the need for a comprehensive labour market information system to be updated at regular intervals. Emphasising the need to enhance the functional efficiency of the region's employment exchange, the report recommends developing it as a centre of excellence for the empowerment of youth.

We sincerely hope that this report will provide valuable inputs towards understanding the issues related to the matching of the demand and supply of skills in ANI, and serve as a significant reference for policymakers in designing and implementing effective policy responses.

V.P. Yajurvedi
Director General
V.V. Giri National Labour Institute
NOIDA

K.K. Jindal
Secretary (Labour, Employment & Training)
Andaman & Nicobar Administration
Port Blair

ACKNOWLEDGMENTS

We are extremely thankful to the Andaman & Nicobar Administration for commissioning this research project. We are particularly grateful to Mr. K.K. Jindal, Secretary (Labour, Employment & Training), Andaman & Nicobar Administration, for extending admirable support and direction at every stage of this study.

The encouragement and inspiration we received from Mr. V.P. Yajurvedi, Director General, V.V. Giri National Labour Institute, was vital for the undertaking and completion of this research study. We express our deep sense of gratitude to him.

We received invaluable support from a large number of officials and functionaries of the Andaman & Nicobar Administration for the successful completion of this research project. We owe special gratitude to Mr. Madhu Sudhan Baidya, Mr. Venkatesh, Mr. Senthil and Mr. Mansoor. Our heartfelt thanks are also due to Mr. Vinod Kumar, Mr. Ajith Anand, Ms. Sheena, Mr. John, Ms. Shobha K. Unni, Ms. Clerybell D'souza and Mr. Santosh Prakash for sharing with us valuable insights on various dimensions of the Andaman & Nicobar economy.

We are grateful to the representatives of the Chamber of Commerce and Industry, employers' associations, skill development institutions, trade unions and civil society organisations in the Andaman & Nicobar Islands who extended ungrudging support to us during data collection for this project. Their support meant a lot to us and we are particularly thankful to Mr. Mohamed H. Jadwet, Mr. G. Bhasker, Ms. Dinaz Noble, Mr. Murali, Mr. Imran Jadwet, Mr. Krishnamachari, Mr. Vincent C. Aluvila, Mr. Shyamal Chowdhury, to mention a few.

The draft report of this study was presented at a workshop at Port Blair and we are grateful to everyone who participated in the deliberations and provided constructive comments for finalising the report.

The data collection team headed by Mr. Jitender Kumar Singh, and his dedicated team, particularly Mr. Chandan Jha, Mr. Sudhanshu Jha, Mr. Avrendar Chaudhary, Mr. Rahul Kumar, deserve our utmost and sincere thanks.

Our special thanks to Mr. Das for extending every possible support to make our stay and work in the Andamans fruitful and enjoyable.

The support we received from our staff at the Institute has been phenomenal. We are indeed grateful to Ms. Sarika, Ms. Sudha Ganesh, Mr. Rajesh, Mr. Vikesh, Ms. Smitha, Mr. Arun Sharma and Mr. Shashi.

We are grateful to Ms. Rimli Borooah and Mr. Vineet Sabharwal for the editorial and design support for this report.

Rakkee Thimothy & S.K. Sasikumar

CONTENTS

Foreword i-ii

Acknowledgments iii

List of Tables vii

List of Figures viii

List of Boxes ix

Abbreviations and Acronyms x

Executive Summary xi-xiv

1 Introduction 1-10

1.1 The Context 1

1.1.1 The Case of Andaman and Nicobar Islands 2

1.2 Objectives 4

1.3 Approach 5

1.4 Methodology 6

1.5 Outline 10

2 Contextual Factors in Skill Development: The Case of Andaman and Nicobar Islands 11-22

2.1 Macroeconomic Profile 11

2.2 Emerging Labour Market Situation 15

2.3 Selected Social Indicators 20

3 Assessing the Skill Gap: The Supply Side 23-41

3.1 Labour Supply in ANI 23

3.1.1 Trends in Employment 25

3.1.2 Trends in Unemployment 29

3.1.3 Future Labour Market Entrants 31

3.1.4 Migration Pattern 33

3.2 Institutional Structure for Skill Development in ANI 36
3.2.2 Perspective of the Trainers 39

4 Assessing the Skill Gap: The Demand Side 42-58

4.1 Estimating Employment Trends in ANI (2014-15 and 2019-20) 42
4.2 Assessing the Demand for Skilled Labour for Selected Sectors 48
4.2.1 Tourism 50
4.2.2 Construction 54
4.2.3 Fishing and Fish Processing 55

5 On Matching Skills 59-65

5.1. The Process of Job Search: Job Seekers Perspective 59
5.2. Government Response to Facilitate the Matching Process 62
5.3. The Employers' Viewpoint 64

6 Effective Skill Matching: Policy Options 66-69

Appendix 70-71

References 72-74

LIST OF TABLES

Table 1.1	Sampling Framework of the Study	9
Table 2.1	Sectoral Distribution of Services Income in ANI	14
Table 2.2	Labour Force Participation Rate	15
Table 2.3	Work Force Participation Rate	16
Table 2.4	Unemployment Rate in ANI	16
Table 2.5	Sectoral Distribution of Employment in ANI, 2009-10 & 2011-12	18
Table 2.6	Selected Indicators of ANI	22
Table 3.1	Socio-Demographic Characteristics of Sample Population	24
Table 3.2	Key Indicators of Labour Market	25
Table 3.3	Distribution of Labour Force by Age and Educational Attainments	26
Table 3.4	Distribution of Workers by Average Monthly Earnings	29
Table 3.5	Distribution of Unemployed by Age Groups	30
Table 3.6	Destination of Out-migrants from ANI	33
Table 3.7	Outlay on Education Expenditure	37
Table 3.8	Educational Institutions in ANI	38
Table 3.9	Enrollment Status in Educational Institutions	39
Table 4.1	Actual and Estimated Population and Total Employment in ANI	45
Table 4.2	Sectoral Distribution of Employment	46
Table 4.3	Growth Prospects of Selected Industries and Services in ANI	47
Table 4.4	Projected Employment in 2019-20 under Three Employment Growth Scenarios	49
Table 4.5	Tourist Arrival in ANI	50
Table 4.6	Skill Requirements in Tourism	53

LIST OF FIGURES

Figure 1.1	Conceptual Framework for Skill Mapping in the ANI	6
Figure 2.1	Trends in Income Growth	12
Figure 2.2	Sectoral Distribution of Income Generation in ANI	13
Figure 2.3	Age Structure of Population in ANI: 2001-2031	17
Figure 2.4	Distribution of Workers according to Nature of Employment, 2009-10	19
Figure 2.5	Percentage Distribution of Youth by Type of Vocational Training in ANI	20
Figure 3.1A	Distribution of Workers by Sector of Employment	27
Figure 3.1B	Distribution of Workers by Nature of Employment	27
Figure 3.2A	Distribution of Workers by Skill Level	28
Figure 3.2B	Distribution of Workers by Method of Acquiring Skills	28
Figure 3.3A	Distribution of Unemployed by Duration of Unemployment	31
Figure 3.3B	Distribution of Unemployed by Reasons for Unemployment	31
Figure 3.4A	Reasons for Migration	34
Figure 3.4B	Status of Migrants at the Destination	34
Figure 3.5	Distribution of Migrants by Age and Reasons for Migration	36
Figure 4.1	Industry Linkages of Tourism Sector	51
Figure 4.2A	Skill Requirements in Tourism, 2011-12	52
Figure 4.2B	Projected Skill Requirements in Tourism, 2019-20	52
Figure 4.3	Industry Linkages of Construction Sector	54
Figure 4.4A	Skill Requirements in Construction Sector, 2011-12	55
Figure 4.4B	Skill Requirements in Construction Sector, 2019-20	55
Figure 4.5	Industry Linkages of Fishing and Fish Processing	56
Figure 4.6A	Skill Requirements in Fishing & Fish Processing, 2011-12	57
Figure 4.6B	Skill Requirements in Fishing & Fish Processing, 2019-20	57
Figure 5.1	Extent of Skill Mismatch of Young Workers	60
Figure 5.2	Method of Job Search of Youth	61
Figure 5.3	Registered Job Seekers in Employment Exchange by Education	63

List of Boxes

Box 3.1	Industrial Training Institutes: Enhancing Outreach and Professional Efficiency	40
Box 4.1	SWOT Analysis of the ANI Economy	43
Box 5.1	Functioning of Employment Exchanges in Tamil Nadu	64

ABBREVIATIONS AND ACRONYMS

ANI	Andaman and Nicobar Islands
CAGR	Cumulative Annual Growth Rate
CBR	Crude Birth Rate
CDR	Crude Death Rate
CDS	Current Daily Status
CSO	Central Statistics Office
FGDs	Focus Group Discussions
HDI	Human Development Index
ILO	International Labour Organization
IT	Information Technology
ITIs	Industrial Training Institutes
LFPR	Labour Force Participation Rate
LMIS	Labour Market Information System
MGNREGA	Mahatma Gandhi National Rural Employment Guarantee Act
MoL&E	Ministry of Labour and Employment
NSDP	Net State Domestic Product
NSSO	National Sample Survey Office
SWOT	Strength Weakness Opportunities and Threats
TFR	Total Fertility Rate
UPSS	Usual Principal Subsidiary Status
UT	Union Territory
WFPR	Work Force Participation Rate

EXECUTIVE SUMMARY

Tackling Skill Mismatch

While the Government of India has taken several initiatives to improve the skill endowment of the country's labour force, there exists a huge gap in information, particularly at the state and sectoral levels, on the demand and supply of skilled labour force. It is in this context that this study has attempted to map skills in the Andaman and Nicobar Islands (ANI). Physically cut off from the mainland, the region faces an impasse in its economic growth and employment situation, with a limited number of feasible economic activities. Skill mismatch in the region is acute. The study had the following broad objectives: (a) to assess the skill composition of the labour force and the existing institutional mechanism for skill development and upgradation; (b) to estimate current and future skill requirements; (c) to examine existing mechanisms to match demand and supply of skilled manpower; and (d) to derive policy prescriptions to better match the demand and supply of manpower. It relied on both primary and secondary data sources to address the conceptual framework for undertaking skill mapping—contextual factors, supply of labour, demand for labour, matching and outcomes.

Skilling Andaman and Nicobar Islands

A realistic road map for assessing skill requirements needs to be anchored by the economy's key indicators, which capture its economic, social and demographic features. These contextual factors evolve over time and their progress is in turn influenced by the skill composition of the labour force. In ANI, income growth, driven by the service sector, is robust. However, labour market indicators are not very positive, with the region displaying a low Labour Force Participation Rate (LFPR), low Work Force Participation Rate (WFPR) and high unemployment rate. These variables are especially problematic for the youth, with educated unemployment emerging as a critical issue—a serious situation for a region with a high share of youth population. Part of the problem lies in that the majority of the unemployed does not possess the technical skills appropriate for the emerging sectors in the economy. While ANI has been performing impressively in human

development, the provision of quality employment, and the resultant enhancement in income, are essential to maintain this state of affairs.

Assessing Supply

On the supply side, the study made an attempt to understand key characteristics of the current as well as future labour force, and the institutional structure in place to develop/upgrade skills. Evidence from the primary survey reiterates the prevalence of poor labour market indicators in ANI. Although the service sector and construction are the region's major employment generating sectors, the majority of the workers even in these sectors possess low skills or qualifications that are not commensurate with their employment. The problem is graver in the case of future labour market entrants, who do not possess any certified skills. This partly explains the high and long duration of unemployment in the region, while the economy continues to depend on migrant labour. There is a strong presumption that the skill gap also arises due to the migration of skilled native labour to the mainland. Although this is partly true, there is a significant share of youth who prefer to live and work in the island. In most cases they are forced to migrate for education (and later continue at the destination because of the lack of attractive job options in ANI). This may be a pointer to the institutional mechanism that continues to provide skill training with outdated courses/syllabi, affecting the quality of manpower. Further, attempts to identify and design skill development and upgradation to match the requirements of the emerging sectors of the economy are limited. Part of the problem lies in the lack of proper infrastructure and quality trainers for imparting skills. The study also highlights the high dropout and failure rates among students in both general and technical education streams.

Assessing Demand

Based on the Strength Weakness Opportunities and Threats (SWOT) analysis, available secondary data and field level evidences, employment estimates for ANI were worked out for the short-term and medium-term periods: 2014-15 and 2019-20 respectively. The analysis highlighted the need to focus on sectors that have high growth and employment potential, such as construction, transport, storage, communications and hotels and restaurants. As part of the exercise we also attempted to project the demand for skilled manpower in tourism, construction and fish and fish processing industries in 2019-20. The assessment of demand requirements took into account both the

forward and backward linkages that would be created by these industries. Currently all these sectors have high dependence on migrant labour; given the growth prospects the emphasis needs to be on training medium skilled manpower. While there is a significant dearth of manpower with appropriate skills—trade-specific as well as soft skills—it is equally important to recognise that the specific number of jobs for skilled manpower also depends on the levels of operation and plans for scaling up of the different sectors.

The Matching Process

The ANI economy experiences significant levels of skill mismatch at three levels: (a) a significant proportion of job seekers do not have the requisite qualifications to work in new and emerging sectors; (b) some workers are overqualified and cannot find job opportunities to match their qualifications and aspirations; and (c) the economy is not generating enough jobs to incentivise people to acquire skills and enhance their employability. The intensity of the skill mismatch is aggravated by the fact that the labour market information system is either not fully developed or not performing effectively. There is an urgent need to enhance the functioning of the employment exchange in ANI. Steps are required to improve career guidance, build interface between employers, and adopt good practices followed in other parts of India. Job seekers should be updated on the emerging employment scenario and behavioural courses can be initiated to help them think out of the box.

Policy Options

Stimulating Growth: It is important to stimulate private investment in sectors that are employment-intensive and have large employment linkages, such as tourism, construction and marine based activities. Industrial policies must consider all possible measures, such as additional credit support to the identified sectors, particularly small and medium sized enterprises, and reforms to increase the competiveness of product markets.

Improving Institutional Structures: This would require interventions at various levels: (a) emphasis on the quality of education at the school level; (b) increasing the number of skill development institutions and the intake capacity of existing institutions; (c) addressing regional inequality in the availability and accessibility of educational institutions; (d) introducing new

courses/trades and updating the curricula of existing trades; and (e) complementing steps to increase enrolment by efforts to lower the dropout and failure percentages.

Forging Partnerships: Social dialogue on skill development (involving key social partners such as the government, skill development institutions, employers, trade unions and NGOs) must be institutionalised, which could take a variety of forms: (a) strengthening skill development institution-industry partnership through greater involvement of industry in both the quantitative and qualitative expansion of skill development institutions; (b) extending training subsidies to firms that employ low skilled workers belonging to the island; and (c) forging partnerships with major skill development institutions including those from outside ANI and encouraging them to tie up with institutions within the region.

Public Employment Services: There is a need to enhance the functioning of the employment exchange in ANI. Employment services should particularly target young job seekers and provide them tailor-made services. An important step to be adopted in this regard is to develop a web portal of the employment exchange which can register, update and renew registration.

Fill Data Gaps: There is a strong need to develop a comprehensive Labour Market Information System (LMIS) that can be updated at regular intervals. Again, this would enhance the capacity of the region's manpower. The ANI Employment Exchange can be designated as the nodal agency for developing a comprehensive LMIS.

Integrated Perspective: This should entail initiatives to overcome the structural rigidities of the ANI economy: (a) setting up skill sector councils, entrusted with responsibilities like preparing the road map for the growth of the specific sectors and matching it with identified skills; (b) encouraging overseas employment of people from the region in an institutionalised manner, which could bring increased inflow of remittances and other development impacts; (c) targeting/encouraging specific groups which encounter labour market barriers such as youth, ethnic/social minorities and women.

1 INTRODUCTION

1.1 THE CONTEXT

It is now well recognised in both academic and policy circles that the creation of decent jobs is an important means for attaining sustainable economic growth. Skill endowment of the labour force in general and youth in particular has a direct bearing on the capacity of the economy to create quality employment (Ministry of Labour and Employment [MoL&E], 2009). Given that faster, more inclusive and sustainable growth has been identified as the major developmental objective in India, issues pertaining to skill development and upgradation assume immense significance (Planning Commission, 2013).

Inter-country experience indicates that while developed economies make huge investments and have a better infrastructure for skill development and upgradation, developing economies tend to have poor infrastructure and are trapped in a vicious cycle of low skill base, low productivity, low income and resultant exclusion (International Labour Organization [ILO], 2013). Ironically, in most developing regions a significant share of skilled manpower is economically inactive due to prevailing labour market inequalities and/or mismatch between demand and supply of skilled manpower, indicating misplaced priorities in skill development (World Bank, 2012; MoL&E 2012). Such a scenario calls for interventions at two levels: (a) skill development initiatives that would improve labour productivity and working conditions, and promote decent employment; and (b) making the investment climate attractive, including a steady supply of skilled manpower.

Skill development and upgradation are key prerequisites for achieving faster, more inclusive and sustainable growth.

The Government of India is engaged in several initiatives both at the national and state levels, particularly through the National Skill Development Mission, to improve the skill endowment of the labour force. However, it has been observed that there exists a huge gap in information, particularly at the state and sectoral levels, on the demand and

supply of skilled labour force. Such concerns are all the more critical for disadvantaged regions as they are not only geographically cut off from the mainland and prone to fragile climatic situations but also experience imbalances between supply of and demand for skills. The problem is more acute because of the dearth of efforts to map such imbalances for disadvantaged regions within developing economies. At the same time, international evidence indicates that a proper assessment of demand and supply of skills and effective matching of them can be an important catalyst for growth in income and investment in such geographically fragile regions (World Bank, 2012). It is in this broad context that this study attempts to map supply and demand of skills in the Andaman and Nicobar Islands (ANI), a fragmented island economy experiencing geographical and climatic adversities.

There is an urgent need to address skill development issues pertaining to the disadvantaged regions.

1.1.1 The Case of Andaman and Nicobar Islands

The Andaman and Nicobar Islands is an archipelago of 573 islands with permanent population settlement in only 30 of them. Physically cut off from the mainland, prone to natural disasters and erratic climatic conditions, the region faces an impasse in its economic growth and employment situation. The economic growth trajectory of such disadvantaged regions, cut off from the main centres of economic activities, is well documented in development literature. Additionally, such economies also suffer from a limited market size that restricts economies of scale arising from specialisation while the poor quality of human resources and public infrastructure make private investment unattractive (World Bank, 2012). Given this context, it is not surprising that ANI faces high unemployment rates; 'empowering the people through locally relevant employable skills…' has been suggested as a strategy (Planning Commission, 2008).

As in the case of similarly placed island economies, there are only a few economic activities that are feasible and those are often associated with utilising natural resources, such as fisheries, forestry and tourism. While it is quite possible that over the years some of them could become unviable or restricted by law, as is the case with the timber industry in ANI, the challenge is to adopt strategies to make the growth process sustainable, environmentally friendly and job-rich. Our study examines the forward and backward linkages as a meaningful way to understand current and future

employment potential and to assess skill gaps. For instance, an increase in tourism related activities will generate additional employment in hotels and restaurants and also in a range of related activities such as tour operators (tourist guides, drivers, life guards), ticketing agencies, etc., creating forward linkages. Equally significant is the creation of employment through backward linkages. For instance, an increase in tourism activities leads to new construction or renovation of hotels and restaurants, repair services (boats and other vehicles) and even demand for local products. This study seeks to identify sectors that have current and future growth potential, work out its forward and backward linkages, and match them with the current and future skill requirements. This would provide a road map for the entire range of activities to be forefronted to overcome the current mismatch of skills in ANI.

Skill assessment needs to be based on forward and backward linkages created by the economy's growth potential sectors.

Any skill mapping exercise in an island economy like ANI needs to take into consideration the current demographic situation and its linkages with migration flows. The majority of the population in ANI are migrants from the mainland who have lived in the region for more than a generation. Factors like higher educational attainment, a strong preference for government jobs, and a relatively assured earning from the land they own have contributed to the reluctance among the native population to engage in manual work. This is leading to a huge influx of migrants from the mainland. As career opportunities are rather limited in ANI, a significant share of educated natives display a strong preference to migrate to the mainland for employment. Because new entrants among the natives in the labour force do not possess adequate skills to match the existing demand, entrepreneurs incur huge costs to recruit, train and retain qualified migrant workers. The complexity of the issue becomes more apparent when we note that ANI records high unemployment rates, perhaps partly due to the lack of appropriate skills possessed by the labour force. In 2011-12 the unemployment rate (Usual Principal Subsidiary Status, UPSS) in ANI was 6.5 per cent in comparison with 2.2 per cent noted at the all India level (NSSO, 2013). While it is important to view migration in a positive perspective, given the special features of ANI some mechanisms need to be devised to control the negative impacts of labour flows.

Although some public and private institutions in ANI are engaged in imparting skill training, attempts to match the supply of skilled labour with the existing demand requirement of the region are limited. Several factors contribute to the mismatch

between supply and demand for skills. First, the majority of the institutions continue to provide training in traditional courses and often the curricula of the skill development provided in such traditional courses are outdated, affecting the quality of skilled manpower. Second, attempts to identify and design skill development and upgradation to match the requirements of existing and emerging sectors of the economy appear to be inadequate. For instance, there seems to be insufficient interface between those imparting skills and those requiring skills—business and industrial partners—both for assessing current and future demands and for providing apprenticeship for the students. Third, the existing number of skill development institutions and their levels of operation are too limited to address the skill aspirations, particularly of the youth. This issue will become more pronounced in the coming decades as ANI is likely to witness a significant surge in the growth of population in the 15-29 age group. Fourth, the availability and adequacy of proper infrastructure and quality trainers for imparting skills are a serious issue. Fifth, there needs to be an evaluation of the existing mechanism in place to match demand and supply of skills and programmes to meet new challenges. It is in this specific context that this study attempts to map the demand and supply of the skilled labour force in ANI.

Significant mismatch exists between the qualifications and aspirations of the job seekers and the existing infrastructure to impart skills.

1.2 OBJECTIVES

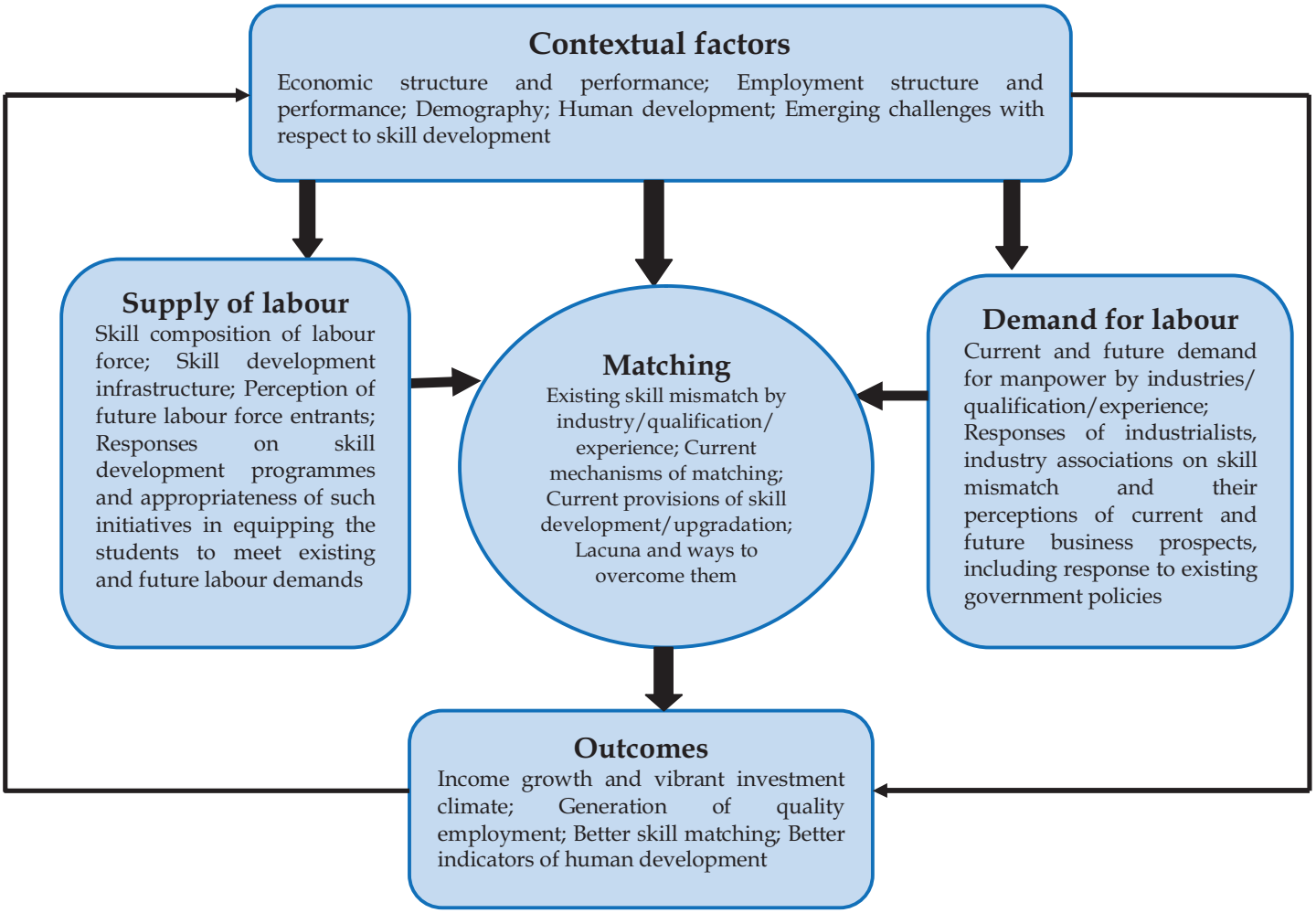
- To assess the skill composition of the labour force in the region
- To understand the existing institutional mechanism for skill development and upgradation in ANI
- To assess the current and future skill requirements of the region
- To examine existing institutional and non-institutional mechanisms to match demand and supply of skilled manpower in the region
- To evaluate the effectiveness of skill development/upgradation initiatives in ANI to meet current and future skill requirements
- To derive policy prescriptions to better match the demand and supply of manpower in the region

1.3 APPROACH

The study was commissioned by the Andaman and Nicobar administration to assess the skill requirement of the region on an urgent basis. Based on a realistic assessment of the economy, the study aims to provide feasible solutions to overcome gaps in the demand and supply of skills. The conceptual framework of the study is indicated in Figure 1.1. The framework is based on the premise that the process of assessing skill gaps can be divided into five main blocks: contextual factors, supply of manpower, demand for manpower, matching the last two, and outcomes. Interestingly, all the blocks are mutually interconnected. For instance, the structure of income generation in an economy, included in *contextual factors*, has a definite impact on the demand and supply of labour. Conversely, supply of and demand for a particular kind of labour in turn determine the structure of the economy. The second block, *supply of labour*, can be categorised into two: composition and nature of the labour force, and the infrastructure to facilitate skill development and upgradation. *Demand for labour* derives from industries and services that have growth potential both in the current and future time periods. *Matching* is an important process in skill mapping and includes not only the existing institutional set-up to match supply and demand, but lacunae in the current mechanisms, policy and programmes in place to match current and future skill needs and responses of both government and employers. The block *outcomes* stands for the impact of better skill matching in the region and as indicated in the figure, can be measured using a variety of indicators.

The conceptual framework for undertaking skill mapping could be formulated as 'five blocks'—contextual factors, supply of labour, demand for labour, matching and outcomes.

Figure 1.1: Conceptual Framework for Skill Mapping in the ANI



1.4 METHODOLOGY

The study is based on both primary and secondary data sources. Fieldwork for the study was primarily undertaken in South Andaman district due to several reasons. First, as per the 2011 Census, 62.53 per cent of the population in ANI reside in South Andaman district. Second, the majority of the educational and technical institutions are concentrated in South Andaman. Apart from one college and one ITI in Middle and North Andaman district, the infrastructure for higher and technical education is entirely based in South Andaman. Third, the majority of industries are concentrated in South Andaman district. Interestingly, similarities exist in the industrial structure in all three districts of ANI; prominent industries include engineering, textiles, wood, agro-based,

food and mineral based. A few of the subsectors with huge employment potential such as hotels and restaurants, fish processing and Information Technology (IT) are focused in South Andaman. The idea is that results emerging from the skill mapping in South Andaman district would be applicable in the other two districts of ANI.

Fieldwork entailed collecting data from different categories of respondents using a variety of methods. To understand the supply side of skill development, we used a combination of household surveys, in-depth interviews and focus group discussions (FGDs). In the first phase, a household survey using a structured questionnaire was conducted to understand key characteristics of the labour force in the study region, including their education, employment and unemployment history, skills, job search pattern, job preference and migration history. To supplement the primary survey, a guideline was developed to conduct in-depth interviews with new entrants to the labour force—recent pass-outs and current students in various skill development institutions—to understand their education and skills, job preferences and aspirations. In-depth interviews were also conducted with heads and selected faculties in various skill development institutions (both public and private) functioning in South Andaman district, in order to assess the existing facilities and appropriateness of the skill training they provide. This was followed by a few FGDs with the students and faculty members of various skill development institutions. The sampling framework adopted for the study is detailed in Table 1.1. In the first stage, Port Blair and Ferrargunj *tehsils* from South Andaman district were chosen as they have the largest population within the district. At the second stage, villages from the *tehsils* were chosen based on population. At the third level, sample households were chosen randomly, on the basis of a household list obtained from the village administration and based on some selection criteria satisfied by the sample households as indicated in the questionnaire.

The study uses primary data generated through extensive field work and all available secondary data on ANI.

The exercise to assess the demand for skills was more challenging. In the first phase, a few industries and services were selected (after detailed discussions with key stakeholders in ANI) that have current as well as future employment potential. Economic activities chosen were hotels and restaurants, fish processing, coconut processing, IT, wood processing, financial services, repair services and hospitality. Detailed information was collected from enterprises belonging to each of these activity

groups using a structured questionnaire on the current skill shortages they face, the methods followed to recruit and maintain manpower with appropriate skills, the future skill shortage they perceive, and their views on the various strategies undertaken by the government to promote growth of enterprises as well as to meet skill demand. The enterprise survey was so planned as to capture subtleties of various enterprises according to their size, level of operation, employment generation and location. Detailed discussions using a semi-structured questionnaire were also conducted with concerned government officials on various initiatives undertaken to promote enterprises as well as hindrances they face in recruiting and retaining skilled manpower. Apart from field-based research, secondary documents pertaining to ANI, such as the Annual Plan documents of the Union Territory (UT), sector-specific policies of the ANI administration, publications by the Directorate of Economics and Statistics, Employment and Unemployment Survey by the National Sample Survey Office (NSSO), etc. were consulted. In the second phase, based on secondary data sources like the Census and NSSO and inferences drawn from the field survey, we projected the demand for skilled manpower in selected sectors for short and medium term (details are provided in Chapter 4).

A multi-stage sampling framework was adopted for conducting the primary survey and eliciting information related to the demand and supply dimensions of skill development.

Table 1.1: Sampling Framework of the Study

<table>
<tr><th colspan="6">Respondent Groups</th><th>Sample Size</th></tr>
<tr><td colspan="7">Supply Side</td></tr>
<tr><td colspan="6">a. Labour force survey
<table>
<tr><th>Tehsil</th><th colspan="2">Rural</th><th colspan="2">Urban</th></tr>
<tr><td rowspan="7">Port Blair</td><td>Prothrapur (RV)</td><td>250</td><td rowspan="7">Port Blair</td><td rowspan="7">350</td></tr>
<tr><td>Brichgunj (RV)</td><td>250</td></tr>
<tr><td>Pahargaon (RV)</td><td>250</td></tr>
<tr><td>Calicut (RV)</td><td>125</td></tr>
<tr><td>Dollygunj (RV)</td><td>225</td></tr>
<tr><td>Total</td><td>1100</td></tr>
<tr><td rowspan="6">Ferrargunj</td><td>Wimberlygunj (RV)</td><td>175</td><td colspan="2" rowspan="5"></td></tr>
<tr><td>Shore Point (RV)</td><td>175</td></tr>
<tr><td>Namunaghar (RV)</td><td>100</td></tr>
<tr><td>Bindraban (RV)</td><td>100</td></tr>
<tr><td>Total</td><td>550</td></tr>
<tr><td>Rural Total</td><td>1650</td><td>Urban Total</td><td>350</td></tr>
</table></td><td>2000 households</td></tr>
<tr><td colspan="6">b. Survey of Skill Development Institutions

1. All technical institutions in public sector (1 ITI, 2 Polytechnics and 1 TTI)
2. Major institutions under private management
3. In-depth interviews with institution heads and selected faculties</td><td></td></tr>
<tr><td colspan="6">c. Survey among students of technical training institutes in selected subjects

Current students (200 numbers) and Passed-out students (100 numbers)</td><td>300 students</td></tr>
<tr><td colspan="7">Demand Side</td></tr>
<tr><td colspan="6">a. Detailed interviews with stakeholders of selected industries and services to assess current and future demand for skilled workers

Major industries/services selected for the purpose include:
(1) Hotels and Restaurants; (2) Fish Processing; (3) Coconut Processing; (4) IT; (5) Wood Processing; (6) Financial Services; (7) Repair Services; (8) Hospitality; and (9) Construction</td><td>3 respondents from each industry group</td></tr>
<tr><td colspan="6">b. Detailed interviews with professional bodies and association in selected industries and Chambers of Commerce and Industry</td><td>10 respondents</td></tr>
<tr><td colspan="6">c. Detailed interviews with officials from concerned Government Departments</td><td>10 respondents</td></tr>
</table>

1.5 OUTLINE

The remaining part of the report is structured as follows. Chapter 2 contextualises the issue of skill mismatch by providing an overview of the economic and labour market situation in ANI. Chapter 3 focuses on the supply side of skill development, tracing the skill composition of the labour force, the institutional structure to develop/upgrade skills, and the perspective of future labour market entrants about their job prospects and aspirations. Chapter 4 locates the demand side of skill development, assessing current skill gaps and future requirements. Chapter 5 makes an attempt to examine the effectiveness of various skill development initiatives to overcome skill mismatches in ANI. The chapter also looks into the mechanism in place to match demand and supply of workers. Finally, the study concludes (Chapter 6) with policy prescriptions to improve the synergy between the supply of and demand for skilled manpower in ANI.

2 CONTEXTUAL FACTORS IN SKILL DEVELOPMENT: THE CASE OF ANDAMAN AND NICOBAR ISLANDS

The skill composition of the labour force—both current and future—is determined by the prevailing economic and social conditions and demographic characteristics of the region. As noted in the Introduction, these contextual factors evolve over time and their progress is influenced by the skill composition of the labour force through outcome variables. Essentially this means that future assessments of skill requirements should be based on key indicators of the economy, which captures its economic, social and demographic features. This would stimulate the drawing of a realistic road map that could propel the economy to a higher growth trajectory. This chapter analyses the performance of the ANI economy, the emerging trends and patterns of its labour market, and selected social indicators that have a critical role in determining demand and supply of skilled labour force in the region.

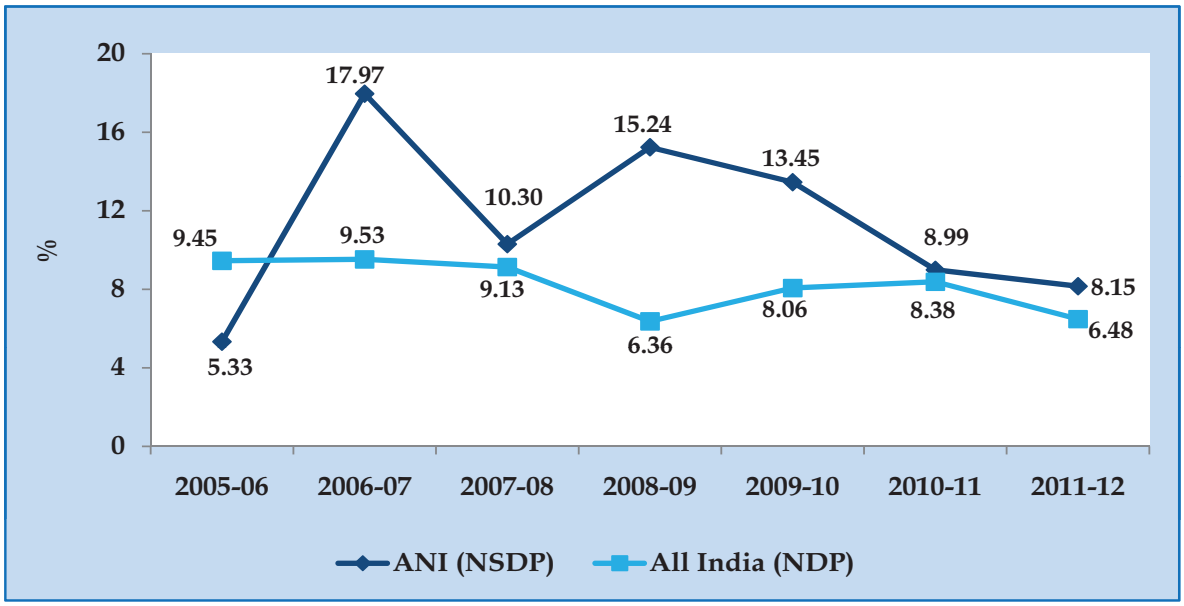
2.1 MACROECONOMIC PROFILE

Recent trends in the income growth of ANI indicate a robust performance of the economy as indicated in Figure 2.1. This is significant, considering the fact that till 2006-07 ANI recorded high fluctuations in economic growth (both in terms of the Net State Domestic Product (NSDP) and per capita income) in comparison with other UTs (see Appendix Table 1A). In fact, instability in the performance of the ANI economy during 1990s has been highlighted as a major factor inhibiting the development of the region (Planning Commission, 2008). During 2004-05, the performance of the ANI economy was negatively affected by the tsunami and related natural calamities that followed. However, recent trends in income indicate that the ANI economy has been able to embark upon a higher growth trajectory. The relatively low NSDP growth rate during

NSDP data indicates robust performance of the ANI economy in comparison with other UTs.

2010-11 and 2011-12 could be a reflection of the sluggishness in income growth noted even for Indian economy following the global economic crisis.

Figure 2.1: Trends in Income Growth (2004-05 Prices)



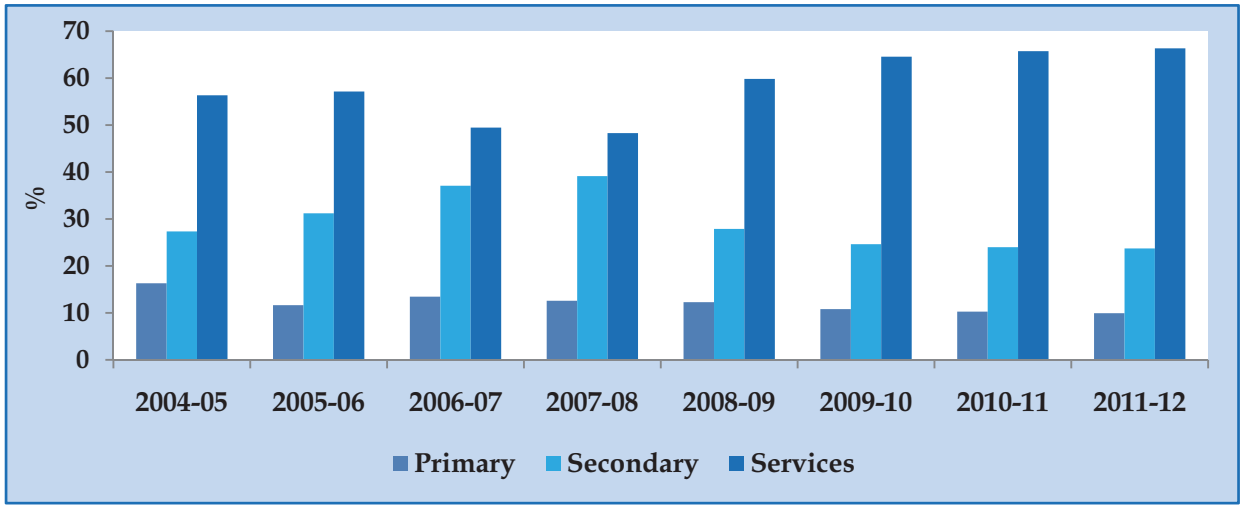
Source: CSO, various years.

A sectoral break-up of income provides interesting insights into the growth pattern of ANI. The service sector accounts for around 66 per cent of the total income generated in ANI in 2011-12. This is much higher than the share of services in income generation at the all India level: 57 per cent. Over the years, the share of primary and secondary activities in income generation in ANI records a consistent decline. In 2011-12 the contribution of these sectors to NSDP was 10.0 per cent and 24.0 per cent respectively, as indicated in Figure 2.2. This is ironical considering the immense potential of the primary sector in ANI, particularly fishing, given its vast coastline and marine resources. Restrictions imposed on free access to forest resources have negatively affected the performance of the secondary sector. Uncontrolled timber extraction has been made illegal, negatively affecting wood based industries that dominated the manufacturing sector in the ANI. The sector that has improved its position in the last

The contribution of the service sector in ANI's income is much higher than the national average.

few years is construction, primarily resulting from increased government expenditure in infrastructure development and restructuring following the post tsunami initiatives.

Figure 2.2: Sectoral Distribution of Income (NSDP) Generation in ANI (2004-05 Prices)



Source: CSO, various years.

The road map for industrialisation in ANI needs to take into account the comparative isolation of the region from the mainland, the scattered locations of islands, the smaller base of the local market, and relatively higher costs in importing inputs and exporting the output to potential markets. Ideally, the region needs to adopt an industrialisation strategy that would reduce dependence on imports and stimulate the production of high value-added outputs with export potential. A comparative analysis of similarly placed economies, Mauritius for example, reflects the effectiveness of such a scheme of industrialisation (World Bank, 2012). Further, it is important to develop inter-industrial linkages and infrastructure development to push the economy to a higher growth trajectory.

There is a critical need to stress inter-industrial linkages and infrastructure development as catalysts to achieve sustainable and inclusive growth.

Considering the high share of services in income generation in ANI, it would be worthwhile to identify certain subsectors within services that have growth potential. As indicated in Table 2.1, within the service sector, transport, storage and communications and public administration are the major income generating sectors. The geographical position of the island and predominance of government employment explain this

phenomenon to a large extent. While the year-to-year growth rate of public administration is almost stagnant, the subsectors that recorded high growth rates are transport, storage and communications, banking and insurance, and real estate and business services (see Appendix Table 2A). But what is somewhat surprising is the relatively low share of trade, hotels and restaurants, whose combined sectoral contribution in income generation was around 7 per cent in 2011-12. It is significant that though services has emerged as the major income generating sector (as with the national economy), the relative importance of subsectors displays significant variations from the all India service growth pattern. Considering that services contributes the major share in income generation, it is important to understand the trends and patterns of employment generation and identify factors that could improve the employment potential of the sector, so as to effectively address issues with respect to skill mismatch.

Within the service sector, transport, storage and communications and public administration are the major income generating subsectors.

Table 2.1: Sectoral Distribution of Services Income (NSDP) in ANI (2004-05 Prices, %)

Subsectors	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Trade, Hotels & Restaurants	8.34	7.05	7.98	8.13	6.29	7.46	7.38	7.23
Transport, Storage & Communication	15.57	15.36	14.48	13.83	16.05	15.71	18.11	19.67
Banking & Insurance	2.19	2.25	2.27	2.55	2.38	2.72	3.05	3.20
Real Estate & Business Services	5.20	5.96	5.57	5.86	5.22	5.17	5.92	6.48
Public Administration	10.14	12.70	6.48	6.60	16.11	17.75	16.48	15.72
Other Services	14.90	13.84	12.69	11.32	13.79	15.76	14.81	14.02
Service Sector	56.35	57.16	49.47	48.28	59.84	64.56	65.74	66.34

Source: **CSO, various years.**

2.2 EMERGING LABOUR MARKET SITUATION

In 2011-12, the labour force participation rate (LFPR) in ANI was estimated to be 62 per cent[1] (NSSO, 2013). Between 2004-05 and 2011-12, the LFPR in rural areas of ANI witnessed a decline, similar to the pattern noted at the national level. But in comparison to the all India trends, the decline in LFPR in rural areas in ANI was to some extent compensated by an increase in LFPR among the urban labour force, particularly females, as indicated in Table 2.2. Considering the fact that the urban population in ANI is limited, it is likely that the increase in LFPR among the urban labour force would have a limited impact on the employment situation in the region. Between 2009-10 and 2011-12, LFPR improved for all categories of workers, except for rural males.

ANI displays wide fluctuations in LFPRs and WFPRs.

Table 2.2: Labour Force Participation Rate (UPSS) (in %) (15-59 yrs)

Residence	2004-05			2009-10			2011-12		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
ANI									
Rural	85.2	39.1	63.7	89.7	35.8	63.8	85.2	40.8	62.7
Urban	80.8	25.3	55.3	83.2	32.7	58.7	86.7	34.9	60.4
Total				87.0	34.5	61.7	85.8	38.6	61.8
All India									
Rural	85.9	49.4	67.7	84.8	39.8	62.6	83.5	37.8	60.9
Urban	79.2	24.4	53.0	80.9	21.0	52.3	81.0	22.2	52.7
Total				83.6	34.5	59.6	82.7	33.1	58.3

Source: **NSSO, various years.**

Table 2.3 presents the work force participation rate (WFPR) of ANI in comparison with the all India picture. The WFPR has improved in ANI in 2011-12, the only exception being rural males. It is unlikely that the reasons held responsible for the decrease in LFPR and WFPR at the all India level—such as the impact of the Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) and subsequent increase in wage rates, increased enrolment of children in education institutions—are applicable to

[1] As per the Usual Principal Subsidiary Status (UPSS) criteria, that takes into account principal and subsidiary activity status of a person preceding 365 days from the date of survey.

ANI. Lower WFPR in ANI seems to be more of an issue of lack of employment opportunities, perhaps arising from skill mismatch.

Table 2.3: Work Force Participation Rate (UPSS) (in %) (15-59 yrs)

Residence	2004-05			2009-10			2011-12		
	Male	Female	Total	Male	Female	Total	Male	Female	Total
ANI									
Rural	82.2	34.3	59.8	85.6	29.0	58.4	83.5	35.4	59.1
Urban	75.9	20.8	50.6	79.6	26.0	53.7	83.1	28.0	55.1
Total				83.2	27.7	56.5	83.4	32.7	57.6
All India									
Rural	84.6	48.5	66.6	83.4	39.1	61.6	82.0	37.2	59.8
Urban	76.3	22.7	50.6	78.5	19.8	50.5	78.4	21.0	50.8
Total				81.9	33.6	58.3	80.9	32.3	57.0

Source: NSSO, various years.

The widening gap between LFPR and WFPR in ANI highlights the mounting problem of unemployment in the region. Even by a broad definition of UPSS, unemployment in ANI is estimated to be around 6.7 per cent in 2011-12. The more stringent definition of current daily status (CDS) used to measure unemployment means a further increase in the figure to 9.6 per cent. The unemployment rate is much higher in urban areas and among females, as indicated in Table 2.4. It needs to be stressed that over the years the unemployment rate has shown no signs of abating, a critical issue especially from the policy perspective.

Unemployment seems to be significant in urban areas, particularly among females.

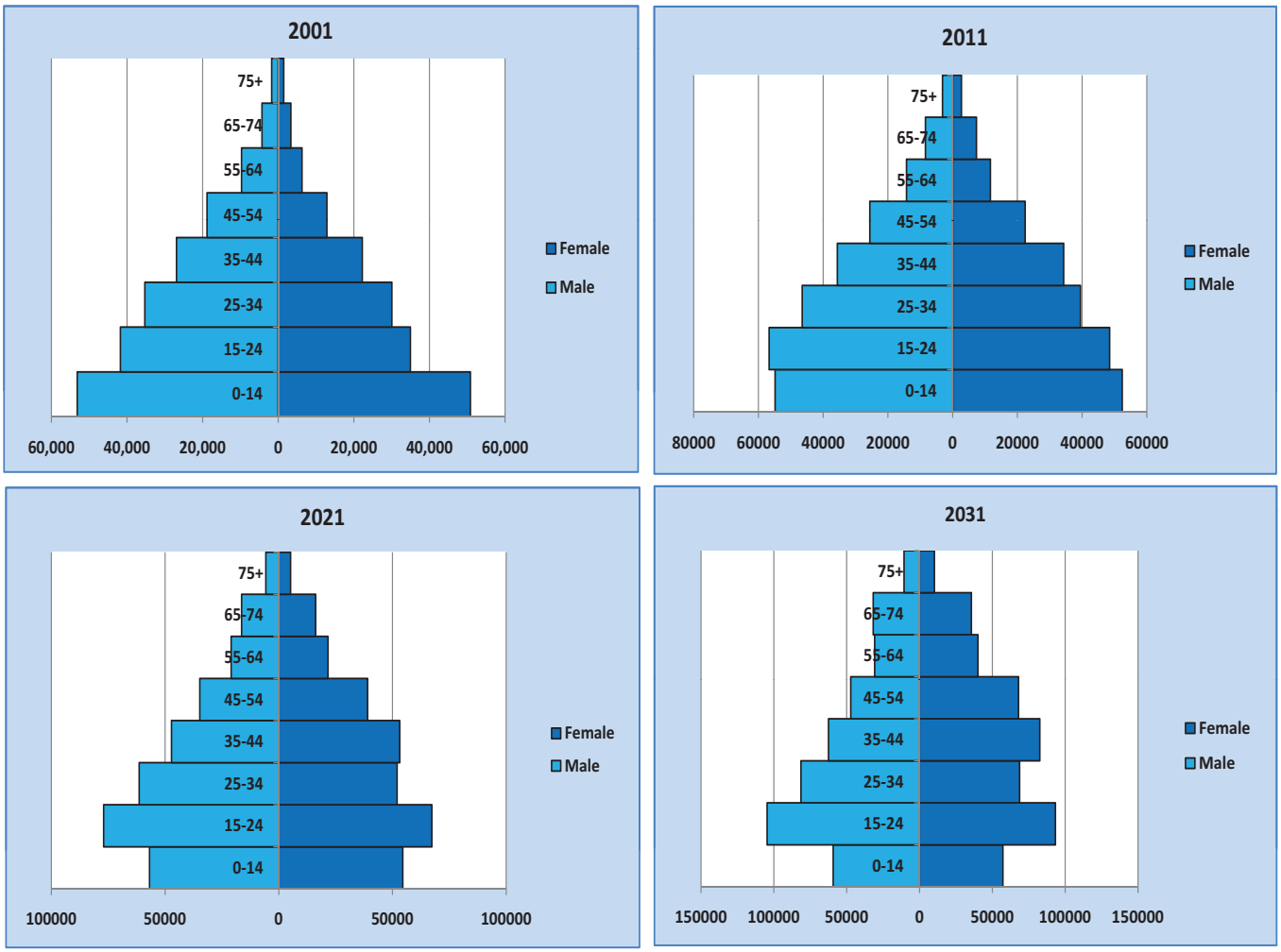
Table 2.4: Unemployment Rate in ANI (UPSS) (in %)

Year	Rural			Urban		
	Male	Female	Total	Male	Female	Total
1999-2000	2.3	6.8	3.4	3.0	17.3	6.9
2004-05	3.7	12.3	6.2	6.5	17.2	8.8
2009-10	4.4	19.1	8.5	4.2	20.3	8.6
2011-12	2.0	13.0	5.7	4.2	20.0	8.8

Source: NSSO, various years.

The youth population (15-34 years) in ANI records a much higher unemployment rate: 17.1 per cent in 2009-10; the figures were much higher for females: 33 per cent. The rising unemployment among the youth is something that calls for immediate attention, particularly considering the fact that 43 per cent of the population in ANI falls within the age category of 15-34 years, as per the 2011 Census. And their share is expected to increase in the coming decades as indicated in the age pyramids in Figure 2.3. So it is all the more important for the ANI administration to formulate skill development strategies so as to harness the advantages of the emerging demographic dividend.

Figure 2.3: Age Structure of Population in ANI: 2001-2031



Source: **Actual and projected population figures from the Census of India.**

A striking feature of employment generation in ANI is the high share of services in employment generation; in 2011-12 the sector accounted for half of the employment generation, as indicated in Table 2.5. A slightly higher proportion of those belonging to the age group of 15-34 years seems to be engaged in service sector activities.

Table 2.5: Sectoral Distribution of Employment in ANI, 2009-10 & 2011-12 (UPSS, in %)

Sectors	All Age Group		Youth Population (15-34 Years)
	2009-10	2011-12	2009-10
Agriculture and Fishing	27.9	26.40	21.4
Primary	**27.9**	**26.40**	**21.4**
Mining & Quarrying	1.0	0.00	1.3
Manufacturing	5.5	4.28	5.9
Electricity, Gas & Water Supply	2.9	2.26	0.3
Construction	13.2	16.84	17.4
Secondary	**22.6**	**23.38**	**24.9**
Trade	13.5	11.34	15.0
Hotels & Restaurants	1.2	1.50	1.1
Transport and Storage	8.9	9.89	11.8
Finance	1.1	0.96	1.26
Public Administration	11.2	11.34	11.8
Education	5.8	9.19	4.9
Health	3.7	2.70	4.1
Community & Personal Services	4.2	3.28	3.7
Services	**49.6**	**50.20**	**53.66**

***Source*: NSSO, 2011 and 2013.**

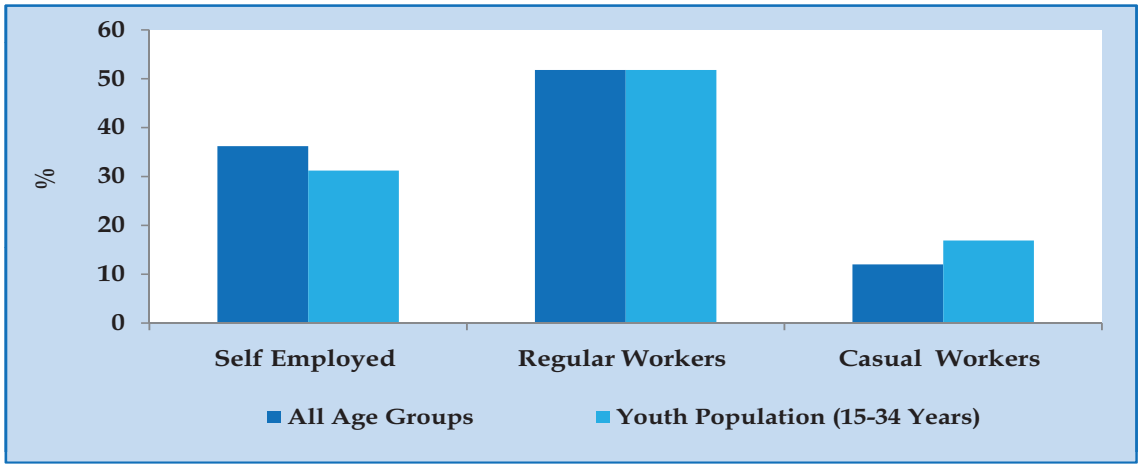
Within services, the major employing generating sectors appear to be trade, transportation and public administration. Between 2009-10 and 2011-12, a significant increase in employment is visible in construction and education related activities. Due to the limited sample size we were unable to undertake further disaggregation of NSS data, but it is likely that in most of the service sector activities the quality of employment generated could be a major issue. As will be explained in the next chapter, most of the workers engaged in

> ***Economic activities associated with construction, transport and storage, trade, public administration and education currently contribute significantly to employment generation.***

transport and in government services are on contract. Although they may be reported as regular workers, their employment conditions in terms of salary, regularity and other benefits may be precarious. This also explains the high share of regular workers (around 51 per cent) as indicated in Figure 2.4, as against the national average of only 16.4 per cent in 2009-10. Also noteworthy is that out of the 31 per cent of the young population involved in self-employment activities, roughly 50 per cent are engaged as unpaid workers in household enterprises. Such a trend is more widespread in rural areas. But what is even more worrying is the share of young females (15-29 years) who are neither studying nor working nor looking for employment; in 2009-10 their share was around 43 per cent. Given such an employment scenario it is all the more important to undertake skill development initiatives relevant to these emerging sectors to improve the possibility of providing opportunities for decent work to existing and new entrants to the labour force.

The share of low quality employment in ANI continues to be high.

Figure 2.4: Distribution of Workers according to Nature of Employment, 2009-10 (UPSS, in %)



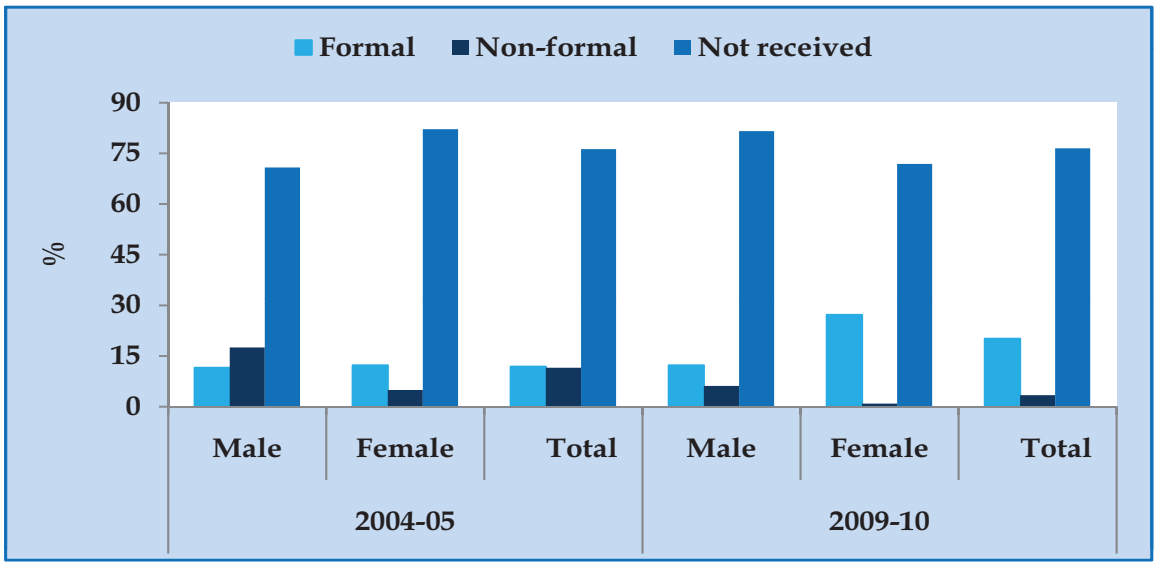
Source: NSSO, 2012.

In an attempt to get to the root of the unemployment problem an effort was made to understand the educational qualifications of the youth in ANI. As per the data available from the NSS data (2009-10), around 72 per cent of the youth (15-34 years) are qualified up to the 10th standard (see Appendix Table 3A). A positive development is the increase noted in the share of this segment of youth by 8 percentage points between 2004-05 and 2009-10. It is important to note that the share of skilled labour in the total labour force of

ANI is relatively poor. As per the analysis based on the NSS data in 2009-10, roughly one-fourth of the young population had received some form of skill training as indicated in Figure 2.5. While half of the skill development occurred through non-formal institutions in 2004-05, by 2009-10 there was a steep increase in the number of young people receiving skill development training through formal institutions. This is a positive development, indicating that the existing institutional structure was able to draw the young population into the formal skill development channels.

The share of skilled labour in ANI's total labour force is very low.

Figure 2.5: Percentage Distribution of Youth (15-29 years) by Type of Vocational Training in ANI



Source: NSSO various years, calculated from unit level data.

2.3 SELECTED SOCIAL INDICATORS

ANI has performed well with respect to achievements in human development. As indicated in Table 2.6, ANI is ranked sixth according to the Human Development Index (HDI) computed for all states and UTs in India. In comparison with the all India average, ANI's performance has been impressive with respect to education, health and infrastructure related indicators. It is only through the provision of quality employment and the resultant enhancement in income that such levels of human development can be maintained. The provision of quality employment becomes all the more pertinent

with the region likely to have a higher share of youth population in the coming decades. Considering that the educational attainment of the population, especially the women, is relatively high, there will be a commensurate higher level of labour market aspirations. Such labour market aspirations can be met only by improving the skill base of the younger population.

ANI displays an impressive performance with respect to social indicators.

Another crucial inference that can be drawn from the demographic data is with respect to life expectancy. Given that the life expectancy in the region is much higher than the all India average, the proportion of population in the older age group is obviously high. This means that apart from improving the health infrastructure to meet the needs of the older population there is also a strong case for strengthening the social protection systems for the elderly. One of the key components of the provision of social protection for the elderly is strengthening the geriatric care management systems. This would entail imparting of skills relevant to geriatric care in the skill development institutions. Another related advantage of geriatric care skill training is that such skills are in great demand in many developed and ageing societies, especially in the European countries, and would open up possibilities for promoting overseas migration.

Yet another critical issue that emerges from ANI's demographic profile is that nearly two-third of the population still resides in rural areas. Apart from raising their general educational levels, there is a need for evolving mechanisms to channel their entry into the skill development institutions which are currently urban centred. There is also a strong need to expand the presence of skill development institutions in rural areas.

Table 2.6: Selected Indicators of ANI			
Indicators		**ANI**	**India**
Human Development Index (2006)		0.708 (Rank 6)	0.605
Gender Development Index (2006)		0.692 (Rank 8)	0.59
Demographic Indicators			
Total Population (2011)		37.99 lakhs	1.21 billion
Share of Rural population		64.33	68.84
Share of Urban population		35.67	31.16
Sex Ratio (2011)		878	940
Decadal Growth Rate (2001-2011)		6.68	17.64
Crude Birth Rate (CBR) (2011)		15.1	21.8
Crude Death Rate (CDR) (2011)		4.6	7.1
Total Fertility Rate (TFR) (2010)		1.5	2.5
Health Indicators			
Infant Mortality Rate (2011)		23	44
Average Population Served per Government Hospital		58,125	97,958
Average Population Served per Government Hospital Bed		557	2,105
Education Indicators			
Literacy Rate (2011)		86.27	74.04
Gross Enrolment Ratio (2010-11)	Classes I-V (6-10 Yrs)	86.2	116.0
	Classes VI-VIII (11-13 Yrs)	87.9	85.5
	Classes I-VIII (6-13 Yrs)	86.9	104.3
Pupil Teacher Ratio (2007-08)	Primary Level	17.0	47.0
	Upper Primary Level	16.0	35.0
Infrastructure Related Indicators			
Households with Access to Safe Drinking Water (2011)		85.5	85.5
Households with Internet (2011)		3.5	3.1
Households with Telephone/Mobile Phone (2011)		83.6	63.2
Pucca House (2008-09)		68.5	66.1
Kutcha House (2008-09)		6.6	12.6
Latrine Facility Available within Premises (2011)		70.1	46.9

Source: **Planning Commission; Ministry of Women and Child Development, 2009; Institute of Applied Manpower Research, 2011; and Ministry of Finance, 2013.**

3 ASSESSING THE SKILL GAP: THE SUPPLY SIDE

This chapter examines the supply side of skill development in ANI in a holistic manner. On the one hand it analyses the skill endowments of the current labour force and future labour market entrants, and on the other it assesses the institutional arrangements to develop/upgrade skills. An assessment of the supply side of skill development would facilitate the identification of the cause of the skill mismatch: whether it has arisen because the labour force does not possess appropriate skills to match the demand or whether it is because the skill development institutions are unable to impart skills that are in demand. As there exists considerable paucity of data in ANI in all these dimensions of the supply side of skill development, the study relies mainly on the data generated through the primary surveys to highlight the emerging issues. Considering that ANI is experiencing significant population mobility, the household survey deliberately covered those households resident in the island for more than five years, with at least two members in the age group of 15-59 years.

Analysis of supply side would identify whether the skill mismatch is emerging from lack of appropriate skills among the labour force or is due to the lack of adequate skill development institutions.

The chapter is divided into two broad sections. The first section presents key characteristics of labour supply: employment and unemployment patterns, skill endowments and the nature of skill training, job preferences and migration trends. The second section presents an analysis of the existing arrangements and the performance of skill development institutions in the region.

3.1 LABOUR SUPPLY IN ANI

As indicated in the introductory chapter, a household survey was conducted in selected villages of ANI to understand the supply side of skill development. The survey covered 2000 households, with the sample population working out to 7556. The key characteristics of the sample population are indicated in Table 3.1. The majority of the

sample population covered in the household survey resides in rural areas. A striking feature is the high share of population in the young age group (15-29 years): around 50 per cent. However, despite the large number of young people, educational attainment reflects a gloomy picture, with 72.5 per cent of the sample educated only up to the secondary level. In such a scenario, vocational courses and certificate courses could be an important means of skill enhancement. Currently, the share of those who possess such qualifications is abysmally low: merely 0.4 per cent.

There is a high share of the young population, though with poor educational and technical qualifications.

Table 3.1: Socio-Demographic Characteristics of Sample Population (in %)

Sector	Rural	90.1	**Sex**	Male	53.6
	Urban	9.9		Female	46.4
Religion	Hindu	67.3	**Caste**	General	**54.6**
	Muslim	15.9		OBC	35.7
	Christian	16.6		SC	3.9
	Others	0.2		ST	5.8
Marital Status	Unmarried	43.5	**Migration Status**	Native since birth	88.9
	Married	52.1		Immigrated 10 or more years ago	10.4
	Widow/Widower	4.2		Immigrated 5 to 10 years ago	0.5
	Divorced/Separated	0.2		Immigrated less than 5 years ago	0.3
Age Group	0-14 yrs	20.1	**Educational Status**	Illiterate	7.1
	15-19 yrs	17.0		Below Primary/ Informal Education	4.7
	20-24 yrs	18.3		Primary	11.1
	25-29 yrs	14.3		Middle	24.1
	30-34 yrs	9.3		Secondary	25.4
	35-59 yrs	16.8		Higher Secondary	17.4
	60 and above yrs	4.2		Degree/Equivalent to Graduation	8.4
				Post Graduate Degree	1.4
				Certificate/Diploma/Vocational Courses etc.	0.4

Source: **Primary Survey.**

If we look at the migration status of the sample population, around 89 per cent have reported ANI as their place of birth; most of them belong to the younger age group. On the other hand, individuals who have reported living in ANI for more than 10 years

belong to the 40 and above age category. It is quite possible that in the coming decades persons born in ANI would be more inclined to stay back because of a feeling of connectedness to the region, provided appropriate opportunities for employment are available in the island.

3.1.1 Trends in Employment

Results from the primary survey indicate low LFPR and WFPR (Table 3.2), even lower than the figures provided by the Employment and Unemployment Survey (2011-12) of the NSSO. This could be partly due to the six month recall period used in this study, unlike the NSSO figures which are based on a one year recall period. In comparison to males, females record low LFPR and WFPR. And it is not surprising that with such low WFPR and a higher share of the young age group in the population, as noted in the previous chapter, unemployment rates are high.

ANI exhibits low LFPR and WFPR and a high unemployment rate.

Table 3.2: Key Indicators of Labour Market (in %)

Indicator	Male	Female	Total
LFPR	70.2	25.3	47.8
WFPR	62.4	15.3	39.0
Unemployment Rate	7.8	10.0	8.9

Source: **Primary Survey.**

One of the probable reasons for high unemployment among the labour force is the prevalence of low skill levels. As indicated in Table 3.3, the share of the population possessing any kind of skills (certified and non-certified) is very low. This is true even for those in the younger age group (15-34 years). The share of the labour force with any technical skill is around 2.5 per cent of the sample population. While the low educational attainment among those above 45 years is quite understandable, the situation is not drastically different for the younger population. As noted in the Table 3.3 the share of young people who are educated above higher secondary continues to be low.

Table 3.3: Distribution of Labour Force by Age and Educational Attainments (in %)						
Education	**15-24 yrs**	**25-34 yrs**	**35-44 yrs**	**45-54 yrs**	**54-64 yrs**	**65 yrs & above**
Illiterate	--	1.5	6.1	8.9	11.1	15.5
Below Upper Primary	13.7	19.9	38.7	47.3	54.3	44.8
Secondary	28.2	32.6	24.7	38.2	31.4	30.0
Higher Secondary	47.8	36.3	26.3	4.1	3.0	9.7
Degree	8.6	3.2	2.1	0.8	0.2	--
Post Graduation	1.5	3.1	1.0	0.2	--	--
Other Skill Certificates	0.2	3.4	1.1	0.5	--	--

Source: **Primary Survey.**

Figure 3.1A indicates the distribution of workers by sector of employment. As is evident from the figure, service sector activities account for the major share of employment in the study area, followed by construction related activities. These figures need to be interpreted with caution as most of the service sector activities in the island are either dominated by remunerative public sector activities or petty services, where income and quality of work could be a matter of concern. The distribution of workers by nature of employment, shown in Figure 3.1B, points towards such a trend. The share of regular workers tends to be high, around 65 per cent, while the self-employed category is the lowest, around 12 per cent. Such trends are also supported by evidence from the NSS data. But what needs to be highlighted is that a significant share of regular workers, apart from receiving monthly remuneration, does not avail any other benefits of 'regular employment'. It is a well-documented fact that the formal sector has witnessed a massive increase in informal employment, which may get reported as regular employment. Anecdotal evidence indicates that contract employment in ANI has witnessed a steep increase in the last few years. For young workers who do not have enough employment opportunities this could be the only option available. Evidence from the household survey indicates that a significant share of females is engaged in service sector activities. Although qualified workers get opportunities in medium skilled occupations, such as teachers, nurses and office assistants, a significant percentage of them also engage in low-end occupations, such as domestic worker, and may report as regular workers.

An overwhelming proportion of employment generation in ANI is in service sector activities.

Figure 3.1A: Distribution of Workers by Sector of Employment (in %)

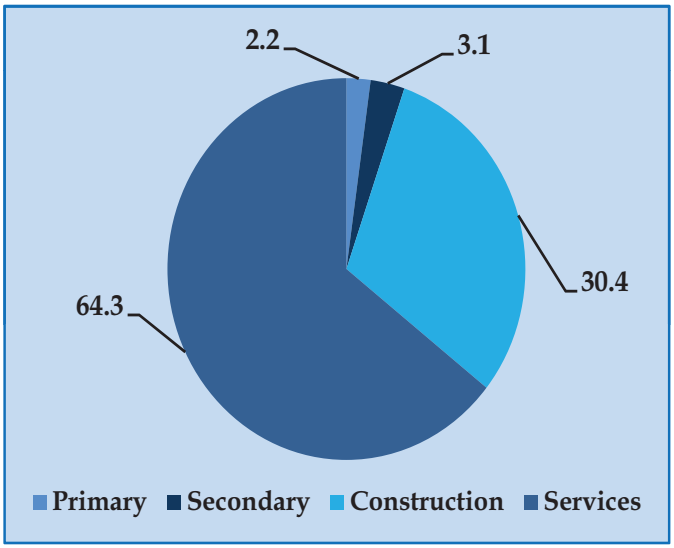
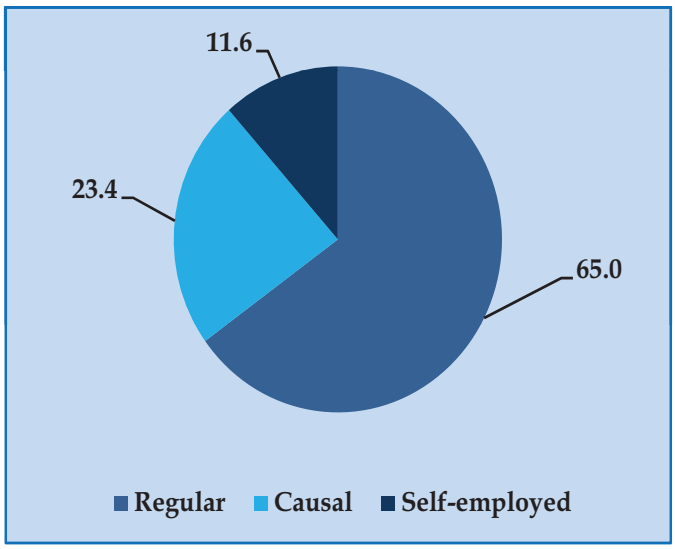


Figure 3.1B: Distribution of Workers by Nature of Employment (in %)



Source: **Primary Survey.**

The quality of jobs has important linkages with the levels of skills as well as the methods of acquiring them. Evidence from the primary survey indicates that a significant proportion of workers have low skill levels (categorised to include skills possessed by fishermen, cooks, tailors, drivers, manual labourers in farming and construction, etc.), as noted in Figure 3.2A. The share of workers with medium skills (those of typists, nurses, teachers, computer operators, certified construction workers, cooks, tour operators, etc.) and high skills (those of doctors, engineers, etc.) constitute around 16 per cent and 5 per cent respectively. But what is interesting is the nature of acquisition of skills by the workers as indicated in Figure 3.2B. The majority of low skilled workers have acquired their skills on the job or through hereditary means. A small percentage of low skilled workers have also undergone some kind of skill training, which may fall in the category of non-certified training. In contrast to the trends displayed by low skilled workers, most of the medium skilled workers have acquired their skills through formal training or on-the-job training. And as one would expect, in the case of high skilled workers skill acquisition is always through formal training. Interesting trends are also observed in the nature of skill acquisition with respect to age groups. This is more prominent in the case of the medium skilled, where

The workforce is dominated by low skilled workers who have acquired skills through informal means.

workers in the age group of 20-30 years have invariably acquired their skills through formal training, while in the upper age category it is through on-the-job training and hereditary acquiring of skills, in that order.

Figure 3.2A: Distribution of Workers by Skill Level (in %)

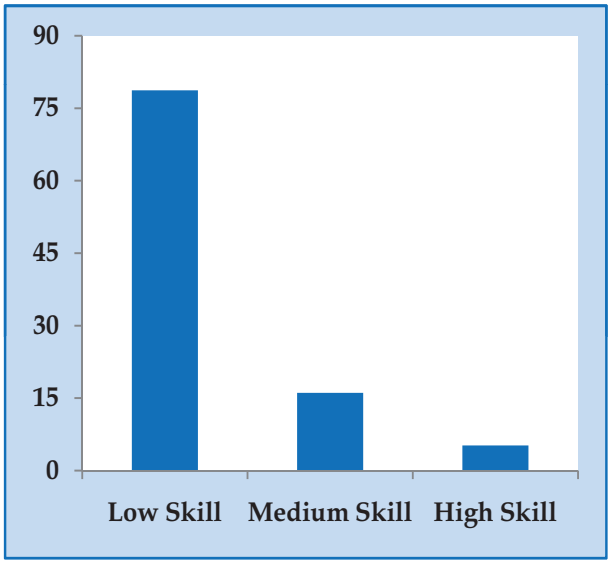
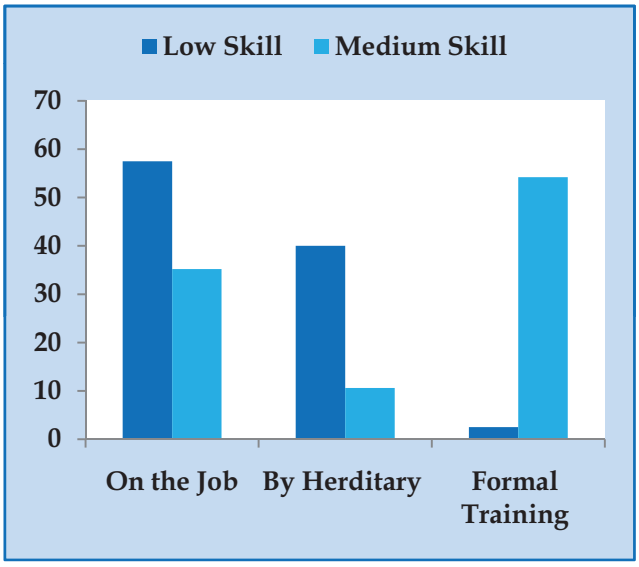


Figure 3.2B: Distribution of Workers by Method of Acquiring Skills (in%)



Source: **Primary Survey.**

The distribution of workers by income categories reinforces our argument that though a significant share of workers is engaged in the service sector as regular workers their quality of employment is a matter of serious concern. As indicated in Table 3.4, around 44 per cent of the employed report earnings of less than ₹ 10,000 per month. The share of workers earning above ₹ 30,000 constitute only 7 per cent. As indicated in Table 3.4, for both male and female workers there was a high share of regular employment in the earning bracket of below ₹ 10,000, indicating the concentration of workers in low-end jobs. This is true for the self-employed as the majority of them seem to be engaged in low remunerative employment. Given such a context it is all the more important to formulate appropriate strategies to improve the skill composition of the labour force, so as to increase their job and income prospects.

Although there is a high share of regular workers, the majority is engaged in low remunerative jobs.

Table 3.4: Distribution of Workers (15-60 years) by Average Monthly Earnings				
	Categories (In ₹)	**Regular**	**Causal**	**Self-employed**
Male	1000-5000	23.6	19.9	9.3
	5001-10000	34.2	65.8	68.2
	10001-15000	19.9	10.5	12.6
	15001-20000	12.7	2.9	5.6
	20001-30000	8.0	0.5	1.1
	31000 & above	1.6	0.4	3.1
Female	1000-5000	19.4	46.8	35.0
	5001-10000	23.3	40.4	55.0
	10001-15000	17.8	8.5	--
	15001-20000	24.0	2.1	5.0
	20001-30000	12.1	2.1	--
	31000 & above	3.4	--	5.0

Source: **Primary Survey**

3.1.2 TRENDS IN UNEMPLOYMENT

It is not only the problematic trends and patterns of employment generation in ANI that are the issue. It is equally important to understand the nature of unemployment among the population. As we have noted, the proportion of the unemployed is high in urban areas and among the women. It also emerges from the primary survey that unemployment is prevalent among all age groups. This could perhaps be explained in terms of the structural transformation in income generation witnessed in the islands. For instance, due to environmental regulation and its impact on traditional industries based on wood and wood products, many persons engaged in such employment have been rendered unemployed. But even more problematic is the issue of the educational qualification of the unemployed.

Educated unemployment seems to be high, perhaps indicating poor quality of education.

Table 3.5: Distribution of Unemployed by Age Groups (in %)						
		15-19 yrs	20-24 yrs	25-29 yrs	30-34 yrs	35-59 yrs
Male	Illiterate	--	--	--	--	10.0
	Primary	50.0	2.5	--	--	15.0
	Upper Primary	25.0	12.5	--	20.0	20.0
	Secondary	25.0	12.5	4.8	--	35.0
	Higher Secondary	--	25.0	38.1	80.0	15.0
	Degree	--	35.0	38.1	--	--
	Post Graduation	--	7.5	9.5	--	5.0
	Other Skill Certificate	--	5.0	9.5	--	--
Female	Illiterate	--	--	--	--	5.0
	Primary	--	--	--	1.0	5.0
	Upper Primary	--	6.4	3.8	--	20.0
	Secondary	--	14.9	15.4	11.5	15.0
	Higher Secondary	100.0	36.2	34.6	37.5	15.0
	Degree	--	31.9	30.8	37.5	25.0
	Post Graduation	--	6.4	15.4	12.5	10.0
	Other Skill Certificate	--	4.3	--	--	5.0

Source: **Primary Survey.**

As indicated in Table 3.5, there is a significant share of unemployed with low educational qualifications and also among those who are graduates and post-graduates. The issue seems to be more about 'quality' of the education and perhaps a mismatch between the skills among the unemployed and the demand for skills from the booming income generating sectors.

It is not only the high share of unemployment that is emerging as a critical issue in ANI, but also the long duration of unemployment. The 8.9 per cent of the sample population who have reported an unemployed status were unemployed for 2.5 years on an average. And as indicated in Figure 3.3A, the duration of unemployment is highest in the age group of 30-34 years. Equally important is to note the reasons provided for unemployment. As indicated in Figure 3.3B, the mismatch between their skills and current employment opportunities is emerging as the main reason. This would necessarily mean that it is not sufficient to provide skills: serious thought also needs to be given to the

There is a direct relation between low/inappropriate skills and long duration of unemployment.

appropriateness of the skill imparted as well as more emphasis placed on matching demand and supply of skills. Considering that there is a significant share of unemployed in all age brackets this would call for innovative policies.

Figure 3.3A: Distribution of Unemployed by Duration of Unemployment

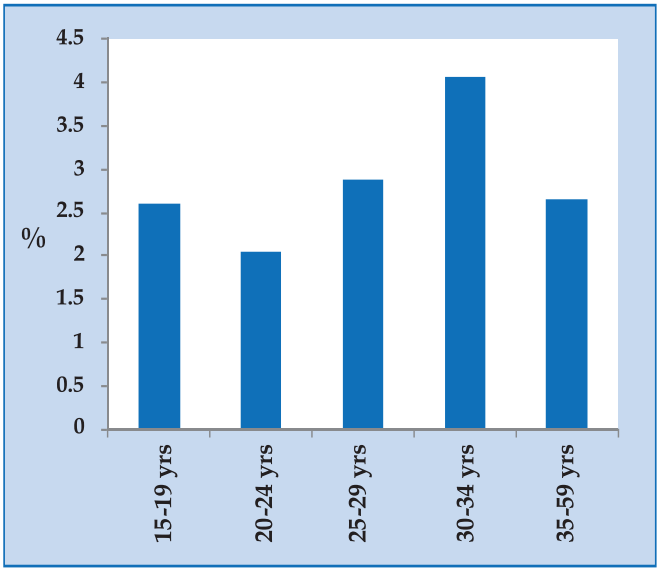
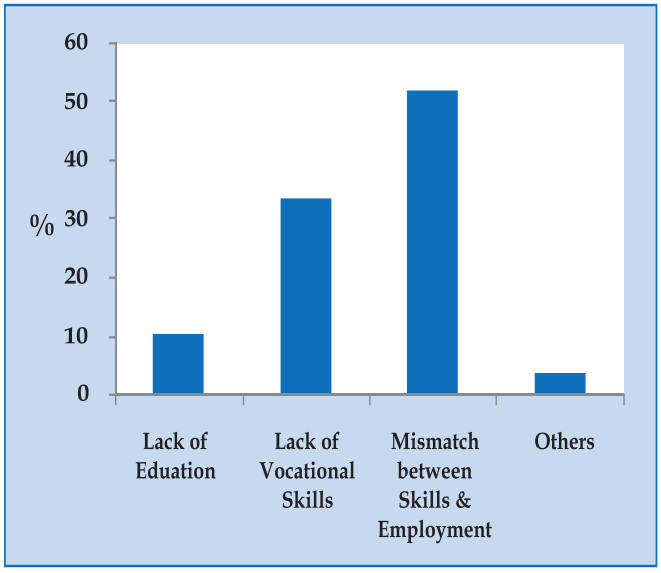


Figure 3.3B: Distribution of Unemployed by Reasons for Unemployment



Source: **Primary Survey.**

3.1.3 Future Labour Market Entrants

It is extremely important to understand the qualifications and aspirations of future labour market entrants of ANI. Keeping this in view, apart from the household survey, the study also conducted a sample survey among current students and pass-outs of various technical training institutions in ANI, which was further supplemented by FDGs. This subsection presents important points emerging from such interactions.

Preferred Place of Employment: Contrary to the image portrayed by many in ANI, most of the students with whom we interacted during the course of the study indicated a strong preference to stay in ANI, if appropriate opportunities are available. Of course, there is a small share of students who consider that due to the particular economic development experienced by the ANI, enough career development opportunities will not be available in the long term and they would therefore prefer to migrate for work to the mainland or a foreign destination.

Choice of Skill Qualification: Around half of the current students and pass-outs we talked to do not seem to have a well-thought-out plan in choosing a specific course or education. In most cases, they are forced to choose a particular course/institute as they do not seem to have enough options available in ANI. Of course a small share of pass-outs were fortunate enough to get skill training/education from institutions in the mainland. Even this group seems to be in a dilemma: after completing the course they realise the remuneration offered to them is not sufficient to stay on in the mainland while back home they are faced with unsuitable job opportunities. Most of them are lured into courses, often by agents, promising them booming demand for such skills. Such incidents indicate the urgent need for proper student counselling on the various courses being offered. Equally important is to help students and parents to come out of the mindset that only government jobs are worth pursuing. A significant share of pass-outs continues to wait for government jobs and shows a preference for a contractual government job totally unrelated to their skills, rather than a job in the private sector that matches their skill qualification. Perhaps students need to be motivated to understand the dignity of work and changing trends in the employment market, including the increasing dominance of private sector employment. So on the one hand, the ANI economy does not have workers with appropriate skills and on the other, those with appropriate skills are not ready to work, as they feel it is below their dignity to perform certain tasks. A classic case is of those who have completed a hotel management course and are unwilling to work in the hotel industry.

Most of the new entrants to the labour force prefer to work and live in ANI; however their educational qualifications and skills are not in consonance with the emerging demand.

Quality of Skill Acquired: Yet another matter of serious concern is the quality of skills acquired by the future labour force. This was noted as a major impediment by the students in obtaining employment. While in their opinion this arises due to outdated syllabi and methods of teaching, our analysis indicates that the reasons for this phenomenon could be much deeper. For instance, the quality and motivation of students entering a particular stream of training plays an important role in the level of skill acquisition they obtain during the course. Yet another factor that could be crucial is industry interaction with the skill development institutions that would update the

students with recent developments in their respective fields and build employers' confidence in the available labour force.

3.1.4 Migration Pattern

A critical challenge faced by ANI is high out-migration of the population for educational and employment purposes. Such population movements usually bring positive developmental outcomes to the place of origin, with labour sending regions witnessing a reverse inflow of remittances, investment and technology, among others. However, such linkages are hardly visible in ANI. This could be due to the small population base of ANI, where out-migration of skilled labour creates immense pressure on the supply of labour force. This is particularly true of skilled labour: their out-migration is adversely affecting the prospects of economic growth. On the other hand, the potential of out-migration to have a significant impact in reducing the unemployment rate in ANI has not translated into reality. Recent years are witnessing a return flow of students to the region, after completion of education from the mainland, offsetting the impact of out-migration on unemployment. In most cases, student migrants come back to ANI after completing their education as they find it difficult to find suitable employment on the mainland. Often such returning student migrants have skills that are not suitable for the current economic scenario of ANI, which results in increased unemployment among the educated youth.

Out-migration rates are high, with labour flows directed to different centres within India; overseas migration is hardly prevalent.

Table 3.6: Destination of Out-migrants from ANI (in %)

To Mainland	
Kerala	2.38
Tamil Nadu	15.18
Karnataka	5.95
Andhra Pradesh	0.89
West Bengal	27.98
Maharashtra	37.5
Delhi	5.1
Northern States	4.48
Foreign Countries	0.6

Source: **Primary Survey.**

Among the sampled households, 50 per cent of the households reported having at least one member who is a migrant, highlighting the seriousness of the issue. As indicated in Table 3.6 the majority of migrants move to the mainland, the major destinations being Maharashtra, West Bengal, Tamil Nadu and Kerala. Proximity of the locations, roots of migrant ancestors and potential opportunities at the destination could be determining their choice. It should be noted that migration to foreign countries continues to be low. Considering that employment opportunities available abroad are increasing at a fast pace, efforts should also be made to explore prospects for scaling up overseas migration from ANI. This would have significant developmental benefits, such as increased inflow of overseas remittances. The key prerequisites in this regard are to provide workers with skills that are in demand in foreign countries and ensuring qualifications provided at ANI are recognised at such destinations.

There is crucial need to promote international labour migration to strengthen migration-development linkages.

Figure 3.4A: Reasons for Migration (in %)

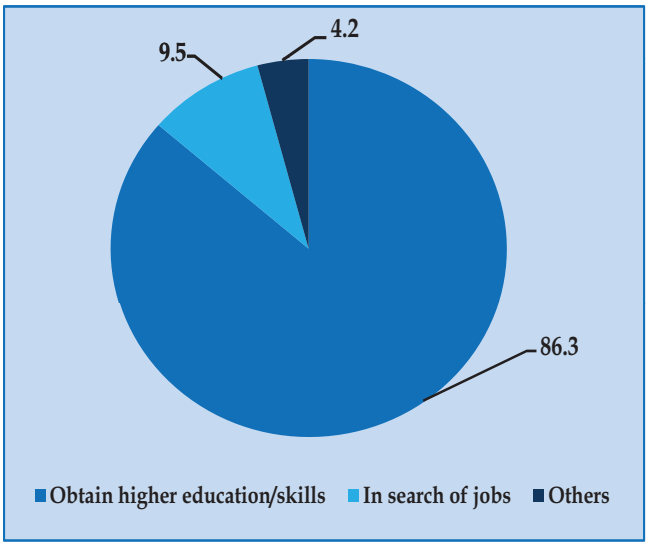
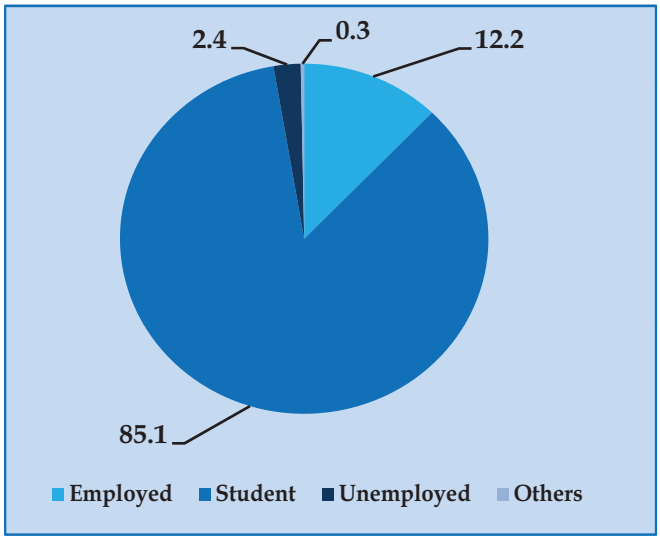


Figure 3.4B: Status of Migrants at the Destination (in %)



Source: **Primary Survey.**

It is also interesting to note the primary reasons stated for out-migration. Around 86.3 per cent of the respondents reported obtaining of higher education/skills as the reason for migration, as indicated in Figure 3.4A. Those who migrated in search of jobs constituted only 10 per cent, while the rest migrated due to marriage/family related

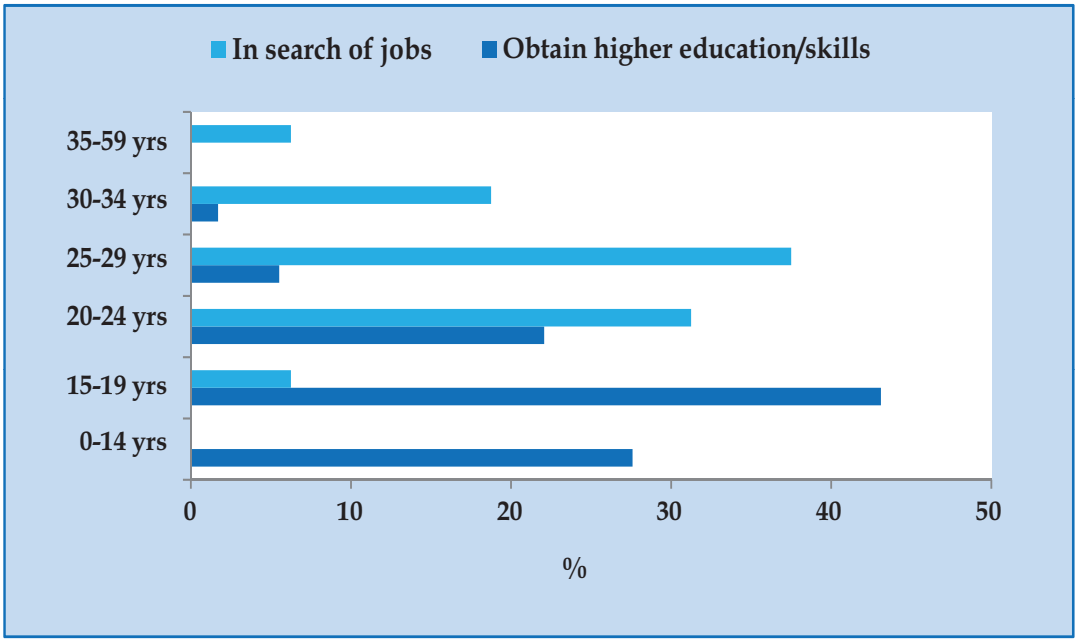
factors. A clear variation also exists in the reasons for migration across males and females. While obtaining higher education and job related factors are the major reasons for men, for women it turns out to be marriage/family related factors. The current status of migrants at the destination corroborates the reasons given for the move from ANI. As indicated in Figure 3.4B, the majority of the migrants continues to be students, a significant share is employed, and around 2.4 per cent of them have perhaps completed their education and are currently looking for a job.

Education is the major driver of out-migration from ANI.

As indicated in Figure 3.5, migrants who have given acquisition of higher education and skills as the reason behind their migration are primarily in the age group below 29 years. It is quite possible that a significant share of them may continue to stay back at the destination if they get employment. Such migration for higher education is often undertaken after completing higher secondary education. It needs to be noted that such options are more accessible for boys in comparison with girls and that too those from middle income households. But what should be a matter of concern is the out-migration of people who have declared searching for jobs as the primary reason. This is important because nearly 25 per cent of this category have completed higher secondary education and another 44 per cent are graduates and above. It could be the non-availability of employment opportunities in ANI that has forced these people to arrive at their migration decision. There are several options to improve the situation. The first and most ideal option for an economy like ANI is to retain their qualified labour force by providing them employment, by skill upgradation if necessary. Another option is to provide them skills and opportunities to enable them to make an informed decision on migration either to the mainland or to other destinations abroad.

A significant share of out-migrants continues to work at the destination, after completing their studies.

Figure 3.5: Distribution of Migrants by Age & Reasons for Migration



Source: **Primary Survey.**

3.2 INSTITUTIONAL STRUCTURE FOR SKILL DEVELOPMENT IN ANI

The institutional structure to develop/upgrade skills is an important aspect of the supply side of skill development. This subsection specifically looks at skill development institutions and prospects of those involved in skill development in ANI. An important criticism raised against the skill development institutions in the region is that they continue to provide skill training in outdated courses which are no longer in demand or impart training with outdated syllabi, affecting the quality of manpower. Further, attempts to identify and design skill development and upgradation to match the requirements of the emerging sectors of the economy are limited. Part of the problem also lies in the lack of proper infrastructure and quality trainers for imparting skills.

As noted by the *Andaman and Nicobar Islands Development Report* (Planning Commission, 2008) the region records high per capita expenditure on education in comparison with other states. The major reasons noted for this phenomenon include difficult terrain, lack of connectivity and low density of population. Table 3.7 indicates the outlay on educational expenditure for ANI. The major proportion of educational expenditure is devoted to school education. This is important considering the age structure of the

population. A positive feature is the increasing share devoted to technical education in recent years.

Table 3.7: Outlay on Education Expenditure (in %)					
Year	Elementary Education	Secondary Education	Higher Education	Technical Education	Others
1990-1991	56.32	27.67	6.45	5.72	3.85
1995-1996	57.14	27.85	6.72	4.64	3.64
2000-2001	50.28	35.43	7.61	3.5	3.18
2005-2006	49.11	34.39	6.93	5.86	3.71
2008-2009	49.0	32.0	9.0	7.0	3.0

Source: **Ministry of Human Resource Development.**

Table 3.8 presents a profile of educational institutions in the region. Clearly, most of the educational institutions cater to the lower levels of education. The problem is more acute because the majority of the institutions are located in South Andaman district. This seems to be true even in the case of schools. Moreover, the quality of education imparted by the institutions is also a matter of serious concern. For instance, while only 72 per cent of the schools in ANI had functional computers in 2010-11, the all India average was 83 per cent (National University of Educational Planning and Administration (NUEPA), 2012). The share of teachers who received in-service training during the previous year also does not present a very encouraging picture. In 2010-11, while 26 per cent of teachers in government schools and 5 per cent teachers in aided schools received training in ANI, the all India level average was 40 per cent and 32 per cent respectively (ibid). Such statistics definitely point to the poor quality of school education in ANI. Give the situation it is not surprising that students enter higher education without motivation or with little self-knowledge of their aptitude and ability. Evidence from the household survey indicates that around 2.6 per cent of children (below 15 years) dropped out, while 13 per cent of children depend on informal institutions for schooling.

Spatial distribution of educational institutions in ANI and quality of education imparted is a matter of concern.

Table 3.8: Educational Institutions in ANI			
Type of Institution	**2008-09**	**2009-10**	**2010-11**
Pre-Primary School	25	27	27
Primary School	205	207	212
Middle School	69	67	67
Secondary School	44	45	46
Senior Secondary School	53	53	53
College	2	2	2
Polytechnic	2	2	1
ITI	2	2	2
TTI	1	1	1
B.Ed. College	1	1	1
Nursing	1	1	1
ANM/HW	1	1	1
Ocean Studies & Marine Biology	1	1	1
Total	**407**	**410**	**415**

Source: **Andaman and Nicobar Administration, 2012.**

Evidence from the household survey indicates considerable difficulties incurred by students in pursuing educational courses of their choice after completing their higher secondary education. While it is common practice among students from better-off families to migrate to the mainland for better education, for those of poor economic status there are hardly any options available. As noted by many students during our interaction, high dropout rates and fail percentages are reported among students joining higher education in ANI as they are not provided career counselling and the curriculum followed fails to generate their interest. As indicated in Table 3.9, such problems seem to be particularly true of students attending government institutions. The issue of high dropout and failure rates is also marked among students joining technical education, which is substantiated by the data collected from both private and government institutions functioning in the region.

High dropout and failure rates prevail among students in general and technical education streams.

Table 3.9: Enrolment Status in Educational Institutions (in %)			
	Status	**Government**	**Private**
Degree	Enrolled but dropped out	35.8	20.2
	Currently Attending	30.0	12.4
	Yet to clear Exam	20.0	40.2
	Completed the course	14.2	27.2
Post Graduation	Enrolled but dropped out	14.1	23.1
	Currently Attending	34.2	42.5
	Yet to clear Exam	39.2	24.7
	Completed the course	12.5	9.7

***Source*: Primary Survey.**

3.2.2 PERSPECTIVE OF THE TRAINERS

As indicated earlier, a series of interactive sessions were organised with the teaching staff of various educational institutions (both general and technical) in ANI. The main points emerging from the discussion are noted below:

Lack of Motivation: This seems to be a persistent problem in both government and private institutions. As indicated in the previous subsection, students in skill development institutions report high dropout rates. The interaction with the teaching staff revealed that the majority of the students look for flimsy reasons to discontinue their education. Part of the reason lies in the poor school education received by the students: they are not able to grasp the courses followed in ITIs and polytechnics. The problem is compounded by the fact that the best students migrate to the mainland for higher education and it is a challenge for skill development institutions in ANI to motivate students to complete the course.

Upgrading of Syllabi: The interaction with teaching staff in skill development institutions has thrown up another critical issue: the need to update the syllabi to meet industry requirements. This involves abandoning courses for which there is little demand or scope in the ANI and promoting courses for which there is increasing demand, such as hotel management, automobile repairing and draftsmanship among others.

Synergy between technical educational institutions and industries could provide motivation to students and also improve the quality of education.

Box: 3.1: Industrial Training Institutes: Enhancing Outreach and Professional Efficiency

The Industrial Training Institutes (ITIs) are ideal vectors for imparting much needed skill sets in the backward regions and among the socially disadvantaged groups. Presently, the only full-fledged ITI functioning in ANI, at Dollygunj, has an intake capacity of 460 students. Currently it is functioning at full capacity and provides training in 10 major trades. Several initiatives have recently been introduced to enhance the effectiveness of technical training being imparted, which include: (a) expansion of its operations by setting up a Vocational Training Institute at Bakultala, Rangat, in Middle and North Andaman district and an ITI at Lapathy, Nicobar district; (b) formation of an Institute Management Committee; (c) registering 25 Vocational Training Providers; (d) training and certifying around 5000 candidates by the National Council for Vocational Training; (e) conducting campus interviews for ITI trainees by inviting employers from local industry and the mainland and; (f) conducting entrepreneurship programmes to motivate unemployed youths to take up self-employment. Serious problems faced by the ITI are a high dropout rate and low pass percentages among the students, concerns highlighted by our primary survey results as well.

It is critical that the outreach and professional efficiency of the ITIs in ANI are further enhanced by adopting pragmatic strategies, which may include: introducing new courses on those skills sets/trades which will cater to the demand of the sectors with growth potential like tourism, hotels and restaurants; augmenting the intake capacity of those trades which are in high demand, particularly in IT and construction; strengthening the ITI-industry partnership for both quantitative and qualitative expansion of ITIs—given that there is a need to extend the linkages of labour market beyond the immediate locality, it may be useful to think of a consortium of industries to provide training and placement; focusing on increasing the enrolment of female students in order to improve their participation in the labour market; developing networks of alumni of the ITIs and involving them in obtaining regular feedback about labour market demand as well as participation in periodic training courses conducted by the ITIs; analysing the reasons for the high failure/dropout rates in order to take up remedial measures; increasing trainer/staff positions in commensuration with the expansion of existing trades/introduction of new courses. Considering that contractual appointments are emerging as an important mode of staffing, it is necessary that guidelines for contractual appointments are finalised giving suitable incentives for those who opt for appointment under the arrangement.

At the same time concerns were expressed about the need to update the course structure so as to meet the need for changing skills expected from the work force. For instance, in the case of draftsmanship, the teaching staff noted the need for students to develop expertise in AutoCAD and in the case of welding technology, advanced processes like submerged arc welding which will have immense demand in the future. Further, it is critical to upgrade computer skills and communication skills.

Synergy between Technical Educational Institutions and Industries: A critical factor for improving the employability of pass-out students is to enhance the synergy between skill development institutions and industry partners. Currently such interactions are limited and as will be detailed in Chapter 4, this could be one of the reasons for excessive dependence on migrant workers by both industries and services in ANI. Such synergies could be worked out in different ways: by promoting apprenticeship for students in industries, and facilitating interaction between students and industry partners, among others.

4 ASSESSING THE SKILL GAP: THE DEMAND SIDE

Having analysed the supply side of skill development in ANI—the key characteristics of the labour market and the institutional mechanism in place to impart skills—we make an attempt to understand the demand side. This chapter also aims to assess the magnitude of future labour demand at the sectoral level in ANI in different growth scenarios.

4.1 ESTIMATING EMPLOYMENT TRENDS IN ANI (2014-15 AND 2019-20)

As detailed in Chapter 2, income and employment generation in ANI indicates that services have emerged as the most prominent sector followed by industries. Based on the analysis of primary and secondary data, as well as detailed discussions with key stakeholders, from both the government and private sector, we have conducted a Strength Weakness Opportunities and Threats (SWOT) analysis of the ANI economy, the results of which are provided in Box 4.1. Given the paucity of secondary data sources, the SWOT analysis provides a strong basis to assess the future skill demand in the region. As discussed earlier, mismatch between demand and supply of skills in ANI assumes immense significance considering that a high share of the population is constituted by the young population. It is also true that the region has abundant natural resources—in terms of marine resources and unexplored islands. Further, its strategic location, its proximity to South East Asia, offers ample opportunities to utilise its strengths. At the same time, ANI faces several hurdles, many of which may require long-term strategies for their mitigation. However, those pertaining to skill development are critical and need to be addressed on an urgent basis. This is important given the opportunities the region could make use of. There is a long-standing demand for an international airport

A SWOT analysis of the ANI economy indicates several positive dimensions, the potential of which can be harnessed only through well-crafted strategies.

and a modern port to facilitate greater and economical movement of people and goods to the island. If these materialise, they will give a tremendous boost to the economy, particularly tourism and export of marine products. Lack of immediate interventions could further worsen the existing skill mismatch. The formulation of effective strategies should be based on some assessment of the extent of skill requirements in the short term and medium term.

Box 4.1: SWOT Analysis of the ANI Economy

Strengths

- High share of young population
- Abundant natural resources
- Strategic geographical location to promote tourism
- High level of social development

Weaknesses

- Fragile eco-system
- Poor infrastructure
- High dependence on mainland, making industrial production costly
- Poor skill base of the labour force
- Weak infrastructure for skill development

Opportunities

- Interest of potential investors
- Growing tourist interest and untapped resources for tourism
- Potential for expanding trade in marine products
- Improvement in infrastructure to create better investment opportunities

Threats

- Growing youth unemployment
- Lack of integration of people's voice in development interventions
- Possibility of natural disaster

We have attempted to project the estimates of demand for labour and its broad skill composition by using a combination of information from both primary and secondary

sources available for ANI. The projections have been made for two different time points, 2014-15 and 2019-20, which may be termed short- and medium-term projections. The entire process of estimation was completed in two stages: Stage I and Stage II. The sources of information and the methods used in the two stages of the estimations are detailed below:

Stage I: In the first stage, we did a forecast of sectoral employment for the period 2014-15 and 2019-20. For this, we utilised data from two secondary sources: (a) Employment and Unemployment Situation in India (EUS) from the NSSO relating to the last two surveys, 2009-10 and 2011-12 (66th Round and 68th Round respectively); and (b) Decadal Census data for the years 2001 and 2011. From the NSSO, we estimated the work force participation rate (WFPR) and percentage sectoral distribution of employment by accessing unit level records. The Decadal Census data was used to interpolate/ extrapolate the population of ANI at the point of estimation of the WFPR and sectoral employment from NSSO. Based on these two data sources, sectoral employment figures for ANI for the periods 2009-10 and 2011-12 were estimated by using the following formulae:

N= P' * WFPR ..... (1)

Ns=N * SDE ..... (2)

where:

N, P' and WFPR in equation (1) stand for total employment, projected population at the mid-point of the NSSO survey year, and worker population ratio respectively.

In equation (2), Ns stands for total sectoral employment and SDE is the sectoral percentage distribution of employment.

The projected populations for the years 2009-10, 2011-12 and 2014-15 were arrived at by using the formula for the cumulative annual growth rate (CAGR) of the population between the period 2001 and 2011 and applying the CAGR on the base year population of 2001.

$$r = \left[\left\{\sqrt[n]{\left(\frac{A}{P}\right)}\right\} - 1\right] * 100;$$

where:

A is the population in the terminal year (say 2011), P is the initial population (say year 2001), r is the rate of growth of population to be estimated between 2001 and 2011 and n is number of years between the intervening periods (10 years in the present case).

Finally, the projected populations for the years 2009-10, 2011-12 and 2014-15 were $A = P * (1 + \frac{r}{100})^n$.

Having estimated the projected populations for the three referral periods, the total employment figures for the years 2009-10 and 2011-12 were estimated by using the formula in equation (1).

Table 4.1: Actual and Estimated Population and Total Employment in ANI (2009-10, 2011-12 and 2014-15)

Panel I			
Year	**2001**	**2011**	
Actual population	356000	381000	
CAGR (%) 2001 to 2011	0.68		
Panel II			
Year	**2009-10**	**2011-12**	**2014-15**
Estimated population*	377781	382944	390821
WFPR (%) **	39.9	42.0	42.0
Total employment	150735	160837	164145

Note: ***Estimated (projected) on the basis of the CAGR of population between 2001 and 2011.**
****Actual WFPR for 2009-10 and 2011-12 from NSSO and assumed WFPR for 2014-15.**
Source: **Decadal Census and NSSO, respective years.**

The pattern of employment generation at the subsectoral level for the three time periods (2009-10, 2011-12 and 2014-14) is indicated in Table 4.2. As already discussed in Chapter 2, the service sector continues to dominate employment generation in ANI, with the key subsectors being transport, storage and communication, public administration and education. While the share of the manufacturing sector is low, it is evident that construction will continue to have a significant role.

Table 4.2: Sectoral Distribution of Employment						
Industry	Percentage Share			Employment		
	2009-10	2011-12	2014-15	2009-10	2011-12	2014-15
Agriculture & Allied	27.9	26.40	24.9	42,055	42,461	40,872
Mining & Quarrying	1.0	-	-	1,507	-	-
Manufacturing	5.5	4.28	5.1	8,290	6,884	8,306
Electricity, Gas & Water Supply	2.9	2.26	1.6	4,371	3,635	2,659
Construction	13.1	16.04	17.0	19,746	25,798	27,872
Wholesale & Retail Trade	13.5	11.34	9.2	20,349	18,239	15,069
Hotels & Restaurants	1.2	1.50	1.8	1,809	2,413	2,955
Transport, Storage & Communications	8.9	9.89	10.9	13,415	15,907	17,859
Financial Intermediation	0.7	0.96	1.1	1,055	1,544	1,838
Real Estate & Business	0.4	-	-	603	-	-
Public Administration	11.2	11.34	11.7	16,882	18,239	19,172
Education	5.8	8.19	9.6	8,743	13,173	15,725
Health & Social work	3.7	2.70	1.7	5,577	4,343	2,790
Other Community & Social Services	2.3	1.92	1.5	3,467	3,088	2,528
Activities of Private households	1.9	1.81	1.7	2,864	2,911	2,823
Extra-territorial Organisations	0.0	1.36	2.7	-	2,187	4,465
Total	**100**	**100**	**100**	**1,50,735**	**1,60,821**	**1,64,933**

Note: **NA—not available because of very small sample or no sample covered in NSSO.**
Source: **Computed from unit level data, various rounds of NSSO and Census estimates.**

Based on the SWOT analysis and trends emerging from primary and secondary data sources, industry and service activities in ANI are categorised into low, medium and high performing sectors as indicated in Table 4.3. The current and future growth potential of sectors, in terms of income and employment generation, was a key factor taken into account. Discussions with major stakeholders in ANI indicate that among the various economic activities, tourism, fishing and fish processing, and construction related activities are the most prominent ones. Wood based industries have been thriving in ANI, but after the Shekhar Singh Commission Report, which is endorsed by the Supreme Court, the scope of its future

Need to focus on sectors that have high growth and employment potential like construction, transport and storage, and hotels and restaurants.

growth is limited. At the same time there is immense scope for marine based activities; currently its potential is not fully utilised.

Table 4.3: Growth Prospects of Selected Industries and Services in ANI

Future / Current	Limited	Medium	High
Limited	Wood, Chemical & Textile based Manufacturing	Coconut & Coir based Manufacturing, Cane & Bamboo based Handicrafts	Agro & Marine based Manufacturing, Information Technology & enabled services
Medium		Trade	Construction, Engineering based, Repair Services (electrical-electronic & vehicle)
High			Hotels & Restaurants, Transport & Communications

Source: **Secondary data sources and information from the field.**

A persistent issue faced by the majority of industries and service enterprises in ANI is the lack of skilled manpower. The enterprise survey conducted as part of the study revealed that in most of the industries, the reliance on migrant workers is as high as 60 per cent. Such high dependence on migrant workers has also resulted in high worker turnover, with industries spending a substantial amount in hiring and training the workers. In the hotel and restaurant subsector labour turnover seems to be quite high: 40 per cent annually. As the survey reveals, the majority of the enterprises depend on personal/kinship relations, followed by newspaper advertisements, to recruit workers. In enterprises covered by the survey, a significant share of workers was from Bihar, of course linked with the regional affiliation of the entrepreneur to the mainland. Apart from low skills, lack of motivation among the native workers was identified as an important factor for the heavy dependence on migrant workers. Reasons may be the low levels of poverty in ANI and

High reliance on migrant workers increases hiring and training cost of employers.

also lack of spending avenues for the younger population, who may not feel motivated to work in the private sector but would rather wait for government jobs. Taking a holistic view of the existing conditions it is preferable to have a plan for economic growth that focuses on high value products/services.

4.2 Assessing the Demand for Skilled Labour for Selected Sectors

Stage II: In the second stage of our demand forecast, we projected the total employment for the years 2014-15 and 2019-20, so as to arrive at the demand for skilled manpower at the sectoral level. This exercise was based on the following four assumptions:

- Given that the time difference between 2011-12 and 2014-15 is relatively small (just three years) we assumed that the WFPR would not change significantly and we assumed WFPR for 2014-15 to be the same as in 2011-12.
- We assumed that the changes in sectoral percentage distribution of employment would follow a linear trend in 2014-15 and estimated the same by considering the sectoral percentage distribution of employment during the last three periods 2004-05, 2009-10 and 2011-12.
- For 2019-20, based on the sectoral employment growth already realised between 2009-10 and 2011-12, we assumed two different pre-determined scenarios of the sectoral employment growth (CAGR) between the period 2014-15 and 2019-20.
- Finally, we assumed that the sectors with high employment growth between 2011-12 and 2014-15 are emerging sectors in ANI and these sectors are likely to provide the highest employment in future.

These assumptions, along with estimates of the sectoral employment situation for the years 2009-10 and 2011-12, helped in projecting the total sectoral employment for ANI. Here we also relied on information on the demand for skills estimated from primary sources (survey conducted specially for the present study) to project sectoral employment. It needs to be recognised that any assessment of skills need not be based on the current and future demand for manpower in a particular sector, as the increased demand for skilled manpower is not created solely by a particular sector/activity in the

Demand for skilled workers will depend on backward and forward linkages of a sector/ activity.

economy. For instance, in ANI, tourism activities create strong forward linkages with trade, hotels and restaurants, and transport. At the same time backward linkages connect construction activities and agricultural operations (floriculture and horticulture) with tourism. Similarly, construction activities by themselves create further backward and forward linkages and therefore demand for skilled manpower in other sectors. So when we are analysing the demand for skilled manpower created by tourism activities or by the construction sector, we need to arrive at the demand for manpower in all the major sectors with which it has forward and backward linkages.

Table 4.4: Projected Employment in 2019-20 under Three Employment Growth Scenarios

		Manufacturing	Construction	Hotels & Restaurants	Transport & Storage	Total
Employment	2011-12	6884	25798	2413	15906.74	48267
	2014-15	8306	27872	2955	17858.96	54857
CAGR (%)						
Three employment growth scenarios between 2014-15 and 2019-20	I	6.46	2.61	6.99	3.93	4.36
	II	5.96	2.11	6.49	3.43	3.75
	III	6.96	3.11	7.49	4.43	4.86
Estimated Employment in 2019-20 corresponding to three growth scenarios	I	11358	31705	4142	21659.48	68330
	II	11094	30940	4046	21143.48	66711
	III	11627	32485	4240	22185.51	69979

***Source*: Computed from unit level data, various rounds of NSSO and Census estimates.**

First we present the projected employment in selected sectors which have strong forward and backward linkages and thus significant employment potential (Table 4.4). It needs to be noted that in a small island economy like ANI, variations in employment at the subsectoral level in different growth scenarios will be not be very significant. So at the subsectoral level, the projection of skilled labour force is limited to the medium

growth scenario. We now detail specificities of skills in relation to the three key sectors: tourism, construction and fishing and fish processing.

4.2.1 TOURISM

The growth of the tourism sector in ANI, particularly in an organised form, is a post tsunami phenomenon, devised as a means to reconstruct the economy. The tourism sector has significant industry linkages, but the degree of such linkages depends on the magnitude and category of tourists visiting the island. Over the years the number of tourist arrivals to ANI has registered a growth, as noted in Table 4.5, but the majority of the domestic tourists belong to those availing LTC facilities, while backpackers dominate international tourists. Both these categories have a low propensity to spend. Although we are concerned with the issue of skill mismatch here, it is equally important to move the tourism sector to a higher growth trajectory which will be crucial to engage skilled manpower. This involves making the sector eco-friendly and sustainable by strengthening local linkages of tourism activities, developing infrastructure and adopting a variable pricing policy for different locations, among others. While these concerns have been highlighted in the region's tourism policy, a multi-sectoral approach is required to address these problems.

There is a need to focus on low volume, high quality tourism.

Table 4.5: Tourist Arrival in the ANI

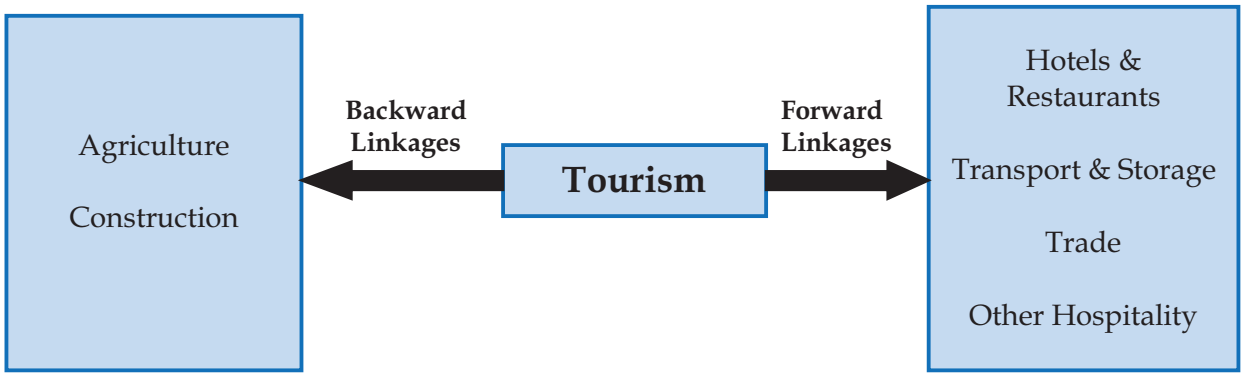
Year	*Domestic*	*Foreign*
1991	32242	2248
1995	64490	3849
2000	81432	4634
2005	30225	2164
2010	180781	14615

Source: **Tourism Statistics, 2010.**

Figure 4.1 presents prominent forward and backward linkages of tourism activities. Considerable inter-industry linkages are generated by the tourism sector. Of course, the most significant among such linkages are those with hotel and restaurants, transport

and construction. Although significant linkages can be developed with agricultural operations, in terms of promoting a local sustainable tourism activity, so far very limited efforts have been made in this direction. For instance, during our enterprise survey, we came across a couple of hotels which are making efforts to promote the cultivation of organic vegetables by procuring them as a method to involve the local people in the tourism industry. Such best practices need to be documented and followed.

Figure 4.1: Industry Linkages of Tourism Sector



We have also attempted to estimate the manpower requirements in tourism, particularly in sectors which have strong employment linkages like transport and communications and hotels and restaurants. The manpower requirements in each sector are classified into low, medium and high skilled categories. Table 4.6 indicates the qualifications and specific skills expected from different workers in each of the subsectors with which tourism has strong linkages.

The demand for employment in the tourism and allied sectors during 2019-20, estimated at three growth scenarios, range from 25,190 in the lowest case, to 25,801 in the medium case and 26,425 in the highest scenario. The estimated employment and its skill composition in the medium growth scenario are presented in Figures 4.2A and 4.2B.

Figure 4.2A: Skill Requirements in Tourism, 2011-12 (in %)

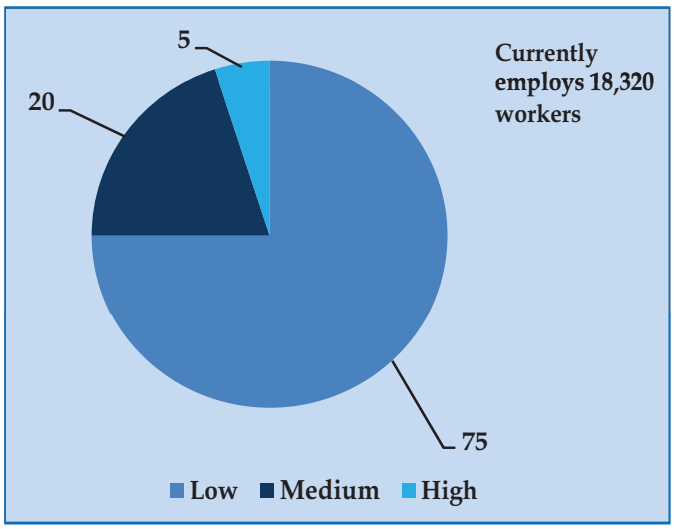
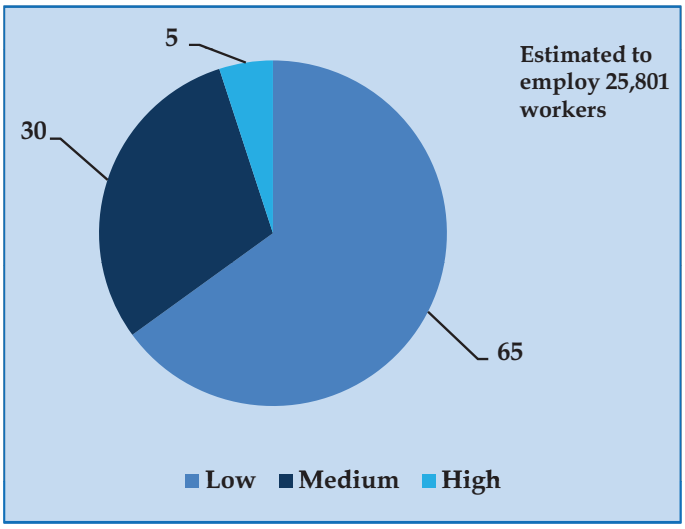


Figure 4.2B: Projected Skill Requirements in Tourism, 2019-20 (in %)



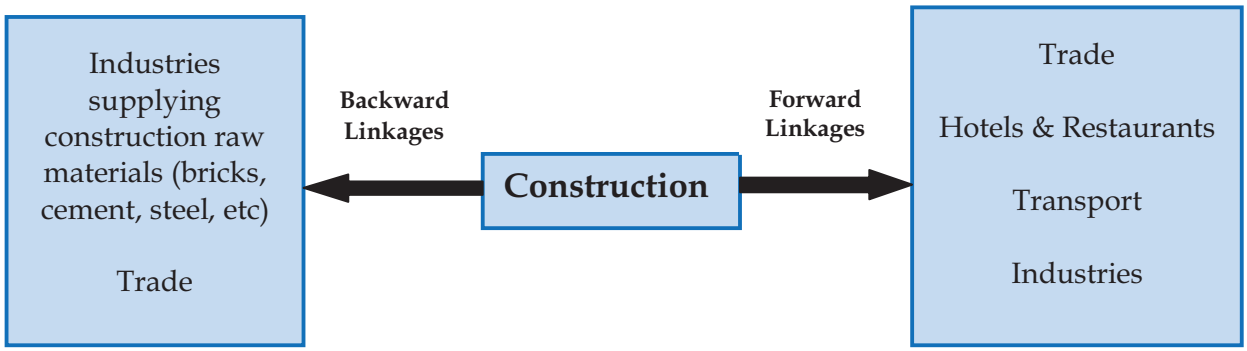
Our analysis pertaining to tourism and allied sectors clearly highlights the significant employment potential of this sector in the medium term in the ANI economy. It also shows that there will be a shift of demand for skills from the low skill category towards the medium skilled category. Such a trend has significant policy implications. It is critical that the skill development institutions focus on imparting medium level skills (receptionist, accountant, cooks, computer professionals) relating to the tourism sector within ANI as indicated in Table 4.6.

Table 4.6 Skill Requirements in Tourism			
Sector	**Level**	**Skill Requirement**	**Specific Qualification**
Hotels & Restaurants	High	Manager, Chef, Supervisor/Accountant/ Engineer	MBA/Hotel Management/Food Technology/CA/IT Specialist
	Medium	Receptionist, Accountant, Front Office, Housekeeping, Cooks, Computer Professionals	Graduate/Front Office Management/Accountancy/Tally-Diploma Course
	Low	Waiters, Room Boys, Cleaners, Security Guards, Kitchen Staff	High School and below/Restaurant Services/Security Services
Other Hospitality	Medium	Scuba Drivers & Other Trainers in Adventure Sports	Higher Secondary/Graduates/ Masters/Basic/Advance Certification Course
	Low	Guide, Life Guards	High School & below/Certification
Transport	High	HR Managers, Engineers, Computer Professionals	Engineering /MBA/MCA
	Medium	Customer relations manager, Travel & Tour Operator, Office Assistant, Accommodation Assistant, Ticket Reservation Assistant, Computer Professionals Air Hostess, Cabin Crew	Higher Secondary/Graduates/ Masters/Diploma/Basic/Advance Certification Course in Ticketing, Travel and Tour Operations/ Hospitality Management/Flight Operation/Airport & Ramp Operations/Flight Operations/Airline Customer Management
	Low	Drivers (land & water transport), Mechanics	High School & below/Licence, Certificate, Orientation in Customer Relations
Trade	High	Manage, Computer Professionals, Accountants	MBA/Engineers/CA
	Medium	Sales Executives, Cashier, Computer Operators	Graduate/BBA/Accountancy/Tally-Diploma Course/Customer Care Executive
	Low	Salesmen, Security Guards, Office Assistants	High School & below/Security Services

4.2.2 CONSTRUCTION

Unlike the situation in other parts of the country, the majority of the construction work in ANI is related to infrastructure development, harbour and marine structures, and other construction work undertaken for the ANI administration. As noted, the tourism sector has strong backward linkages with the construction industry. The main problem encountered by the construction firms is the lack of labourers—both skilled and unskilled. The industry currently thrives on migrant labour, as native workers are not interested in the sector, particularly in manual work. Skilled workers recruited from the island soon migrate to the mainland or foreign destination seeking better opportunities.

Figure 4.3: Industry Linkages of Construction Sector



It is evident from our demand estimation that construction continues to be one of the most important sectors in terms of employment generation in ANI in the medium term. Nearly one-fifth of the total workforce in 2019-20 has been estimated to be employed in various construction activities. Apart from noting its significant share, what is crucial is to analyse the nature of skill composition and its potential changes over time. As regards the current skill composition, nearly 80-90 per cent of the construction workers would be in the low skill category. Although this proportion may not change very significantly in the medium term, with new construction technology being adopted in many construction activities in ANI, there will be a gradual shift in terms of medium skill as well as multi-skilling in the next 5-10 years (Figures 4.4A & 4.4 B). In this regard it is important to note that the curriculum adopted by skill development institutions imparting construction related

Skill development institutions need to focus on imparting medium level skills required in construction.

skills, including the ITIs, is more trade centred and does not provide much scope for multi- skilling. The curriculum needs to undergo relevant modifications to address the emerging skill needs. Apart from imparting trade specific skills, it must focus on soft skills such as teamwork, communication skills and numerical skills. This is extremely significant as large construction firms regard such skills as crucial for improving work culture and productivity. The curriculum should also focus on IT as a key tool in cognitive learning as well as in practical applications.

Figure 4.4A: Skill Requirements in Construction Sector, 2011-12 (in %)

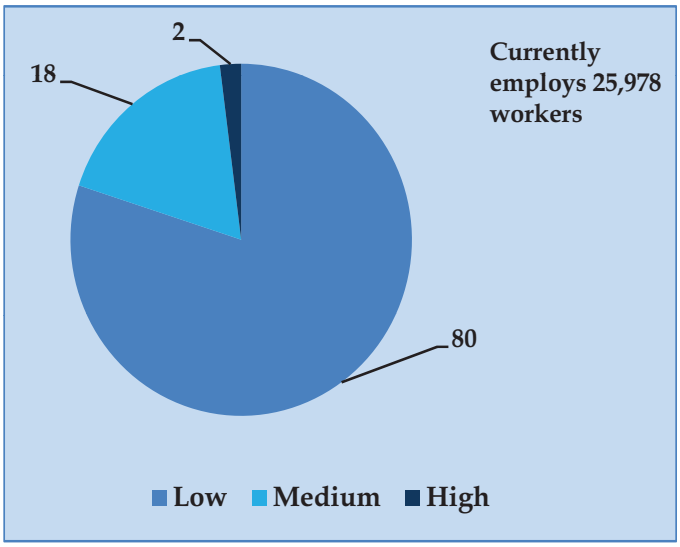
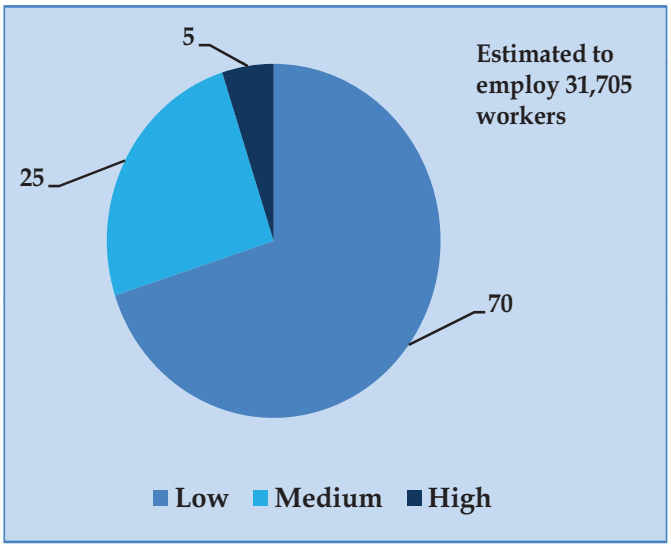


Figure 4.4B: Skill Requirements in Construction Sector, 2019-20 (in %)



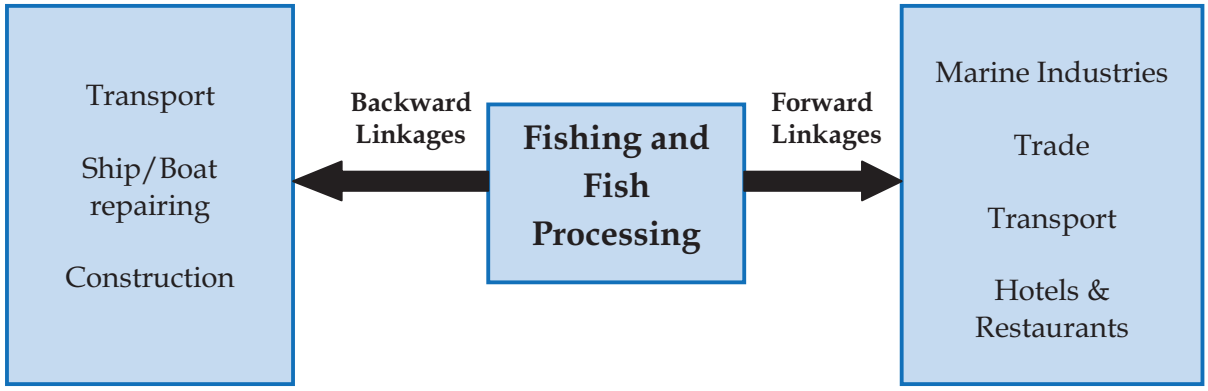
Note: **Low—Crane Operators, Electrician, Carpenter, Mason, Plumber, Welder (those possessing Diploma, High School and below); Medium—Supervisor, Store Keeper etc. (Diploma Engineers/ Graduate/ITIs; and High—Project Manager, Engineers (Graduate Civil Engineer/Diploma).**

4.2.3 FISHING AND FISH PROCESSING

Unlike in other island/sea dominated regions, traditional fishing communities do not exist in ANI. Earlier, to promote fishing, the government had brought fishing communities from Tuticorin and other coastal areas of the mainland. However, currently most of the people from such migrant communities are not keen to continue with fishing. While the island has rich marine biodiversity, it suffers from inadequate infrastructure to upgrade the technology and boost the performance of the sector. It is estimated that only 19 per cent of the total marine resources are currently utilised (Department of Fisheries, 2012). A step in this direction is the Tuna Mission 2009-2014,

introduced by the administration. Two important recommendations include the introduction of mechanised fishing vessels with government subsidies and providing training on fishing, handling, grading, processing and packaging—recommendations that would result in significant value addition of marine products. This would also result in increasing inter-industry linkages. Figure 4.5 indicates the existing backward and forward linkage of fishing and fish processing activities.

Figure 4.5: Industry Linkages of Fishing and Fish Processing



Fishing and fish processing is a highly technical activity. These can be broadly categorised into 6 stages: capture (net), culture (cage, seaweed, draft polyculture, sea water, fresh water, etc.), product development (pickle, standardisation), preserve (plant maintenance), storage, and transportation and marketing. The skill requirement in the sector definitely depends on the kind of activities one want to specialise in. For instance, instead of undertaking large-scale fishing one could think of exporting live fish, which will generate higher revenue. This was indicated by entrepreneurs during our primary survey, who noted that exporting live fish to South East Asian countries hold immense potential. However, it needs to be noted that ANI has huge marine resources that are currently underutilised (Department of Fisheries, 2012). Currently, the island does not have the infrastructure to provide training to manpower in many of these specialised activities. Some initiatives to train more people in boat repairing and other related activities have been undertaken recently.

Given the geographic specificities, ANI need to focus on training manpower required for high value marine processing.

Due to inadequacy of secondary data at the disaggregated level, it was not possible to estimate, based on the earlier methodologies, the demand for workers in fish and fish processing sectors. However, from our discussions with those engaged in this industry as well as guesstimates provided in certain government documents, we have estimated that this sector currently employs around 5000 people. Using the growth of manufacturing employment in ANI as a proxy for the fish processing sector, we project the demand for workers in this sector in 2019-20 to range from 8500 in a low growth scenario to 9100 in medium growth to 9700 in high growth. The estimated employment and its skill composition in the medium growth scenario for 2011-12 and 2019-20 are presented in Fig 4.6A and Fig 4.6 B.

Figure 4.6A: Skill Requirements in Fishing & Fish Processing, 2011-12 (in %)

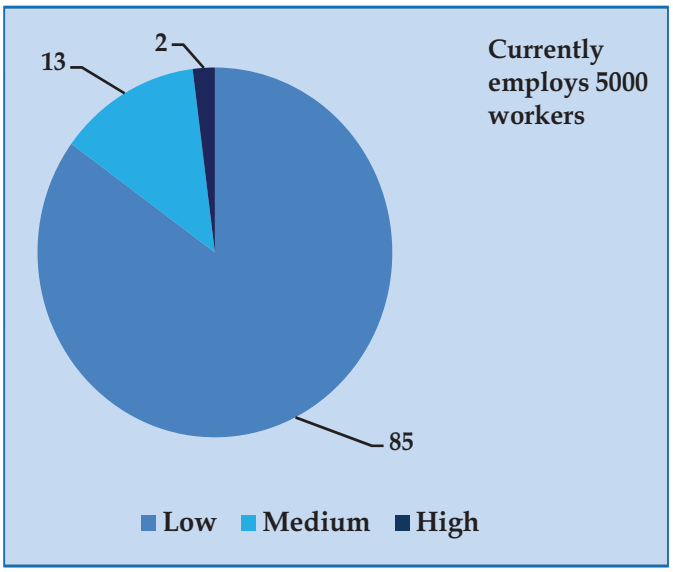
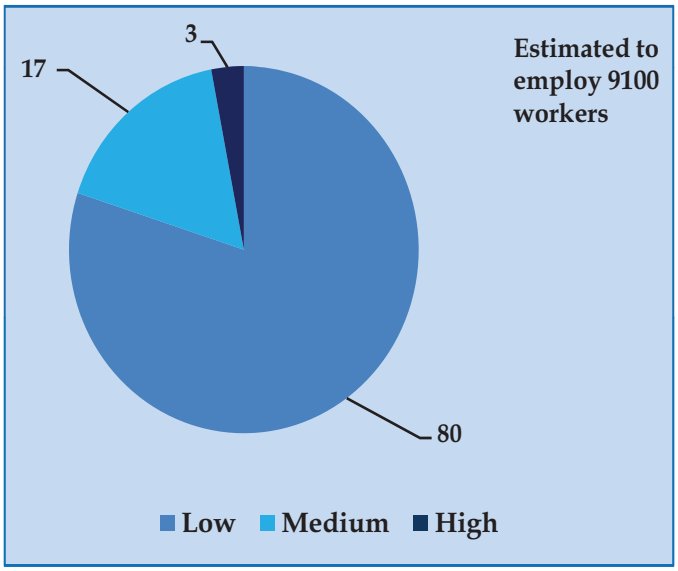


Figure 4.6B: Skill Requirements in Fishing & Fish Processing, 2019-20 (in %)



Note: **Low—Fishermen, Fish Handling and Processing, Boat Repairing (High School and below/license, certificate); Medium—Supervisor, Product Development, Marketing, Storage, Technician (Degree, Diploma); and High—Managers, Accountants, Plant Engineers (Food Processing Technology, MBA).**

It is evident from the above analysis that there exists a significant demand for various categories of skills in those economic activities with high growth prospects in ANI. However, the specific number of skilled manpower required would also depend on the levels of operation and plans for scaling up of the different sectors. This would mean that there is a need to identify a road map for each of the selected economic sectors for its growth in the medium and long term. One of the first steps required in this direction

is the setting up of sector/industrial councils which can draw up such plans and then match them with the identified skill demand. As indicated in Chapter 3, the existing institutional base to develop these skills is very limited. While there have been some efforts to improve the existing infrastructure, there needs to be a focus on the quality of education provided, for example, upgrading the quality of training and tying up with institutions outside ANI. Equally important is to forge more of an interface with private employers—not only in ANI but also on the mainland and abroad. But, as noted, the benefits of skill development will not occur in isolation—the economy has to be revived to create a demand for skilled labour. Clearly there is a mismatch, which could be resolved by increasing the capacity of existing institutions, facilitating the skill development of workers through institutions located elsewhere, and establishing better working conditions to retain workers.

5 On Matching Skills

Matching the demand and supply of skills is important in any economy. The analysis of the supply of and demand for skilled labour indicates significant levels of mismatch in ANI. Such mismatches arise at three levels: (a) a significant proportion of job seekers do not have the requisite qualifications to match the demands particularly in new and emerging sectors; (b) some workers are overqualified and cannot find job opportunities to match their qualifications and aspirations; and (c) the economy is not generating enough jobs to incentivise people to acquire skills and enhance their employability. The intensity of such skill mismatches is aggravated if the labour market information system is either not fully developed or not performing effectively. In small economies like ANI, an efficient functioning of the matching process is important because of the region's specificities: isolated geographical location, small size of population and limited number of institutions to train and employ workers. This chapter primarily intends to provide an overview of the current processes in place to match the supply of and demand for labour in ANI and to identify lacunae in the process.

An efficient process to match demand and supply of skills is critical for any economy to facilitate income and employment growth.

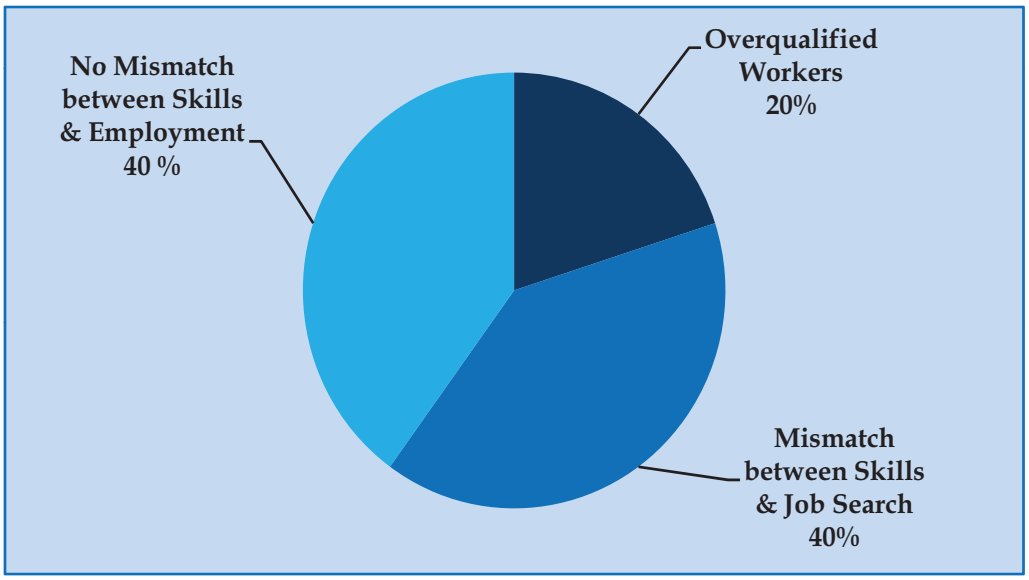
5.1 The Process of Job Search: Job Seekers' Perspective

As indicated in Chapter 3, there exists a significant number of unemployed people in ANI, particularly among the youth population. It is also a fact that the skill level of the labour force continues to be low, while the majority of the job seekers have a strong preference for government jobs. The response from the household survey indicates that in many cases they do not consider employment in the private sector worth pursuing as a means of livelihood. Ironically, even educated people prefer to work in the government sector, as a contract employee or in jobs non-commensurate with their qualification.

A direct outcome of such misplaced preference is the skill mismatch in the employment pattern. As indicated in Figure 5.1, there is a significant share of workers who are employed in occupations not appropriate to their skills. This is not only a waste of resources invested in providing education and skill training, but also a factor that affects the efficiency and the interest of the worker on the job. Such trends emphasise the importance of counselling for students in choosing the right stream of education and perhaps behavioural courses to provide them motivation. The distorted preference for government jobs among the youth could also be because they are unaware of the opportunities available for employment and career growth in the ANI or at any other destinations. Such distorted preference could also be a reason for high unemployment rates as well as long durations of unemployment noted among the young labour force.

There exist high levels of skill mismatch, particularly among young workers.

Figure 5.1: Extent of Skill Mismatch of Young Workers (18-34 years)



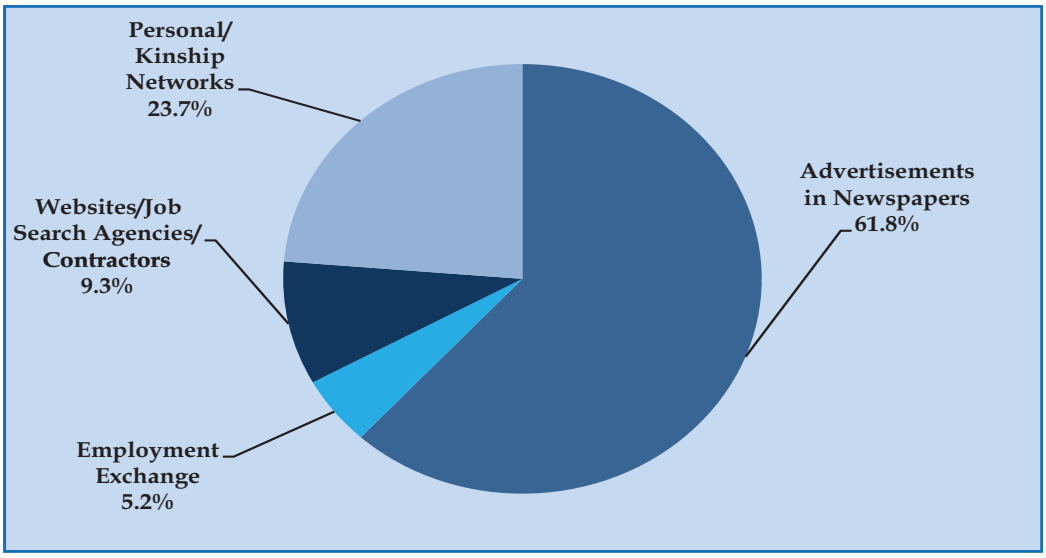
Source: **Primary Survey.**

Figure 5.2 indicates the methods of job search followed by job seekers in ANI. The majority of job seekers rely on newspaper advertisements for their job search: this is probably linked with the fact that most of them have a strong preference for government jobs, permanent or contractual. This is followed by the personal and kinship network in matching supply of and demand for labour. It is also important to

note that the employment exchanges in ANI do not play a big role in the process. Considering the specific characteristics of the ANI economy, employment exchanges could perhaps play a more proactive role. Yet another important factor is the insignificant role of career guidance cells in facilitating effective interface between students and potential employers. Not only do such centres not exist in many skill development institutions, the majority of them function extremely inefficiently in institutes where they do exist.

Private agencies like newspapers, websites and informal networks can perform a major role in facilitating job search behaviour.

Figure 5.2: Method of Job Search of Youth (18-35 years)



Source: **Primary Survey.**

Considering that it is unrealistic to expect all students from skill development institutions to get employment in ANI, these institutions should develop innovative strategies to build up linkages with employers in other destinations, including foreign countries. This would also entail updating the current syllabi as well as strengthening the validity of skill recognition certificates provided by the institutions in ANI to meet job requirements in destinations outside the region. At the same time courses for skills that are critical for the development of ANI—such as different aspects of hotel management and hospitality,

Innovative measures need to be formulated to retain skilled labour and to facilitate industrial development suitable to local requirements.

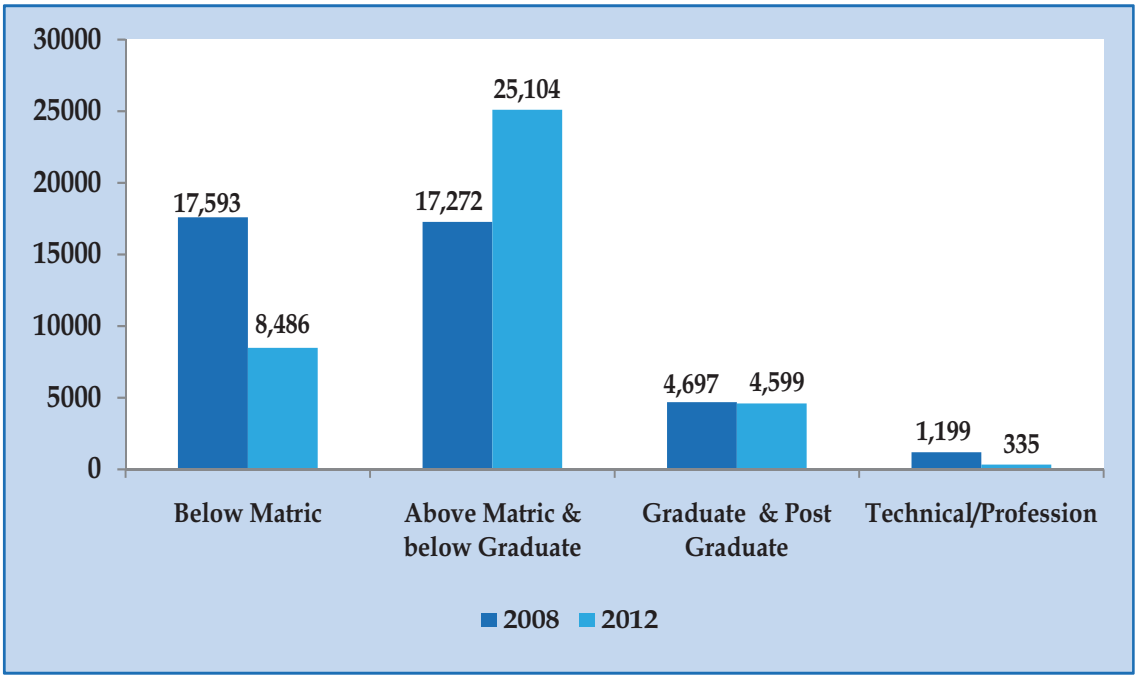
given that tourism is the backbone of the island's economy—should be evolved to increase the supply of skilled and employable labour. Equally important is to ensure that students who complete the training from such institutes are motivated to serve in the island at least for a minimum period through an incentive mechanism. This would not only make the growth of the tourism sector more integrated and responsive to local realities, but also address the concerns expressed by the industries on recruiting and retaining skilled manpower in the island.

5.2 Government Response to Facilitate the Matching Process

The government mechanism to bring together job seekers and employers is through the employment exchange. In 2012 alone the number of new registrations made at the employment exchange in ANI was 7048. As of December 2012, there were 48,515 applicants registered with the exchange, of which males constitute 60 per cent. The data also indicates that applicants from the general category form the predominant share of applicants registered at the exchange (81 per cent), while the share of OBC and ST applicants is less: 13 per cent and 4 per cent respectively.

Figure 5.3 indicates the distribution of job seekers registered with the employment exchange by educational qualification. The qualification of the majority of the job seekers is above secondary and below graduation. It is to be noted that only a small number of those possessing technical education is registered with the employment exchange, because their share in the labour force is miniscule and they probably do not experience difficulties in obtaining jobs either within ANI or outside. The gender-wise break-up indicates that among the females registered with the employment exchange, a significant proportion have educational attainments above matriculation and below graduation. In 2012, of the total registration, placements made constituted merely 3 per cent. Such a trend clearly highlights the prospects for enhancing the role of the employment exchange.

Figure 5.3: Registered Job Seekers in Employment Exchange by Education



Source: Data from the employment exchange.

In a difficult terrain like ANI, the employment exchange has an important role to play. If one looks at the functioning of the employment exchange at the all India level, several good practices can be identified, that could be replicated in ANI. Among various states, Tamil Nadu has taken several noteworthy initiatives to improve the functioning of employment exchanges (Box 5.1). Equally impressive is the case of Gujarat that records a high percentage of placement among women candidates who have registered for employment. In 2011, out of the total women registered at the employment exchange, 39 per cent were provided employment—the highest for the country as a whole.

The employment exchange needs to evolve as a centre of excellence for the empowerment of the youth.

Box 5.1: Functioning of Employment Exchanges in Tamil Nadu

The employment exchanges in the state function with the motto of becoming 'Centres of excellence for empowerment of the youth'. An important step adopted by them is the development of a web portal through which job seekers can register, update and renew registration. The portal also facilitates employers in their search for suitable candidates. As in other states, in Tamil Nadu too, relevant government jobs are filled through employment exchanges; however, what is of significance is that the operation of the web portal has substantially improved the participation of private employers in recruiting workers through employment exchanges. Moreover, Tamil Nadu organises regular job fairs to provide a platform for job seekers and employers to interact with each other. Further, the employment exchanges also provide regular updates on employment trends and vocational guidance services, and facilitate active functioning of study circles to prepare candidates for competitive examinations. The performance of the employment exchanges of Tamil Nadu has set a great example for regions like ANI.

5.3 THE EMPLOYERS' VIEWPOINT

Employers hold the view that there is a general lack of interest among the workers, even the new entrants to the labour force, in the jobs entrusted to them. As noted in Chapter 4, this not only increases their dependence on migrant labour but also raises their costs. Further, employers opine that the native population tries to move to the mainland or other destinations after receiving some experience, further increasing the cost of hiring and training labour. This is particularly true of the tourism sector because of the long off-season due to the climatic situation. But what is most striking is the perspective held by most business groups functioning in ANI that there is a lack of interest among the island's young population in engaging in private sector employment as well as non-availability of workers with appropriate skills, because of which they are forced to be increasingly dependent on migrant workers.

But many government stakeholders have a different view. For instance, discussions with the administration of ANI's employment exchange indicate that in many fields, industry groups are interested in hiring migrant workers despite the availability of qualified local workers. They pointed to the poor outcomes in the employment fairs

organised by the department in the past and the low participation of the employers. A similar view is expressed by a few industry groups which observe that most of them do not want to incur additional costs in training local workers, when they are not sure how long will these workers will stay on with them. Additionally, migrant workers may be available for lower wages (except for a small percentage belonging to highly skilled occupations) and can probably be easily laid off during the off-season.

Given such a scenario, what is required in ANI is to build platforms of cooperation between employers and employees. Several ways could be devised for this: increasing synergy between employers in skill training, better ways of utilising portals like the employment exchange, career guidance cells in reducing skill mismatches, and providing incentives for employers in training and hiring local labour to strengthen local linkages of development, among others.

Employment exchanges can provide platforms to develop better synergy between job seekers and employers.

6 EFFECTIVE SKILL MATCHING: POLICY OPTIONS

- The capacity of any economy to generate quality jobs, which is fundamental to effective skill matching, will depend upon its ability to achieve high and sustained growth. It is also important to establish employment generation as a key objective of macroeconomic policies.

- A key issue is to stimulate private investment, particularly in sectors that are either employment-intensive or have large employment linkages. The key sectors identified in the case of ANI are tourism, construction and marine based activities.

- Industrial policies must consider all possible measures, such as additional credit support to the identified sectors, strengthening of comprehensive support to small and medium sized enterprises, and reforms to increase the competiveness of product markets.

- There is a strong need to develop a comprehensive Labour Market Information System (LMIS) that needs to be updated at regular intervals. There exist severe data gaps on all aspects of employment and unemployment as well as macroeconomic aggregates. Considering that macro data sets like the NSS are not adequate to capture the employment and unemployment situation in ANI at a disaggregated level, there is a vital need to develop an LMIS so that relevant studies on labour market assessment can be conducted. Also, this would enhance the capacity of the manpower. The employment exchange in ANI can be designated as the nodal agency for developing a comprehensive LMIS.

- The issue of skill development has to be approached with an integrated perspective. The key elements of such an approach entail:

    - Emphasis on quality of education even from the school level. Issues related to skill development can be introduced in the school curriculum. For instance,

embedding an entrepreneurship curriculum in secondary and tertiary schools in an effective way of changing attitudes towards entrepreneurship.

- Addressing regional inequality in the availability and accessibility to educational institutions

- The existing skill development institutions and the skills that they are imparting cannot meet the current/emerging demand particularly in relation to the identified sectors. This problem can be addressed at five different levels: (a) enhancing the intake capacity of the institutions particularly in ITIs; (b) starting new courses/trades in ITIs, particularly in relation to medium level skills pertaining to the tourism sector; (c) modifying the curricula of different trades being imparted at the ITIs. Apart from imparting trade specific skills, ITIs must focus on soft skills such as teamwork, communication skills and numerical skills. The curricula can also be restructured in such a way as to facilitate multi-skilling. For instance, certain basic dimensions relating to a related skill could be introduced in the curriculum of a main trade; (d) forging partnerships with major skill development institutions including those from outside ANI and encouraging them to tie up with institutions within the region; and (e) setting up new skill development institutions. It would be most ideal if new skill development centres are set up through public-private partnership. Apart from optimising the use of resources, such an approach would also ensure that the focus of the skill development institutions could be on skills in demand by private employers. Evidences, international and national, clearly highlight that public-private partnership works most effectively in the area of skill development.

- Skill development institution-industry partnership must be strengthened through greater involvement of industry in both the quantitative and qualitative expansion of skill development institutions. Given that there is an urgent need to extend the linkages of labour market beyond the immediate locality it may be necessary to think of a consortium of industries and pooling of various size categories of industries to provide training and placement.

- There has been a heartening trend of enrolment expansion in skill development institutions. Such a trend must be augmented by a lowering of the dropout and failure percentages. Special efforts must be made to analyse the trends of failure/dropouts in specific trades in order to take remedial measures.

- Public employment services are critical for ensuring the smooth transition of young job aspirants from school/skill development institutions to work. Such institutions play a critical role in the registration of job seekers, provision of counselling and guidance, and referrals to active labour market programmes. There is a strong need to make the existing public employment service institutions in ANI (namely the employment exchange) function much more effectively. Employment services should particularly target those groups of young job seekers who are most in need of assistance and tailor the services provided to their specific needs and labour market aspirations. Profiling systems which identifies specific difficulties encountered by young job seekers in finding employment can be very valuable in developing effective targeting mechanism. Person-centred approaches to counselling and guidance must be followed, rather than generalised approaches. Outreach activities of the employment exchange must identify employers who are potentially willing to employ job seekers referred by public service institutions. The employment exchange in ANI should be evolved as a centre of excellence for the empowerment of the youth. An important step to be adopted in this regard is to develop a web portal of the employment exchange that can register, update and renew registration. Such web portals can act as an important intermediary between job seekers and employers.
- Special attention should be given to design skill development programmes for the disadvantaged groups such as those belonging to the ethnic/social minorities and the youth with special needs.

- There is a pertinent need to set up skill sector councils. Such councils may initially be set up in relation to tourism, construction and marine industry. These councils will be entrusted with responsibilities like preparing the road map for the growth of the sector and matching it with identified skills.

- Training subsidies for firms that employ low skilled workers belonging to the island can expand work-based training for the disadvantaged job aspirants. Effective design and targeting can minimise distortion effects.

- The promotion of entrepreneurship among young people has an important role in addressing employment and skill needs. Encouraging and facilitating business start-ups by young people provides them with the pathway to enter the labour market through self-employment. Specific groups which encounter labour market and other related barriers such as women must be encouraged. Offering packages with a broader range of services, rather than only providing financial support, might be more effective.

- Prospects for encouraging overseas employment of people from ANI in an institutionalised manner must be considered. Given that the demand for workers particularly in the care sector is increasing in many parts of the world, there is a need to impart skills in such trade, so that it enhances overseas employment prospects. Promotion of overseas employment could also bring in the benefit of increased inflow of remittances and development impacts related to it.

- Social dialogue on skill development (involving key social partners like government, skill development institutions, employers, trade unions and NGOs) must be institutionalised.

APPENDIX

Table 1A: Trends in Income (NSDP) and Per Capita NSDP in UTs and All India (in %)

	Year	Net State Domestic Product					Per Capita Net State Domestic Product				
		ANI	Chandigarh	Delhi	Puducherry	All India	ANI	Chandigarh	Delhi	Puducherry	All India
Base Year 1993-94	1994-95	10.5	9.8	12.0	0.7	7.1	6.6	6.4	7.8	-1.2	4.9
	1995-96	-1.9	10.6	1.7	4.2	7.1	-5.2	7.1	-2.1	2.4	5.2
	1996-97	7.5	13.9	13.8	39.3	7.8	3.5	10.3	9.5	36.6	6.1
	1997-98	6.6	6.1	16.2	31.2	4.5	2.9	2.5	11.9	28.8	2.6
	1998-99	-7.9	8.7	5.0	12.9	6.5	-11.3	4.9	1.2	10.8	4.4
	1999-00	8.8	6.8	4.8	2.3	6.1	5.5	2.9	1.0	0.5	4.4
Base Year 1999-00	2000-01	--	12.71	3.91	14.24	4.07	-1.45	8.52	0.16	12.15	1.84
	2001-02	2.27	8.77	3.85	6.78	5.61	0.89	4.52	0.13	4.80	3.69
	2002-03	10.62	12.60	7.66	9.92	3.43	6.78	10.93	4.88	7.86	2.03
	2003-04	10.55	10.87	5.45	4.49	8.59	6.83	6.10	2.45	2.55	6.97
Base Year 2004-05	2005-06	5.33	10.93	10.30	26.66	9.45	1.77	5.39	8.22	24.31	7.75
	2006-07	17.97	14.78	12.42	3.75	9.53	14.11	9.22	10.29	1.83	7.89
	2007-08	10.30	7.38	11.27	7.91	9.13	6.54	1.82	9.18	5.90	8.07
	2008-09	15.24	7.51	12.46	9.78	6.36	11.21	1.57	10.33	7.74	4.69
	2009-10	13.45	10.21	11.02	9.14	8.06	9.64	4.13	8.93	7.11	6.58
	2010-11	8.99	8.68	10.92	8.19	8.38	5.64	2.70	8.82	6.17	6.35
	2011-12	8.15	7.48	11.43	11.11	6.48	4.94	1.61	9.33	2.69	5.16

Source: CSO, various years.

Table 2A: Trends in Income (NSDP) Growth in Service Sector (2004-05 Prices, in %)							
	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12
Trade, Hotels & Restaurants	-10.9	33.5	12.3	-10.9	34.6	7.8	6.1
Transport, Storage & Communication	3.9	11.2	5.3	33.7	11.1	25.6	17.5
Banking & Insurance	7.9	19.1	23.9	7.5	30.0	22.0	13.6
Real Estate & Business Services	20.6	10.4	15.9	2.8	12.3	24.9	18.4
Public Administration	31.9	-39.9	12.4	181.3	25.0	1.2	3.2
Other Services	-2.1	8.2	-1.6	40.4	29.6	2.4	2.4
Service Sector	6.9	2.1	7.6	42.8	22.4	11.0	9.1

Source: CSO, various years.

Table 3A: Percentage Distribution of Youth (15-34 years) across Educational Attainment by Gender, ANI						
Education Attainment Level	2004-05			2009-10		
	Male	Female	Total	Male	Female	Total
Not literate	4.4	10.5	7.3	3.55	5.36	4.5
Literate below primary	6.7	5.8	6.3	9.75	6.7	8.16
Primary	20.4	15.9	18.2	16.45	9.44	12.8
Middle	40.6	33.6	37.3	31.13	26.68	28.81
Secondary	10.4	11.5	10.9	17.48	18.21	17.86
Higher secondary	9.1	14.8	11.8	13.17	19.49	16.46
Diploma/certificate course	1.6	1.6	1.6	3.14	5.07	4.15
Graduate	4.7	5.1	4.9	4.39	6.45	5.46
Postgraduate and above	2.2	1.3	1.7	0.94	2.61	1.81

Source: NSSO, various years, calculated from unit level data.

REFERENCES

Andaman and Nicobar Administration (Undated), *Industrial Potential Survey of A&N Islands*, District Industries Centre, District Industries Centre, Port Blair.

Central Statistics Office (CSO) (various years), *National Accounts Statistics*, Ministry of Statistics and Programme Implementation (MoSPI), New Delhi.

Department of Fisheries (2012), *Andaman and Nicobar Fisheries at a Glance*, Andaman and Nicobar Administration, Port Blair.

Department of Fisheries (2009), *Tuna Mission 2009-2014*, Andaman and Nicobar Administration, Port Blair.

Directorate of Economics and Statistics (2008), *Economic Survey of A&N Islands,* Andaman and Nicobar Administration, Port Blair.

Directorate of Economics and Statistics (2011), *Basic Statistics of Andaman and Nicobar Islands 2010-2011*, Andaman and Nicobar Administration, retrieved from http://www.and.nic.in/stats/BasicStatistics/index.htm

Directorate of Economics and Statistics (2011), *District Statistical Hand Book 2010-11*, Andaman and Nicobar Administration, Port Blair.

Directorate of Economics and Statistics (2012), *Andaman and Nicobar Islands: At a Glance,* Andaman and Nicobar Administration, Port Blair.

Directorate of Industries (2012), *Investment Opportunities in Andaman & Nicobar Islands*, Andaman and Nicobar Administration, Port Blair.

Directorate of Tourism (2010a), *Tourism Statistics: Andaman and Nicobar Islands*, Planning and Statistical Unit, Andaman and Nicobar Administration, Port Blair.

Directorate of Tourism (2010b), *Tourism Policy*, Andaman and Nicobar Administration, Port Blair.

Institute of Applied Manpower Research (IAMR) (2011), *India Human Development Report 2011: Towards Social Inclusion*, IAMR, Planning Commission, Government of India.

Ministry of Finance (2013), *Economic Survey 2012-13*, Department of Economics Affairs, Economic Division, Government of India.

Ministry of Labour and Employment (MoL&E) (2009), *National Policy on Skill Development,* Government of India, New Delhi.

Ministry of Labour and Employment (MoL&E) (2011 & 2012), *Annual Report to the People on Employment* (2nd & 3rd), Government of India, New Delhi.

Ministry of Tourism & Culture (2003), *Final Report on Perspective Plan for Tourism in Andaman & Nicobar Islands*, Department of Tourism, Government of India.

Ministry of Women and Child Development (2009), *Gendering Human Development Indices: Recasting the Gender Development Index and Gender Empowerment Measure for India*, Government of India, New Delhi.

National Sample Survey Office (NSSO) (2011), *Key Indicators of Employment and Unemployment in India 2009-10,* 66th Round, July 2009-June 2010, NSSO and Ministry of Statistics and Programme Implementation, Government of India, New Delhi.

National Sample Survey Office (NSSO) (2013), *Key Indicators of Employment and Unemployment in India 2011-12,* 68th Round, July 20011-June 2012, NSSO and Ministry of Statistics and Programme Implementation, Government of India, New Delhi.

National Sample Survey Office (NSSO) (various years), *Employment and Unemployment Surveys*, NSSO and Ministry of Statistics and Programme Implementation, Government of India, New Delhi.

National University of Educational Planning and Administration (NUEPA) (2012), *Elementary Education in India, Progress towards UEE: DISE Flash Statistics 2010-11,* NUEPA, New Delhi.

Planning Commission (2008), *Andaman and Nicobar Islands Development Report*, Academic Foundation, New Delhi.

Planning Commission (2013), *Twelfth Five Year Plan (2012–2017): Faster, More Inclusive and Sustainable Growth*, Volume I, Government of India, New Delhi.

Planning Commission, *Databook for DCH (14th March, 2013)*, retrieved from http://planningcommission.nic.in/data/datatable/index.php?data=datatab

Planning Department, *Draft Five Year Plan Proposals 2012-2017 of Andaman and Nicobar Islands*, Volumes I -III, Andaman and Nicobar Administration, Port Blair.

Planning Department, *Draft Annual Plan Proposals 2012-2013 of Andaman and Nicobar Islands*, Volumes I -III, Andaman and Nicobar Administration, Port Blair.

Sasikumar, S.K. & Karan, Anup K. (2010), 'Skill Mapping in Indian Labour Market: Supply Side Potential and Emerging Demand Scenario', *Labour & Development*, Vol. 16-17.

International Labour Organization (ILO) (2013) Global Employment Trends 2013, ILO, Geneva.

Industrial Training Institute (2010), *Skill Developments Mission, 2008-2012*, Andaman Nicobar Islands, Dollygunj, Port Blair.

World Bank (2012), *World Development Report 2013: Jobs,* World Bank, Washington, DC.

Skill development and upgradation are among the key prerequisites for achieving faster, more inclusive and sustainable growth in any economy. It is in this context that this study attempts to map the supply and demand of skills in the Andaman & Nicobar Islands, a fragmented island economy experiencing geographical and climatic adversities.

The study addresses vital issues: tracing the skill composition of the labour force, evaluating the institutional structures to develop and upgrade skills, estimating current and future skill needs, analysing the effectiveness of existing mechanisms to match the supply of and demand for skills, and deriving policy prescriptions for more effective matching of skill supply and demand.

Urging the stimulation of private investment, particularly in sectors that are employment-intensive and have strong growth inducing linkages, the report identifies some such key sectors for the Andaman & Nicobar Islands: construction, transport, storage, communication, marine based activities, and hotels and restaurants. It recommends more synergy between skill development institutions and industries in order to improve labour market outcomes, and achieve quantitative and qualitative improvement in skill development systems.

ISBN 978-93-82902-05-8