An Analysis of the Results of the Labour Demand Survey of Establishments in Yemen, 2002-2003

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1. Introduction

Labour supply has consistently outpaced labour demand in the past few years in Yemen, and, this evolution is expected to worsen in the foreseeable future unless significant changes occur in the Yemeni labour market.

To shed light on the current employment and unemployment characteristics of the working-age population, a labour force survey was conducted in November 1999 by the Central Statistical Organization (CSO) and the Programme of Labour Market Information System (LMIS), Ministry of Social Affairs & Labour, with financial support of the United Nations Development Programme (UNDP) and the Yemeni Social Fund for Development. An analysis of the results of the survey was undertaken in a mission report dated October 2001.[1]

A complementary survey on labour demand of private sector establishments was further commissioned by LMIS and UNDP, in partnership with the Social Fund for Development. The survey was conducted in 2003 by the Central Statistical Organization, and the results were available during the first quarter of 2004. The purpose of the present report is to analyse the results of this survey in line with the following terms of reference:

- Conduct thorough review and in-depth analysis of the Labour Demand Survey results of 2003;
- Conduct correlation between the labour demand survey and other surveys (i.e., education survey, labour force survey, household budget survey, etc.) and other related information and indicators related to economic growth projections, investment trends, etc.
- Prepare a detail report on the labour demand survey analysis with forward looking recommendations.

After a brief review of the main elements of the labour market information system in Yemen (Section 2), the report focuses on the gap between labour supply and labour demand, and the measurement of the annual job requirements and skill shortages in Yemen (Section 3). It then attempts to identify the sources of net job growth in the private sector in terms of branch of economic activity, region and gender (Section 4). The report concludes on some of the main areas of job creation policies, in particular, the role of small firms and self-employment, the requirement on vocational training and education, and the impact of economic growth and investment (Section 5).

The results of the labour demand survey and, in general, the employment problem in Yemen were discussed at a specially convened Seminar held in Sana'a on 23 June 2004, in the presence of His Excellency Abdul-Kader Bajammal, Prime Minister, Mr. Abdul-Karim Ismail Al-Arhabi, Minister of Social Affairs and Labour, and Executive Director, Social Development Fund, and Mr. James Rawley, UNDP Resident Representative. This report benefits from the views expressed during this high-level

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[1] Farhad Mehran, *Report on Mission to Yemen (22 September – 1 October 2001)*, International Labour Office, Bureau of Statistics, CH-1211 Geneva 22, Geneva, 7 October, 2001.

Seminar, and those exchanged on a daily basis with Mr. Abdullah Abdul-Rub Ghazi, Director, Labour Market Information System Programme and his staff. In addition, a number of visits were organized to discuss the statistical requirements of agencies involved in employment issues in Yemen, in particular, the Ministry of Planning, the Ministry of Vocational Training, and the German aid agency, GTZ. The contents of this report is planned to be discussed in a workshop to be held toward the end of September 2004 with participation of the main stake-holders including government experts, representatives of social partners, and the academia in order (a) to explain the key results of the labour demand survey of establishments 2002-2003 to the main stake holders and get feed back on their policy implications; and (b) to encourage further analysis from different perspectives of the massive amount of information collected in the survey.
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2. Labour market information in Yemen

The core elements of the labour market information system in Yemen are the labour force survey, 1999 (CSO), the labour demand survey, 2002-2003 (CSO), and the on-going registration system of job-seekers, vacancies and placements in the private sector (LMIS) and public administration (Civil Service Council). Other available information pertaining to the labour market includes the household budget survey 1998 (CSO), the administrative data on the educational system (Ministries of Education, and Vocational Training), and the demographic and economic projections of manpower and GDP (Ministry at Planning). A brief description of the core elements follow:

- **Labour demand survey, 2002-2003**

The 2002-2003 survey was based on a representative sample of 6’589 urban establishments and 524 rural establishments, selected randomly from a frame of 254’766 establishments (142’889 urban and 111’877 rural) constructed on the basis of the results of the 1994 Census of housing units and establishments and updated in August-September 2002.[2] The urban and rural frames were stratified by geographical region, branch of economic activity and size of establishments, measured in terms of number of workers engaged.

The survey covered establishments in all branches of economic activity except public administration (i.e., government, local councils, and regional and international institutions), public schools and public health institutions, and private households with employed persons. Non-establishment units, not covered by the survey, were mostly in agriculture, fishing, construction and transport. The scope of the survey was almost exhaustive with respect to four branches of economic activity, namely, manufacturing, trade, hotel and restaurants, and other community and personal service activities. These four sectors make up more than 86% of the total number of workers covered by the survey (598’000 out of a total of 692’000).

[2] LMIS, Ministry of Labour and Social Affairs, *Conclusive Report on The Institutions’ Counting Process for 2002,* Sana’a 2003.

The survey was composed of two inquiries: one on establishments (Form 1) and the other on paid employees with graduate-level education (Form 2). The inquiry on establishments collected data on their economic characteristics, hiring and training practices as well as on the expected evolution of the future demand for labour and the obstacles they perceive in meeting their employment goals. In total, some 6’450 establishments provided valid responses, corresponding to a response rate of 83%. The design of the survey required at least of 30 sample establishments for reporting statistically significant result per cell.

Within each sample establishment, a further sample of up to 20 employees with graduate-level education were selected using a systematic sampling scheme and information on their demographic and employment characteristics was obtained. Graduate-level education was defined as holding diploma from a technical or vocational training centre or institute, or completed general secondary or post-secondary education, or graduated from a university or higher education institution. This part of the survey covered a sample of 10,531, representing 49’028 paid employees with graduate-level education.

- **Labour force survey, 1999**

The labour force survey (LFS) was designed to provide current information on the employment and unemployment characteristics of the working age population 15 years old and over in Yemen, including hours of work, monthly earnings and past year occupational injuries and diseases of paid employees. A supplementary module was devoted to provide particular data on the status of children 6 to 14 years old.

The survey was based on a representative sample of 19,916 households covering the whole nation except particular categories of persons living in nomadic and certain districts and islands, or in institutions such as army camps, school boarding rooms, hotels, hospitals or prisons. The survey enjoyed a high response rate with 19,065 households or more than 94% of the sample households reporting.

The sampling frame has been developed on the basis of the enumeration areas of the 1994 Population and Housing census with 1180 areas (364 in urban areas and 817 in rural areas) selected for the survey using a stratified random sampling scheme where the 20 Governorates of Yemen formed the strata. A fixed number of 20 households were then sampled within each urban enumeration area and 15 in each rural enumeration area except in certain rural areas where the sample take was identical to the urban areas.

The survey content was designed taking into account the latest international statistical standards on the topic, adopted by the Thirteenth International Conference of Labour Statisticians, Geneva, 1982. The questionnaire was field tested in 25-26 October 1999, based on 20 urban and rural households selected in Sana’a city and rural areas around it. The detailed survey results were published in November 2000.

The following tabulation compares the results of the 2002-2003 establishment survey with the 1999 household labour force survey, with respect to the number of workers, paid or unpaid, irrespective of level education for four comparable branches of economic activity:

Table 1. Comparing employment data from two sources

	LFS 1999	ES 2002/3
Manufacturing	135’503	160’601
Wholesale and retail trade	394’144	345’903
Hotel and restaurants	42’859	53’081
Community & personal services	53’104	41’089
Other branches	2’996’069	91’514
Total	3’621’679	692’189

Sources: CSO and LMIS, Labour force survey, 1999, and Labour demand survey, 2002-2003.

The differences between the two sets of data reflect not only the economic changes that have occurred between 1999 and 2002/3, but also the differences in the scope of the two surveys and the fact that one (LFS 1999) measures persons and the other (LDS 2002-2003) measures jobs. Thus, secondary activities of persons are counted in the LDS 2002-2003 survey, but not in the LFS 1999. There are other differences in the two surveys with respect to reference period, definitions, and methodologies.

- **LMIS registration data**

Since 1999, the labour market information system programme (LMIS) is recording data on the number of jobseeker Yemenis registered at employment in the private-sector employment. The system also includes data on the number of placements made, number of new work permits and renewals issued to foreign workers as well as data on industrial disputes and arbitrations. No data on vacancies are, however, available at present, as placements are made on the basis of information obtained from newspaper job vacancy advertisements or direct inquiries to establishments, rather than notices of vacancies from establishments addressed to the employment offices.

Data on registered job-seekers are published regularly by sex and geographical location of the employment offices (22 operating at present). The latest figures in Table 2 show that employment offices are new in Yemen and not widely spread. According to the labour demand survey results shown in the Table 3, less than a quarter of the establishments were aware of labour offices and only a small fraction (1.5%) had ever contacted it. Even less (0.5%) used labour offices for hiring new workers. Virtually all hiring were made through personal relationships (96.6%).

Table 2. Registered job-seekers at the public employment offices

	Total	Male	Female
January-December 2002	18’080	16’358	1’722
January-September 2003	7’463	6’763	700
Monthly average, 2002	1’507	1’363	144
Monthly average, 2003 (First 9 months)	829	751	78

Source: Labour Market Information System, Ministry of Labour and Social Affairs.

As expected, awareness about labour offices and their use were higher among larger establishments than small ones. More than 70% of establishments with 20 and more workers were aware of labour offices and some of 10% used them to fill their vacancies.

Personal relationships were the basis of hiring for less than 56% of the larger establishments. Other main means of hiring in these establishments were newspaper and media advertisements (23.8%), direct application to employers (7.2%), and private employment offices (3.0%).

Table 3. Use of employment offices by size of establishment

Size of establish-ment	Number of establish-ments	Aware of labour offices (%)	Contact with labour offices (%)	Hiring through	
				Labour offices (%)	Personal relationships (%)
1-4 wkrs	234'754	23.0	1.0	0.4	97.2
5-9 wkrs	11'592	35.5	4.5	1.3	93.6
10-19 wkrs	3'176	56.0	15.6	5.5	82.6
20+ wkrs	1'381	70.4	34.7	10.3	55.8
Total	**250'903**	**24.2**	**1.5**	**0.5**	**96.6**

Source: CSO and LMIS, *Labour Demand Survey 2002-2003*, Yemen.

These results are consistent with those found in the 1999 labour force survey on the method of job-search of the unemployed and of the currently employed. Registration at employment offices formed only 20.0 % of the steps to find work among the unemployed, at par with direct application to employers (20.4%), and much lower than contacting friends and relatives (71.4%).

The bulk of the registration of the unemployed were at the civil service employment offices (48,500), followed by registration at the public employment offices (11,500) and private employment offices (6,600). Excluding double-counting for persons who may have registered at more than one place, the 1999 labour force survey results indicate that registration at public employment offices were used by only 3.5% of the unemployed jobseekers.

Like in the case of the unemployed jobseekers, the 1999 labour force survey showed that the most widespread method used by the currently employed persons in paid jobs was contacting friends and relatives, or making own arrangements (66.4%). Only 14.4% of the currently employed found their jobs through employment offices including civil service commission and private employment offices, slightly less than the percentage who found their jobs by direct application to employers (14.9%).

3. Extent of job requirements and job improvements

Demographic shifts have a major impact on the supply of labour, and ultimately on the number of jobs required to meet the increasing work force entering the labour market every year. The composition of aggregate job requirements is related to the supply and demand for skills, and skill shortages have potential impact not only on employment, but also on a range of other economic measures such as productivity, earnings, and economic growth.

- **Population growth and annual changes in labour supply**

Yemen is one of the countries with the highest population growth. According to the recent data of the UN Population Division[3], the rate of growth of the population in Yemen has been 3.52% per year, compared with the world average of 1.22%. Under medium variant assumptions, population growth is expected to decline only marginally to (3.50%) in the next ten to fifteen years, remaining high by world standards. The median age is currently 15.4 years in Yemen, expected to increase to 16.6 years by 2020.

It is estimated that labour supply, measured in terms of number of persons of working age in the labour force, is increasing at a high rate of some 3.8% per year, 3.3% among men and 5.3% among women. This reflects essentially three factors:

- effect of past high birth rates;
- return migrants from neighbouring countries after the first Gulf war;
- increasing readiness in recent years of Yemeni women to enter the work force.

The annual change in labour supply comprises of a number of elements depicted schematically in the following diagram, where the E, U and N refer to Employed, Unemployed, and Not economically active, respectively. The rows refer to the initial situation in year 1 and the columns to the situation a year later, in year 2.

[3] United Nations, *World Population Prospects: The 2002 Revision*, Volume I, Comprehensive Tables, Department of Economic and social affairs, Population Division, ST/ESA/SER.A/222, New York, 2003.

Annual change in labour force

Year 2

		E	U	N
Year 1	E			-
	U			-
	N	+	+	

In this diagram, the first cell (EE) represents those people who were employed in year 1 and continued to be employed in year 2. The second cell (EU) represents people employed in year 1, but who lost their job and became unemployed in year 2. Similarly, in the second row, the first cell (UE) represents people who were unemployed in year 1, but found a job and became employed in year 2. Cell (UU) represents people who were unemployed in year 1, and remained unemployed in year 2. People in these four categories are not affecting the size of the labour supply, as they were in the labour force in both years, although some of them have changed labour force categories, from employment to unemployment, or from unemployment to employment.

Only persons in the border categories, marked in red and green in the diagram, are contributing to the annual change in the labour supply. The bottom red cells represent additions to the labour supply. These include persons who were not in the labour force in year 1, but entered the labour force, as employed (NE) or unemployed (NU) in year 2.

The border green cells refer to labour supply losses. Cell (EN) represents people who were employed in year 1, but turned inactive in year 2, due to retirement, migration, death, or other temporary or permanent reasons. Similarly, cell (UN) represents people who were unemployed in year 1, but became inactive in year 2, due to discouragement from looking for work, vocational training, continued education, or other reasons.

The labour market information system in Yemen does not permit the measurement of each of the cells separately, but it is possible to estimate the net annual change of the labour supply (NE+NU-EN-UN), and to some extent, the bottom cells of the diagram representing the new entrants in the labour market.

The calculations are shown below (Table 4), starting with the number of persons in the labour force as measured in the 1999 labour force survey, to which the estimated annual labour force growth rate calculated by the Ministry of Planning (MoP) and published in the Second Five-Year Plan (2000-2005) document is applied successively to obtain the estimated labour force in subsequent years as follows:

Table 4. Projected non-institutional civilian labour force (2000-2006)

	Year	Total	Male	Female
Measured labour force (LFS)	1999	4’091’000	3’121’000	969’000
Estimated growth rate (MoP)		3.8%	3.3%	5.3%
Projected labour force:	2004	4’928’000	3’671’000	1’254’000
	2005	5’116’000	3’792’000	1’321’000
	2006	5’310’000	3’917’000	1’391’000
Average annual change	(2004-2006)	188’000	121’000	67’000

These estimates are in line with the data reported on the number of graduates from the educational system entering the labour market every year, estimated at some 140’000 per year in recent years. The difference may be accounted for by the number of entrants and re-entrants in the labour market from outside the educational system, mostly women, minus the number of persons who temporarily or permanently leave the labour market every year due to such causes as retirement, discouragement, migration, disability, or death.

- **Youth and adult unemployment**

Jobs are not only required for the new entrants and re-entrants into the labour market but also those who are currently unemployed. According to the 1999 labour force survey, there were some 469,000 persons unemployed in 1999, corresponding to an unemployment rate of 11.5% of the labour force, 12.5% among men and 8.2% among women. The difference between the youth rate of unemployment (18.7%) and the adult rate (8.4%) was even more significant. According to the survey, some 175,000 unemployed never worked before, a figure that indicates that 37% of the unemployed are new entrants in the labour market.

Unemployment rate was higher among persons with higher education (15.4%) than among those with basic and primary education or lower (10.7%). The difference is particularly noticeable among educated women, for whom the unemployment rate was found to be about than 32%. This result means that almost 1 out of 3 women with higher education in Yemen, who are available for work, are out of work. Separate data from the survey show that only a small percentage of the unemployed (3.4%) have attended training courses during the last 3 years, much of it in academic and managerial fields.

The analysis by branch of economic activity reveals that the unemployment rate among persons with past work experience was particularly high in construction (20%), followed by transport (9.6%)[4], industry (8.8%)[5], trade (8.4%)[6], and agriculture (6.6%)[7].

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[4] Including storage and communication.
[5] Comprising mining and quarrying, manufacturing, electricity, gas and water supply.

The rate of unemployment in the other services[8] was minimal (3.7%); a result that one would expect given that this category includes principally public administration in which unemployment is very low.

A significant portion of the unemployed were not seeking a specific job, some 16.4% reported to want any job, that is any job offered to them. Those who specified particular occupations, 18.4% wanted specialty jobs, 9.9% clerical jobs, 19.5% crafts and related factory jobs, and 18.0% elementary unskilled jobs. Assuming that the current occupational profile of the population reflects the requirement of the society, it appears that specialty jobs on the one hand and unskilled elementary jobs on the other hand are in excess supply, while there is not a lack of supply of labour for skill agricultural jobs and middle-skill clerical and related service jobs. This result is essentially unchanged when the analysis is made for men and women separately. The only exception concerns clerical and service worker jobs for which the proportion of female unemployed reported wanting those occupations was much higher than the corresponding proportion among the currently employed female workers.

Table 5. Labour force, employment and unemployment estimates and projections (Status quo scenario)

	Civilian employment ('000)	Non-institutional labour force ('000)	Implied unemployment rate (%)	Equivalent youth unemployment rate (%)	
1999	3'622	4'091	11.5	18.7	
2000	3'741	4'246	11.9	20.2	23.8
2001	3'861	4'407	12.4	21.1	24.8
2002	3'941	4'574	13.8	23.5	27.7
2003	4'049	4'748	14.7	25.0	29.4
2004	4'163	4'928	15.5	26.4	31.0
2005	4'281	5'116	16.3	27.7	32.6
2006	4'402	5'310	17.1	29.1	34.2

Notes: Data for 1999 are from the 1999 Labour force survey results, Ministry of Labour and Vocational Training, Central Statistical Organization and Labour Market Information System Programme. The employment data for 2000 to 2003 are estimates made by General Directorate of Human Development Planning, Ministry of Planning & Development. The projected data on employment for 2004 to 2006 are calculated by applying the average annual growth rate of employment 1999-2003. The labour force data from 2000 to 2006 are projections calculated by applying the growth rate reported in *The Second Five-Year Plan on Economic and Social Development 2001-2005*, Volume 2, Table 5.11, p.112. The implied unemployment rates for 2000 to 2006 are calculated using the expression 100*(Labour force-Employment)/Labour force. Youth is defined as persons 15-24 years old and the equivalent youth unemployment rates are calculated by multiplying the national unemployment rate by 1.7-2.0, the range of observed ratio of youth to unemployment rates measured in many countries in the world.

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[6] Wholesale and retail trade, repair and motor vehicles, household commodities, and hotels and restaurants.
[7] Including hunting, forestry and fishing.
[8] Also finance and business services, real estate, renting and business activities, defence, compulsory social security, education, health and social work, other community, social and personal activities, as well as private households with employed persons.

The following table shows the evolution of the unemployment rate under the assumption that present trends continue unchanged (Status quo scenario). Projections indicated in red in the table show that excess supply of labour may reach close to 900'000 in 2006, implying an unemployment rate of 17.1% among the general population and a staggering 34% among the youth.

Straightforward calculations on the basis of these data show that lowering the unemployment rate by 1 percentage point each year from 2004 to 2006 requires on the average the creation of some 22'000 new jobs for the unemployed per year, in addition to the 188'000 needed to face the growing annual supply of labour.

- **Underemployment and low pay**

Unemployment is only one aspect of the employment problem. Another aspect is underemployment or inadequate employment.[9] Thus, in addition to job creation for the currently unemployed and new entrants or re-entrants in the labour market, attention should be addressed to transforming current jobs into more productive and more rewarding jobs.[10]

From the results of the 1999 labour force survey shown in Table 6 below, it can be estimated that the median monthly earnings of paid employees was about 12,000 Rials in 1999, with the top 5% of the distribution earning on average about 50,000 Rials, while the lowest 5% earning on average less than 5,000 Rials per month, a ratio of 1 to 10.

Table 6. Earnings and educational level of paid employees, 1999

Monthly earnings (Rials)	Number of employees		Level of education (%)				
			Illiterate	Read/Write	Primary	Secondary	Higher
Total	1,507,500	100%	29.8	24.9	14.0	17.4	13.9
less than 5,000	85,900	100%	46.0	20.3	10.3	22.0	1.3
5,000-10,000	549,800	100%	33.1	28.4	17.0	16.8	4.7
10,000-15,000	405,100	100%	19.2	19.5	12.4	24.6	24.3
15,000-20,000	271,000	100%	30.3	25.2	12.9	11.8	19.9
20,000-30,000	101,500	100%	35.4	25.9	12.1	11.2	15.5
30,000-50,000	70,800	100%	34.0	31.4	12.0	7.3	15.3
50,000 & over	16,600	100%	36.0	28.1	7.0	7.2	21.7

Source: CSO and LMIS, Labour force survey, 1999. Reproduced from Mission Report 2001, F. Mehran.

[9] ILO, "Resolution on the measurement of underemployment and inadequate employment situations," Sixteenth International Conference of Labour Statisticians, Geneva, 1998.

[10] ILO, *Measuring Decent Work with Statistical Indicators*, Richard Anker, Igor Chernychev, Philippe Egger, Farhad Mehran and Joe Ritter, Working Paper No. 2, Statistical Development and Analysis, Policy Integration Department, ILO, Geneva, 2002.

The table also indicates that higher level of education is associated with higher level of earnings. However, it is instructive to note that lower level of education is not necessarily associated with low level of earnings. The proportion of paid employees who are illiterate or can only read and write is almost constant at all levels of monthly earnings, standing at around 30%. This result may be giving an indication that earnings in the informal sector, where most paid employees with lower levels of education are presumed to be working, are not as low as it is often believed to be.

Using half of the median as the benchmark for defining low pay (6'000 Rials per month in Yemen in 1999), it can be estimated that roughly 195'000 paid employees had low pay in 1999, corresponding to about 13% of the total number of paid employees in that year. Assuming that this ratio is still valid and is applicable to all workers, simple calculations indicate the number of low pay workers would reach 570'000 by 2006. Thus, reducing the low pay rate by 1 percentage point per year between 2004 and 2006 would require on average the transformation of some 43'000 jobs into more productive jobs per year. A more accurate analysis would take hours of work into account and would examine the distribution of hourly earnings as opposed to monthly earnings.

4. Past job performance (2002-2003)

Against the estimated annual increase of labour supply, 188'000, calculated in the previous section, the labour demand is expected to increase by about 117'000 per year during the next three years, leaving a gap of 71'000 in annual excess supply.

The labour demand figure is derived on the basis of the estimated growth of employment (2.8%) calculated by the Ministry of Planning using the projected output of the different branches of economic activity as measured by value added in gross domestic product (GDP), and reported in Table 5 above.

The issue addressed in this section is the find out the extent to which private sector establishments can contribute in the coming years to narrow this 81'000 annual gap between the labour supply and labour demand in the coming years.

- **Scope and components of change**

Job growth results from the balance between job gains and job losses during a given period. Job growth is negative when job losses outnumber job gains during the period. Jobs gains occur either when new establishments are created or when existing establishments make new recruitments. In contrast, jobs losses occur when existing establishments close or reduce the size of their work force.[11]

In the 2002-2003 labour demand survey of Yemen, an inquiry was made on the hiring and firing of paid employees during the preceding year (from 1 May 2002 to 30

[11] OECD, "The process of job creation and job destruction," *Employment Outlook*, Organisation for Economic Co-operation and Development, Paris, September 1987, pp. 97-124. Also, "Job gains and job losses in firms," *Employment Outlook*, OECD, Paris, July 1994, pp. 103-135.

April 2003) among establishments covered by the survey. Questions were also asked on the prospects of the firm's employment situation in the next three years (2004-2006) and the likely increase or decrease of existing or new paid jobs in the establishment.

Responses obtained by establishments to these questions provide the basis of the analysis in this paper. It should be noted, however, that paid employment in private-sector establishments, forms a narrow segment of total employment in Yemen. The establishments sector covered by the 2002-2003 labour demand survey represent about 18% of total civilian employment in Yemen. The rest of employment not covered by the survey consists roughly of the following components: government employment (20%), agriculture workers not covered by the survey (50%), and other non-establishment employment (10%) including casual workers in construction, and taxi-drivers and other similar self-employed workers in transport and allied activities.

Another aspect is the focus on paid employment, excluding apprentices, unpaid family workers and, more importantly, the own-account workers, employers or owner-managers of the establishment. Paid employees comprise only 37%, i.e., slightly more than one-third, of total employment in the private sector establishments covered by the survey.

- **Creation of new establishments**

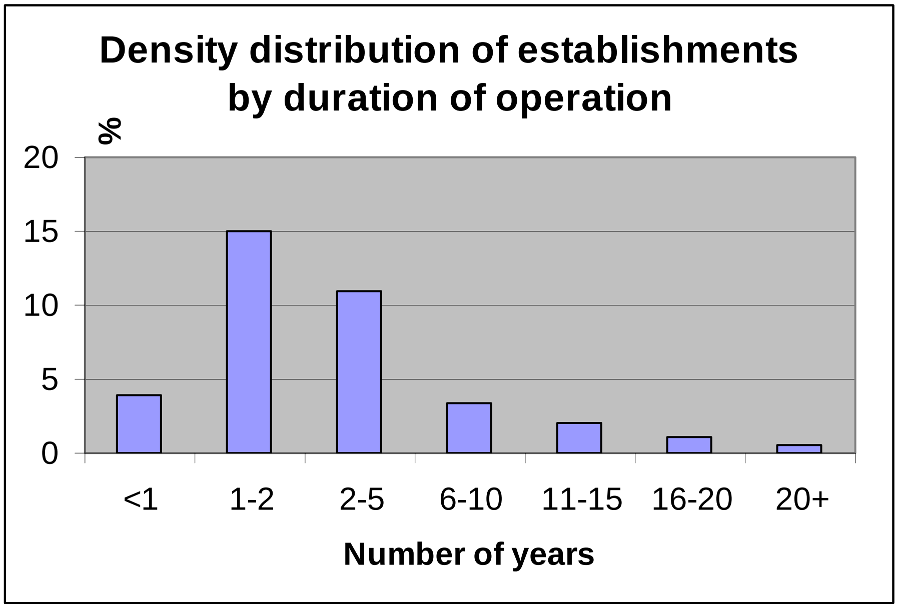
The annual creation of new establishments may be measured by the number of establishments less than one year old. This measure does not account, however, for establishments that were created during the year but ceased to operate at the time of the survey.

According to the labour demand survey, there were 9'891 establishments that started operation during the one-year period, from 30 April 2002 to 1 May 2003. This constitutes about 4% of the total number of establishments within the scope of the survey, 250'903. Compared with other countries, the birth rate of establishments in Yemen is rather low. In OECD countries in the mid 1990s, birth rates were the highest in Canada (19.1%) and lowest in Finland and in the United Kingdom (11.2% and 9.2%, respectively). Thus, even the lowest OECD figures are more than twice as high the Yemeni rate of birth of establishments.

Job creation by the new establishments has also been minimal, generating employment for some 260 paid employees, the equivalent of about 2.5 jobs per 100 establishments. This figure, however, does not take into account the job gains due to self-employment of the owner-managers. Virtually all the newly created establishments in Yemen were small,[12] operated by own-account workers many with no hired workers. In a sense, therefore, these establishments are creating essentially self-employment jobs, as opposed to paid employment jobs. Job gains due to self-employment constitute an important component of job creation in Yemen, not accounted for in the balance sheet of job gains and losses based on the turnover of paid employee jobs.

[12] Out of the 9'891 establishments created less than one-year before the survey period, 9'553 had 1-4 workers, including the owner, unpaid family workers, apprentices and paid employees.

Also, there seems to be a certain extent of under coverage of new establishments in the Yemeni survey. The following diagram shows the density distribution of the number of establishments by duration of their existence. It can be observed that the percentage number of establishments less than one-of-year in operation is considerably less than corresponding relative percentage for establishments two-to-five years in operation, a result that suggests substantial under coverage of newly created establishments, and possibly also, over reporting of duration of operation by the older establishments.



Source: CSO and LMIS, *Labour Demand Survey 2002-2003*, Yemen.

- **Closures of establishments**

The labour demand survey does not provide information on the number of establishments closed during the survey reference period. The door-to-door canvassing carried out prior to the survey for constructing the sampling frame indicates, however, that there were 1'606 establishments that were temporarily closed at the time of the canvass. This figure represents some 0.6% of the stock of establishments identified in the operation.

If one accepts this figure as the annual death rate of establishments in Yemen, it implies that while birth rate of establishments is low in Yemen by world standards, so is the death rate figure. Thus the net birth of establishments in Yemen is about the same or even higher than in many other countries: 3.3% in Yemen; 4.4% in USA; 2.8% in Canada; 1.9% in Italy; 1.4% in Finland; and 0.8% in UK.

The employment effect of the closures of establishments can be estimated as these establishments by their nature could not be covered in the labour demand survey.

- **Job turnover in continuing establishments**

The number of continuing establishments is much larger than both the number of establishments entering the pool and the number leaving it. Hence, continuing establishments can be expected to provide most of the job gains in the economy.

According to the labour demand survey (Table 7, there were some 240’000 establishments with more than 1 year of operation in 2002-2003. They have recruited for 19’379 jobs, about half of which new jobs, the other half replacement jobs. In relative terms, these establishments have thus generated 4 new jobs per 100 establishments.

Table 7. Balance sheet of job gains and losses in the establishments sector (2002-2003)

JOB GAINS (30 Apr 2002-1 May 2003)		JOB LOSSES (30 Apr 2002-1 May 2003)	
New establishments	9'891	Closed establishments	1'606
- Number of workers	260	- Number of workers	?
Recruitments in continuing establishments	241'012	Layoffs in continuing establishments	250'903
		- Redundancies	19'049
- New vacancies	9'221	- Resignations	11'381
- Replacements	9'898	- Discharges	2'221
		- Retirements	806
		- Disabilities	523
		- Others	3'292
Total gains	19'379	Total losses	37'272

Source: CSO and LMIS, *Labour Demand Survey 2002-2003*, Yemen.

Against the total job gains of 19’379, some 37’272 jobs have been lost, more than half due to redundancies, and the bulk of the rest due to voluntary resignation, discharge or retirement, representing a decline of about 5.7% in paid employment during the year.

The net job loss of 17’893 (=37’272-19’379) is consistent with responses to the retrospective question addressed to employers on the number of paid employees they were employing in the year preceding the survey. As shown below, the unaccounted difference is 5’089, less than 2% of total number of employees at the time of the survey.

Number of paid employees:	
- Preceding year (retrospective question)	270’712
- Survey date	257’908
Net decrease	12’804
- Job losses	37’272
- Job gains	19’379
Net job losses	17’893
Unaccounted difference	5’089 (2%)

- **Job performance by branch of economic activity**

The reported job gains and job losses have been calculated for each branch of economic activity and reported in the table 8 below.

The branches of economic activity with the highest reported job losses are wholesale and retail trades (-18.5%), and construction (-9.2%). Manufacturing (-2.0%), hotels and restaurants (-2.0%), and community services (-2.2%) and to some extent transport (-1.4%) and the private health sector (-1.0%) also reported net job losses during the year, but less than the overall average. Net job gains are reported in agriculture (4.4%), fishing (1.7%), mining (1.2%), financial services (1.9%) and real estates businesses (1.8%) as well as in the private education sector (4.6%), electricity, gas and water (15.6%) and the extra-territorial institutions (49.5%). The extreme high values of the last two sectors are due to the small base number of paid employees in these sectors.

With the exception of manufacturing, this table seems to indicate that the overall performance of the modern sector has been relatively better in terms of job creation than the more traditional sector of the economy. Given the importance of manufacturing, the data on this branch of economic activity should be more carefully studied to provide a better understanding of the evolution of paid employment in this sector.

Table 8. Job gains and losses by branch of economic activity (2002-2003)

Economic activity	Paid employees	Job gains	Job losses	Net change	% change
Farming	5'786	825	569	256	4.4
Fishing	582	21	11	10	1.7
Mining	10'348	407	278	129	1.2
Manufacturing	96'385	5'820	7'727	-1'907	-2.0
Electricity, Gas and Water	926	169	25	144	15.6
Construction	1'466	164	299	-135	-9.2
Trade	69'359	6'192	19'028	-12'836	-18.5
Hotels and Restaurants	25'786	1'604	2'117	-513	-2.0
Transport	7'767	869	979	-110	-1.4
Financial	4'869	278	187	91	1.9
Real Estate	4'581	595	514	81	1.8
Education	9'637	1'088	640	448	4.6
Health	11'119	687	797	-110	-1.0
Personal services	9'192	606	807	-201	-2.2
Overseas organizations	105	54	2	52	49.5
Total	**257'908**	**19'379**	**33'980**	**-14'601**	-5.7

Source: CSO and LMIS, *Labour Demand Survey 2002-2003*, Yemen.

- **Job performance by size of establishment**

In the table 9 below, the reported job gains and job losses are calculated by size of establishment measured in terms of the total number of persons engaged including the owner-manager, apprentices and unpaid family workers.

According to the results, medium size and larger establishments have registered net job gains, while smaller and micro establishments have experienced net job losses during the survey period.

Table 9. Job gains and losses by size of establishment (2002-2003)

Size of establishment	Paid Employees	Job Gains	Job losses	Net Change	Rate %
1-4 workers	88'384	5'894	23'273	-17'379	-19.7
5-9 workers	38'913	3'263	4'244	-981	-2.5
10-19 workers	22'813	2'976	2'049	927	4.1
20+ workers	107'798	7'246	4'414	2'832	2.6
Total	**257'908**	**19'379**	**33'980**	**-14'601**	**-5.7**

Source: CSO and LMIS, *Labour Demand Survey 2002-2003*, Yemen.

The relationship between job growth and size of establishment is not linear through-out the size distribution of establishments. There appears to be peak at the mid range of the distribution, suggesting that medium size establishments are the most successful in terms of job growth. This result contrasts with experience in many other countries where the bulk of job creation is concentrated in small establishments (ref).

5. Future job prospects (2004-2006)

In addition to the retrospective data discussed above, the survey inquired on the job prospects in the next three years, i.e., the period from 2004 to 2006. Establishments were asked to provide for each year, their assessment of the likely evolution of employment in their establishment, in particular, the number of likely new vacancies to be created and the corresponding occupational requirements, specified in terms of educational level and field of specialization.

- **Expected new hiring**

Table 10 below shows the combined results for the three years 2004-2006, by branch of economic activity. The net labour demand is calculated as the difference between the total number of likely new vacancies and likely increase in existing occupations on one hand, and the number of likely job losses due to redundancies. The implied average annual rate of growth of net job requirement is reported in the rightmost column of the table.

Table 10. Expected new hiring of paid employees in the establishments sector by branch of economic activity (2004-2006)

Economic activity	Paid Employees (2002-2003)	Likely increase (existing jobs)	Likely redun-dancies	New Vacancies	Net demand	Net hiring rate (%)
Farming	5'786	533	15	386	904	5.0
Fishing	582	21	203	9	-173	-11.1
Mining	10'348	134	0	176	310	1.0
Manufacturing	96'385	6'944	720	3'065	9'289	3.1
Electricity, gas, water	926	16	2	340	354	11.4
Construction	1'466	223	20	164	367	7.7
Trade	69'359	8'163	391	10'535	18'307	8.1
Hotels, restaurants	25'786	1'218	239	338	1'317	1.7
Transport	7'767	577	44	842	1'375	5.6
Financial	4'869	228	63	157	322	2.2
Real Estate	4'581	602	21	523	1'104	7.5
Education	9'637	1'738	98	924	2'564	8.2
Health	11'119	2'187	130	2'612	4'669	12.4
Personal services	9'192	2'452	128	1'413	3'737	12.0
Overseas orgs	105	16	0	6	22	6.5
Total	**257'908**	**25'052**	**2'074**	**21'490**	**44'468**	**5.4**

Source: CSO and LMIS, *Labour Demand Survey 2002-2003*, Yemen.

The picture that emerges from this prospective table is almost the mirror image of that reported from the retrospective tables. While reporting a net job loss of 5.7% in the previous year, the employers overall are reporting an average 5.4% annual increase in likely job requirement in the next three years.

This optimism is particularly marked in the private health sector (12.4%) and personal services activities (12.0%) and electricity, gas and water (11.4%), followed by the private education sector (8.2%), wholesale and retail trade (8.1%), construction (7.7%), real estate businesses (7.4%), extra-territorial institutions (6.5%), and transport, communication and storage (5.6%).

The only branch of economic activity reporting negative expected job growth in the next three years is the fishing industry (-11.1%).

Among all branches of economic activity, the financial sector is reporting the most consistent set of data on positive job prospects in relation to past performance (2.2% in 2004-2006 against 1.9% in 2002-2203). Almost similar levels of consistency can also be observed for agriculture (5.0% versus 4.4%) and mining (1.0% versus 1.1%).

The expected net labour demand in manufacturing (3.1%), and hotels and restaurants (1.2%), although somewhat different than the reported past job performance in these sectors (-2.0%), appear to be realistic.

Expected annual growth rate of labour demand has also been calculated by size of establishment and reported in the table 11 below. Like the results on past job performance, the data on job prospects in 2004-2006 show the highest expected growth rate in paid employment among the middle size establishments (with 10-19 workers). The results reveal again a non-linear relationship between employment growth rate and size of establishment, observed earlier.

Table 10. Expected new hiring of paid employees in the establishments sector by size of establishment (2004-2006)

Size of establishment	Paid Employees (2002-2003)	Likely increase (existing jobs)	Likely redun-dancies	New vacancies	Net demand	Net hiring rate (%)
1-4 workers	88'384	9'534	365	11'723	20'892	7.3
5-9 workers	38'913	3'769	242	3'188	6'715	5.4
10-19 workers	22'813	3'911	311	3'884	7'484	9.9
20+ workers	107'798	7'838	1'156	2'695	9'377	2.8
Total	**257'908**	**25'052**	**2'074**	**21'490**	**44'468**	**5.4**

Source: CSO and LMIS, *Labour Demand Survey 2002-2003*, Yemen.

The 44'468 expected new hiring of paid employees in the three-year period 2004-2006 corresponds to an annual figure of about 14'800. The implied average annual growth rate of employment is thus 5.4%, substantially above the economy-wide estimate, 2.8%, made by the Ministry of Planning.

If the expectation of private sector establishments materializes, there will be an additional amount of labour demand, above the 117'000 jobs reported earlier based on the Ministry of Planning estimate of total civilian employment growth. This additional expected number of new jobs would be about 7'100, obtained by the difference between the reported new expected hiring of private sector establishments, 14'800, and the estimated economy wide growth of paid employment, 7'800, itself obtained by applying the 2.8% general growth rate of civilian employment to the number of paid employees.

One may conclude that under optimistic expectations, private sector establishments can reduce the annual excess supply of labour by about 10% (7'100/71'000). An imbalance of some 50'000 jobs per year between labour supply and labour demand would, however, remain. If the labour market remains unchecked, part of this excess supply as in previous years will be absorbed by self-employment or employment in the informal sector, part by continued education at the universities or other educational institutions and the remaining by a growing stock of unemployment.

- **Female employment**

In Yemen like in most other countries in the region, labour force participation of women is low relative to men (21.8% versus 69.9% in 1999). Female employment has, however, been increasing in most age groups in the last decade, particularly, among younger educated women.[13]

But the increasing employment of women has been accompanied by increasing unemployment. Many educated women who are entering the labour force in Yemen do not find jobs, at a much higher rate than their male counterpart. According to the 1999 labour force survey, the unemployment rate among educated Yemeni women was 31.9% as opposed to 13.1% among educated men.

Paid employment among women remains low compared to men. According to the 2002-2003 labour demand survey only 8.2% of paid jobs in covered establishments were occupied by women. Women in paid employment were mostly in manufacturing (21.1%), health (20.8%), education (20.2%), trade (13.8%) and personal services (9.2%).

In the 2002-2003 labour demand survey, establishments were asked to report on whether they assign priority to female employment. Only 4.4% of them responded positively (Table 11), while 84.6% reported priority to male employment, the rest having no specific priority with respect to male or female employment.

Among establishments reporting priority to female employment, most were in the traditionally female concentrated economic activities, particularly, health (45.8%) and education (20.7%), followed by trade (14.2%) and personal services (11.3%).

Table 11. Establishments reporting priority to female employment

Branch of economic activity			Size of establishment		
Total	100.0 %	(4.4%)	Total	100.0 %	(4.4%)
Health	45.8 %	(29.1%)	1-4 workers	63.7 %	(3.4%)
Education	20.7 %	(39.1%)	5-9 workers	18.8 %	(8.1%)
Trade	14.2 %	(1.0%)	10-19 workers	8.5 %	(8.4%)
Personal services	11.3 %	(11.5%)	20+ workers	9.0 %	(13.5%)
Transport	4.2 %	(7.1%)			
Real Estate	2.3 %	(5.4%)			
Financial services	0.6 %	(4.8%)			
Manufacturing	0.3 %	(0.2%)			
Other	0.6 %	(0.8%)			

Note: Percentages in parentheses are relative to the total number of establishments in the respective branch or size category.

Source: CSO and LMIS, *Labour Demand Survey 2002-2003*, Yemen.

[13] "Educated" is defined here as persons with higher than basic/preparatory level of education, see Farhad Mehran, *Report on Mission to Yemen (22 September – 1 October 2001)*, International Labour Office, Bureau of Statistics, CH-1211 Geneva 22, Geneva, 7 October, 2001.

Re-examining these data in relation to the number of establishments in each sector, some new branches of economic activity emerge as favourable to employment of women. These are in particular transport and communication (7.1%), real estate (5.4%) and financial services (4.8%).

The data also show that the larger establishments are relatively more favourable to female employment than smaller ones. Some 13.5% of the establishments with 20 workers and more reported to give priority to female employment as opposed to 3.4% among small establishments with 1 to 4 workers.

These data combined with the high unemployment rate among educated women and the cultural situation regarding female employment in Yemen appear to indicate that the branches of economic activity with better prospects for promoting female employment are not only the traditional education and health sectors, but also the large financial, real estate, and communication institutions, where educated women may be employed in culturally acceptable occupations involving minimum direct public contact.

6. Skill scarcity

Skill is the ability to perform a task to a predefined level of competence. It is generally accepted that a more skilled labour force should have higher productivity and more skilled workers should get returns from the improved productivity in terms of higher pay.

It is convenient to distinguish between two types of skill scarcity: skill shortages and skill gaps.[14] The notion of skill shortages is defined "as recruitment difficulties caused specifically by a shortage of individuals with the required skills in the accessible labour market." Skill gaps, on the other hand, are "deficiencies in the skills of an employer's existing workforce, both at the individual level and overall, which prevent the firm from achieving its business objectives."

- Skill shortages

In the labour demand survey 2002-2003, a small fraction of establishments reported need for more employees (3'107 out of 250'903 establishments covered by the survey). Among them, however, a large fraction, 93%, had difficulties in filling the vacancies in at least one occupation.

As one would expect, the estimated rate of hiring difficulties was higher among larger establishments in relative to smaller establishments (more than 20% in establishments with 10 or more workers, against 5% among establishments with 1-4 workers and 13% among establishments with 5-9 workers).

[14] Frogner, Mari Lind, "Skill Shortages," *Labour Market Trends*, Office for National Statistics, January 2002, pp. 17-27.

Among establishments reporting hiring difficulties, the major reported obstacle, as shown in the following table, is unavailability of skilled labour. Some 85% of the establishments reported difficulties in finding skilled labour. For the others, the major obstacle was either the limited funds of the establishment for hiring new labour (12.2%) or the refusal of the terms of contract by the worker (2.6%), for example, when the establishment wanted to hire for a part-time job, but the worker wanted a full-time job.

Most establishments reporting unavailability of skilled labour as the major obstacle in hiring new workers did not the type of skill involved. Many responded with general statements on the lack of skilled labour or limited experience or poor training of the candidates.

As shown in the bottom part of the table, among those reporting specific skill difficulties in hiring new employees, the main obstacle was “lack of leadership” or “management skills” (36.4%) followed by “insufficiency in foreign languages” (23.9%), “lack of computer skills” (17.6) and “ignorance of use of equipments” (15.2%).

Table 12. Establishments reporting difficulties in hiring employees

Type of difficulty	Number of establishments	%
Unavailability of skilled labour	**2480**	**85.1**
- General lack of skill (training, experience)	2150	73.8
- Specific lack of skill	330	11.3
Insufficient funds	**356**	**12.2**
Unacceptable terms of contract	**77**	**2.6**
Total	**2913**	**100.0**

Specific areas of difficulties	Establishments		Employees	
	Number	%	Number	%
Foreign languages	79	**23.9**	2296	**39.8**
Computer skills	58	**17.6**	1299	**22.5**
Use of equipment	50	**15.2**	1507	**26.1**
Accounting skills	23	**7.0**	633	**11.0**
Management skills	19	**5.8**	0	**0.0**
Leadership skills	101	**30.6**	0	**0.0**
Other	0	**0.0**	33	**0.6**
Total	**330**	**100.0**	**5768**	**100.0**

Source: CSO and LMIS, *Labour Demand Survey 2002-2003*, Yemen.

It is instructive to compare the responses of the establishments with those given by the employees when asked about their difficulties in finding jobs. For ease of comparison, the results are shown in the bottom right-hand side of the same table above. Foreign languages, computer skills, use of equipments and accounting skills were the main obstacles to finding jobs as reported by the employees. The relative proportions of the categories are almost the same as those reported by the establishments, when the categories, management and leadership skills, are omitted, as these categories were not included as possible answers in the employees survey.

- Skill gaps

Skill gaps are measured here by the number of paid workers in jobs or occupations the survey establishments have reported to be requiring training, even if the establishment does not itself conduct training courses, or have or contribute to a training fund. This person-based estimate of skill gaps provides a basis for measuring the extent of skill deficiencies among existing workers. It also provides the basis for identifying the occupations most in need of training and the major types of training needed in different occupations.

Out of the 250’903 establishments covered by the survey, some 10’359 or equivalently, 4.1%, reported to be requiring training for their staff. Some 12.8% of them were conducting training courses of their own. In general, only 1.1% of the establishments covered by the survey had a training fund, 11.7% contributed or were willing to contribute to the Vocational Training and Skills Development Fund

Table 13. Skill Gaps: Training needs among paid employees reported by establishments

Occupation category	Total number of paid employees	Paid employees in training needs	%
Total	**257'908**	**42'277**	**16.4**
Managers	9'192	3'136	34.1
Specialists	20'948	14'762	70.5
Technicians	22'860	13'739	60.1
Clerks	22'330	2'554	11.4
Shop assistants	90'150	1'653	1.8
Skilled fishermen and farmers	5'847	90	1.5
Craftsmen and the like	26'655	4'048	15.2
Equipment operators and assembly workers	35'543	662	1.9
Simple occupations	17'510	415	2.4
Unclassified jobs, insufficient data	6'873	1'218	17.7

Source: CSO and LMIS, *Labour Demand Survey 2002-2003*, Yemen.

The total number of workers in need of training was reported be 42’000 which represents about 16.4% of total employment in all establishments covered by the survey. The occupations with the highest relative need of training are specialists (70.5%), followed by technicians and associate specialists (60.1%), and managers (34.1%). Craftsmen and the like (15.2%), and clerks (11.4%) were the next most important occupational categories in need of training.

Overall, the most frequent types of training need reported by the establishments for their employees was vocational training (13.1%), followed by management (13.1%), accounting (12.5%), equipment maintenance (11.8%) and information technology (11.7%). Some other reported types of training need were foreign languages (7.1%), pharmaceutical and medical services (5.4%), political and workers' organisation (4.7%), and food processing (4.5%). Still other types of training reported were aviation and meteorology (2.9%), marketing (2.8%), journalism (2.4%), and tillage and animal husbandry (0.9%).

The reported training needs vary greatly among occupations. For each of the ten major occupational categories, the types of training needs with more than 10% workers involved are listed below:

<u>Managers</u>: Political and workers' organisation (50.2%), Management (21.5%), Food processing (13.4%), Other (14.9%).

<u>Specialists</u>: Accounting (22.8%), Vocational training (19.5%), Foreign languages (17.8%), Information technology (13.1%), Other (26.8%).

<u>Technicians</u>: Information technology (15.4%), Vocational training (14.1%), Equipment maintenance (13.0%), Management (12.7%), Medical and pharmaceutical (11.5%), Other (33.3%).

<u>Clerks</u>: Management (58.4%), Information technology (18.1%), Accounting (12.5%), Other (11.0%).

<u>Shop assistants</u>: Accounting (43.1%), Management (24.3%), Vocational training (12.2%), Information technology (10.8%), Other (%).

<u>Skilled fishermen and farmers</u>: Tillage and animal husbandry (100.0%).

<u>Craftsmen and the like</u>: Vocational training (44.5%), Equipment maintenance (40.1%), Other (15.4%).

<u>Equipment operators and assembly workers</u>: Equipment maintenance (75.5%), Vocational training (17.2%), Other (7.3%).

<u>Simple occupations</u>: Tillage and animal husbandry (43.4%), Accounting (24.3%), Vocational training (21.7%), Other (10.6%).

<u>Unclassified jobs, insufficient data</u>: Political and workers' organization (32.5%), Journalism (32.5%), Management (15.5%), Information technology (10.3%), Other (9.2%).

Two points should be made about this list. First, it provides a sound basis for assessing the extent and type of training needs in different occupations. More detail information could be obtained by closer analysis of the results of the survey with regard to its training need component (Part IV). Second, the list appears to indicate that the variety of training needs tends to be more concentrated, the less complex the occupational category. Thus, in the "specialists" category, four specific types of training needs involving more than 10% of workers are reported, while in the case of "equipment operators and assembly workers," or "clerks", or "shop assistants" or "craftsmen" the training needs are concentrated in just one type with relative importance of more than 40%.

- **Education and occupation mismatch**

Education and occupation mismatch may be measured by comparing the level of education of graduate employees with job requirements in their current occupation. A more direct approach is simply to ask the graduate employees to assess the extent to which their occupation is consistent with their qualification and specialization. This has been the approach adopted in the labour demand survey.

According to the survey responses, about 17.7% of the graduate employees believed that their qualification and specialisation did not correspond to the job requirements of their current occupation, and another 18.7% thought it had only a mild connection. The poor and mild mismatch rates did not differ significantly among male and female graduates.

The poor mismatch rate was highest among graduates of general training institutes (19.9%) and universities (18.4%) and lowest among post secondary graduates (16.9%) and graduates of technical vocational trainings (15.0%).

As one would expect, graduate employees working in elementary occupations reported the highest mismatch rate (79.1%), followed those working as service and shop assistants (63.4%), or as craftsmen (32.1%), clerks (31.6%), or machine operators (30.5%). Specialists, managers, and technicians reported low levels of mismatch (8.6%, 12.8%, and 13.6%, respectively).

Table 14 below shows that graduate employees with specialisation in targeted fields mostly reported relatively low level of mismatch: navigation sciences (4.3%), medicine and pharmaceutical (5.5%), commerce (11.7%), engineering and applied sciences (12.0%) and vocational training (14.6%).

On the other hand, those who specialised in human and social sciences or theoretical sciences such as pure physics and biology indicated higher rate of mismatch with respect to their occupation (21.5% and 32.9%, respectively). It is surprising to note that the highest level of mismatch is reported by the graduate of teachers' institutes.

Table 14. Mismatch between qualification and current occupation reported by graduate employees by field specialisation

Field of specialisation	Graduate employees	Relation between qualification and occupation			'Poor' mismatch rate (%)
		Poor	Mild	Strong	
Total	**49028**	**8697**	**9155**	**31177**	**17.7**
Navigation sciences	141	6	0	135	4.3
Medicine and pharmaceutical sciences	3833	209	216	3408	5.5
Commercial secondary	2383	279	349	1755	11.7
Engineering, applied sciences	5058	605	624	3829	12.0
Vocational technical training	15147	2209	3023	9915	14.6
Human & social sciences, physical education	17554	3769	3756	10029	21.5
Agricultural sciences, animal husbandry	35	8	21	6	22.9
Military sciences	13	3	6	5	23.1
Pure physics and biology	2809	924	315	1570	32.9
Teachers institutes	687	342	108	237	49.8
Unknown	1368	343	737	288	25.1

Source: CSO and LMIS, *Labour Demand Survey 2002-2003*, Yemen.

Another instructive point revealed by the survey is that qualification and occupation mismatch is not the main reason that graduate employees change their jobs. Only 3% of graduate employees who changed jobs reported job mismatch as the main reason of the change. The bulk of change of jobs is related to low wages (48.2%), place of residence (19.9%), or simple termination of contract (16.4%).

- **Taiz, Aden, and Al-Hodeidah**

The sample size of the labour demand survey does not permit detailed analysis of the results at the governorate level as the number of observations in each governorate is limited. However, some basic information may be obtained for selected areas. Here attention is focused on Taiz, Aden, and Al-Hodeidah. The first two are of particular concern to the German aid agency, GTZ, in its programme on vocational training and small enterprise development. Al-Hodeidah has also been selected because xxx.

According the 1999 labour force survey, both Taiz and Aden have higher unemployment rate than the national economy (13.3% and 27.8%, respectively, against 11.5% in Yemen as a whole). These two governorates have also lower labour force participation rate than the national economy (43.4% and 43.1% against 45.9% in Yemen), suggesting that the proportion of young people in school and entering the labour market is relatively high in these two governorates. In comparison, in Al-Hodeidah, unemployment rate is lower (7.5%) than the national average (11.5%) and labour force participation rate higher (48.5% versus 45.9%).

Although they differ in terms of labour supply, the three governorates share the same low expected rate of labour demand in the next three years. As Table 15 below shows, labour demand in these three governorates as measured by the expected net hiring of paid employees in establishments in 2004-2006 is growing at an annual rate of 3.1%, 2.4%, and 1.6%, respectively. All three rates are lower than the national average, indicating that in these three governorates, excess supply of labour is likely to be higher than the rest of the country in the coming years.
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Table 15. Expected new hiring of paid employees in the establishments sector in selected governorates (2004-2006)

Governorate	Paid Employees (2002-2003)	Likely increase (existing jobs)	Likely Redun-dancies	New Vacancies	Net Demand	Net hiring rate (%)
Taiz	54'314	3'627	409	2'014	5'232	3.1
Aden	19'646	1'253	239	431	1'445	2.4
Al-Hodeidah	38'581	1'098	156	964	1'906	1.6
…	…	…	…	…	…	…
Yemen	**257'908**	**25'052**	**2'074**	**21'490**	**44'468**	**5.4**

In terms of skill gaps, the training needs reported by the establishments in these three governorates are not very much different from each other and not very much different than the training needs reported for the country as a whole. The five skill gaps with the highest relative percentages in each of the governorates are listed below:

Taiz:

- Electrical engineering and mechanical maintenance (28.2%)
- Management and administrative skills (20.7%)
- Vocational training and specialised education (14.8%)
- Information technology and numerical skills (12.0%)
- Accounting (11.1%)

Aden:

- Vocational training and specialised education (27.8%)
- Electrical engineering and mechanical maintenance (18.6%)
- Information technology and numerical skills (15.2%)
- Medical and pharmaceutical services (15.0%)
- Management and administrative skills (10.2%)

Al-Hodeida:

- Management and administrative skills (29.2%)
- Vocational training and specialised education (27.8%)
- Electrical engineering and mechanical maintenance (18.6%)
- Information technology and numerical skills (7.4%)
- Agricultural skills and animal husbandry (3.8%)

7. Main results and recommendations

Overall, the results of the labour demand survey seem to indicate that job creation in existing establishments is not likely to make a major dent in satisfying the 188’000 new jobs required per year to meet the annual net increase of labour force from 2004 to 2006. An implication of this result is that the employment problem in Yemen should be addressed not only in terms of job growth in existing establishments, but also in terms of employment generation through enterprise creation and this on a massive scale.

The survey results also point to a need to widen and strengthen not only the vocational training programmes and specialised university education, but also the development of managerial and administrative skills through special training programmes, as these are among the areas of skill shortages and skill gaps most reported by establishments, and perceived as sources of mismatch between education and occupation by the graduate employees.

The major factor of production of an economy is its supply of labour. On the demand side, the determining factors are the number of jobs, the average number of hours paid per job, and the level of real output per hour.

Estimates show that in Yemen labour force has been growing faster (3.8%) than labour demand (2.8%) in the past few years. The fast growth of the work force reflects mainly the effect of past high birth rates, the return migrants from neighbouring countries after the first Gulf war; and the increasing readiness in recent years of Yemeni women to enter the labour market. The relatively slow growth of labour demand, on the other hand, reflects the limited job opportunities in the private sector and the saturation of the government as an employer of last resort.

If no major efforts in job creation and job improvement are made and current trends continue, the unemployment rate is projected to increase from 11.5% in 1999 to about 17 % in 2006, and more than 29 % among the young (15 to 24 years old).

The challenge ahead is thus enormous: not only jobs are required to meet the new entrants in the labour market every year, but also to decrease the piled up stock of unemployment, many of them young graduates, and increasingly women. There is in addition the need to improve the nature of the existing jobs, particularly, in terms of their wages and productivity. Estimates calculated in this report show that:

- 188’000 new jobs are required per year to meet the annual net increase in labour force from 2004-2006;
- 22’000 jobs are required to decrease the current unemployment rate by 1 percentage point per year during the same period; and
- 43’000 existing jobs need to be improved annually in terms of wages and productivity to decrease the number of low pay workers by 1 percentage point per year.

Total employment in Yemen may be broadly divided into four sectors: subsistence and small holding agriculture (about 50%), government including public administration, public education and health (about 20%), establishments sector, both private and public (about 18%), and the remaining non-establishment employment (12%) including casual workers in construction, and taxi-drivers and other self-employed workers in transport and allied activities.

The labour demand survey of establishments shows that job performance in 2002-2003 in this sector has been bleak. While little is known about closure of establishments, the data show that creation of new establishments has been minimal. In existing establishments, paid employment has actually decreased by about 18’000, representing a net job loss of about 5.7%. Most of the losses were in trade and manufacturing. Branches of economic activity that recorded relative employment gains were education, farming, fishing, mining, electricity, gas and water, financial and real estate services, and, generally, the medium and larger establishments.

Fortunately, future job prospects in 2004-2006 appear to be brighter. The expected number of net new hiring is about 14’800 per year, representing an annual growth rate of 5.4% in labour demand in the establishment sector, significantly higher than the estimated growth rate of 2.8% for the economy as a whole. Nevertheless, this optimistic view of the establishment sector would fall short of satisfying the job requirements in the next three years. The establishment sector can at best satisfy 10% of the excess of supply of labour in 2004-2006. The bulk of reported new hiring is in trade and manufacturing, education, health and personal services.

In terms of recruitment of women, only 4.4% of the establishments reported priority to female employment. The high unemployment rate among educated women and the cultural situation regarding female employment in Yemen confirm the survey results indicating that the branches of economic activity with better prospects for promoting female employment are not only the traditional education and health sectors, but also the large financial, real estate, and communication firms, where educated women may be employed in culturally acceptable occupations involving minimum direct public contact.

A large fraction of the establishments (93%) reported to have difficulties in filling their vacancies. The main obstacle was skill shortages, i.e., the unavailability of skilled labour to fill the vacancies (85%). Other obstacles were the limited funds of establishments for hiring new labour or the refusal of the terms of contract by the worker, for example, when the establishment wanted to hire for a part-time job, but the worker wanted a full-time job. The specific skill difficulties in hiring new employees were “lack of leadership” or “management skills” followed by “insufficiency in foreign languages”, “lack of computer skills” and “ignorance of use of equipments”.

In addition to skill shortages, establishments reported skill gaps, i.e., the inadequate skill level of existing employees. The total number of workers in need of training was reported to be 42’000, representing about 16.4% of total employment covered by the survey. The training needs differed from one occupation to another, and a list has been drawn in this report on the main types of training needs in each occupational category involving more than 10% of the workers.

Another aspect of skill gap is the mismatch between education and occupation as perceived by the employees. About 17.7% of the graduate employees, men and women, believed that their qualification and specialisation did not correspond to the job requirements of their current occupation, and another 18.7% thought it had only a mild connection. Graduate employees with specialisation in targeted fields such as navigation sciences, medicine and pharmacy, commerce, engineering and applied sciences and vocational training, reported relatively low level of mismatch while those specialised in human and social sciences or theoretical sciences such as pure physics and biology indicated higher rate of mismatch with respect to their occupation.

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