

# **Labour Market Information in Estonia**

**Recommendations for national measures to improve the information flow in the labour market, with particular reference to the identification of skill needs as a basis for the planning of vocational education and training.**

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## **Section 1. Introduction; terms of reference; working method.**

This report has been prepared at the request of the Foundation Vocational Education and Training Reform in Estonia. Its main purpose is to identify practical ways in which the Estonian authorities can establish what are the main skill needs of the developing economy, as a basis for the planning of vocational education and training.

More concretely, the terms of reference require an examination of:

- ❑ existing mechanisms for *analysing and forecasting* occupational change
- ❑ the process for *disseminating the results* of such analysis
- ❑ existing *labour market information* in different organisations.

Based on this examination, the report is to recommend a series of specific measures to improve the information flow in the labour market. As one specific output, the Foundation requires the identification of a suitable model for the undertaking of economic sectoral studies, together with an indication of the time-scale for the completion of one study.

The full terms of reference are attached at Annex A.

The task of preparing the report has been approached in three main stages:

- ❑ Review, prior to travel to Estonia, of the main Irish approaches to the issues to be covered by the report. This review drew largely on the author's experience of direct involvement in labour-market information/forecasting, and on the experience of colleagues in FÁS.
- ❑ A study visit to Estonia from 22-28 November 1997, including meeting a range of individuals and institutions with an interest in, or responsibilities for, the development of the vocational education system. A list of those with whom meetings were held is given at Annex D.
- ❑ Report preparation on return to Ireland. This stage involved re-consideration of current Irish approaches in terms of how they can best be adapted to the particular requirements and circumstances of Estonia.

## **Section 2. Sources of labour market information in Estonia**

### ***Types of labour-market information and their importance***

Labour market information of use to policy-makers and to other market actors can be categorised in a number of ways. Current and historical information, for example can take the form of:

- ❑ *Type A*: Regularly-produced official data on employment, unemployment and the labour force, which can be used to identify aggregate quantitative trends by sector, occupation, age, etc.
- ❑ *Type B*: Occasional or ad-hoc surveys and enquiries limited either to specific sectors or to specific issues (e.g. labour shortages). These tend to provide more partial, but usually more detailed information.
- ❑ *Type C*: Enquiries or processes producing "softer" or more qualitative information. These tend to concentrate on issues such as the changing content of individual jobs.

- *Type D*: On the supply side, data on the current annual outflow from the education system (both general and VET) can be an important supplement to of *Type A* above.

A second issue is that of the extent to which the available information is “forward-looking”, in the sense that it provides a basis for forecasting future trends. In this context, information of Type A can be used, to some degree, as a basis for projecting broad trends, and identifying potential major tensions in the labour market for reasonably aggregated groups of occupations or qualifications. Information of Type B can help, within the context of such broad projections, to establish more detailed changes in occupational patterns which may be of particular importance to individual branches of economic activity. Information of Type C can help identify structural changes *within* occupations, understanding of which may be essential to the practical interpretation of quantitative trends and projections.

In practice, all four types of information are essential to an understanding of the direction of change in the labour market. Such an understanding is of importance, clearly, to those responsible for the central planning and direction of vocational education and training. Even in a decentralised or market-driven system, it is important as a key input to the decisions of individual workers and new entrants to the labour market, of employers and potential investors, and to the managers of both public and private-sector education and training institutions.

### ***Availability of such information in Estonia***

The provision of Type A information is well-developed in Estonia. A detailed review of the main aggregate employment, unemployment and labour force series is contained in Annex B. The decision to carry out Labour Force surveys in 1995 and 1997, and to repeat them at more frequent intervals in the future, has provided a wealth of information on the dynamics of the labour market.

The extent to which ad-hoc surveys (Type B information) have been carried out is inevitably more difficult to pin down. However, in the recent past, such surveys have been carried out both by the Labour Market Board (LMB) and by the Foundation itself.

The LMB survey covered firms in a range of sectors. The data collected included partial information on the current occupational structure of employment, identification of specific occupations for which companies expected to be recruiting in the future, the main employment/labour issues facing the firm, and anticipated use of the services of employment offices.

The Foundation survey was addressed to 300 of the largest firms in Estonia. Again, it collected partial information on the occupational pattern of present and planned employment. It also went into further detail on employers’ views on issues such as:

- Recruitment practices and channels and the extent to which qualifications played a role as recruitment criteria.
- Interaction with VET schools in relation to initial training (as source of recruits, in provision of work experience to students, etc.)
- Re-training of existing workers and how it should be organised
- The development of national systems of qualifications

In each case, these surveys provide information which will be of use to the respective organisations carrying them out. Indeed, some of the data collected by the LMB are of potential relevance to the VET system, and some of the data collected by the Foundation will be of use to the labour market authorities. However, neither survey, for a variety of reasons, produces results which can readily be compared with those of more aggregate enquiries such as the LFS. This is principally because they do not take a comprehensive approach to the collection of occupational information. It is difficult to draw conclusions, from such surveys, on the relative supply/demand balance in given occupations across the economy as a whole. It is this last-mentioned type of information which is most useful as an indicator of where priority should be given in terms of VET provision and other labour-market interventions.

Softer Type C information is held primarily by those directly involved in the management of human resources within enterprises, and by those within the VET system (both providers and experts) who have developed good contacts with enterprises. Internationally, these types of contact are often on an *ad-hoc* basis. This process is being put on a more formal footing in Estonia as part of the development of a national system of qualifications. This involves enterprises (through Professional Councils of the Estonian Chamber of Commerce), as well as the Ministries of Social Affairs and Education, in the identification of the core skills and qualifications required in individual occupations. This process, as long as provision is made for regular review, should ensure that VET providers are kept informed of changes in the nature of individual jobs.

Finally, information of Type D is readily available. The Ministry of Education has a well-developed system of data collection in all parts of the education system, with the outputs being published by the Statistical Office both in the *Statistical Yearbook* and, in greater detail, in the specialist yearbook of education statistics. The data provided includes an annual series on the number of graduates from each level of the education system, classified, where relevant, by area of specialisation. The Ministry has also developed a “flow” model which identifies transitions between the different levels of education. In this way, it is possible to establish the *net* outflow of young people completing each successive stage of education and training.

### **Section 3. Current use and dissemination of labour market information**

It will be clear from the foregoing that there is a wide range of information available on the dynamics of the Estonian labour market. In some, but not all cases the data sources include detail on occupational structure, which is the main focus of this report.

#### **Deficiencies**

Two main deficiencies in the current labour market information system can be identified.

First, there is no established focal point with the resources necessary for the assembly and analysis of the available information from an occupational point of view. As a result there is no widely-shared and well-understood consensus on the current occupational structure of employment and the forces which have influenced it. To some extent this is due to the fact that the main occupational data from the 1995 LFS have only become available in the recent past. The fact that these data are now available, and will be updated at regular intervals, provides an opportunity for studies of change in the occupational structure which could be of benefit to many of the actors in the labour market and the VET system.

Second, attempts to forecast future trends in occupational demand and supply have been limited to date. A “forward-looking” approach is a feature of some of the *ad hoc* studies described earlier, and of the work being undertaken in the development of national qualifications. The value of these exercises is reduced, however, by the absence of a broader overview which would provide the context in which they might properly be interpreted. There are two main ways in which such an overview can be developed:-

- Through systematic studies of the specific manpower and training needs of individual key sectors or branches of activity, which are firmly rooted in a strategic assessment of the current position in, and prospects for, the sector concerned.
- Aggregate-level assessment of the prospects for change in the occupational structure of employment and of labour supply, based on consensus or widely-accepted prognoses for the macro-economy.

Both of these approaches have been used with some success in Ireland. The issue is whether these approaches can be implemented in Estonia when account is taken of its particular circumstances, including *inter alia* data availability, the local availability of the required forms of expertise, and the stage the country has reached in the transition to a market economy. This issue is best examined separately in relation to each of the two approaches.

### **Sectoral studies**

In view of the central place of the sectoral study approach in the terms of reference, a detailed specification for a typical study is attached as Annex C.

Based on information collected during my visit to Estonia, I am of the view that there is ready local availability of the necessary resources to carry out all stages of a sectoral study based on the model developed in Ireland. This is certainly true of those stages which involve the collection of statistical data from firms, both in terms of the design of suitable questionnaires (with which the Foundation itself has experience) and in survey administration, where at least one independent research organisation has a track record of enterprise surveys and good contacts with firms.

Where some difficulty could arise is at the level of developing a strategic overview of sectoral prospects. In the Irish case, this work has normally been carried out by private-sector management consultants specialising in the area of competitive strategy, and such consultancy appears relatively undeveloped in Estonia. However, it should be noted that much of the current international body of competitive strategy literature, and particularly those elements most relevant to the sectoral approach, is an outgrowth of the academic field of industrial economics. There are already a number of researchers working in this field in Estonia, as evidenced by the range of Estonian contributors to a recent publication *Estonian Economy and European Integration*,<sup>2</sup> particularly those parts dealing with sectoral developments.

### **Aggregate-level assessments**

Economy-wide assessments of future occupational developments are carried out in a number of stages. On the demand side, these involve

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<sup>2</sup> Edited by B. Berg, and published by the Research Institute of the Finnish Economy, 1997.

- ❑ Development of employment forecasts by branch of activity based on available macro-economic forecasts
- ❑ Developing projections of the occupational structure of employment within each sector
- ❑ Combining these two elements to generate projections of aggregate economy-wide employment classified by occupation
- ❑ Development, based on the occupational forecasts, of projections of demand classified by broad required level of educational attainment.

On the supply side:

- ❑ Using existing data on the educational attainment of the labour force, together with assumptions on attrition due to retirement, withdrawal, death, etc. to estimate the educational composition of the “surviving” labour force at a series of future dates
- ❑ Estimating the educational attainment of new entrants to the labour force on the basis of data on outflows from the general education and VET systems
- ❑ Combining these to generate projections of the aggregate labour force, classified by educational attainment, for future dates.

Comparison between the employment and labour force projections can indicate whether significant tensions are likely to emerge between the demand for and supply of people with different levels of qualification.

On the basis of a review of existing information sources (see Section 2 above and Annex B) it is clear that sufficient data are available to support at least a preliminary exercise along these lines. By comparison with the present Irish approach, certain limitations exist. Principal among these are:

- ❑ The larger size of the sample in the Irish LFS, together with the availability of census data at 5-year intervals, allows employment to be analysed in terms of 45 occupational categories within each of 29 activity sub-groups. As will be clear from Annex B, the scope for detailed analysis would be more limited in Estonia.
- ❑ A long and reasonably stable time series exists in Ireland on the trends in occupational composition within individual sectors. Historical data on these trends are more problematic in Estonia. Moreover, past trends may be of more limited value as a guide to future developments given the scale of the recent changes in economic organisation in the country. As a result, it may be necessary to explore other bases for projecting within-sector occupational trends. One promising possibility here would be comparisons between the occupational structure of industry branches in Estonia with that in other countries, and forming views on the likely time-path of convergence between them.

Despite these *caveats* it would be of value to develop, at this stage, a set of projections which would establish the likely broad occupational implications of the macro-economic projections being developed at present by the Ministry of Finance.<sup>3</sup> Estonia is emerging from a period of employment adjustment and decline, and employment is likely to grow in the future. At the same time, the demographic outlook is such that underlying labour-force growth is likely to be slow, and unemployment is already low in some occupations. In these circumstances projections based on even a limited number of sectors and occupational groups are likely to be of assistance in identifying potential tensions in the labour market.

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<sup>3</sup> See *B.4 Pointers to future trends* in Annex B.

## **Section 4. Suggested actions**

### **Sectoral studies**

It is recommended that the Estonian authorities should make provision for at least two initial sectoral studies based on the model in Annex C, with a view to extending the scope to additional sectors over time. Given their importance to the country's future economic prospects, it seems desirable that the two initial activity branches to be studied should be food production and the processing of forestry products.

It is recommended that overall responsibility for these studies should be given to the Foundation, operating through the National Observatory, given its position at the interface between the employment system and the VET system, and the work it has already carried out in the development of information flows across this interface. In carrying out the work, the Observatory should be supported by advisory groups at two levels:

- An overall Steering Group for Sectoral Studies, representative of the bodies which supply the current membership of the National Observatory Expert Group. The individual representatives need not necessarily be the current Expert Group members; they should be identified on the basis of their analytical background with a view to making a concrete input to the process. The Steering Group would advise on the development of the overall programme of studies, and on the implementation of Action Plans emerging from the studies.
- An *ad-hoc* Advisory Group for each individual study. This should be representative of enterprises in the sector concerned, of sectoral experts from the relevant Ministries (usually Education, Economics, and Social Affairs) and development agencies, and of at least one VET provider institution which has close links to the sector concerned. The Advisory Group would have a more detailed involvement in the design and implementation of the sectoral study, and would be expected to contribute, in particular, to the development of the strategic sectoral assessment.

In addition, it is recommended that the Observatory should seek to enlist the full-time services of a professional researcher with a background in Industrial Economics to take responsibility for the administration of the first two sectoral studies. This person would develop the study specification in consultation with the Advisory Group, and, as well as managing the project, carry out those elements of the study which involved desk research. It is recommended that the enterprise survey element, as well as the facilitation of industry workshops/seminars, be carried out by an independent Estonian market research institute chosen through a tender process.

It is envisaged that there would be some time overlap between the first two studies. Based on the time-scale for recent Irish studies, with a commencement date in early 1998 it should be possible to complete the first such study by end-1998, and the second by mid-1999.

### **Aggregate-level assessments**

It is recommended that the Observatory should attempt to develop an overall occupational forecasting model along the lines set out at Section 3 above, with a view to producing a first set of aggregate forecasts during 1998.

In my view the skills necessary to execute such a project are already present within the Observatory, but its resources are stretched. It would be of benefit therefore, to employ

someone with a statistics background, on a contract basis, to be responsible for carrying out this work under the direction of existing Observatory personnel.

The Observatory should also seek to have access to advice from a working party of designated personnel from the Statistical Office and from policy divisions of the Ministries of Education, Economics, Social Affairs and Finance in the development of the forecasts.

### **External consultancy**

Each of the approaches suggested above is designed to draw as far as possible on expertise which is available in Estonia, and to minimise the requirement for external consultancy. However, it would be useful if such external assistance were available for short periods at a number of stages.

In the case of sectoral studies, this would take the form of a number of brief (one-week) inputs from individual consultants experienced in such work:

- At the design stage of the first study
- At the stage where the strategic assessment is being finalised
- During the report-writing stage.

In the case of the aggregate assessment, similar inputs would be useful:

- At the initial stage of the work, in order to familiarise those responsible with the details of available forecasting techniques
- At the stage when the projections are being finalised and reviewed.

## **ANNEX A**

### **Terms of Reference**

#### **Background**

The Estonian National Observatory was established in early 1997 to support the reform process in vocational education and training. One of the core aims of the Observatory is to provide accurate, up to date information and examples of best practice on vocational education and training systems. In specific terms the Observatory activities include among others, the identification of information sources and the improvement of information flow linking labour market needs and the supply of vocational training interventions.

Within this context there is an urgent need to evaluate the level of efficiency in the existing Estonian labour market information and it is anticipated that the outputs from this assignment will contribute in a positive way to addressing any identified deficiency.

#### **Outputs**

1. Review /evaluate existing mechanisms for analysing and forecasting occupational change within the Estonian labour market.
2. Examine the processes for disseminating this information to the relevant national institutions.
3. Review the existing/available labour market information in different organisations.
4. On the basis of points 1 - 3, prepare a report recommending a series of national measures to improve the information flow in the labour market. These should include a suitable methodology/model, based on Estonian requirements, for undertaking economic sectoral studies. The report should also estimate, based on point 3 the time frame for completing one study, the possible sectors to be analysed and the administrative procedures needed to successfully manage such a project.

#### **Duration**

Phase 1 24 - 28 November 1997 ( in Estonia )

Phase 2 08 - 12 December 1997 ( at base )

#### **Report**

As specified under point 4. The report must be received by the Foundation management in Tallinn on 15 December 1997.

## ANNEX B

### Official labour-market information in Estonia

#### *B.1 Information on employment; level, pattern, and past trends*

##### **Economy-wide data**

The two main potential sources of economy-wide data on employment are the Labour Force Survey (LFS) and the Enterprises Register. Of the two, for reasons discussed below, the LFS is likely to be the more useful starting place for any detailed examination of the labour market situation.

A consistent series of annual estimates of aggregate employment from 1989 to 1996 has been developed by the Statistical Office of Estonia. The data for 1989-95 are based on the results of the 1995 Labour Force Survey (a sample survey with 9,600 respondents). This survey (henceforth referred to as LFS), as the first of its kind, collected retrospective data for the years since 1989 in respect of all those in the resident 1995 population who were aged between 16 years and 75 years. A further survey was carried out in 1997, and the 1996 estimates are drawn from the preliminary results thereof.

In developing the consistent series for years prior to 1995, it was necessary to make adjustments to the raw retrospective data from the LFS. The principal reason for this was to allow for the fact that significant numbers of people who had been in the labour force in 1989 had emigrated by 1995, and were not therefore reflected in the LFS sample. Thus, while the LFS indicates that employment among the population which was still resident in 1995 had fallen by 11% since 1989, the official consistent series shows a decline of almost 22% in aggregate employment over the same period. The estimate for 1996 shows a further small decline (-1.6%) over the 1995 level.

##### **Sectoral data**

The official employment series for 1989-1996 identifies 16 separate branches of economic activity. These are shown in Table 1, together with some data on employment trends since 1989. The data show that the decline in employment over recent years has been accompanied by a transformation of the employment structure. While employment declines have taken place in most of the activities identified, they have been most severe in agriculture and fishing, construction, health-care, and manufacturing and mining. At the same time, there have been employment increases in several branches, most notably in finance (from a very small base), but also in distribution, education and public administration. The remaining activities had 1996 employment levels which were broadly unchanged on their 1989 totals.

From the perspective of the present report, the most important features of the data available from the LFS are the level of sectoral detail provided, and the degree of confidence which can be attributed to the estimates, particularly for smaller branches of activity. Sectoral detail matters because, within apparently homogeneous sectors such as manufacturing, individual activities (e.g. food production and engineering, respectively) can have very different patterns of labour demand, and overall growth in manufacturing can mask major shifts between these activities.

The issues of detail and confidence are related to size of the population sample covered by the survey. As already noted, this was less than 10,000 in the case of the 1995 survey, representing one respondent for every 115 people in the target age-group of 15-74 years<sup>4</sup>.

<b>Table 1: Activity branches identified in official employment series, with trend data for 1989-96</b>					
<b>Branch of activity</b>	Employment ('000)		Change (%)	Employment share (%)	
	<b>1989</b>	<b>1996</b>	<b>1989-96</b>	<b>1989</b>	<b>1996</b>
Agriculture, forestry	150.8	59.7	-60%	18.0%	9.2%
Fishing	26.5	5.0	-81%	3.2%	0.8%
Mining and quarrying	12.3	8.9	-28%	1.5%	1.4%
Manufacturing	214.9	154.4	-28%	25.6%	23.9%
Utilities	18.6	16.4	-12%	2.2%	2.5%
Construction	64.9	36.8	-43%	7.7%	5.7%
Distribution	61.6	85.8	39%	7.4%	13.3%
Hotels and catering	18.8	17.8	-5%	2.2%	2.8%
Transport, communications and storage.	65.6	64.7	-1%	7.8%	10.0%
Finance	3.9	6.6	69%	0.5%	1.0%
Business services	33.6	32.3	-4%	4.0%	5.0%
Public administration and defence	32.8	35.0	7%	3.9%	5.4%
Education	51.0	56.3	10%	6.1%	8.7%
Health and social care	50.5	35.9	-29%	6.0%	5.6%
Personal and community services	30.2	28.8	-5%	3.6%	4.5%
<b>Total</b>	<b>837.9</b>	<b>645.6</b>	<b>-23%</b>	<b>100.0%</b>	<b>100.0%</b>

Source: Estimates for 1989 are from *Statistical Yearbook 1997*. Estimates for 1996 supplied by Ministry of Finance, based on preliminary results of 1997 LFS.

This means that some of the smaller estimates in Table 1 (for example those for activities such as finance and fishing) are based on very small numbers of respondents. Changes from one year to the next in the data for these activities should be treated with a fair degree of caution.

At the same time, there is probably some scope for presenting more detail in the published LFS data for manufacturing, which, while it accounts for nearly one quarter of all employment, is shown only in aggregate. I understand that the survey question on sector of activity is coded in a way which would allow more detailed analysis of employment by activity within manufacturing.

Finally, limited employment data are available from the Enterprises Register, which is maintained under the administration of the Ministry of Finance. In principle, this source should allow analysis of employment trends by sector in great detail. However, as in other countries, there have been problems in keeping the register up to date, problems which have been exacerbated, in the Estonian case, by the very rapid pace of structural change at the enterprise level. This limits the potential of the register as a source of data on past trends in

<sup>4</sup> For comparison, the 1997 Irish LFS covered 148,000 respondents, one for every 25 of the target population.

employment. A major “cleaning” operation on the register is now underway, and once this is complete, it may become more useful as a source of data on short-term trends.

### Extent of occupational detail in these sources

Detailed information on the respondents’ occupation is collected in the LFS. Within the limits created by the size of the sample, this makes it possible to analyse the occupational pattern of employment in the economy overall and in individual sectors. The relevant data for 1995 are given in Table 2.

	<b>Total</b>	<b>Managers</b>	<b>Professional</b>	<b>Associate prof.</b>	<b>Clerical</b>	<b>Service/sales</b>	<b>Skilled manual</b>	<b>Semi-skilled manual</b>	<b>Labourers/other</b>
<b>Agriculture, forestry</b>	100.0%	8.2%	3.9%	5.8%	2.6%	1.6%	51.8%	20.6%	5.6%
<b>Fishing</b>	100.0%	8.0%	3.0%	12.0%	2.0%	2.0%	43.0%	27.0%	3.0%
<b>Mining and quarrying</b>	100.0%	11.2%	3.4%	0.0%	6.7%	1.1%	40.5%	31.5%	5.6%
<b>Manufacturing</b>	100.0%	11.9%	6.6%	5.7%	5.7%	0.8%	42.7%	16.4%	10.2%
<b>Utilities</b>	100.0%	9.9%	13.5%	10.5%	3.5%	0.0%	32.7%	25.7%	4.1%
<b>Construction</b>	100.0%	16.4%	2.9%	4.9%	2.5%	0.7%	52.5%	14.2%	5.9%
<b>Distribution</b>	100.0%	21.2%	3.5%	14.5%	6.9%	30.6%	9.0%	4.4%	10.0%
<b>Hotels and catering</b>	100.0%	10.3%	0.0%	6.4%	5.1%	51.9%	7.7%	1.9%	16.7%
<b>Transport, communications and storage.</b>	100.0%	10.7%	3.8%	7.4%	13.5%	4.8%	14.9%	39.1%	5.9%
<b>Finance</b>	100.0%	16.9%	19.7%	22.5%	32.4%	2.8%	2.8%	2.8%	0.0%
<b>Business services</b>	100.0%	18.7%	23.6%	15.9%	3.3%	7.3%	12.2%	6.1%	13.0%
<b>Public administration and defence</b>	100.0%	16.6%	14.7%	29.0%	6.1%	13.7%	1.9%	4.1%	14.0%
<b>Education</b>	100.0%	6.5%	57.4%	10.0%	2.3%	7.4%	4.7%	1.6%	10.0%
<b>Health and social care</b>	100.0%	4.6%	22.0%	27.8%	5.1%	27.3%	3.2%	2.2%	7.8%
<b>Personal and community services</b>	100.0%	15.7%	29.1%	15.2%	4.4%	10.9%	5.7%	5.2%	13.9%
<b>Total</b>	<b>100.0%</b>	<b>12.7%</b>	<b>12.4%</b>	<b>11.4%</b>	<b>5.7%</b>	<b>10.5%</b>	<b>24.9%</b>	<b>13.4%</b>	<b>9.0%</b>

Source: LFS 1995, Volume 2, Table 14, page 86.

The table illustrates clearly the very different occupational profile of employment in different sectors of the economy. Contrast, for example, the manufacturing sector, where less than 20% of jobs are at managerial or professional level, with the finance and business services sectors, where about 40% of employment is in these occupations. These types of differences across activity branches suggest that further change in the *sectoral* structure of Estonian employment are likely to have a significant impact on the occupational pattern of labour demand.

There are no published data on past trends in the occupational structure of employment at this level of detail (although there is a brief commentary on occupational change in the transition period in Volume 2 of the LFS 1995). Use of the retrospective data in the 1995 LFS for past

trend analysis would be limited in any case. It is unlikely that those who had been working in 1989, but had emigrated by 1995, had the same occupational distribution as did the workforce overall. Their absence from the 1995 sample thus poses real problems for the interpretation of the retrospective data on occupations. In addition, the confidence restrictions imposed by the small sample size become even greater in the analysis of year-to-year changes than in the analysis of the occupational structure for any given year.

Finally, although it is not published in the LFS report itself, the survey collected information on the educational background of respondents. The information is coded in a way which is meaningful in terms of the current structure of education. It could be used as a basis for analysing the educational background of those employed in various occupations. Such an analysis, of itself, would help in identifying the nature and importance of existing linkages between education and the labour market.

No occupational data are available from the Enterprises Register.

## ***B.2 Information on labour supply***

### **Labour force**

#### ***Aggregate labour supply***

Trends in the size of the labour force are determined by developments in the size of the working-age population together with changes in the level of labour force participation. Again, consistent time series for these aggregates are available in Estonia, and the main recent trends are given in Table 3.

<b>Table 3: Working-age population and labour-force participation</b>								
	1989	1990	1991	1992	1993	1994	1995	1996
<b>Population aged 15-69 ('000)</b>								
<i>Male</i>	519.6	522.7	523.7	522.8	512.5	507.8	504.4	500.9
<i>Female</i>	576.8	579.6	580.3	578.4	567.4	561.6	557.2	553.2
<i>Total</i>	1096.4	1102.3	1104.0	1101.2	1079.9	1069.4	1061.6	1054.1
<b>Participation rate</b>								
<i>Male</i>	82.6%	82.1%	81.6%	80.5%	78.0%	77.9%	75.9%	75.0%
<i>Female</i>	71.7%	69.4%	67.6%	64.7%	63.1%	63.0%	61.7%	61.8%
<i>Total</i>	76.9%	75.5%	74.3%	72.2%	70.2%	70.1%	68.5%	68.1%
<b>Labour Force ('000)</b>								
<i>Male</i>	429.1	429.3	427.5	420.7	399.9	395.5	382.9	375.8
<i>Female</i>	413.5	402.4	392.3	374.1	357.9	353.9	344.0	341.8
<i>Total</i>	842.6	831.7	819.8	794.8	757.8	749.4	726.9	717.6

Source: Estonian Statistics Monthly, No. 10(70), p.28

The transition period has seen a moderate drop in the size of the working-age population and a sharp fall in labour-force participation. Combined, these have led to a fall of some 15% in the numbers in the labour force between 1989 and 1996. The decline in the female labour force has been slightly greater than that for males (17% as against 12%). As the population trends for men and women are broadly similar, this can be seen to be due to a rather faster decline in the participation rate among women.

Despite the decline in labour force participation, the aggregate participation rate in 1995 remained somewhat above that for the European Union countries overall, and on a par with that of the Northern EU member states such as Denmark and Germany.

#### *Age, occupation, educational qualifications*

Data on changes in the age-structure of the labour force in recent years are given in Table 4. They indicate that the major decline in participation has been in the older age groups, particularly among those aged 55 years and over. There has been relatively decline in participation in the 35-44 age-group. As a result, there has been some increase in the proportion of the labour force made up of people in this age-group, from 24% in 1989 to 27% in 1996. There has also been a slight increase in the share of the youngest age-group (aged 15-24) in the labour force.

Age Group	1989			1995		
	('000)	Labour force share	Participation rate	('000)	Labour force share	Participation rate
<b>15-24</b>	109	13%	50%	102	14%	48%
<b>25-34</b>	218	26%	91%	180	25%	86%
<b>35-44</b>	201	24%	96%	198	27%	92%
<b>45-54</b>	184	22%	95%	156	21%	88%
<b>55-69</b>	131	16%	55%	91	13%	37%
<b>Total 15-69</b>	<b>843</b>	<b>100%</b>	<b>77%</b>	<b>727</b>	<b>100%</b>	<b>69%</b>

*Source:* Derived from Tables on pages 172-174 of Statistical Yearbook 1997

As data on prior occupation are collected on the unemployed at the LFS, it is possible to provide an occupational breakdown of the overall labour force for 1995 as shown in Table 5. (Retrospective data are not given, for the reasons discussed earlier in relation to Table 2).

	('000)	(%)
<b>Managers</b>	87.5	12%
<b>Professional</b>	84.8	12%
<b>Associate professional</b>	81.7	11%
<b>Clerical</b>	40.3	6%
<b>Service/sales</b>	78.3	11%
<b>Skilled manual</b>	185.7	26%
<b>Semi-skilled manual</b>	99.2	14%
<b>Labourers/other</b>	69.0	9%
<b>Total</b>	<b>726.5</b>	<b>100%</b>

*Source:* Derived from Table 2 above and from LFS 1995, Volume 2, Table 33. In the case of the unemployed, it has been assumed that those for whom no occupation is reported, because they have not previously worked, have the same occupational profile as those for whom an occupation is reported.

At first sight the occupational distribution of labour supply seems to follow that of labour demand (compare Tables 2 and 5). However, closer examination of the two distributions shows up some important differences. These are discussed in the next section.

Finally, as in the case of those in employment, the LFS data set could be used to examine the education-background structure of the overall labour force.

### ***B.3 The balance in the labour market***

The unemployment rate compares the number of unemployed with the numbers in the overall labour force (employed plus unemployed). It is the most commonly-use measure of the balance between labour supply and demand, both for the economy overall and for different groups within the labour force.

#### **LFS-based estimates**

At the aggregate level, the consistent series in the *Statistical Yearbook* indicates that the unemployment rate in Estonia rose from less than 1% in 1989 to 8.7% in the first quarter of 1995. Preliminary estimates from the 1997 LFS suggest that the average rate over the whole year was 9.7% in 1995, rising to 10.0% in 1996, and falling to about 9.5% during 1997.

Of more relevance to the present paper is the rate of unemployment in various occupation groups. As already mentioned, the occupational structure of labour demand and labour supply are broadly similar. However, the differences are sufficient to create a wide variation in unemployment rates across occupations, as shown in Table 6.

<b>Table 6: Unemployment rates in different occupations, 1995</b>							
	<b>Employed</b>		<b>Unemployed</b>		<b>Labour Force</b>		<b>Unemployment rate</b>
	('000)	(%)	('000)	(%)	('000)	(%)	(%)
<b>Managers</b>	84.1	12.7%	3.4	5.3%	87.5	12.0%	3.9%
<b>Professional</b>	82.1	12.4%	2.7	4.3%	84.8	11.7%	3.2%
<b>Associate prof.</b>	75.5	11.4%	6.2	9.8%	81.7	11.2%	7.6%
<b>Clerical</b>	37.9	5.7%	2.4	3.8%	40.3	5.5%	6.0%
<b>Service/sales</b>	69.8	10.5%	8.6	13.5%	78.3	10.8%	10.9%
<b>Skilled manual</b>	165.3	24.9%	20.3	32.0%	185.7	25.6%	11.0%
<b>Semi-skilled manual</b>	88.8	13.4%	10.4	16.4%	99.2	13.7%	10.5%
<b>Labourers/other</b>	59.5	9.0%	9.5	14.9%	69.0	9.5%	13.7%
<b>Total</b>	<b>663.0</b>	<b>100.0%</b>	<b>63.5</b>	<b>100.0%</b>	<b>726.5</b>	<b>100.0%</b>	<b>8.7%</b>

*Source:* As for Table 5 above.

Unemployment rates for white-collar workers are below the average for all occupations, with particularly low levels of unemployment among managers and professional workers. Unemployment is above average among blue-collar workers (including those in routine sales/service occupations), with the highest rates being found among those in labouring and other elementary occupations.

While the data are unpublished, the LFS provides the basis for analysing rates of unemployment classified by level of prior educational attainment.

### **Employment-office data**

Regular and timely data are available on unemployment from the Labour Market Board, based on registrations with employment offices. These data can be analysed in detail by age, sex, and previous occupation. However, the registered unemployed represent only slightly over half of those identified as unemployed at the LFS. While the registration data provide essential management information (for example in the planning of short-term training provision for the unemployed), the LFS data-base has more potential for analysis of the overall balance in the labour market.

### ***B.4 Pointers to future trends***

The Ministry of Finance is in the process of finalising economic projections for the period up to the year 2002. These will contain both a “base” and a “target” forecast for anticipated employment developments, corresponding to similarly differentiated economic forecasts.

At the current stage of drafting, each of the alternative projections envisages some recovery in employment from 1997 onwards, partially reversing the steep decline which has occurred during the transition period. The recovery is slightly more rapid in the “target” projection.

While the size of the working-age population is expected to go on declining, both projections foresee a reversal in the recent fall in labour force participation, with the rate for those aged 16-69 rising from about 68% in 1997 to between 71% and 72% in 2002. As a result, the size of the labour force is projected to increase by about 6,000 *per annum*. In this context, the base employment projection would see the unemployment rate rising further, to about 11% in 2002, with the target projection implying a fall in the unemployment rate to about 8%.

The Ministry’s employment projections are broken down by main branch of activity. They do not, however, identify projected trends in the occupational composition of employment.

## ANNEX C

### *Sectoral studies*

#### **Overview of Scope and Purpose**

In general, the aim of a sectoral study is to set out the probable or desirable future development of specific industry sectors in the context of economic, social and other developments over a 5-year time-scale, and recommend the manpower and training interventions required to support this development.

Thus, one of their prime purposes is to help the various stakeholders make good decisions about manpower and training activities relevant to the sector. These stakeholders include the bodies representing enterprises, VET providers, government ministries, union representatives and individual companies themselves.

Specifically, one of the purposes of a sectoral study is to identify and prioritise key skill areas for which VET interventions are required. A sectoral study would also provide feedback on the quality of provision of education and training for the sector and hence allow education/training providers to modify their programmes. It would also provide indications of the numbers of persons likely to be recruited by the sector and hence the need for initial education/training provision. Another purpose is to indicate to individual enterprises the types of changes required for success, and hence assist them in identifying their own training needs and plans. The funding of training programmes for the unemployed would also be influenced by a sectoral study as it would identify the broad numbers and types of courses needed for a particular sector.

#### **Main features of a manpower and training needs sectoral study**

The study should begin with a definition of the sector and its constituent sub-sectors and go on to set out the present position of the industry in terms of markets, enterprises, technology, labour, business performance and other factors relevant to the sector in question. It should identify and assess market opportunities and threats using a 'SWOT' analysis. It should spell out the technological, legislative, trading and other changes likely to affect the industry. Changes due both to the global market and to changing international trade arrangements should be identified and their importance assessed. The present position of enterprises in the sector vis-à-vis foreign competition should be analysed and benchmarked.

The study should then set out the kind of market, business, technological and manpower position that will be required for success in the industry in the future. It may be useful at this stage to set out a number of scenarios based on different assumptions and explore their consequences and, in particular, the measures needed to achieve the most favourable one. The changes that enterprises in the industry, and related industries, need to make to achieve this positive outcome can then be presented and, in particular, the manpower, skills and training changes that are required. Conclusions on manpower and training should clearly follow from the analysis of markets, technology etc. It should be emphasised that this strategic analysis should be fully linked to that of Government and other development organisations and should build on their work as much as possible with resulting benefits to all.

Finally, the study should go on to indicate in detail the manpower and training actions needed in a number of areas to achieve the strategy set out for the industry. These areas are set out in more detail in the 'Study Report' section below. The study should also develop a methodology for up-dating its results on a regular basis.

Typically, a study would have a 5-year time horizon but would also address key issues that will affect the sector over a longer time scale.

### **Methodology**

The precise methodology to be used will need to take cognisance of any special factors or priorities in relation to a sector, including the types of information already available about a sector. However, it is also important that a broad, standard, methodology is established which can be adapted in particular cases. The main activities involved in a study would be expected to be in the following four broad phases:

#### ***Information Gathering***

- ❑ Gathering of business and manpower information and statistics for the sector, including comprehensive statistics on existing employment in the sector (and sub-sectors) for main occupations.
- ❑ Surveying enterprises in the sector to find out their current situation, plans for the future, difficulties and suggestions for improvement in a range of areas including markets, technology, work organisation, manpower and training.
- ❑ Obtaining information about relevant legislation.
- ❑ Obtaining information about other relevant changes (e.g. GATT, tariffs, EU accession).
- ❑ Obtaining information on developments in other sectors which might affect the sector under review.
- ❑ Analysing existing reports about the sector both in Estonia and overseas, and comparing the performance of the sector with international competitors.
- ❑ Discussing the development of the sector with relevant government ministries and development agencies, and obtaining information about their strategies and policies for the sector.
- ❑ Obtaining the views and proposals of other stakeholders in the industry including employer and union representatives.
- ❑ Obtaining information about technological developments (at home and internationally).
- ❑ Gathering information about existing education and training provision which is of specific relevance to the sector, and its adequacy.

The information gathering phase would be conducted by a mixture of desk research, a survey of companies in the sector, in-depth discussions with stakeholders and industry seminars. The establishment of comprehensive industry statistics should draw as far as possible on existing sources. This is necessary to reduce costs in the enterprise-survey stage, which should concentrate on the collection of the minimum possible amount of essential information which is not available from other sources.

#### ***Analysis***

- ❑ Establishing a company database for the sector.
- ❑ Analysing likely developments in the sector internationally and Estonia's position vis-à-vis them.
- ❑ Identifying the key factors that will determine whether or not Estonian enterprises will be competitive in the future based on a SWOT-type analysis.

- ❑ Analysing the desirable future direction for the industry, taking account of industrial and other Government strategies, and the industry's own performance capacity.
- ❑ Calculating the manpower and skill implications of developments in the key affecting the sector.
- ❑ Calculating the number of employees by main occupations likely to be employed in the sector in the future.
- ❑ Calculating the number of new entrants that will be required by the sector to satisfy both expansion and replacement needs.
- ❑ Estimating the amount and type of training required by new entrants.
- ❑ Calculating the number of existing employees requiring training and the kind of training required.

The analysis phase would include the compilation and assessment of the data gathered in the first phase of the study. It would include compiling and analysing the results of the survey of the industry. It would involve the application of high-level interpretative and synthesising skills.

### ***The Study Report***<sup>5</sup>

The study report should present a general analysis of the sector based on the information and analysis outlined above. This should include the present situation of the sector, the factors leading to change in the future, and a proposed response by Government agencies, particularly the VET sector and the training arm of the Ministry for Social Affairs, and by the sector itself to these future changes. The manpower and training recommendations should emerge clearly from the analysis of developments affecting the sector. In addition, the study report should:

- ❑ Provide broad indications of the number of employees requiring training and re-training, indicating the type and duration of training required over the 5-year period.
- ❑ Provide broad indications of the number of new recruits needed annually in the sector, over the 5-year period, indicating the types of employees and skills required. (Particular attention in this should be paid to occupations requiring a formal skill training programme of extended duration for which forward-planning is required if shortages/surpluses are to be avoided.)
- ❑ Prioritise the training needs of the industry so as to guide the allocation of national and sectoral training funds.
- ❑ Indicate the kinds of changes that enterprises should make in the future to be successful.<sup>6</sup>
- ❑ Indicate special initiatives that may be needed to promote or develop training and human resources development (HRD) in the sector.

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<sup>5</sup> The key components of the study report are set out in summarised form in Table C.1 at the end of this Annex.

<sup>6</sup> As well as being of value to enterprises themselves, this information could also be used by public bodies in any promotion-of-change efforts.

- Indicate the types of actions required by other government ministries and agencies to achieve the outcomes recommended in the report.
- Provide a clear basis for up-dating the manpower and training results of the study.

### ***Implementation***

Following the completion of a sectoral study it is essential that the bodies principally involved, primarily the ministries of Education and of Social Affairs, in conjunction with other stakeholders, draw up a clear Action Plan to implement the recommendations. This Action Plan should include activities, responsibilities, resources and time-scale in relation to each recommendation. The report and Action Plan should be publicised and efforts made to seek commitments to its recommendations from all parties.

A review process after 2/3 years should be built in to assess the success of implementation and also to up-date the study to take account of new circumstances.

### **Comment: The Need for Flexibility**

It is important to emphasise that sectoral studies should remain flexible in order to maximise their relevance to different industry sectors. They should all be based on a forward-looking, industry-based, strategic development approach to identifying HRD needs. They should all provide advice across the range of HRD issues. However, in some cases, the emphasis may be on a quantified, numbers, approach to identifying training needs, while in others training quality and skill changes may be more important. Some may emphasise developments and HRD responses within firms, others the actions required of external organisations. The nature of the industry itself, and the adequacy of the existing HRD infrastructure for the sector, would be among the factors which would affect the balance of any sectoral study.

### **Time-frame and resources required**

The elapsed time and the resource inputs required for sectoral studies have varied greatly in Ireland. Both have been reduced over time as a result of a movement away from basing industry forecasts on detailed projection of past statistical trends towards an increased emphasis on strategic assessment of the prospects for the sector. While, as mentioned above, the latter has required the input of high-level interpretative and synthesising skills, it has led to substantial reductions in costs at the information-gathering stage.

A reasonable estimate of resource and time inputs can be based on those proposed for the latest Irish study (of the software development sector) which is now underway. The study is expected to absorb approximately 12 man-months of research time (including data collection resources), and to take approximately 9 months to complete.

**Table C.1 Key Components of a Manpower and Training Needs Sectoral Study**

Definition and Statement of Current Situation in the Sector

- Industry and Firm Size and Composition
- Markets
- Technology
- Business performance and competitiveness
- Manpower and training
- Strengths and Weaknesses

Change Factors for the Future

- Global competition, tariffs, trade regulations
- Technological changes
- Legislative changes
- Labour market changes and problems
- Threats and opportunities

Proposed Future Strategic Direction for the Industry

- Markets, domestic and export
- Industry composition
- Technology
- Work organisation
- Other changes

Employment, Manpower and Training Requirements

- Numbers and types of employment in future
- Training and education requirements (quantities and types)
- Company HRD actions required
- Other labour market issues to be addressed

Recommendations

- VET providers' and funders' actions
- Company actions (in a range of respects including HRD)
- Other government ministries' and development agencies' actions
- Other labour market actions recommended.

## ANNEX D

### Persons met during mission to Tallinn, 24. – 28. November 1997.

<b>Monday, 24<sup>th</sup></b>	National Observatory's expert group	
	Mr. Avo Heinlo –	Estonian Statistical Board
	Ms. Reet Neudorf –	Ministry of Education, Statistical Division
	Ms. Viive Ambur –	Ministry of Finance
<b>Tuesday, 25<sup>th</sup></b>	Ms. Krista Loogna –	Institute of Future Studies
	Ms. Anne Rebane -	Ministry of Economics
	Ms. Sirje Põder –	Ministry of Economics
	Ms. Malle Kindel –	Ministry of Social Affairs
	Mr. Toomas Tammsaar –	Chamber of Commerce and Industry
	Ms. Tiia Tali -	Chamber of Commerce and Industry
<b>Wednesday, 26<sup>th</sup></b>	Ms. Marje Joosing –	Institute of Conjuncture
	Mr. Heikki Randla –	Labor Market Board
	Ms. Anneli Kommer –	Ministry of Education, Department of Budget and Planning
<b>Thursday, 27<sup>th</sup></b>	Ms. Mai Talvik –	Ministry of Finance, Department of Forecasts and Analysis
	Mr. Kaarel Kilvits –	Institute of Economics
<b>Friday, 28<sup>th</sup></b>	Ms. Tiina Annus –	NO
	Mr. Martin Dodd	Foundation Vocational Education Reform in Estonia
	Mr. Heido Vitsur –	Prime Minister Office