

This review has been produced by the Skills and Labour Market Research Unit for the Expert Group on Future Skill Needs. The latter is a tri-partite committee composed of senior officials from the relevant government departments and development agencies and it also includes representatives of employers and the trade unions. The 'Expert Group' was set up by Government in 1997 to identify any potential skill shortages in the labour market and to propose measures to resolve them.

This review is designed to provide the Expert Group with analysis and forecasts of the skill needs of the construction industry over the period 2003 to 2010 inclusive. It forms part of a series of reviews, which will monitor the skills needs of each sector of the Irish economy on an annual basis.

The review was completed under the guidance and direction of a sub-committee which was set-up by the Expert Group for this purpose and which was representative of a wide range of interests within the construction industry.

The authors of this review wish to express their appreciation of the valuable assistance they received from the members of the sub-committee and the government departments and institutions they represent. The authors are also appreciative of the assistance they received from the FÁS Industry Construction Group, from the Construction Industry Federation, and the Irish Planning Institute.

It is very difficult to accurately forecast the needs of the construction industry in the short to medium term. Some of the factors, which will influence demand, such as interest rates and immigration patterns, are beyond the control of the Irish Government. Therefore, the forecasts should be considered as broad estimates only.

Nevertheless, it is essential that such a broad estimate of skill needs is available to government. It is not possible to design an appropriate level of education and training provision without such a forecast and the experience of the industry in recent years illustrates the type of problems, which may arise if the supply of skills from the domestic labour force is not sufficient to meet demand.

The forecasts outlined in this review are based on a wide range of sources. The authors have made extensive use of data from the Central Statistics Office and the Higher Education Authority in particular. In the case of sampling data, the authors have applied a number of statistical techniques to reduce the impact of outliers and there are also statements in the text 'qualifying' the data where this is considered appropriate.

The authors wish to emphasise that all data should be considered indicative only, and it would be erroneous to view the data as a precise measure of either skills supply or demand within the economy at a particular point in time.

The output forecasts in this report could be regarded, on balance, as optimistic. In view of the fact that forecasting is not an exact science, the approach adopted in this review is that it is preferable to err on the side of optimism rather than on the side of pessimism. This approach reflects the concern of the authors that the skills shortages, which were a feature of the industry in the latter half of the previous decade, should not be repeated during this decade.

Finally, the authors wish to thank the statisticians and analysts in the Central Statistics Office, the Higher Education Authority, the Department of Enterprise, Trade and Employment, and the Department of Education and Science. This review would not have been possible without the assistance of the staff in these departments and institutions and we express our gratitude to them.

The authors are solely responsible for the accuracy or otherwise of the data contained in this publication.

The membership of the Expert Group sub-committee on construction are:

Chair: David Barry, Department of Enterprise, Trade and Employment

Barry O' Brien, Department of Enterprise, Trade and Employment

Pat A. Houlihan, Department of Enterprise, Trade and Employment

Lorcan O'Raghallaigh / Aisling Penrose, Forfás

Robert Byrne, FÁS

Pat Keelin, FÁS

John McGrath, FÁS

Fergus Whelan, ICTU

Sean McDonagh, Skills Initiative Unit

Tony Smith, Society of Chartered Surveyors

Paddy Purcell, Institution of Engineers of Ireland

Roger Dunwoody, Dunwoody & Dobson Construction

Martin Donnelly, Henry J Lyons & Partners

Peter McCabe, Construction Industry Federation

Paddy Sweeney, Department of the Environment and Local Government

Michael McCarthy, Department of the Environment and Local Government

The membership of the Skills and Labour Market Research Unit are:

John McGrath, Research manager

Jasmina Behan, Manager, National Skills Database

Joan McNaboe, Research officer

Roshin Sen, Research officer

Caroline Shally, Research officer

Anne-Marie Hogan, Support services

Section 1: Executive Summary

1.1	Background	2
1.2	Structure of Report	2
1.3	Methodology	2
1.4	Assumptions	2
1.5	Forecast of Construction Output and Total Employment	3
1.6	The Impact on the Demand for Specific Construction Related Skills	5
1.7	The Gender Composition of Employment	7
1.8	The Impact of Technology	7
1.9	Conclusions and Recommendations	7
	– Skills Group 1: Architects and Architectural Technicians	7
	– Skills Group 2: Civil/Structural Engineers and Technicians	8
	– Skills Group 3: Quantity Surveyors and Building Surveyors	9
	– Skills Group 4: Regional and Town Planners	10
	– Skills Group 5: Project Managers	10
	– Skills Group 6: Electricians & Plumbers	11
	– Skills Group 7: Carpenters, Plasterers, Bricklayers, Painters	12
	– Skills Group 8: Crane Drivers, Plant Operators, Road/Rail construction	13
	– Skills Group 9: Glaziers, Floorers, Roofers, Scaffolders	13
	– Skills Group 10: Miscellaneous ‘Unregistered’ Skilled Occupations	14

Section 2: Forecasts of Output and Total Employment in the Construction Industry, 2003 – 2006 and 2007 – 2010

2.1	Introduction	16
2.2	Recent Trends in Construction Output and Employment	16
2.3	The Factors that will Influence the Short-Term Forecasts	18
2.4	The Forecasts of Construction Output, 2003-2006	20
2.5	The Forecast of Employment Growth	21
2.6	The Plausibility of the Short-Term Forecast	22
2.7	The Factors that will Influence Construction Activity in the Medium-Term, 2003-2010	23
2.8	The Impact on Overall Employment	25

Section 3: The Forecast of Demand and Supply for Individual Construction Skills in the Short-Term and the Medium-Term, 2003 – 2006 and 2007 – 2010

3.1	Introduction	28
	– Skills Group 1: Architects and Architectural Technicians	28
	– Skills Group 2: Civil/Structural Engineers and Technicians	32
	– Skills Group 3: Quantity Surveyors and Building Surveyors	35

– Skills Group 4: Regional and Town Planners	38
– Skills Group 5: Project/Contract Managers	40
– Skills Group 6: Electricians & Plumbers	41
– Skills Group 7: Carpenters, Plasterers, Bricklayers, Painters	44
– Skills Group 8: Crane Drivers, Plant Operators, Road/Rail Workers	48
– Skills Group 9: Floorers, Roofers, Scaffolders	50
– Skills Group 10: Miscellaneous 'Uncoded' Skilled Occupations	51

Figures and Tables

Figures

Figure 2.1	Relationship Between Annual Increases in Output Volumes and Average Employment	16
Figure 2.2	Trends in the Share of Output in the Main Construction Sub-Sectors	17
Figure 2.3	Index of Construction Employment, 2000-2002	17
Figure 2.4	Number of Units Granted Planning Permission	19
Figure 2.5	Forecast of New Construction Output	21
Figure 2.6	Forecast of Total Direct Employment in the Construction Sector, 2003-2006 and Comparison with the ESRI 'Slow-Growth' Forecast	21
Figure 2.7	Hours Worked, Skilled/Semi-Skilled Construction Workers and Apprentices	22
Figure 2.8	Forecast of Persons Aged 25-35 Years in the Population	24
Figure 2.9	Forecast Output Trends by Construction Sub-Sector	25
Figure 2.10	Forecast of Employment Trends in the Construction Industry	25
Figure 3.1	Employment Trends of Architects and Architectural Technicians	29
Figure 3.2	Recruitment of Architects under the Work Authorisation/Visas Schemes	30
Figure 3.3	Forecast Employment of Architects/Technicians	31
Figure 3.4	Employment Trends of Civil Engineers & Engineering Technicians	33
Figure 3.5	Recruitment of Construction Engineers under the Work Authorisation/ Visas Schemes	34
Figure 3.6	Forecast Employment of Civil Engineers/Technicians	34
Figure 3.7	Employment Trends of Quantity Surveyors and Other Surveyors	36
Figure 3.8	Recruitment of Quantity Surveyors and Other Surveyors under the Work Authorisation/Visas Schemes	36
Figure 3.9	Forecast Employment of Quantity/Building Surveyors	37
Figure 3.10	Employment Trends of Town Planners	38
Figure 3.11	Recruitment of Town Planners under the Work Authorisation/Visas Schemes	39
Figure 3.12	Forecast Employment of Town Planners	39
Figure 3.13	Employment Trends of Managers and Contractors	40
Figure 3.14	Forecast Employment of Building Managers and Contractors	41
Figure 3.15	Employment Trends of Electricians and Plumbers	42
Figure 3.16	Percentage of Apprentices in Plumbing and Electrical Skills	43

Figure 3.17	Forecast Employment of Electricians and Plumbers	43
Figure 3.18	Sponsorship Rates for Apprentice Plumbers and Electricians	44
Figure 3.19	Employment Trends in the Construction Trades	45
Figure 3.20	Percentage of Apprentices in the Construction Trades	46
Figure 3.21	Sponsorship Rates for Apprentices in the Construction Trades	46
Figure 3.22	Forecast Employment of the Construction Trades	47
Figure 3.23	Employment Trends of Plant Operators, Crane Drivers, Road/Rail Workers	48
Figure 3.24	Forecast Employment of Plant Operators, Crane Drivers, Road/Rail Workers	49
Figure 3.25	Employment Trends of Roofers, Scaffolders, Glaziers, Floorers	50
Figure 3.26	Forecast employment for Roofers, Scaffolders, Glaziers and Floorers, Tilers	51

Tables

Table 2.1	The Building Component of the PCP	18
Table 2.2	Forecast Construction Output (€m), 2002-2010	23
Table 3.1	Employment Levels in Skills Groups, 2002-2010	28
Table 3.2	Current Population of Students Studying Architecture, Architectural Technology	29
Table 3.3	Current Population of Students Studying Civil/Structural Engineering	32
Table 3.4	Current Population of Students Studying Quantity Surveying	35
Table 3.5	Current Population of Students Studying Urban and Regional Planning	38
Table 3.6	Current Population of Students Studying Construction Management at Degree Level	40
Table 3.7	Numbers of Apprentices in Skills Group 6 by Phase, 2002	41
Table 3.8	Comparison between Apprentice Intake Levels for Electricians and Plumbers and Total Employment Trends, 1998-2002	42
Table 3.9	Numbers of Apprentices in Skills Group 7 by Phase, 2002	44
Table 3.10	Comparison between Apprentice Intake Levels for Construction Trades and Total Employment Levels	45
Table 3.11	Specific Skill Areas Covered under the Construction Skills Certificate Scheme	49
Table 3.12	FÁS Training Programmes in Waste Management and Environmental Issues	52

1.1 Background

The Expert Group on Future Skills Needs (EGFSN) has commissioned this report. It forms part of a major skills research programme, the objective of which is to monitor the demand for and supply of skills throughout the Irish economy on an annual basis. The purpose of the analysis is to identify potential problems of either skills shortage or excess supply and to present recommendations on how these potential problems may be averted. The overall objective of the research programme is to provide policy makers with sufficient detailed information to ensure that the State's portfolio of education and vocational training programmes are consistent with the realisation of its economic and social objectives.

This report is part of a series of reports that will monitor the skills demand and supply in each sector of the Irish economy on an annual basis. The report was prepared under the guidance of a sub-committee which was set-up by the EGFSN for this purpose and which is representative of the social partners and many of the relevant professional associations.

1.2 Structure of Report

This report is divided into three sections; the first section contains the executive summary; section 2 provides a detailed analysis of the factors, which will influence the level of construction activity and, consequently, employment, over the periods 2003-2006 and 2007-2010 respectively. The final section contains a detailed analysis of the demand for and supply of 24 specific construction occupations over the two forecast periods, and recommendations on how skills deficits or excesses may be addressed.

1.3 Methodology

The forecasts in this report are based on a combination of quantitative statistics and qualitative information from the key stakeholders.

With regard to quantitative data, the main sources are the Central Statistics Office Quarterly National Household Survey (QNHS) and data on student participation and outflows from the Higher Education Authority and the Department of Education and Science. There is also data provided by the Department of Enterprise, Trade and Employment on inward migration under the Work Authorisation and Visas scheme. Some statistical techniques have been applied to the employment data to reduce the impact of sampling errors.

The forecasts, however, are not based exclusively on statistical methods. Such an approach would not reflect the influences of factors such as legislation or technology. Consequently, the authors of the report engaged in an extensive process of consultation with the main stakeholders including the Construction Industry Federation, relevant Government Departments and professional associations.

The report focuses solely on skilled construction workers as opposed to those who are working in the construction industry, but who do not possess construction skills or who are unskilled. There are 24 skilled construction occupations identified in the report and these are divided into ten sub-groups. The skills are grouped together on the basis that they share certain characteristics in terms of the type of work that they are engaged in.

1.4 Assumptions

The employment forecasts in this report are based on certain assumptions about output and the relationship between output and employment.

The assumptions on output can be summarised under three categories, assumptions on the future level of residential development, assumptions on the future level of civil engineering and assumptions on the level of general contracting.

- On residential development, it is assumed that the number of house completions will average just over 53,000 annually over the period 2003-2010, although it is expected that house completions will reach roughly 60,000 for 2003, 2004 and 2005. Repair and maintenance is expected to follow a counter-cyclical trend, and to increase substantially in the latter half of the forecast period.
- It is assumed that the National Development Plan will be completed around 2008, but that a substantial level of civil engineering projects will continue beyond 2008, reflecting the need to address infrastructure deficits and additional civil engineering requirements under the National Spatial Strategy.
- On general contracting, it is assumed that the reductions in the Public Capital Programme, announced in 2002, will continue in 2003 and 2004. However, a modest increase is expected in 2005 and beyond. The current slowdown in non-residential development is expected to continue until 2005. However, some positive growth is anticipated over the period 2006-2010.

Productivity, as measured by the official employment and output figures, is not expected to grow significantly. The contraction in activity is expected to result to some extent in a downward adjustment in hours worked. Furthermore, it is expected that a significant number of non-nationals currently employed in the industry may leave as activity contracts. Some of these workers are not counted among the official employment figures because of their domicile arrangements.¹

These assumptions are discussed in more detail in section 2 of the report.

1.5 Forecast of Construction Output and Total Employment

The construction industry is operating at the peak of activity in both output and employment terms. Both output and employment will decline in 2003 and the decline will continue over the period 2004 – 2010.

However, the forecasts in this report anticipate a gradual decline in both output and employment, rather than a substantial immediate decline. The reason is primarily due to assumptions about private residential construction. Specifically, it is assumed that the strong record performance of recent years in the private residential construction market will continue and even increase over the period 2003 – 2005 inclusive.

There are three reasons for this prediction. Firstly, changes in Budget 2002 triggered a substantial increase in construction activity in the last six months of 2002. The most important changes included the restoration of mortgage interest relief for investors and the reduction in the rate of stamp duty. These changes resulted in a substantial increase in the demand for property and it is anticipated that house completions reached about 57,695 in 2002.²

Secondly, despite the removal of the first-time buyers grant in Budget 2003, the impact of very low interest rates, improved mortgage interest relief, declining rates of construction price inflation, and increasing numbers of persons in the traditional house purchasing age-cohorts will sustain a high level of consumer demand for houses over the next few years.

Finally, the changes that were introduced to the 'Planning and Development Act, 2000', have in effect released planning permissions for a total of 80,000 units which were possibly due to wither over the next two years. While there are certain conditions attached to the activation of these planning permissions, the over-riding concern of the Government in introducing these changes was to substantially increase the supply of new houses, and it is reasonable to expect that the Local Authorities will facilitate builders in this context. Thus, despite a modest decline in planning permissions for the first 9 months of 2002, the release of these planning permissions, together with permissions recently granted in the normal way, will result in strong growth in private residential development in 2003, 2004 and 2005.

Consequently, the forecasts assume that private residential housing will reach about 59,000 in 2003 and 60,000 for the following two years. It is anticipated that on average just over 53,000 houses will be completed for each year of the forecast period.

However, while some modest decline in house building will occur towards the end of the forecast period, the projections in this report envisage strong growth in repair and maintenance for the latter half of the period. The growth in repair and maintenance will soften the impact of the decline in private residential construction on employment, as the latter is very labour intensive. In short, the pattern in residential construction will begin to resemble the European experience with lower levels of private residential construction and higher levels of repair and maintenance, a pattern that will become more pronounced in the decade after 2010, when annual house completions will decline significantly.

Some of the changes in the 'Planning and Development Act' will enhance the levels of expenditure on social housing in the short-term. In the longer term, it is assumed that the Government will achieve the targets in the National Development Plan on social housing – albeit towards the end of the forecast period.³ In effect, the level of expenditure on social housing will continue at current levels until 2010.

With regard to civil engineering, some increases in Budget 2003 may provide additional revenue for improvements in the secondary road system. However, it is predicted in this report that the completion of the national roads network will be delayed at least until 2008. It is assumed that the Government will continue to invest just over 1.6 billion Euros annually on the national and non-national roads system over the period 2003-2008. This will include an additional amount over and above the original allocation in the National Development Plan, equivalent to about 25% of the budget to date, which is required to compensate for cost over-runs.

In addition, funding is expected to come from the private sector in the form of Public Private Partnerships ('PPP's) from 2003 onwards. The level of funding from this source is estimated at roughly 300 million Euros per annum until 2008.

¹ Thus, for example, workers travelling from Northern Ireland would not be included in the Quarterly National Household Survey.

² The official 2002 figure was not available at the time of writing this report.

³ While a new national programme has not been accepted at the time of writing, it is notable that the Government has agreed to include a commitment on social housing as part of any such agreement.

Thus, the forecasts in this report are based on the assumption that the national road network, as outlined the National Development Plan, will be completed by around 2008. However, it is possible that the new committee set up by Government in January 2003 to advise on infrastructure expenditure may recommend an alternative strategy.

However, even when the National Development Plan is completed, there will continue to be major deficits in infrastructure in the Irish economy, particularly in the areas of waste disposal, public transport, and alternative energy. The current landfill system is reaching full capacity, and there is a need to develop alternative sources of 'clean' energy to meet our commitments under the Kyoto agreement. There are a number of outstanding public transport projects that are expected to come on-stream over the forecast period including a metro system for Dublin, and extensions to the rail system both in Dublin and in the regions.

Furthermore, the implementation of the National Spatial Strategy will require further development in infrastructure in areas such as sewerage and sanitary services, broadband networks and so on. Thus, the forecasts in this report assume that expenditure on physical infrastructure will continue at very high levels beyond 2008 – albeit at a little below current levels.

With regard to general contracting, it is assumed that the restrictions on education and health capital expenditure, introduced in the Public Capital Programme for 2003, will continue into 2004. However, restrictions on capital expenditure in these areas are a very sensitive issue from a political perspective and it is envisaged that expenditure in these areas will begin to increase in 2005 in anticipation of an election. After 2006, expenditure on social infrastructure shows a modest annual increase in real terms.

In short, the report is forecasting a total spend on civil engineering of approximately 27 billion, on public social infrastructure of almost 9 billion and public housing of approximately 7.5 billion over the 8 year period 2003 – 2010 inclusive. In total, the report envisages that there will be a total spend of just over 40 billion Euros. Between €30-35 billion of this amount will be required to complete the National Development Plan. However, the report envisages some additional expenditure of about €5 – €10 billion for public projects not included under the current National Development Plan and for private expenditure on civil engineering projects.

There was a very significant increase in commercial development in 2000 and 2001, which in turn reflected the very buoyant economic conditions that prevailed. However, this has created a significant over-supply in office space, particularly around the Dublin area. The economy is expected to grow at modest levels of GNP at least for the next three years. Consequently, a level of over-supply in commercial development will continue at least until 2005, after which the market may make a very modest recovery. Total expenditure on commercial development is forecast at around 15 billion over the period,

Thus, the outlook in the short and medium term is for a lower level of activity in the construction sector with the exception of residential construction. Indeed, the analysis indicates that if private residential construction does not deliver the very strong performance predicted in this report, there will be a very significant decline in employment. Thus, in the event of such a scenario materialising, due for example to a deteriorating economic situation and a subsequent significant reduction in disposable incomes, it may be necessary for Government to seriously consider the introduction of quite radical measures – such as the extension of the Compulsory Purchase Order system to lands rezoned residential - to boost activity.

Total employment is forecast to decline from an estimated average of 185,000 currently⁴ to 175,000 in 2006 and this decline is expected to continue throughout the forecast period reaching 165,000 by 2010 – a decline of almost 11%. Were these forecasts to materialise, construction employment in 2010 would be still considerably higher than it was in 1999 and almost as high as the average employment in 2000.

The output assumptions in this report and the employment forecasts they give rise to, might be described by some commentators as optimistic, but they are not unrealistic. Indeed, there is no doubt that the level of construction activity envisaged in this report, both in respect of housing and civil engineering, is required. The only doubt relates to the level of resources that will be available to Government and consumers over the period. In a situation in which the annual levels of GNP will be constrained by more modest labour force growth, it may be difficult for the Government to meet all of the social housing and infrastructure targets set out in this report. Yet it would be unwise to adopt such a pessimistic outlook in the forecasts of skill needs, as such an approach could make this outcome inevitable.

It is essential that the construction industry does not experience the type of skill shortages, which occurred during the latter half of the 1990's and resulted in both constraints on output and, in some cases, wage inflation. Forecasting is not an exact science; yet forecasts can create both negative and positive expectations. The forecasts in this report are designed to ensure that there are sufficient skills available to meet the construction needs of the economy over the forecast period.

⁴ The official employment figures were only available in respect of the first three-quarters of 2002 at the time of writing.

Furthermore, even if economic conditions do deteriorate significantly, it is most unlikely that there would be extensive unemployment among construction workers. The labour market in the case of construction skills in effect consists of the United Kingdom and Ireland. Many construction skilled workers and professionals have been attracted to Ireland from the United Kingdom in recent years in response to the demand for their skills. This pattern of inward migration is the reverse of a pattern, which was so familiar in earlier decades, when many thousands of skilled construction workers emigrated to the United Kingdom in response to employment opportunities there. The industry in the United Kingdom is entering a period of expansion and there will be employment opportunities for construction workers ranging from civil engineers to plumbers, which Irish workers can avail of in the event of an unexpected and significant decline in the Irish economy.⁵

Finally, there is legislation pending which may alter the official employment figures. Under the 'Building Control Act', persons using professional titles such as architect or quantity surveyor will have to possess the appropriate qualifications. This may have an impact on the numbers officially registered as employed in these occupations because some of the relevant professional associations consider that the official CSO figures of the numbers employed in the relevant professions are greater than the numbers of persons with the appropriate qualifications.

1.6 The Impact on the Demand for Specific Construction Related Skills

The output forecasts presented in this report and briefly summarised above, will create very different labour markets within the construction sector. The projected strong performance by the residential construction sector in the first half of the forecast period will sustain demand for a number of professional occupations including architects, building surveyors, and the 'construction trades', namely carpenters, plasterers, painters and decorators and bricklayers.

In addition, there will also be some impact on skills, which are used in the residential development sector, but which are also found in other sectors of the industry such as the mechanical/electrical trades (e.g. plumbers and electricians) and professional skills such as town-planners, and, to a lesser extent, quantity surveyors.

There may be some decline in the skills most strongly associated with commercial development, such as quantity surveyors, especially over the first half of the forecast period. Demand for these skills however, has been very robust in recent years and there has been a considerable level of recruitment of quantity surveyors from abroad. It is expected that the impact of the decline in non-residential building activity is that recruitment from abroad of professionals such as quantity surveyors, including recruitment through the Work Authorisation/Visas scheme, will decline quite significantly.⁶ The report does not recommend any adjustments to the current levels of provision of qualified quantity surveyors in Ireland because it is considered adequate to meet the more modest requirements of the marketplace over the forecast period.

However, the report recommends that recruitment levels under the 'Work Authorisation and Visas Immigration Scheme' should be carefully monitored in order to avoid the possibility of excess supply and consequently unemployment. If recruitment overseas continues at relatively high levels, it may be necessary to exclude this profession from the scheme, at least temporarily while the market remains very sluggish.

The decline in activity in the non-residential building market will have an adverse impact on the mechanical/electrical trades. However, the decline will be modest because the demand for electricians and plumbers is also strongly influenced by the levels of residential construction.

However, the employment situation of some apprentices in these trades could become vulnerable if the performance of the economy does deteriorate significantly. The craft apprentice ratio in respect of both plumbers and electricians is at a historically high level. This is understandable as employers experienced considerable difficulties during the latter half of the 1990s finding a sufficient number of qualified craft-workers to meet the demand, and employers were able to increase output – albeit at a lower level of productivity than craft-workers – by recruiting more apprentices than they normally would.

However, the number of apprentices recruited by employers in these trades in recent years is higher than the numbers required to replenish the existing stock. Thus, a situation of zero or negative growth in the construction industry would inevitably result in excess capacity. This risk is compounded by the fact that the electronics and the information technology sectors are also experiencing a contraction of activity. These sectors are the main source of employment for electricians who are not employed by the construction industry – estimated at one in three of all electricians.

Consequently, these apprentices would be vulnerable in a situation where the economy experienced a significant deterioration in economic conditions. Fortunately, the level of apprentice intake has begun to decline, particularly for electricians, presumably in response to the declining level of activity in commercial development. This suggests that apprentice output levels for these trades from 2008 onwards may not be quite as large as in recent years. This is a welcome development because a continuation of recent trends in apprentice intake in these trades could create an excess supply in 2008 and beyond.

⁵ The exception is apprentices who are vulnerable to a sudden deterioration in economic conditions. This issue is discussed in more detail below.

⁶ There is some evidence that this process is already occurring. Thus there were 41 quantity surveyors recruited under these schemes in 2001 compared to 16 in 2002.

The forecasts in this report envisage employment opportunities for around 7,200 civil engineers beyond 2008. While this is a little below the current record employment level of 7,600, it is substantially higher than the levels that prevailed at the end of the 1990s. Furthermore, as shown in this report, the current record levels of employment required very substantial immigration of civil engineers, both through the Work Authorisation/Visas scheme and from other EU Members States.⁷ On the basis of these forecasts, there should be many opportunities for graduates in civil engineering from the Irish Third Level system over the period. It is expected that a proportion of the non-nationals who secured employment in Ireland as civil engineers over the last few years may seek lucrative employment contracts in the expanding UK market, and this may be sufficient to bring the market into equilibrium at the somewhat reduced – but nevertheless relatively high employment levels – predicted in this report.

The continuing strong performance forecast for civil engineering will also sustain demand for many of the skilled manual occupations namely construction plant operatives, road-workers, and rail workers. With the exception of fitters, these workers do not, in general, develop their skills in either the education system or the initial vocational training system. On the contrary, these skills are developed and formally certified through the FÁS Construction Skills Certification Scheme. It will soon be mandatory for certain persons working in skilled construction occupations to complete such training.⁸

Not surprisingly, most of the positive recommendations in this report refer to those occupations that are most associated with residential development because this sector is expected to continue to experience substantial additional activity over the next few years. The report envisages another 425,000 houses being built in the eight year period, 2003 – 2010 inclusive. While a decline in house building is predicted for the latter half of the forecast period, and it will result in some reduction in employment in the skills most associated with residential development, this decline will be relatively modest. As already stated, activity in repair and maintenance is expected to increase, reflecting the much greater stock of houses and the fact that activity in this area tends to be counter-cyclical in relation to new residential development.

Indeed, the level of demand for some occupations, notably architects and architectural technicians, will remain at a level which will be considerably higher than the level which existed before the current boom in the industry. For this reason, the report recommends that the number of students studying architecture at degree level should be increased by approximately 45 annually. This recommendation could be implemented through increasing current capacity within the existing schools of architecture. However, it should be noted that both the existing schools are located in Dublin City. Thus, it could be argued that a third school of architecture in a regional location would be more consistent with the Government's spatial strategy.

The analysis in this report shows that the market requirement for architects, at least for the last three years, could not have been met from within the domestic labour force and substantial numbers of architects had to be recruited from abroad. The implementation of this recommendation should ensure that more young Irish persons will be available to fill such vacancies in the future.

Similarly, the analysis in the report shows that the supply of persons qualified in the construction trades of plasterer, painter and bricklayer is also not sufficient to meet the demand from the private residential sector. However, the explanation is quite different. It is employers rather than the education system per se, which determines the future supply of these craft workers. The analysis shows that the sponsorship levels have not been adequate to meet demand. The reasons are not apparent, yet it is important that construction price inflation should not in the future be fuelled by a shortage of skilled workers as occurred in the period 1997-2001. Consequently, it is recommended that the Expert Group commission a short survey to identify the reasons for the relative low apprentice sponsorship rates in these construction trades as a matter of urgency.

Feedback from the industry indicates a strong demand for persons with good project management construction skills. The analysis traces the demand for these skills in recent years and presents a forecast of skills demand in the future.

The level of educational provision in project management has increased significantly in recent years and there are sufficient programmes available for students to meet recruitment demand. However, there will continue to be a strong demand for upgrading the skills of those already in the industry in project management. The report notes the substantial increase in management training provided by the Construction Industry Federation in recent years, and also by FÁS and the Institution of Engineers of Ireland. The role of the manager in the industry has changed significantly in recent years as both the scale and complexity of construction projects has increased. Consequently, this report recommends that a study of the role of project-managers in the construction industry, originally recommended in the Third Report of the Expert Group should be undertaken in 2003.

Finally, the analysis focuses on a number of miscellaneous occupations that, although they embody important skills from the perspective of the industry, are not adequately represented in the official employment statistics. These occupations include in particular skills related to the three areas of environmental and heritage protection, the management of

⁷ See section 3 of this report

⁸ It will be a legal requirement on 1st. June 2003.

construction demolition and waste and safety issues.

These areas have become increasingly important in recent years as a result of international and domestic legislation, a greater level of awareness and appreciation of environment matters in Irish society generally, and the requirement for much higher safety standards. These issues are discussed under Skills Group 10 below.

1.7 The Gender Composition of Employment

The proportion of females working in construction occupations is extremely low. Furthermore it shows no signs of increasing despite the fact that FÁS and other Government Departments and Agencies have taken a number of initiatives designed to improve the attractiveness of these occupations to young women. Thus, of the total of 4,907 persons who registered as apprentices in construction trades in 2002, only 25 were female and 19 of these registered as apprentice electricians.

Similarly, of the 5,238 students attending construction courses in the Institutes of Technology, only 854 or 16% are women. Furthermore, if architecture and architectural graphics were excluded from these figures, the proportion would be significantly less.

The low representation of women is specifically in respect of construction courses. Thus, almost half (i.e. 44%) of all students attending courses in the Institutes of Technology are female

While the focus of this report is on potential skill shortages in the construction industry rather than the gender composition of employment, it is nevertheless a matter of regret that so few women pursue a career in the construction sector because it limits both the quantity and the quality of new recruits on offer to the industry.

1.8 The Impact of Technology

Technology will impact on employment in the construction industry in three ways. Firstly, it creates a global marketplace for the award of construction contracts. Thus, for example, the internet makes it possible for a construction company in Ireland to commission work such as architectural drawings from persons living abroad.

Secondly, technology has revolutionised some building practices. It has created new skill-sets and it has resulted in some traditional skills becoming less important. The most obvious example is the 'draughtsperson'. The availability of computer-aided design has resulted in a significant decline in the demand for persons with 'drawing skills' and 'draughtspersons' are the only occupational group, which suffered a significant decline in employment during the recent boom in the industry.

Thirdly, the development of technology has provided the industry with a wider range of choice in respect of the design of any building. These choices involve the use of prefabricated materials and the use of materials such as glass, which do not require the employment of craft workers to the same extent as traditional materials such as blocks.

The craft-person produces a level of quality, which is difficult to replicate using other building methods and non-traditional materials. Nevertheless, the use of such materials and methods could become more widespread if they are perceived by the industry as offering a significantly less expensive alternative to the traditional approach. This is an issue that will become the focus of more detailed analysis in future editions of the skills monitoring report.

1.9 Conclusions and Recommendations

Skills Group 1 Architects and Architectural Technicians

- The employment of architects has increased from approximately 2,400 in 1999 to 3,800 in 2002 and technicians from 900 to 1,000 over the same period.
- There are approximately 90 persons graduating in architecture and a further 140 in architectural technology, 40 of whom are studying the discipline at degree level. Many diploma students pursue their studies at degree level, it is estimated that only about 50 diploma graduates at most are available to industry.
- A substantial level of recruitment of architects from abroad met the difference between the market demand for these skills and the supply of graduates with the appropriate qualifications from the Irish education system.
- The very strong performance of the private residential construction sector over the last 7 years, which resulted in record number of house completions every year, is forecast to continue for another 2 – 3 years. Annual house completions are expected to average approximately 53,000 over the forecast period.
- The demand for architects will increase slightly in the short-term and then decline, but the extent of the decline will be relatively modest. Specifically, the market requirement for architects will continue at above 3,000 throughout the

forecast period.

- The design content of buildings, including residential construction, will increase over the next few years as builders are obliged to respond to a demand for more individualised dwellings from clients and as serviced sites become more scarce. This development will increase the relative demand for architects in the residential construction sub-sector.
- There will continue to be a strong demand for architectural technicians. Feedback from the industry indicates that employers did experience difficulties recruiting architectural technicians over the last few years.

Recommendations:

- The current level of provision of places on degree programmes in architecture is not sufficient to meet the projected market requirements for architects. Consequently, there should be an increase in the number of students graduating in architecture of approximately 45 students annually.
- This recommendation could be implemented through increasing capacity in the two existing schools of architecture. However, it should be noted that both schools are located in Dublin City. It could be argued that a regional location would be more consistent with the National Spatial Strategy.

Skills Group 2 Civil/Structural Engineers and Technicians

- The employment of civil engineers increased from under 6,000 in the second quarter of 1999 to around 7,500 in 2002, while the employment levels of technicians remained very modest at about 300.⁹
- There are approximately 285 civil engineers graduating from the five degree programmes every year and a further 70 graduating in the two degree programmes in structural engineering every year over this period, while there were approximately 275 students completing diploma courses. It is estimated that only about half of these diploma graduates were available to industry.
- A very substantial level of recruitment from abroad – estimated at over 1,000 – met the difference between the annual requirement for construction engineers and the outflow from the education and training system.
- The level of investment in public civil engineering physical infrastructure projects will continue at about €3.3 billion annually until the major physical infrastructure projects in the National Development Plan are completed. This will require a level of expenditure, which will be at least 25% higher in real terms than the original budget allocation because of cost over-runs. However, the major components of the physical infrastructure element of the National Development Plan should be completed by about 2008. The level of public expenditure will decline somewhat beyond 2008. Nevertheless, there will continue to be major investment in public transport, energy and waste management throughout the forecast period. A total spend of about €27 billion is forecast on physical infrastructure alone (net of both social infrastructure and public housing) between 2003 and 2010 inclusive.
- The market requirement for civil engineers and technicians will show a gradual and very modest decline from 2003 onwards, reflecting the reduction in investment in the Public Capital Programme in 2003 and the anticipated continuation of this lower level of investment through 2004 and 2005. The decline will persist throughout the forecast period but will be of modest proportions. Specifically, the forecast predicts that almost 7,500 civil engineers will be employed in 2010. However, the period will witness some degree of transfer of civil engineers from work in the non-residential sector to employment on projects in the areas of public transport, waste management and energy. The anticipated high levels of activity in these sub-sectors will be more than sufficient to provide employment opportunities for graduates from the Irish Third-Level system over the forecast period.
- It is anticipated that most of the modest decline in employment of civil engineers will comprise non-nationals seeking employment in other countries. Feedback from the industry suggests that this process may already have begun. It is also expected that recruitment of construction engineers under the Work Authorisation/Visas system will decline somewhat in 2003 and subsequent years as companies, which are involved in general contracting, adjust to a lower level of construction activity.

⁹ There is little doubt that some persons with sub-degree qualifications are classifying themselves as 'civil engineers' in the CSO quarterly surveys because this figure is too low, while, arguably the 'civil engineer' figure is high if it only includes graduates.

Recommendations:

- It is not necessary to increase the number of places on civil engineering graduate programmes because of two factors.
 1. Firstly, the outflow from the education system is expected to increase as proportionately more students on 'common' engineering programmes chose to specialise in civil engineering rather than in other engineering disciplines where the market demand is considered to be relatively weak.¹⁰
 2. Secondly, the employment of civil engineers is expected to decline – albeit by very modest levels. The anticipated modest decline in employment is expected to impact disproportionately on non-nationals.
- The recruitment of construction engineers under the Work/Authorisation system should be monitored. However, there is no indication as yet of an excess supply of civil engineers. Furthermore, it is virtually certain that employers will disengage from the scheme when the market is in equilibrium, as Irish graduates would be more familiar with building practices in Ireland than non-nationals, and consequently, more attractive to employers.

Skills Group 3 Quantity Surveyors and Building surveyors

- The official CSO figures reveal that employment of quantity surveyors has increased from approximately 1,700 in the second quarter of 1998 to approximately 2,000 in the third quarter of 2002. The employment of 'other'¹¹ surveyors increased from just under 1,000 to 1,600 in the same period.
- However, the employment of both quantity surveyors and 'other' surveyors increased quite significantly during 2001 before falling back to their current levels. The employment of quantity surveyors, in particular, reached a peak of 2,500 during the middle of 2001 before declining to 2,000 by the third quarter of 2002. This suggests that the contraction in the market for commercial development may have had an impact on recruitment levels for quantity surveyors in particular.
- However, feedback from the industry indicates that there has not been any evidence of unemployment emerging among quantity surveyors. Consequently, it may be that any decline among those officially registered as quantity surveyors occurred among persons who were not appropriately qualified. It is the view of the industry that the numbers classified as employed by the CSO are somewhat in excess of those who are recognised as professional quantity surveyors by the relevant professional associations.
- There were approximately 100 students graduating with a degree in quantity surveying from Limerick and Dublin Institutes of Technology annually during this period, while there were a further total of 54 students graduating with a diploma from diploma courses in construction economics from Waterford, Cork and Limerick Institutes of Technology.
- There were also approximately 20 students qualifying with a degree in building surveying from Dundalk Institute of Technology. Dundalk IT also has a diploma course, but most of the students pursue their studies to degree level. The Dundalk Institute of Technology has introduced an ab-initio degree programme in building surveying in 2002 and this will eventually result in a small annual increase in the number of graduates qualifying in building surveying.
- There were 70 quantity surveyors and 16 building surveyors recruited from abroad under the Work Authorisation and Visas scheme in the period, July 2000-December 2002. This suggests that the shortage of surveyors, while it certainly occurred during 2001 in particular, did not reach the type of levels experienced for architects and civil engineers.
- The employment of quantity surveyors will decline gradually reflecting the contraction in the non-residential construction sector in particular. However, the decline will not be significant. A modest decline in the employment of building surveyors is also anticipated reflecting the decline in construction activity generally.
- It is anticipated that recruitment of quantity surveyors under the Work Authorisation/Visas scheme will decline in response to the contraction in non-residential activity. It may be significant in this regard that while 41 quantity surveyors were recruited under the scheme in 2001, only 16 were recruited in 2002.
- The analysis does not reveal a major discrepancy between demand and supply either currently and in the future. However, the number of third year students, in particular, pursuing a degree in one of the Institutes of Technology is relatively large and this could result in a once-off excess supply in the context of the needs of the local market. The market will not absorb any increase in the current provision of graduates in quantity surveying.

Recommendations:

- The current level of provision from the education system of quantity surveyors and building surveyors (including the

¹⁰ This has already occurred to some extent on the Trinity College course. A significantly higher proportion of students are choosing civil engineering as their specialist engineering discipline.

¹¹ These are mainly building surveyors.

new degree programme in Dundalk Institute of Technology) is adequate to meet projected market requirements.

- There are relatively small numbers of quantity surveyors and building surveyors being recruited under the Work Visas/Authorisation scheme and it is expected that even this level of recruitment will 'dry-up' during the latter half of 2002 and 2003 as the market adjusts to the contraction in the commercial construction sector.
- Nevertheless, the recruitment levels of quantity surveyors and building surveyors under the Work Visas/Authorisation programmes should be monitored carefully to ensure that a situation of excess supply does not arise. The occupation of 'quantity surveyor' might need to be excluded from the scheme if recruitment continues at current levels because the priority must be to protect existing employment over the next few years when there will be less activity in the commercial development sector.

Skills Group 4 Regional and Town Planners

The employment graph in section 3 shows that the employment of 'town planners' declined during 2002, after rising from 400 in the second quarter of 1999 to a peak of 900 in the third quarter of 2002.¹²

However, the employment of town planners is so low in absolute terms that the official statistics, which forms the basis of both the historical estimates and the forecasts in this report¹³, are very vulnerable to sampling error. It is highly unlikely that the employment of town planners declined at all during 2002 as feedback from the industry and in particular the Local Authorities indicate that there are still unfilled vacancies in this occupation.

The view that there are still unfilled vacancies is supported by the fact that employers are still recruiting town-planners under the Work Authorisation/Visas scheme. However, the shortages appear to be declining as only 9 town planners were recruited in 2002 compared to 16 in 2001.

Feedback from the relevant professional associations suggest that there are approximately 550 town planners employed in the country.

There has been a notable increase in demand for town-planners from the private sector over the last few years. This development reflects the fact that the regulatory environment in which construction activity takes place has become significantly more complex in recent years as a result of legislation and a much greater appreciation of environmental issues on the part of society generally.

Unfortunately, the increase in the demand for planners from the private sector has occurred at a time when the work load of planners in the local authorities has been expanding considerably, reflecting in particular changes introduced in the 'Planning and Development Act, 2000'.

Ironically, the resultant shortage of planners has created a situation in which local authorities, to an increasing extent, have been obliged to outsource some of the planning work which they would have traditionally undertaken in-house, thus further fuelling the demand for planners from the private sector. A vicious circle has been created, and in many cases, this has resulted in delays in the planning process.

The relevant professional institutes estimate that demand for Town Planners will rise to 850 over the forecast period. The education of town-planners is essentially provided by two courses, an undergraduate course in the Dublin Institute of Technology and a post-graduate course in UCD.¹⁴ The post-graduate course in UCD doubled its intake recently and it is generally agreed by the industry that current provision will be sufficient to meet market requirements in the medium term.

However, there may be a shortage of town planners in the short term, although the shortage is not considered to be significant. This shortage will be met by recruiting from abroad. A total of 35 town-planners were recruited under the Work Authorisation/Visas scheme between July 2000 and December 2002.

Recommendations:

- The current level of provision for town planners is sufficient for the needs of the sector in the medium and long-term, but it is not quite sufficient to meet the needs of the industry in the short-term.
- In the short-term, there is a need to continue to augment the existing stock of qualified town planners by recruiting from abroad.

¹² The situation is further complicated by the fact that a considerably number of those who are employed as 'Town-Planners' are qualified in other relevant disciplines, such as engineering, and it may be the case that they are classified as 'engineers' in the official statistics.

¹³ While the employment figures in this report are not equivalent to the official employment figures from the Central Statistics Office and should not be confused with them, the latter do form the basis 'building block' for the statistical exercises that produce the estimates in this report.

¹⁴ The second undergraduate course in DIT is a temporary arrangement that is due to be phased out. See discussion in section 3.

Skills Group 5 Project/Construction Managers

The skill of managing projects effectively and efficiently has assumed critical importance for the construction industry in recent years. The delivery of construction contracts on time has become a much more complex exercise which requires a wide range of knowledge and skill. This reflects a number of issues, notably developments in technology, and higher standards of environmental protection and safety. In addition, many construction projects in Ireland are of a much greater scale than was the case in previous decades, and this in itself creates complex logistical and procurement issues.

Project management in the construction industry should be considered a highly skilled professional occupation that equates to at least degree level in the education system. Until recently, there was an insufficient number of degree programmes at university level to meet the demand for recruits in this area. However, the situation has improved quite significantly in the last few years. A number of third-level colleges, notably Waterford Institute of Technology, Tralee Institute of Technology, Limerick Institute of Technology, Galway/Mayo Institute of Technology and Trinity College now offer graduate and post-graduate courses in project management and additional programmes are expected to come on-stream over the next few years.

There are two new courses in construction management that are about to be introduced in DIT and the Athlone Institute of Technology in construction technology and materials respectively.

In addition, there are a total of approximately 400 students attending 13 diploma course in construction management and a further 700 students attending Certificate courses in construction studies. The latter are essentially 'feeder' courses for the Diploma.

It is difficult to be precise about the level of market demand for graduates with construction related project management skills because project management is not coded as such in the official occupational nomenclature. However, there is a classification entitled 'building manager' and the numbers in this category have been increasing at a consistent rate from 4,800 in the second quarter of 1999 to 6,225 in the third quarter of 2002. The forecasts in this report predict that about 5,500 building managers will be employed in the industry in 2010.

The official statistics also include a category entitled 'builders and contractors'. There were 8,650 persons employed in this category in the second quarter of 1999 and this had increased to 11,825 by the third quarter of 2003.

There are a number of interesting features about the employment trend in this group. Firstly, about three out of every four persons classify themselves as self-employed. Secondly, their share of total employment has been increasing in recent years. This suggests that the building industry is outsourcing an increasing proportion of its work.

This is not surprising, as the level of 'outsourcing' has also increased in Irish industry in general in recent years.¹⁵

As shown in section 3 of this report, the Construction Industry Federation, FÁS, and the Institution of Engineering of Ireland have developed a wide range of training programmes for existing managers in the sector in recent years. However, it is not clear if there are sufficient appropriate degree courses available in project management for graduate students who wish to pursue a career in this area in the construction industry. The existing statistical data is not adequate to answer this question. Consequently, the recommendation of this report is that a study on the changing role of the manager in the industry, which was first recommended in the Third Report of the Expert Group, should be completed in 2003.

Recommendation:

- A study on the changing role of management in the construction industry, first recommended in the Third Report of the Expert Group on Future Skills Needs, should be undertaken in 2003.

Skills Group 6 Electricians and Plumbers

The employment of electricians has exploded from about 16,000 in the second quarter of 1999 to about 22,000 currently. The situation is much less dramatic in the case of plumbers where employment increased by about 1,000 over the period to reach 10,000 in the third quarter of 2002.

The very significant increase in the employment of electricians should be viewed in the context that one in three electricians work outside the construction sector – mainly in electronics and engineering.

There was a major increase in intake of apprentice electricians and plumbers over this period. The intake of electricians increased from 931 in 1996 to 2156 (131%) in 2001 while the number of plumbers increased from 358 to 857 (140%).

These significant increases in apprentice intake resulted in raising the ratio of apprentices to total employment to new

¹⁵ See for example, 'The Human Resource Requirements of the Logistics Industry in Ireland, 2002-2005' completed by FÁS in 2002 for the Expert Group on Future Skill Needs.

record levels. In the case of electricians, the ratio increased from around 23% in 1999 to around 32% in 2002. The equivalent ratios for plumbing apprentices are 18% and 28%.

The fact that the proportion of apprentices to total employment increased so significantly during the period suggests that employers were experiencing difficulties recruiting qualified workers. The level of sponsorship of apprentices in these trades in recent years has been considerably greater than the levels required to replenish the existing employment stock – traditionally regarded as 20%. Consequently, these apprentices may become vulnerable to redundancy if construction employment begins to contract significantly. This is especially so in respect of plumbers because there are relatively few employment opportunities outside of the construction sector.

The employment forecasts in this report, while they show that the market demand for both electricians and plumbers will increase initially in response to increased levels of activity in the private residential sector, show that employment will decline over the latter half of the forecast period. Thus, the employment of electricians is forecast to decline from a peak of about 26,000 in 2006 to about 23,000 by 2010. The trend for plumbers shows a decline of about 1,000 from 11,000 in 2006 to 10,000 in 2010.

Fortunately, there is some evidence of a decline in the level of sponsorship of both apprentice electricians and plumbers, possibly in response to the reduced level of activity in the non-residential sector. Thus, the intake of apprentice electricians in 2002 was 1,797 – a decline of 17% on the 2002 figure of 2,156. In the case of plumbers, the decline was also 16%, equivalent to 723 registrations.

A continuation of this trend should ensure that an excess supply of either craft does not emerge in the latter half of the forecast period. The situation, however, should be monitored carefully. The forecasts in this report indicate that a resumption of the apprentice sponsorship levels that prevailed in 2001 could create an excess supply of plumbers towards the end of the forecast period.

Recommendations:

- The level of sponsorship of apprentice electricians and plumbers in recent years is higher than the forecast market requirements. However, the level of sponsorship has begun to decline in 2002. This decline may mean that the market is beginning to adjust to the reality of lower levels of construction activity over the rest of the decade.
- The situation should be monitored carefully. The relatively high levels of sponsorship in recent years means that apprentices – as opposed to qualified craft-workers – are vulnerable if economic conditions deteriorate significantly. The output forecast for the construction industry in this report for the period 2003-2010 would not be sufficient to absorb a continuation of the 2001 sponsorship levels in respect of both electricians and plumbers.

Skills Group 7 Construction trades; Carpenters, Plasterers, Bricklayers, Painters

The employment of carpenters increased significantly from approximately 24,000 in the second quarter of 1999 to over 30,000 in the third quarter of 2002. In the case of both plasterers and painters, employment increased rapidly from about 6,000 in the second quarter of 1999 to 10,000 by the end of 2001 and has remained more or less constant at this level to date. Bricklayers and masons,¹⁶ however, reached a peak of employment in the middle of 2001 of about 12,000 before declining to their current levels of 10,000.

In the case of carpenters, the increase of 6,000 in employment over the 3 year period 1999-2002 corresponds to a total intake of apprentices of around 5,000. However, in the case of plasterers and painters, the apprentice intake levels were significantly below the corresponding levels of employment increases. Thus, the employment of plasterers and painters increased by approximately 2,300 over this period while the intake of apprentices was approximately 570 and 470 respectively.

Thus, it would seem that most of the additional painters and plasters employed over the period did not come through the Irish apprenticeship system. While they may indeed have qualified through an apprenticeship system abroad, it is odd that such a system, if it was favoured by employers was not used in respect of other skilled trades if this is the case.

Thus, in the case of bricklayers, the increase in employment of roughly 1,200 was matched by a roughly equal level of intake of apprentices over the period. However, the increase in employment of bricklayers seems modest in view of the increases recorded in the employment of other skilled trades such as carpenters and electricians.

The fact that the increase in employment levels of bricklayers and carpenters is roughly similar to the numbers entering apprenticeships during the period, but that this was not the case in respect of plasterers and painters suggests that employers may have recruited unqualified persons to do the less skilled tasks in these trades. This explanation is not an implicit criticism of the apprenticeship system; on the contrary, the Irish apprenticeship system produces craft-workers of

¹⁶ About 25% of the official employment figure for bricklayers is in fact stonemasons.

the highest quality. Rather, it may be the case that this level of quality is not considered necessary for every task in painting and plastering.

The intake of carpenters declined in 2002 from 1667 to 1533. However, the indications from the first two months of 2003 are that sponsorship levels have increased compared to the same period last year. The intake of bricklayers increased marginally in 2002 from 416 to 439.

Of course, the fact that the outflow from the apprenticeship system is relatively low in respect of the trades of painter and plasterer, means that employment would have to contract quite dramatically before the outflows from the apprenticeship system could give rise to an excess of supply.

Nevertheless, it is of considerable importance that the correct explanation for the relatively low sponsorship rates in the construction trades be identified. Thus, it is recommended that the Expert Group conduct a short survey of a sample of employers to ascertain the reasons for the relatively low sponsorship rates as a matter of urgency.

Recommendations:

- The levels of sponsorship in the trades of plasterer and painters in recent years have not been sufficient to meet demand.
- The Expert Group should commission a short survey to identify the reasons for the relatively low sponsorship rate in some construction trades as a matter of urgency. The study should also explore the reasons for the apparently low recruitment levels of bricklayers in recent years.

Skills Group 8 Crane Drivers, Operators/Drivers of Plant, Road and Rail Construction Workers, Fitters

This group includes those skilled workers who would be involved in the skilled manual tasks associated with civil engineering projects.

The employment of drivers and operators of mechanical plant has increased substantially since the second quarter of 1999 from just over 6,000 to 7,000 in the third quarter of 2002. Similarly, the employment of crane drivers increased from 500 to 1,000 during this period.

However, both occupations reached their employment peak at the end of 2001 and there was a gradual decline in employment throughout 2002. Undoubtedly, this reflects the slow-down in non-residential activity and some reduction in the physical infrastructure programme of the National Development Plan.

This decline in employment is expected to continue. The analysis in this report indicates that about 6,000 persons will be employed as construction plant operatives in 2010. There are two factors that will dampen the demand for drivers of mechanical plant namely the decline in commercial activity, and the reduction in the public capital programme.

The completion of the national roads network around 2008 may result in some decline in demand for road-workers, but both crane drivers and drivers of construction plant generally should benefit from a number of new civil engineering projects which are expected to come on-stream in the latter half of the forecast period. In total, an overall employment decline of about 9% between 2002 and 2010 is predicted.

With regard to current levels of provision, the construction plant fitter occupation is the only one of these skills that is recognised as a formal apprenticeship. The number of apprentices in this trade increased from 87 to 127 over the period 1999 to 2002. The intake of apprentices has increased from 68 in 1996 to 114 in 2001 – an increase of 68%. However, the intake level declined to 81 in 2002, the level which prevailed in 1997. This is an unexpected development and it requires investigation.

FÁS has set up an extensive training and certification programme, the Construction Skills Certification Scheme, for construction plant operators and other construction skilled manual workers. Approximately 5,000 persons have already received both training and certification under this programme and FÁS intend to increase this number substantially over the next few years.

FÁS has also developed an extensive training programme for road-workers including mainlaying/service laying and small plant driving and operating.

Recommendation:

- The craft of construction plant fitter should be included in the study on sponsorship levels referred to in the previous recommendation.

Skills Group 9 Glaziers, Floorers, Roofers, Scaffolders

Group 9 include those skills that are associated with residential development and general contracting but which are not designated apprenticeships.

The skills contained in Skills Group 9 have experienced quite different trends over the period 1999-2002. The employment of persons with 'roofing'¹⁷ skills has increased strongly from about 2,600 in the second quarter of 1999 to 4,300 in the third quarter of 2002.

This is not surprising because the market demand for roofers is strongly influenced by the level of residential construction activity. In contrast, the employment of scaffolders also increased strongly until 2001 from just under 1,000 in the second quarter of 1999 to 1,600 at the end of 2001. However, employment has since declined sharply and it is currently at almost the same level as it was at the beginning of the period. Undoubtedly, this decline reflects the contraction in non-residential activity and, to a lesser extent, in the public civil engineering programme. The employment levels of floorers and glaziers have increased modestly over the period.

The only skill in this group that is acquired through a formal apprenticeship, is the floor and wall tiler. This became an apprenticeship in 1998 and the numbers entering apprenticeship have increased from 10 in 1999 to 71 in 2002. The trade of 'glazier' has been designated as a formal apprenticeship, but it has not as yet entered the system. The occupations of 'scaffolder' and 'built-up felt-roofer', however, are included under the FÁS Construction Skills Certification Training Scheme and about 1,000 persons working in these occupations have received training to date.

The employment forecasts in this report show a modest decline in all of these occupations after 2006 reflecting the anticipated reduction in residential construction activity.

Recommendation:

- There has been a significant increase in the provision of training for non-craft skilled workers in the construction industry and this training should be extended to all non craft skilled manual workers.

Skills Group 10 Miscellaneous 'Uncoded' skilled occupations

The portfolio of skills required by employers in the construction industry has changed quite significantly over the last few years. In particular, new skills-sets have emerged in the areas of environment protection, waste disposal, and materials technology and safety issues.

FÁS, the Construction Industry Federation, the Institution of Engineers of Ireland, and the Department of Education and Science have all been active in developing and delivering education and training programmes in these areas.

Approximately 200,000 persons have received training and certification under the Safe-Pass programme run by FÁS and it is expected that a total of 225,000 persons will eventually receive the training.

One of the by-products of the Safe-Pass programme is that all of those who attend the programme will have their relevant details registered with FÁS, including their age and occupation profile. This should result in a significant improvement in the quality of data on employment in construction occupations, particularly in respect of persons employed in occupations that are not clearly defined in the official CSO classification.

One of the difficulties in attempting to monitor skills demand and supply in a comprehensive and timely manner is the fact is that the official system of classifying occupations is, ultimately, based on the International Standard which was last updated in 1988. Consequently, the official statistics do not adequately 'capture' many of the more recently developed 'skills-sets'. This issue needs to be explored by the appropriate authorities, as it is very difficult to development effective education and training policies in the absence of information on market trends.

Recommendation:

- An expert group should be convened, including representatives of the CSO, with a view to exploring the possibility of including new construction skills, either through modifying or clarifying existing classifications or developing new ones, in the existing official nomenclature.

¹⁷ This group includes roofers, slaters, tilers and cladders.

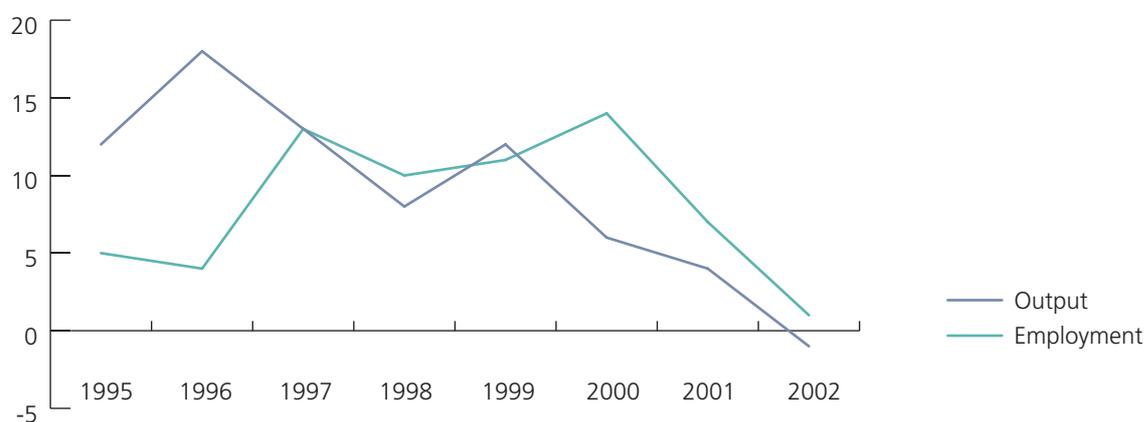
2.1 Introduction

This chapter contains a detailed analysis of both output and employment trends in the main sub-sectors of the construction industry and a forecast of output and employment for the industry over the periods 2003-2006 and 2007-2010 inclusive.

2.2 Recent Trends in Construction Output and Employment

The construction industry has expanded rapidly and very significantly in recent years in terms of both output and employment. Indeed, output increased by over 75% in real terms between 1995 and 2002 and it is now equivalent to over €20 billion. Similarly employment has increased rapidly from 96,600 in 1995 to 190,000 in the 3rd. quarter of 2002, a doubling of employment in 7 years.

Figure 2.1 Relationship between Annual Increases in Output Volumes and Average Employment¹



Source: Department of the Environment and Local Government and CSO.

The relationship between output and employment between 1995 and 2002² is illustrated graphically in Figure 2.1. There are a number of interesting features of this graph. Firstly, it shows that the relationship is symmetrical; changes in the rate of employment growth follow changes in the rate of change in output volumes quite closely, with a time lag of about 12 months.

Secondly, although changes in employment are positive throughout the period, the rate of growth has been declining significantly since 1997. Furthermore, it is estimated that the trend in output growth, which is 'driving' the employment growth, may have become negative in 2002, although it is anticipated that the magnitude of any decline will be modest.

Finally, the amount of employment created by a given level of output is increasing over the last year or two, thus resulting in a decline in productivity. This is probably due to a number of factors. Firstly, the most labour intensive sub-sector of the industry, residential development, has been accounting for an increasing proportion of total output, especially in 2002.

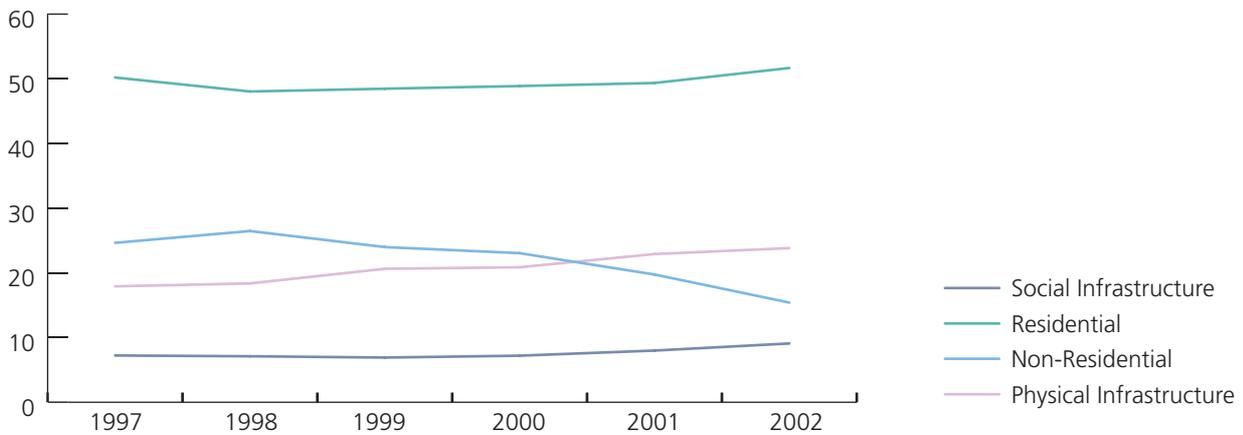
Secondly, the officially registered employed may not be as sensitive to changes in output as those who are not 'captured' in the official figures. There is a significant 'mobility' factor in the construction industry. Periods of expansion are characterised by significant inflows of workers from abroad and visa-versa. The current period of expansion is no exception; industry sources indicate that there has been a significant inflow of non-nationals to the industry in recent years. At least a proportion of these workers do not appear in the official employment figures because of their domicile arrangements.³ However, it is reasonable to assume that any slowdown in activity in the sector will impact disproportionately on this group since they have fewer ties with the domestic economy. Thus, a proportion of the unemployment that occurs will not be reflected in a downward adjustment in the official employment statistics. This will have the effect of apparently raising the labour intensity of employment and reducing productivity.

¹ Output is expressed in constant 1995 prices and employment is the average of the 4 quarters with the exception of 2002 because the fourth quarter is not available yet. Pre-1998 employment figures are annual figures only.

² The output figures for 2002 are an estimate as the data for the year are not yet finalised.

³ Persons who are travelling to work from, for example, Northern Ireland, would not be included in the National Household Quarterly survey, or indeed many persons who are in transitory 'hostel' type accommodation.

Figure 2.2 Trends in the Share (%) of Output in the Main Construction Sub-Sectors



Source: Department of the Environment and Local Government.

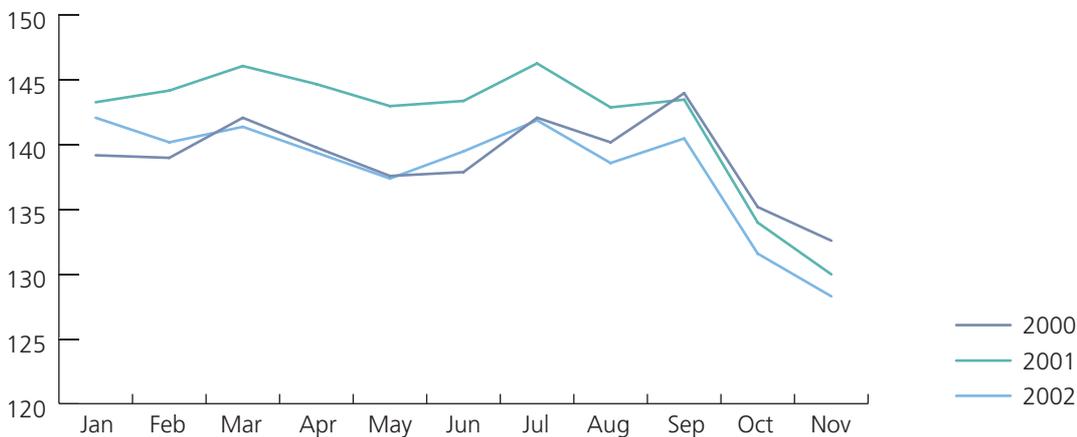
Thirdly, there is some evidence to suggest that the numbers who have become self-employed in the industry have been increasing in recent months, in response to declining output. Some of these workers may in effect be unemployed, or at least under-employed, and they constitute a potential supply of qualified workers should the sector return to positive output growth in the next few years. Furthermore, their reclassification from ‘employee’ to ‘self-employed’ is a strong indication that the industry is now experiencing a decline in output. If the slow-down in the industry continues, a proportion of these workers may become part of the official unemployed.

However, they are currently classified as part of the work force, albeit as self-employed rather than as employees. Consequently, their retention in the work force also increases the labour-intensity of output, and may also be a contributory factor in the declining productivity levels.

For the purpose of this forecasting exercise, it is assumed that productivity levels remain at their current levels in real terms of approximately 60,000 Euros per person over the forecast period. However, this may be optimistic and productivity may be negative again next year. This issue is addressed further under paragraph 2.5 below.

This decline in the employment of ‘employees’ is reflected in the index of construction employment in Figure 2.3 below.⁴ The graph shows that employment in private construction firms for much of 2002 returned to the levels that prevailed in 2000. The graph also demonstrates the seasonal nature of employment, with the greatest recruitment activity concentrated in the spring and mid-summer.

Figure 2.3 Index of Construction Employment, 2000-2002



Source: CSO, Index of Construction Employment.

⁴ The index covers approximately 1,000 private construction firms with 5 or more employees. The index is based on 1995 = 100.

All of these factors must be taken into account in forecasting the future relationship between output and employment. It is difficult to measure the 'mobility' effect and the extent to which it will 'dampen' the impact of a decline in output on official employment levels. However, it is reasonable to assume that the decline in output is unlikely to be reflected in a disproportionate reduction in employment.

2.3 The Factors that will Influence the Short-Term Forecasts

The forecast of output and employment is based on an assessment of what is the most probable level of expenditure in the short-term in respect of the 3 main sub-sectors of the construction industry,

- Physical and social infrastructure,
- Non-residential development
- Residential development.

The level of activity in physical and social infrastructure is determined to a large extent (but by no means exclusively) by the Public Capital Programme (PCP). The level of private residential development is influenced in the short-term by the level of effective demand, trends in planning permissions, and Government legislation. These are also the issues that influence building activity in the non-residential sector, although in this case effective demand is a function of general economic conditions rather than personal disposable income.

- Physical and social infrastructure

The construction component of the public capital programme (see Table 2.1) envisages a reduction in 2003 of 7.3% (see below) nominally and approximately 10% in real terms. The most significant reductions are in public transport, the non-national roads, local authority housing, and the building programme for the third-level education sector.

Table 2.1 The Building Component of the PCP (millions)

	2002	2003	% Change
Transport	2,340	2,226	-4.9%
Environmental Services	570	583	2.3%
Housing	1,617	1,702	5.3%
Education	548	461	-15.9%
Hospitals	489	481	-1.6%
Government Buildings	581	461	-20.7%
Energy	1,601	1,263	-21.1%
Total	7,746	7,177	7.3%

Source: Derived from consultations with the industry.

It is estimated that the impact of the reductions in spending on social infrastructure in 2003 will be equivalent to 300 million Euros (at current prices). The decline in expenditure is projected to continue over the forecast period albeit at progressively lower rates of reduction.

The civil engineering component of the PCP envisages sharp reductions in the amounts allocated to secondary road improvements and to public transport. Expenditure on the former is expected to decline by almost 27% while the funding of the public transport system will decline by just over 13% to €700 million.

Indeed, the total allocation to the roads programme, at 1.4 billion represents only a 2% increase in nominal terms on 2002 and a reduction in real terms when construction inflation is taken into account.⁵ The Government has hinted that roads expenditure will continue at these levels in real terms over the next few years. This would amount to an annual expenditure on national roads of approximately 1.2 billion Euros and this assumption has been built into the forecasts. This would mean that almost €1 billion of the roads budget is unspent by the end of the short-term forecast period, 2003 – 2006.

⁵ There were additional monies allocated to the roads programme after the PCP providing roughly 1.6 billion total, €1.4 million on national roads and 200 million on non-national roads.

There are three main implications of Budget 2003 for the civil engineering component of the PCP. Firstly, there was an additional allocation of 209 million for the national roads programme in 2003. Secondly, the Government decided to allocate the receipts from the increase in road-tax to secondary road improvements. This additional expenditure has been taken into account in estimating the output forecasts for 2003.

In addition, it is expected that the 'Public, Private, Partnerships' (PPPs) will come on-stream in 2003 and this will result in an additional fund of roughly 300 million annually for the national roads programme.

- **Non-residential development**⁶

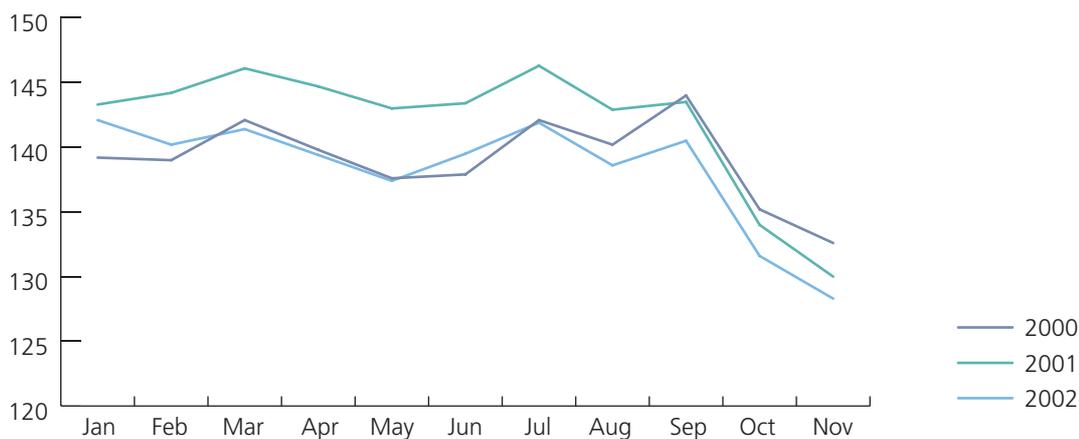
There has been a significant decline in commercial and industrial development over the last 12 months. The office development sector, in particular, increased quite significantly in 2001, and the sudden deterioration in economic activity has created a situation of considerable excess capacity, which could take a number of years to correct. Fortunately, the decision of Intel to restart the Fab. 24 plant will create considerable employment for the electrical/mechanical trades (see Skills Group 5, page 35). Nevertheless, it is predicted that non-residential expenditure will decline by over 16%⁷ next year to reach €2,868 million. While the sector will suffer further declines in 2003 and 2004, there should be some recovery in 2005 – albeit of a quite modest level.

- **Residential development**

The Government recently announced changes to the 'Planning and Development Act, 2000', which, ceteris paribus, will boost both private and public residential construction beyond the record levels anticipated in 2002. Specifically, the Government has extended the duration of the life of planning permissions for approximately 80,000 units, many of which were granted prior to the enactment of the Act, and which would have 'withered' within the next two years under the existing legislation. In addition, the Government has introduced much greater flexibility into the operation of the 'social housing provisions' of the Act.

The intention of the Government, in introducing these amendments to the Planning Act, is to encourage builders to 'activate' these planning permissions and thereby create a substantial increase in the numbers of houses being built over the next few years. Indications from the industry is that the Government has succeeded in this objective and the forecasts of output in private residential construction outlined below assume that house completions will reach an average of 60,000 per annum within a couple of years from the estimated level of 57,695 in 2002.

Figure 2.4 Number of Units Granted Planning Permission Q1-Q4 1999-Q1-Q4 2002



Source: Department of the Environment and Local Government.

It is not realistic, however, to assume that this level of house building could be maintained indefinitely. Any sudden surge in house building, created by the release of a large number of planning permissions, must eventually be reflected in a downward adjustment. The forecast of residential construction outlined below assumes that new construction output will increase again in 2003, 2004 and 2005. Specifically, construction activity is forecast to rise in the latter half of the

⁶ While the Department of the Environment has a very good tracking system in respect of expenditure on repair and maintenance in the residential housing sector, it is more difficult for the Department to obtain precise expenditure figures on repair and maintenance in respect of non-residential development.

⁷ The source of this forecast is DKM consultants.

year, reflecting the amendments to the Planning Act, resulting in an overall increase to around 59,000 completions in 2003. The forecast assumes further increases in 2004 and 2005 when annual house completions will be approximately 60,000.

Thereafter, it is assumed that private house building will gradually decline, but the average for the period 2003-2010 will nevertheless remain at above 53,000 annually.

Indeed, there is evidence that the level of planning permissions has begun to decline in 2002. The level of planning permissions granted for new units is shown in Figure 2.4. The graph shows that there was a significant increase in activity from the middle of 1999 to the end of 2000. Subsequently, the number of planning permissions granted began to decline and this decline has continued into 2002.

There have been some changes to Budget 2003 that will have an adverse impact on residential development. The abolition of the first-time buyers grant and increases in VAT will increase costs for first time buyers, and while the increase in mortgage interest relief will dampen the impact, it will not fully compensate for these additional costs.

However, there are other factors that will more than compensate the purchaser. Firstly, the recent reduction in interests rates and the possibility of a further reduction in the spring of 2003 will have a significant impact on the level of mortgage repayments. Secondly, the anticipated increase in the supply of houses, and the fact that the supply of skilled labour is now more than adequate to meet demand in almost all cases (see section 3) should result in a moderation in the level of price inflation. Indeed, some experts believe that the rate could decline to as low as 8% in the latter half of 2003, in which case it could be quite close to the anticipated economy-wide inflation rate of around 5%.

Repair and maintenance activity, in the residential housing market tends to pursue a counter-cyclical pattern. This trend could be reinforced by the anticipated decline in disposable incomes over the period. Thus, a modest decline is predicted for each year of the period.

The National Development Plan envisages very significant expenditure on social housing. The forecast assumes a continuation of current levels of public housing to 2006, which are at record levels. Nevertheless, a substantial portion of the National Development Plan funds will be unspent at the end of the forecast period and these will have to be distributed in the following period, 2007 – 2010.

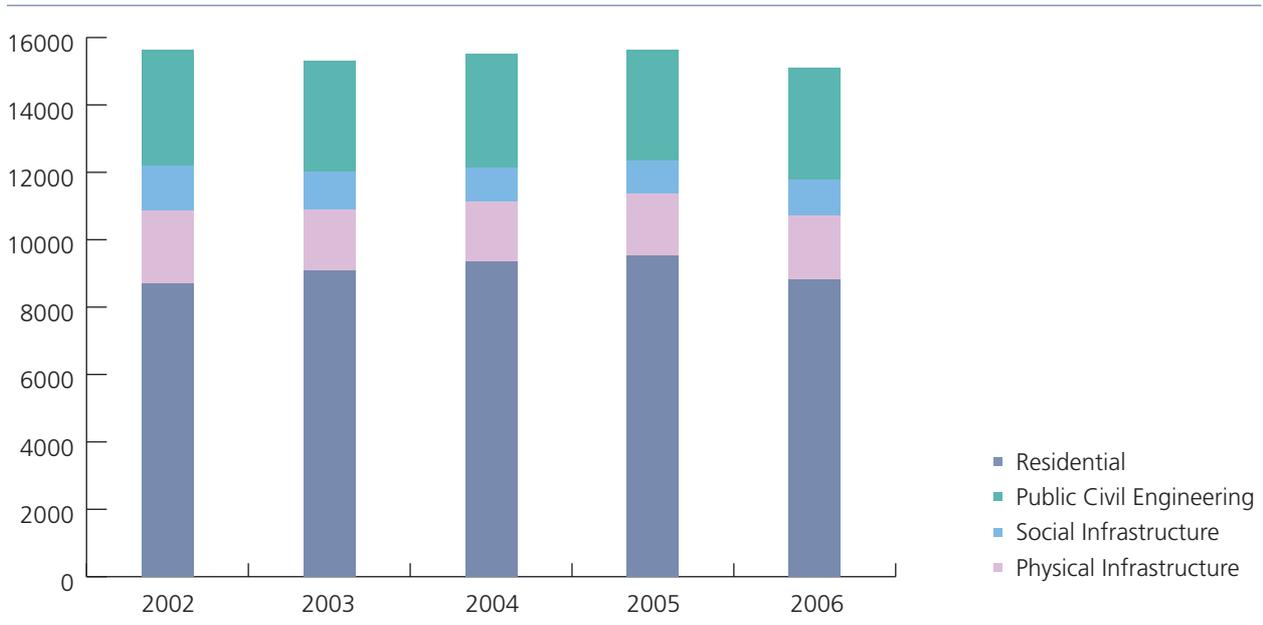
One of the desirable outcomes of the amendments to the Planning Act, however, is that the Government will have more revenue to spend on the public housing programme in 2003 and 2004. As part of these amendments, a levy of 0.5% or 1.0% (depending on the price of the house) must be paid by the builder for any dwelling unit that would have been subject to the withering rule. This levy is a payment in lieu of the restoration of the planning permission to 5 years.

2.4 The Forecasts of Construction Output, 2003-2006

The forecasts for new construction output for the period 2003-2006 are shown below in Figure 2.5. The impact of the assumed surge in private residential is evident from the graph. Although it is anticipated that there will be approximately 57,695 house completions in 2002, which would constitute yet another record, the forecast is predicting further record development in 2003, 2004 and 2005.

The impact of this increase in residential construction is that it compensates almost but not quite entirely for the forecast decline in all three other sub-sectors up to 2006. This is because the absolute level of output in residential construction, and especially private residential construction, is approximately equal to the combined output of new construction activity in all the other sub-sectors combined.

Figure 2.5 Forecast of New Construction Output, 2002-2006



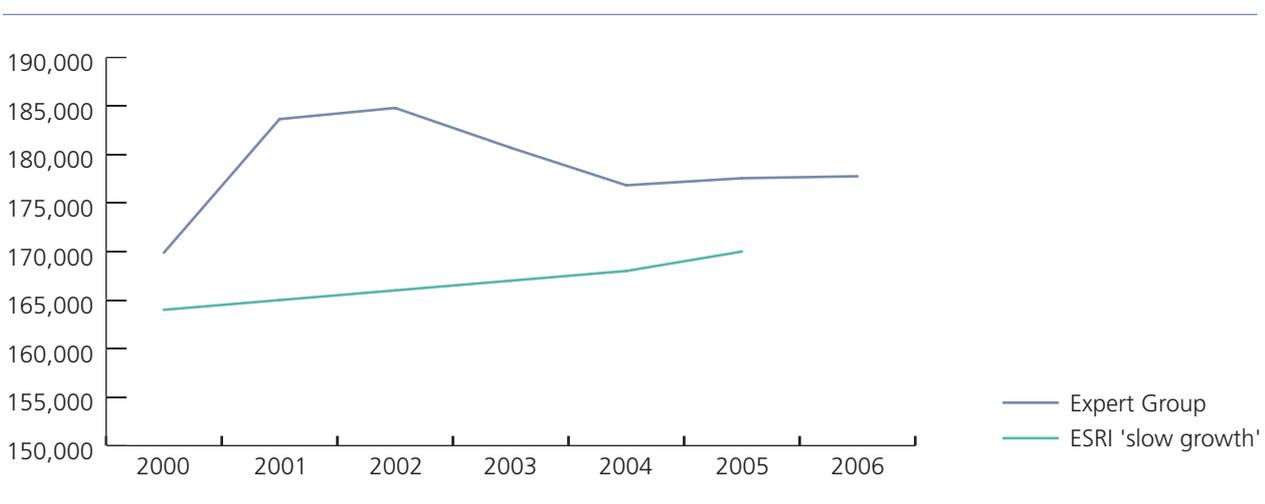
In assessing the employment implications of output growth, account must also be taken of the level of expenditure on repair and maintenance, both in the housing market and in the non-residential sector. Total expenditure on repair and maintenance is estimated at €5 billion in 2002 (total expenditure = €20 billion). This is expected to decline to about €4.6 billion in 2006 mainly as a result of much lower levels of activity in the non-residential sector.

Residential construction is also the most labour intensive of all the construction sub-sectors. Consequently, the assumptions on the future behaviour of the private residential construction sector are critical to the accuracy of the forecasts of skill needs.

2.5 The Forecast of Employment Growth

On the basis of the output forecasts outlined above, it is predicted that total direct employment in the construction industry will gradually decline over the period 2003-2006 from an average of 185,000 in 2002⁸ to reach an average of 176,000 in 2006. The anticipated strong performance from the private residential construction market will not be quite adequate to sustain employment at the current levels and it is predicted that employment will decline by 5% or about 9,000 persons over the period. The decline in the non-residential construction market in particular will result in some job losses, while there will also be some reduction in activity in social capital projects, particularly in the third level education sector and in the health sector.

Figure 2.6 Forecast of Total Direct Employment in the Construction Sector, 2003-2006 and Comparison with the ESRI⁹ 'Slow-Growth' Forecast



⁸ This is the average of the first three quarters in 2002 because the 4th. Quarter figure is not available.

⁹ The ESRI provide only a figure for 2000 and 2006; consequently the shape of the curve is unknown, hence the dotted lines.

2.6 The Plausibility of the Short-Term Forecast

It is prudent to assess the ‘plausibility’ of a forecast by reference to the relevant predictions of experts. The forecasts outlined above are most similar to the ‘slow-growth forecast issued by the ESRI in their medium term review of September 2001.

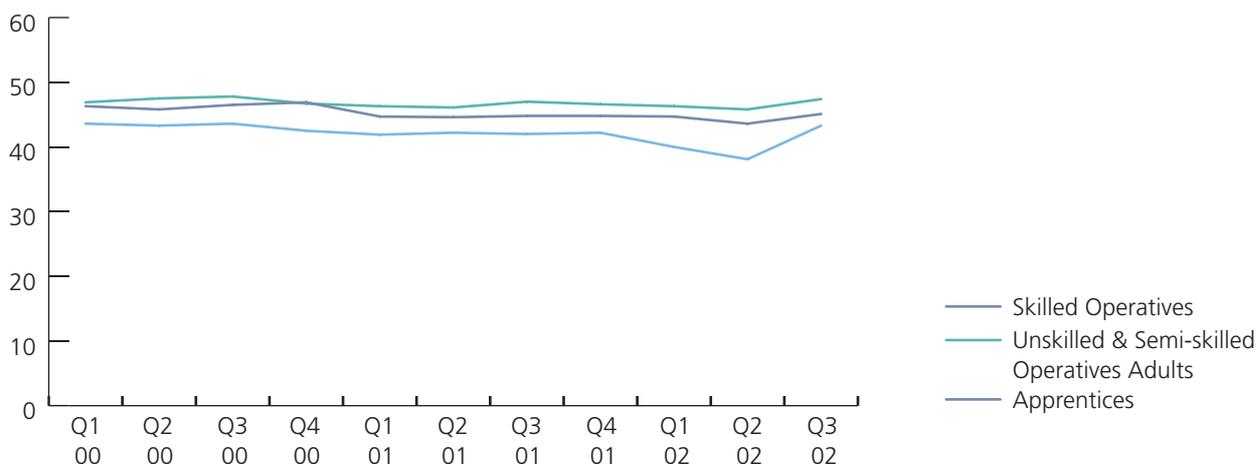
Interestingly, the ESRI’s GNP forecast for 2001 of 1.8% (the last complete year for which data is available) corresponds precisely to the recently issued estimate of the Department of Finance and indeed is the only forecast to do so. The ESRI provides a series of employment forecasts for each sector of the economy, including the construction sector, which corresponds to their slow-growth scenario.¹⁰

The ESRI provide two point estimates, an estimate of 164,000 for the year 2000 and an estimate of 170,000 for the year 2005. The former forecast employment figure is quite close to the actual figure of 170,000. More significantly, the difference in employment between the ESRI’s point estimates is virtually identical to the difference in employment over the period, which emerges from the analysis above.

However, the ESRI’s GNP growth forecast for the remainder of the forecast period is actually higher than the current forecast from the Department of Finance. Thus, the ESRI ‘slow-growth’ forecast assumes volume increases in GNP of 4.2%, 5.1% and 5.3% compared to 2.2%, 2.9% and 3.8% from the Department of Finance for the years 2003, 2004 and 2005 respectively.

The figures from the Department of Finance¹¹, which are much more current than those from the ESRI Medium Term Review, suggest that the forecasts on construction employment outlined above may be overly optimistic. However, there are two reasons to suppose that employment trends in the construction industry will not be influenced by overall economic performance to the same extent as other sectors. Firstly, as already stated, productivity trends have been negative in recent years and if this occurs, the employment decline will be more modest than outlined above.

Figure 2.7 Hours Worked, Skilled/Semi-skilled Construction Workers and Apprentices – Q1 2000 – Q3 2002



Source: CSO Survey of Earnings and Hours Worked

Secondly and more critically, the forecast does assume a very strong performance by the private residential market, driven by domestic demand and facilitated by Government, as in the case of the recent amendments to the Planning and Development Act. The most recently released data (i.e. for the third quarter of 2002) on hours worked (see Figure 2.7) and on employment (see section 3) support the view that the private residential sector is performing very strongly.

The major challenge to this scenario is the possibility that the reduction in economic activity in the economy generally will translate into a real reduction in disposable income to a level that would seriously adversely impact on the demand for houses. Were this to occur, the record levels of house building anticipated over the next couple of years and incorporated into the forecasts, would not materialise and significant employment reductions would be inevitable.

However, this outcome is considered improbable mainly because the Government has made it abundantly clear that it is determined to create the conditions necessary for a substantial and sustained increase in the housing-stock and indeed the Government has implemented a number of significant proposals in this regard. Furthermore, the easing of skill shortages in the industry should result in a decline in wage-induced inflation, and, subsequently, house prices. Interest

¹⁰ These forecasts are contained in the FÁS/ESRI Manpower Forecasting Studies, no. 10.

¹¹ The Department of Finance forecasts refer to the day Budget 2003 was announced.

rates should at least remain at their current very low levels in the short-term and may indeed decline further early in 2003. Finally, if house prices do not moderate, the Government has hinted that it may consider even more radical measures to effect a reduction in house-prices, such as the extension of Compulsory Purchase Orders to lands rezoned for residential development.

2.7 The Factors that will Influence the Medium-Term Forecasts, 2003-2010.

There will be a number of key influences on construction activity. These include the National Development Plan, the demographic structure of the population, legislation and the National Spatial Strategy.

Table 2.2 Forecast Construction Output (€m), 2002-2010

	2002	2006	2010
New Residential	8,699	8,822	7,050
Private Sector	7,794	7,810	6,177
Public Sector	904	1,012	873
New Private Non-Residential	2,168	1,885	2,171
New Public Social Infrastructure	1,320	1,085	1,200
New Public Civil Engineering	3,440	3,317	2,799
Total Residential	8,699	8,822	7,050
Total Non-Residential	6,928	6,288	6,171
Total New Construction	15,627	15,110	13,220
Total R&M	5,128	4,855	5,680
Total Construction	20,755	19,966	18,900

The analysis in this report estimates that construction output will decline from €20.76 billion in 2002 to €18.90 billion in 2010 (see Table 2.2 above). This forecast of output is based on an assessment of what is the most probable level of expenditure in respect of the 3 main sub-sectors of the construction industry,

- Physical and social infrastructure;
- Non-residential development; and,
- Residential development.

• Physical and social infrastructure

The legacy of the National Development Plan and specifically the amount that is unspent after 2006, the original date of completion of the major infrastructure projects, will determine the level of expenditure on physical and social infrastructure in the Plan. The Government is committed to spending a sum of €1.2 billion annually for the period 2003 – 2006 in respect of the construction of the national road network. This would leave a sum of approximately 1 billion left unspent by the end of 2006 from the original allocation of €6 billion. However, the cost of national road construction in the first three years of the Plan was much greater than was originally envisaged. This was due to a combination of factors such as relatively high construction price inflation, escalating land prices and 'over-designed' projects. As a result, it is estimated that total expenditure on the national road network between 2000 and 2002 inclusive only delivered 75% of the original target. Thus the level of expenditure to complete the road network in the National Plan will have to be adjusted upwards by at least this amount.

It is anticipated that a further 400 million will be available from the Exchequer for non-national roads, while the private sector is expected to contribute about €300 million annually to the national road programme through the PPPs.

Spending on both education and health is expected to increase modestly over the period 2005-2010 after significant cutbacks in 2003 and 2004. There are a number of factors, which will sustain expenditure in these areas. Firstly, the

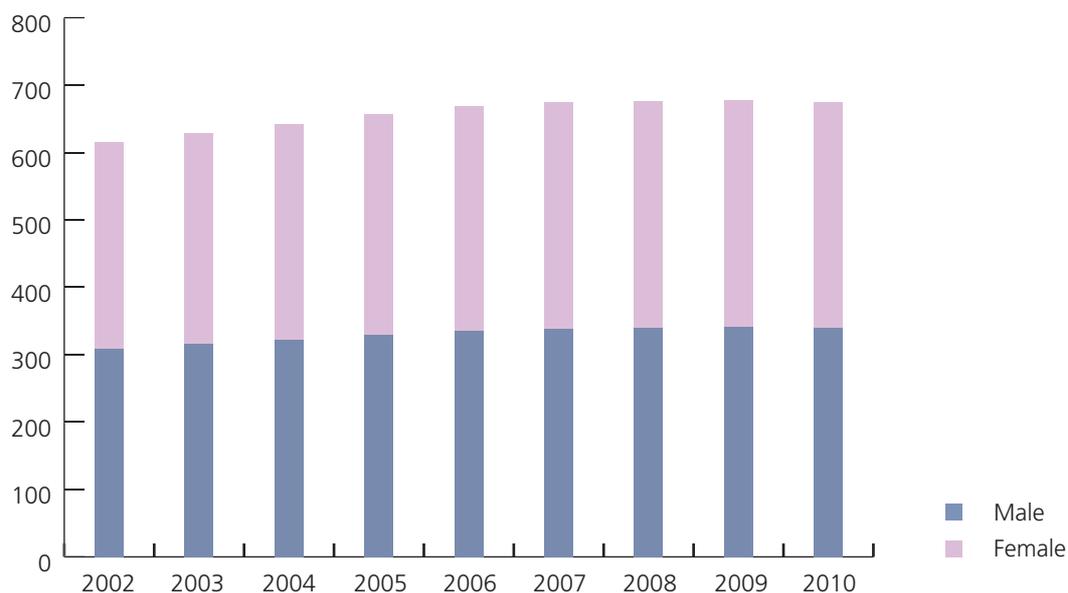
Government will be entering the last years of its term of office from 2005 onwards and it may wish to address any significant deficits in the capital budgets in education and health at this time. If the reductions in the capital budgets are repeated in 2004, there will be a significant capital requirement in 2005, particularly in education.

Furthermore, a considerable amount of funds, which were allocated to health and education under the National Development Plan, will be unspent. The Government may wish to complete all aspects of the Plan by 2010.

- **Non-residential development**

As already stated, there is a significant over-supply of commercial property, particularly in the Dublin area. Gross National Product is expected to increase by less than 3% over the period 2003 – 2005. Consequently, it may be 2006 before there is any recovery in the commercial property sector.

Figure 2.8 Forecast of Persons Aged 25-34 Years in the Population, 2003-2010 (000's)



Source: Derived from the CSO's Census of Population.

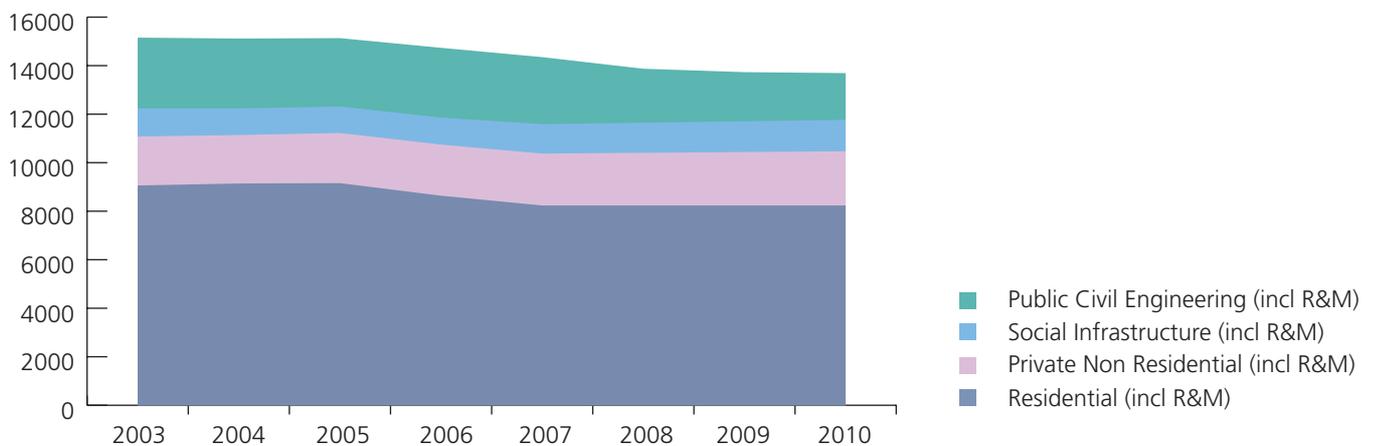
- **Residential Development**

The recruitment requirements for skilled workers in the construction industry are most influenced by the level of activity in residential development. There are two reasons for believing that activity levels in this area will continue to perform strongly over the period 2003-2010.

Firstly, the level of housing stock per 1,000 population in Ireland is low by European standards. Thus, at the end of 2002, there were just over 350 houses per 1,000 people living in Ireland. Our European counterparts have between 400 and 450 houses per 1,000 persons. Thus, there will have to be a significant increase in the housing stock over the medium term simply to accommodate population growth. This is confirmed in the recent report on the National Spatial Strategy. Thus, the Government concludes that there will be an additional 960,000 new dwellings required between 1996 and 2020.

This figure is equivalent to about 40,000 new house completions. However, there are reasons for predicting a considerably higher level of annual demand for the period 2003-2010. Specifically, the birth rate reached its highest level in 1980 when there were 74,000 births recorded, and began to decline gradually until 1997 when a positive trend returned.

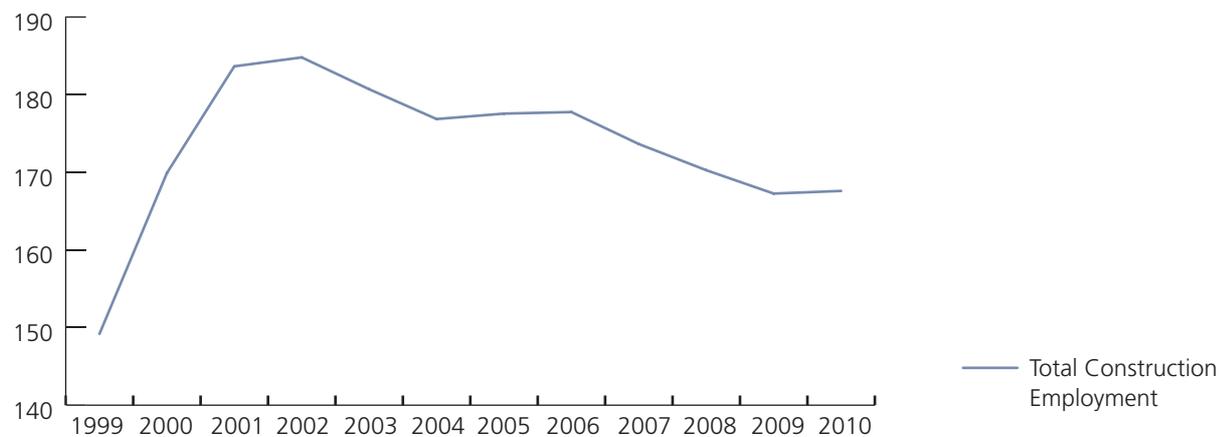
Figure 2.9 Forecast Output Trends by Construction Sub-Sector, 2003-2010



Thus, these persons would now be entering into the household formation age group of around 24-34 years. This is why the demand for housing is set to continue purely on demographic factors alone.

The decline in residential construction after 2005 reflects the fact that approximately 180,000 house completions are forecast over the period 2003 – 2005 inclusive. Consequently, the level of annual house completions required for the period 2006 – 2010 will decline.

Figure 2.10 Forecast of Employment Trends in the Construction Industry, 2003-2010



2.8 The Impact on Overall Employment

The scenario outlined above, if it materialises, will have a significant impact on total direct employment in the industry. Employment will decline to 175,000 within a couple of years before rising to 176,000 as a result of a pre-election injection of expenditure, particularly in education and health. However, this is merely a temporary lull in a medium term forecast, which predicts that employment will decline steadily over the period 2006-2010 and it will measure about 165,000 at the end of the period compared to an average of 185,000 currently.

This predicted overall decline, however, conceals quite significant differences in the level of demand forecast for different construction skills. In general, the type of skills that are most strongly associated with residential development will be less adversely affected than the type of skills, which are associated with commercial development. Indeed, the demand for architects and those employed in the construction trades is expected to increase initially, before declining by quite modest levels for the rest of the forecast period.

The demand for civil engineers is expected to remain quite strong over the period, even after the completion of the

national roads programme in the National Development Plan. This is because there are a large number of projects in the areas of public transport, waste management and energy, which are expected to come on-stream between 2006 – 2010.

However, the decline in the requirement for quantity surveyors will be more significant, particularly in the first half of the forecast period, reflecting the contraction in commercial development. The requirement for construction trades in general will increase in the short-term, reflecting the surge in private residential construction, before declining to an overall reduction of about 10% in 2010.

The impact of the forecast decline in output on a range of specific construction skills is analysed in detail in the next section.

Section 3

The Forecast of Demand and Supply for Individual Construction Skills in the
Short-term and the Medium-term, 2003 – 2006 and 2007 – 2010

3.1 Introduction

This section contains an analysis of the demand and supply of specific construction skills for the periods 2003 – 2006 and 2007 – 2010 respectively. The range of construction skills is divided into ten 'skills-groups'. Each skills-group shares certain features in respect of the type of skills used and the construction sub-sectors in which they predominate.

Table 3.1 Employment Levels in Skills Groups, 2002 – 2010 (000's)

Skills Group	2002	2010	% change
1 Architects, Architectural Technicians	4,700	4,374	-7
2 Engineers, Engineering Technicians	7,800	7,450	-4.5
3 Surveyors	3,600	3,120	-13.3
4 Planners	550	850	54.5
5 Project Managers, Contractors	18,000	19,950	10.8
6 Plumbers, Electricians	32,600	29,325	-10.0
7 Carpenters, Plasterers, Painters, Bricklayers	61,400	53,330	-13.1
8 Crane drivers, Plant Operators, Fitters, Road Workers	11,700	10,650	-9.0
9 Floorers, Roofers, Tilers, Scaffolders	8,100	7,285	-10.1
10 Miscellaneous 'Uncoded' Skills			
Total	148,450	136,334	-8.2

Source: 2002 employment figures derived from CSO.

The ten 'skills groups' are outlined above in Table 3.1 above, with both current employment and forecast employment for 2010. It shows that there were approximately 148,800 persons registered as employed in these skills groups at the end of 2002. There are at least 210,000 persons employed in the construction industry at the end of 2002 – 190,000 in what is defined as the construction sector in statistical terms (i.e. NACE 45) and at least a further 20,000 professional construction workers who are employed in business offices and who are not classified under NACE 45.

This analysis, however, only focuses on identified construction-related skills. Consequently, it excludes three large groups of workers in the construction industry. Firstly, it excludes persons working in the construction industry who are not using construction-related skills such as, for example, accountants and clerical workers. Secondly, it excludes persons who are unskilled such as labourers and builder's mates. Finally, it excludes many skilled workers in such areas as waste disposal workers and environmental specialists because they are not clearly identified as such in the official statistics. This issue is discussed in greater detail below, in Skills Group 10.

Skills Group 1 Architects and Architectural Technicians

Data from the Department of Education and Science, however, indicates that there are a total of approximately 372 students in their final year on various architectural programmes at third level colleges, at certificate, diploma and degree levels. These include approximately 19 studying at post-graduate level, 91 students studying architecture at degree level, a further 40 studying architectural technology at degree level, 97 studying the discipline at diploma level, and 125 students studying interior architecture and design at various levels.

However, only a proportion of these students are available to work as architects or architectural technicians in the industry. In particular, while graduates from the degree programmes do enter the workforce in large numbers, statistics from the Higher Education Authority suggest that only 52% of architecture diploma students seek work immediately after completing their courses; many continue on to degree programmes. This is particularly true of diploma students who can progress to the degree programme in architecture or architectural technology in the same college, which is the case in both the Dublin Institute of Technology and the Waterford Institute of Technology. In total, there are probably no more than 35 graduate diploma students available to industry every year.

Most of the students who graduate from degree programmes, however, are available to the industry.¹ These include approximately 91 students who complete the two degree courses in architecture in UCD and DIT respectively and a further 40 who complete the degree programmes in architectural technology.

¹ While a small number pursue post-graduate courses and are consequently not available to the industry, the effect is 'cancelled' by a similar number graduating from post-graduate courses they entered in previous years.

Thus, there are a total of approximately 166 graduates in architecture and architectural technology available to the industry every year. In addition, there are 115 students studying interior architecture, design and graphics, 81 of whom are studying these subjects at certificate level. Data from the HEA suggest that only about 25 of the latter would be available to work in the industry

Table 3.2 Current Population of Students Studying Architecture, Architectural Technology

Course Level	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Architecture (Postgraduate)						19
Architecture (Degree)	87	110	103	84	91	
Architectural Technology (Degree)			18	40		
Architectural Technology (Diploma)	165	123	97			
Architectural Design (Diploma)	38	44	27			
Architectural Design (Certificate)	126	81				
Total	416	358	245	124	91	19

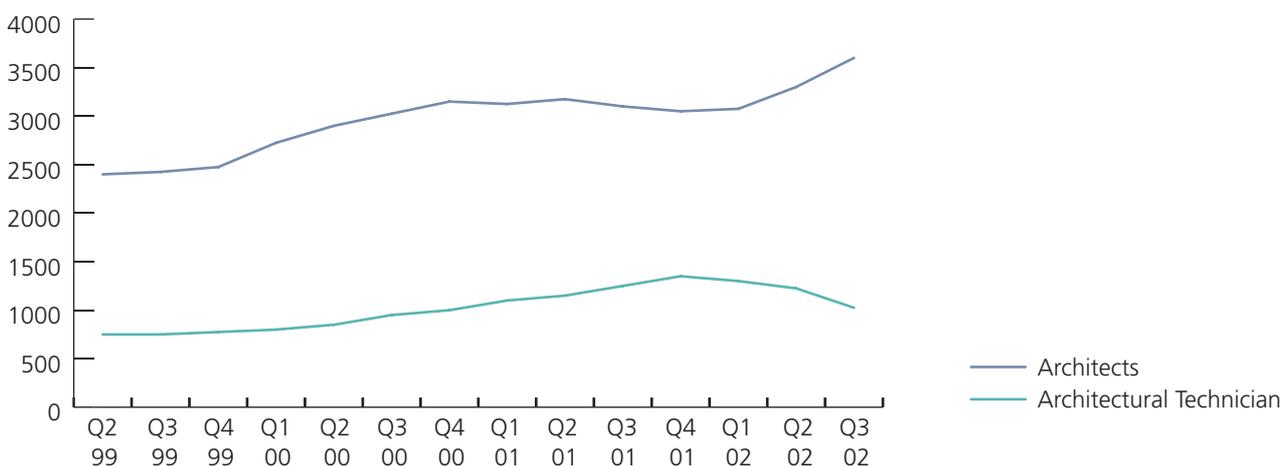
Source: Department of Education and Science/HEA.

All of the evidence indicates that the demand for graduate architects has been significantly greater than the supply over the last few years. Over 96% of those who graduated in the year 2000, for example, found employment in Ireland. This is a higher proportion than in 1999 when the corresponding figure was 95% and significantly higher than in 1998 (82.9%). More importantly, less than 2% were still seeking employment one year after graduating, while the remainder are either in full-time employment overseas or unavailable for work in Ireland.

The relatively high demand for architects is further supported by recent employment trends. Thus, there were approximately 2,500 architects employed in the second quarter of 1999 but this figure has increased substantially to over 3,500 by the third-quarter of 2002. The employment of architectural technicians also increased significantly between 1999 and 2001. However, there is some evidence of a decline in the recruitment of architectural technicians during 2002.

Any assessment of employment trends of architects and technicians should take into account the fact that the number of architects on the registrar of architects is over 1,000 less than the official employment figure from the Central Statistics Office. While some architects will not be members of the association, the extent of the difference suggests that some persons are self-classifying themselves as architects in the CSO Quarterly Surveys who do not have the relevant qualifications. This interpretation is further supported by the fact that the official employment figure for architectural technicians is relatively low in view of the fact that there are as many graduates qualifying at technician level as at degree level each year.

Figure 3.1 Employment Trends of Architects and Architectural Technicians Q2, 1999-Q3, 2002 (000's)



Source: Derived from CSO figures.

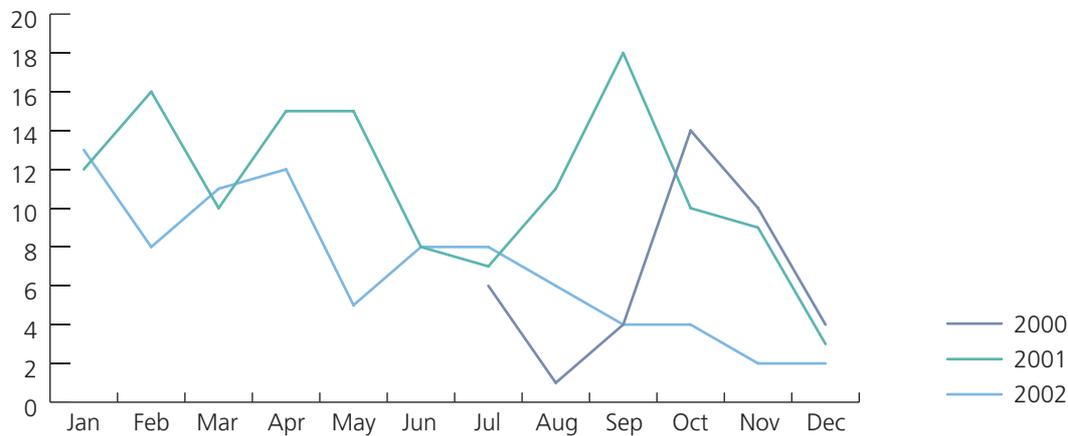
For this reason, the numbers employed as architectural technicians and as architects are combined to give an overall indication of the total market requirement for persons with qualifications in architecture or architectural technology. This gives a total employment of 4,700 working as architects or architectural technicians.

Research undertaken by the ESRI indicates that the replacement rate for professional workers is roughly 4% per annum. Thus, the education and training system would require producing approximately 200 graduates in architecture and architectural technology simply to replace the existing stock of workers.

In other words, the construction industry requires approximately a total 200 architects and technicians even in a situation of zero growth. However, the figures in the above graph show that the employment of architects and technicians increased by over 1,500 between the second quarter of 1999 and the third quarter of 2000. It is important from a policy point of view, therefore, to ask the question, where did this additional supply of architects and technicians come from?

There were apparently two known sources of this additional recruitment. Firstly, data from the Department of Enterprise, Trade and Employment shows that there were 256 architects recruited under the Work Authorisation/Visas Schemes between July 2000 and December 2002.² Undoubtedly, a significant number of architects were also recruited from EU Member States, especially the United Kingdom.

Figure 3.2 Recruitment of Architects under the Work Authorisation/Visas Schemes, July 2000 – June 2002



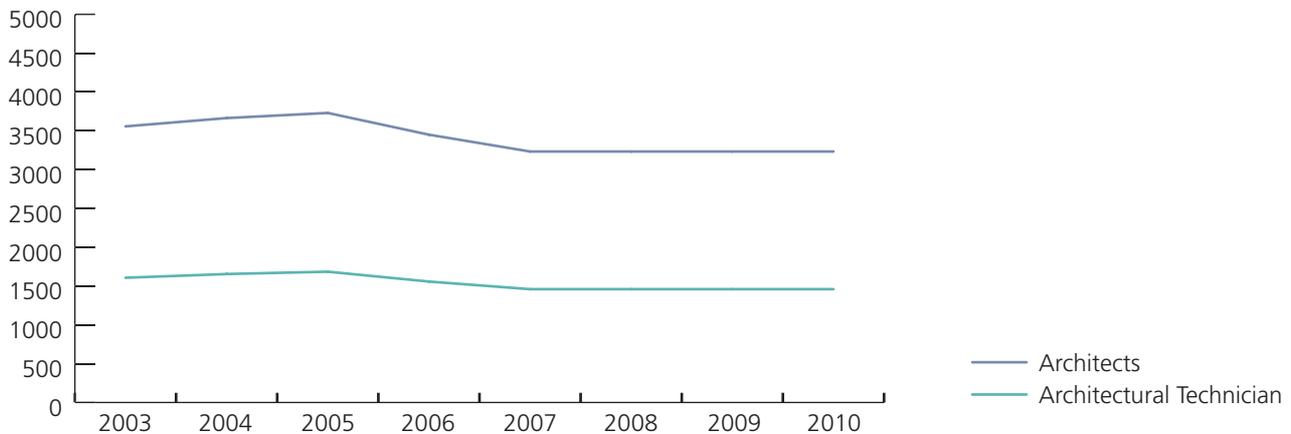
Source: Department of Enterprise, Trade and Employment.

Secondly, there are a considerable number of young Irish-born students, estimated at approximately 75 by the Royal Institute of Architects of Ireland, who attend schools of architecture in the United Kingdom every year, and many of them return to Ireland when they graduate. These students represent an additional source of supply that is not reflected in the statistics on non-nationals.

The short-term and medium term forecast, outlined in Section 1, shows that construction activity will decline over the period 2003 – 2010. Not surprisingly, it is predicted that the level of recruitment activity for architects will also decline. However, this decline will be relatively modest. Specifically, the number of architects required by the industry will be in the region of 3,500 or a little below. The number of architectural technicians should stabilise at just fewer than 1,000, which is just under than the current employment situation (see Figure 3.3).

² This is a specially created scheme that provides a 'fast-track' system for employers who wish to recruit persons from outside of the European Union. It is only available in respect of persons with skills that are regarded as being in short supply in the domestic economy. Most of the professional construction qualifications, including architecture, are included.

Figure 3.3 Forecast Employment of Architects/Technicians, 2003-2010



While this figure is below the current record level, it is significantly above the levels that existed in the mid-1990s prior to the current boom in the industry. There are two reasons why the forecast is predicting that the medium term employment requirement will be higher than the pre-boom requirement; firstly, there were over 300,000 new houses built over the last seven years of the construction boom, and this substantial increase in the housing stock will result in a permanent increase in the levels of residential repair and maintenance activity and, consequently the demand for the services of architects. Secondly, as stated in Section 1, another 425,000 houses must be built over the period 2003 – 2010 inclusive to satisfy demand. This represents an annual average of approximately 53,000 houses, which is significantly greater than the annual levels of completions during the previous decade.

As shown above, non-nationals and returning Irish emigrants have filled most of the vacancies that have arisen for architects over the last two years because there were not sufficient Irish graduates available to compete for these positions. It could be argued that young Irish people should have the opportunity to compete for such prestigious and well-paid professional positions.

An employment stock of 3,500 architects could provide employment for about 140 graduates annually, even with no growth in the industry. The current level of provision of places on degree programmes (i.e. 90 students) is not sufficient to meet the projected market requirements for architects. Consequently, it is recommended that there should be an increase in the number of graduate students of approximately 45 annually.

It is suggested that this recommendation could be implemented in one of two ways. Firstly, capacity in the two existing colleges of architecture could be expanded to accommodate this increase in provision. Alternatively, a third school of architecture could be established. It should be noted, however, that the two existing colleges of architecture are located in Dublin city. Consequently, the establishment of a third school of architecture in a regional 'gateway' location might be considered to be more consistent with the National Spatial Strategy.

It would not be necessary to continue to include the occupation of architect in the Work Authorisation/Visas system in the advent of an increase in the number of students graduating in architecture. The forecasts in this report indicate that graduates from an additional class of architecture could meet the needs of the industry over the period 2007 – 2010.

Recommendations

- The current level of provision of places on degree programmes in architecture is not sufficient to meet the projected market requirements for architects.
- The current level of provision should be increased by approximately 45 graduate students annually.
- This recommendation could be implemented either by increasing capacity in the two existing degree courses in architecture or through the establishment of a third school of architecture in a regional 'gateway' location.
- If this recommendation is implemented, then it should not be necessary to include the occupation of architect in the Work Authorisation/Visa system.

Skills Group 2 Civil/Structural Engineers and Technicians

There are a total of five degree courses in civil engineering, one in each of the four Universities and an add-on degree programme in Sligo Institute of Technology. In addition, there are also three degree programmes in structural engineering. One programme is in DIT and it is designed for those students who have successfully completed the first year of the general engineering degree and who wish to specialise in structural engineering. The other two courses are in the Cork Institute of Technology. One is an add-on course that is designed to provide students who have successfully completed the Diploma course (which is itself an add-on course to the certificate level programme in civil engineering) to pursue their studies further at degree level. The second course is an ab-initio degree programme in structural engineering.

The Civil Engineering programme in Trinity College is part of an Engineering Degree that has a common 'engineering curricula' in year 1 and year 2. Interestingly, Trinity College report that the numbers choosing Civil Engineering, rather than other engineering disciplines such as electronic engineering, have increased significantly in 2002. Thus, while in previous years, about 50 students specialised in Civil Engineering, the figure in 2002 is almost 100 students.

It is considered that this development reflects two significant factors; firstly, the increase in the market demand for civil engineering and secondly the decline in the market demand for IT graduates which has had an adverse impact on the employment prospects of electronic engineers in particular.

Table 3.3 Current Population of Students Studying Civil/Structural Engineering

Course	Yr. 1	Yr. 2	Yr. 3	Yr. 4	Yr. 5
Civil/Structural Engineering (Degree)	185	231	293	336	36
Civil Engineering (Diploma)	0	0	274		
Civil Engineering (Certificate)	736	435			
Total	921	666	567	336	36

Source: Department of Education and Science and the HEA.

Thus, the fact that the programme in Trinity College is 'common' in the first two years does appear to offer a greater degree of flexibility in terms of responding to market conditions.

The fact that many of the engineering and construction programmes offered by the Institutes of Technology are not ab-initio courses, but are rather courses which are further 'add-on' options offered to certificate or diploma students means that the number of students available to work in the sector is significantly less than the numbers graduating from these programmes in any year.

Moreover, the proportion of the graduate population, which enter the workforce every year, varies greatly according to level of qualification. In general, students who complete the certificate programmes choose to continue their education where such an option is available to them locally. Indeed, the HEA estimate that 66.5% pursue further studies and only 31.7% enter the Irish labour market.³

In contrast, over half the students who complete the diploma (52%) enter the labour force and, not surprisingly, 72.7% of degree graduates enter the labour force. While 13.6% of graduates pursue further studies, the vast majority (96%) of these do so in Ireland and they are therefore counted among those who enter the labour force.⁴ For the purposes of this exercise, it is assumed that most of the students who complete a certificate qualification in civil engineering pursue their studies where there is an appropriate diploma course available within the same college.

Applying these proportions to the final year third-level student population gives a figure of 285 civil and structural engineers with degree and post-graduate qualifications, 145 graduates with a diploma and approximately 135 with a certificate – a potential total population available to the industry of 565 p.a.

It is estimated, however, that there are about 7,500 persons employed as civil engineers and structural engineers.⁵ The outflow of 565 students should be sufficient to replenish the existing stock of employed civil engineers and cater for an annual level of expansion demand of roughly 4%. However, this figure significantly overstates the numbers available to the industry. Over 15% of all engineering graduates who secure employment in Ireland enter occupations, which have nothing whatever to do with engineering or indeed a related discipline. The corresponding figure for those with sub-degree qualifications is over 18%.

³ These figures are in respect of the engineering faculties, which include all the construction related disciplines.

⁴ Of course, these students do not enter the workforce in the same year as their other graduate colleagues, but students who pursued post-graduate studies in the relevant previous year do and these can be expected to cancel each other out.

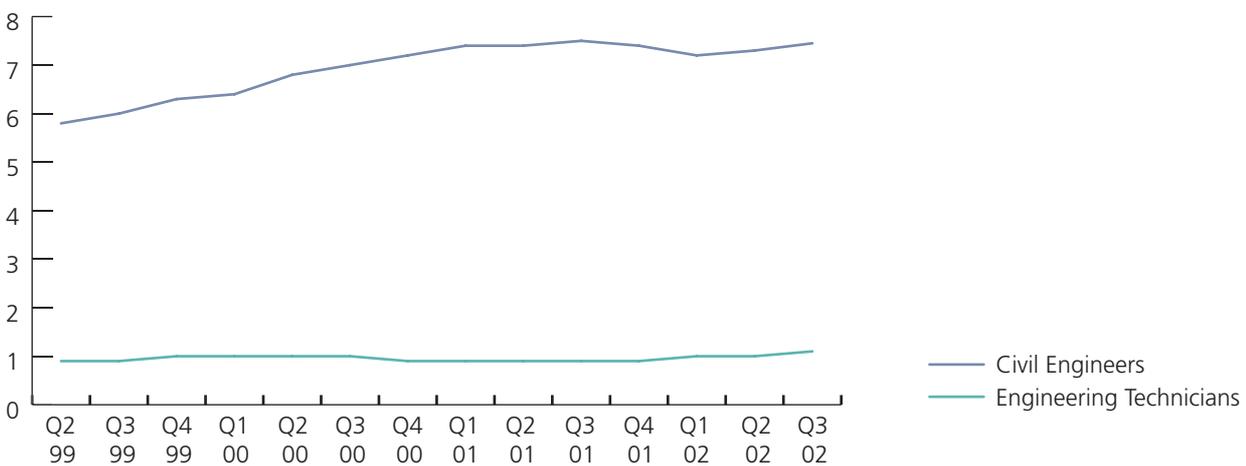
⁵ The official occupational category includes mining engineers also, but there are less than 100 in this category and these have been subtracted from the estimate.

Thus, at the very most, there will be a total of 472 graduates available to the industry – 242 graduate engineers and a further 230 graduates with a sub-degree. Thus, this would leave a potential supply of about 200 persons with third-level degree qualifications after replenishment needs have been taken into account – equivalent to an employment projection of up to 3%.

However, the employment of civil engineers has increased by approximately 24% over the last few years.⁶ Thus, it would not be surprising if employers had experienced an acute shortage of these skills during that time.

The employment trends for civil engineers and technicians are shown overleaf in Figure 3.4. The graph shows that the employment of civil engineers increased strongly over the period from under 6,000 in mid-1999 to almost 8,000 three years later. The employment performance of technicians is not as striking. The numbers have remained constant over the period at approximately 1,000.

Figure 3.4 Employment Trends of Civil Engineers and Engineering Technicians, Q2 1999 - Q3 2002



Source: Derived from CSO employment estimates.

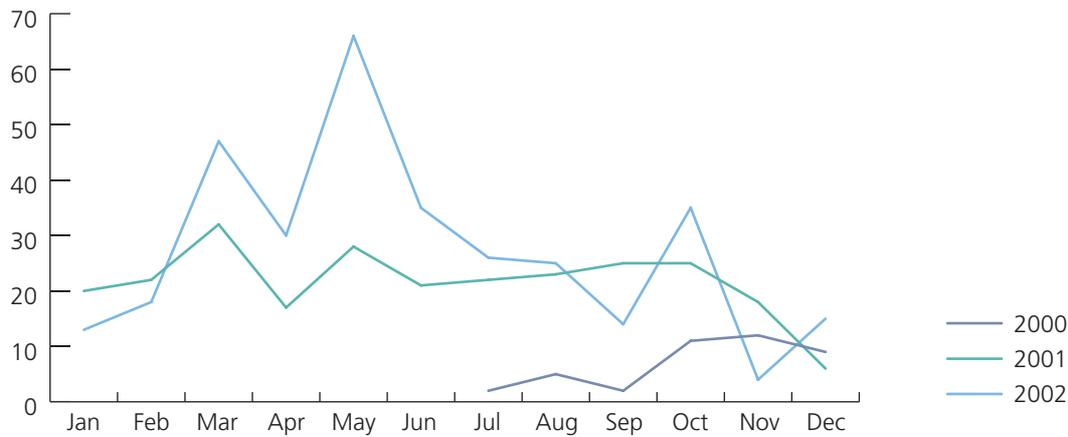
This substantial increase in the employment of civil engineers is much greater than the outflow from the third-level colleges over the period. Recruiting construction engineers from abroad made up most of the difference, as in the case of architects. There were 628 construction engineers recruited under the Work Authorisation/Visas scheme between July 2000 and June 2002.

These findings indicate that there was indeed a very significant shortage of civil engineers in the Irish labour market. This reflects the substantial increase in civil engineering projects in the last few years, driven mainly but not exclusively by the National Development Plan.

The current situation in respect of the public finances means that the civil engineering projects in the National Development Plan will not be completed until 2008 at the earliest. Furthermore, the reduction in activity will result in some loss of work for civil engineers, although commercial building is a relatively minor employer of civil engineering skills.

⁶ As in the case of architects, the numbers of technicians are surprisingly low suggesting that many persons with sub-degree qualifications are self-classifying themselves as professional civil engineers.

Figure 3.5 Recruitment of Construction Engineers under the Work Authorisation/Visas Schemes



Source: Department of Enterprise, Trade and Employment.

Nevertheless, the forecasts in this report are predicting only a modest decline in the employment of civil engineers. Indeed, almost 7,500 civil engineers are expected to be employed in 2010; this is substantially higher than, for example, the numbers employed at the end of the 1990's and it means that there will be many opportunities for graduates of civil engineering course throughout the forecast period.

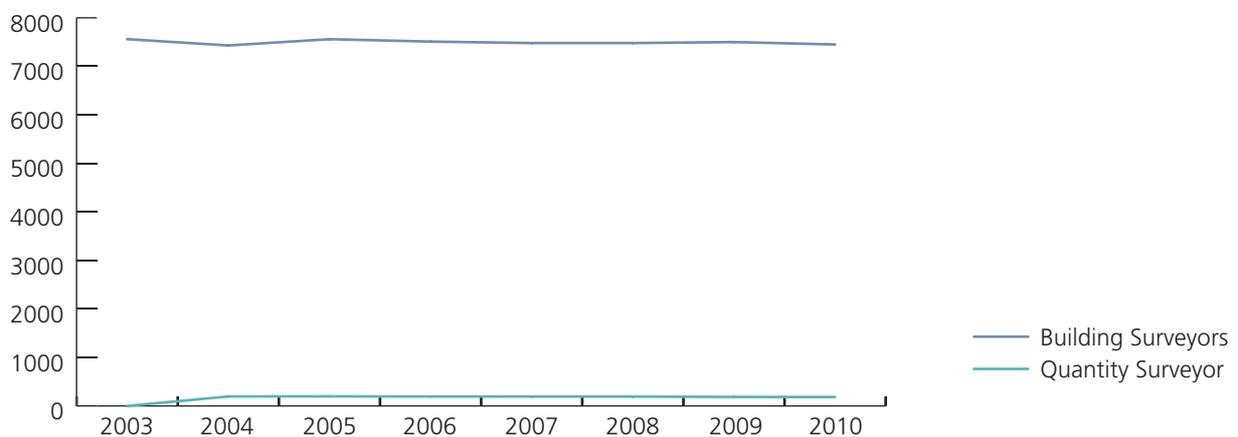
There are two reasons why the outlook remains optimistic for civil engineers. Firstly, while the PCP has resulted in a reduction in civil engineering projects in comparison to 2002, the volume of work is nevertheless very large indeed. Furthermore, it is expected that private funding will become available for the national roads during 2003 and for the rest of the period through the PPP's. This funding is estimated at approximately 300 million Euros per annum.

Furthermore, the non-national roads have secured additional funding since the PCP and approximately 400 million will be available annually. Thus, the actual reductions in the capital programme are relatively minor.

In addition, it is anticipated that there will be a number of major civil engineering programmes coming on-stream between 2005 – 2010, especially in the areas of waste management, 'clean energy and public transport. With regard to the latter, there are plans for a number of regional public planning systems, a track to the airport, and, quite possibly, a metro system for Dublin, as well as extensions to some of the current rail systems around the capital.

With regard to energy, commitments made by Ireland under the Kyoto agreement may give rise to a number of 'clean' energy projects for the next few years. Finally, the fact that the land-fill system of waste management is almost at full capacity means that an alternative system will have to be developed within the period under review in this report

Figure 3.6 Forecast Employment of Civil Engineers/Technicians, 2003-2010



For all of these reasons, the analysis is predicting a strong demand for civil engineers over the forecast period. It is interesting in this context, that unlike the situation in respect of quantity surveyors, there has not been any reduction in the level of recruitment of civil engineers under the Work Authorisation/Visas schemes.

However, it is not necessary to create any additional places in civil engineering. This is the case for two reasons. Firstly, the forecast is predicting a reduction – albeit of very modest proportions.

Secondly, it is anticipated that the numbers graduating from civil engineering programmes will actually increase over the forecast period as more engineering students decide to specialise in civil engineering rather than other areas, such as electronic engineering, where the market is less buoyant. There is some evidence that this process has already begun.

Recommendations

- Current educational provisions are adequate to meet market needs. There should not be any increase in the number of education programmes specifically in Civil Engineering as the numbers employed in this area will not increase in the medium term reflecting the completion of the physical infrastructure programme of the National Development Plan.
- While shortages are not anticipated in the immediate future, they could be addressed through the Work Authorisation/Visas programmes, should they arise.
- It is expected that recruitment through the Work Visa/Authorisation system will decline in the medium term. However, the situation should be monitored in order to avoid excess in supply.

Skills Group 3 Quantity Surveyors and Building Surveyors

There are two degree courses in quantity surveying, one in the Limerick Institute of Technology and the other in the Dublin Institute of Technology. These are producing about 100 graduates every year, the great majority of whom seek employment in the construction industry.

In addition, there are two diploma courses in Waterford Institute of Technology and Cork Institute of Technology in construction economics, which are focused on quantity surveying. These are in effect ‘feeder’ courses for degree programmes and as such, do not provide significant numbers of graduates to the industry. Of the estimated 50 persons who graduate from these diploma courses each year, approximately half are available for employment in the sector.

Thus, there are at most 130 graduates available to the industry as in any year. Studies conducted for FÁS by the ESRI indicate that professional occupations have a replacement rate of 4%. Consequently, the outflow from the education system ought to be sufficient to replenish an employment stock of between 3,000 and 3,500.

Table 3.4 Current Population of Students Studying Quantity Surveying

Course Level	Year 1	Year 2	Year 3	Year 4	Year 5
Quantity Surveying (Degree)	101	107	152	107	
Quantity Surveying (Diploma)			37		
Quantity Surveying (Certificate)	62	28			
Building Surveying (Degree)				20	19
Building Surveying (Diploma)			25		
Building Surveying (Certificate)	57	34			
Total	220	169	214	127	19

Source: Department of Education and Science and HEA.

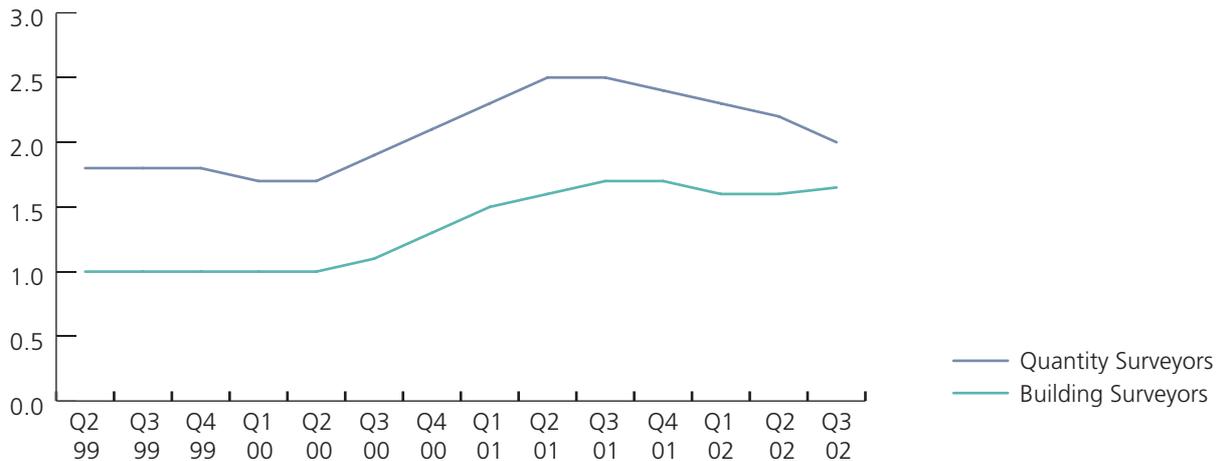
As shown in Figure 3.7 below, employment for quantity surveyors has ranged from 1,700 to 2,500 in the past four years, and has thus been more than adequately serviced by the outflow from the colleges. Indeed, there may have been a small surplus of 30-40 students who may have been seeking employment in other sectors or indeed abroad.

In regard to building surveyors, Dundalk Institute of Technology has a degree programme and a diploma in building surveying. Graduates from the diploma programme primarily move into the degree programme and, as such, do not constitute a viable source of supply. There are approximately 20 graduates from the degree programme annually.

Dundalk Institute of Technology has also started an ab-initio degree programme in Building Surveying. This additional course will contribute to the supply of building surveyors.

Figure 3.7 shows that the number of building surveyors employed has ranged from 950 to 1,650 in the past four years. This level of employment requires a minimum supply of approximately 60–70 in order to replace the existing employment stock. The supply of graduates appears to be sufficient to meet this demand.

Figure 3.7 Employment Trends of Quantity Surveyors and Building Surveyors, Q2 1999-Q3 2002



Source: Derived from CSO figures

There were large increases in the numbers employed as building surveyors from the third quarter of 2000 to the third quarter 2001. It should also be noted that the figures shown in Figure 3.7 are moving averages (i.e. the average number employed over the previous four quarters). In absolute numbers, the number of building surveyors surpassed the number of quantity surveyors by the third quarter of 2002 (2,000 building surveyors compared to 1,800 quantity surveyors). This raises the obvious question as to where the additional supply came from, considering there is an insufficient supply even to replace existing stock.

Figure 3.8 Recruitment of quantity surveyors and other surveyors under the Work Authorisation/Visas Schemes, July 2000 – June 2002



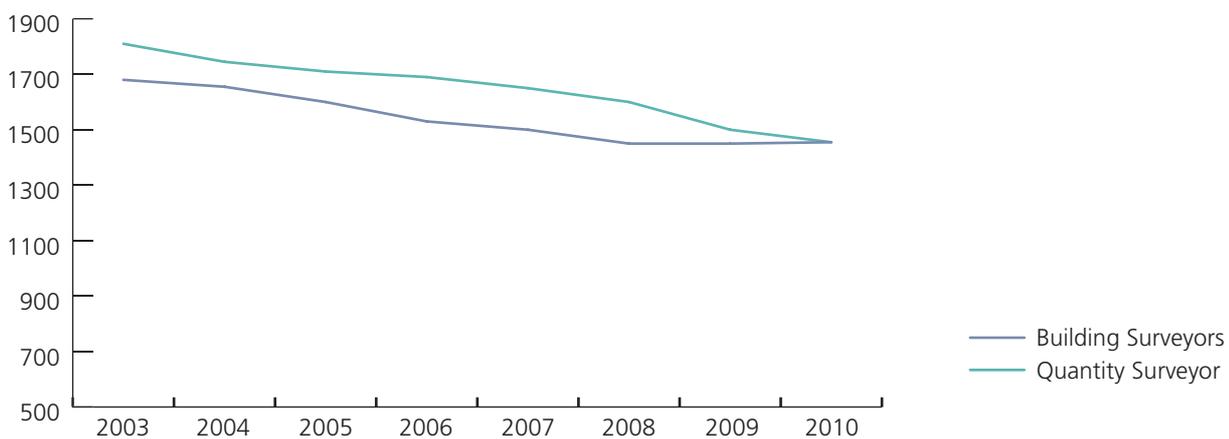
Source: Department of Enterprise, Trade and Employment

Despite both building and quantity surveyors being listed as occupations eligible for the Work Visa/Authorisation scheme, only 64 quantity surveyors and 13 building surveyors were recruited from abroad under this scheme in the two year

period from July 2000 to June 2002 (see Figure 3.8). This suggests that although there was undoubtedly a shortage during 2001, the demand could be met without resorting to extensive recruitment from abroad, unlike the situation that existed for architects and civil engineers.

Where, then, did the necessary supply come from? There are two other potential sources of supply for surveyors. Firstly, individuals can qualify as a building or quantity surveyor through the Society of Chartered Surveyors (SCS). The SCS currently have 450 students registered with them to qualify as Quantity and Building surveyors and there has been a steady increase in recent years in the number of students registering. These students would have passed through the various courses in quantity surveying in the Institutes of Technology, and as such, should be viewed as a measure of supply, rather than a source. Secondly, the Law Society recognises chartered architects and chartered engineers for building surveying work. This can provide a back up supply for when demand suddenly increases, as it did in 2001.

Figure 3.9 Forecast Employment of Quantity/Building Surveyors, 2003-2010



Quantity surveyors are involved mainly in non-residential construction. As non-residential construction is expected to contract sharply in the coming years, before experiencing a slight recovery, it is expected that the level of recruitment activity for quantity surveyors will decline and then recover. Employment for quantity surveyors is thus forecast to fall to just below 1,500 by the end of the forecast period.

Building surveyors, on the other hand, are involved in both commercial and residential construction. Residential construction is forecast to experience a slight increase in the coming years, before experiencing a decline. This increase in residential construction mitigates the decline that is forecast for non-residential construction. As such, the forecasts show a modest decline in employment for building surveyors until 2005, with employment levels at approximately 1,700, before declining and stabilising at approximately 1,500.

There does not appear to be any major discrepancies in supply and demand for surveyors. The forecast increase in the demand for building surveyors in the next two years does not require additional courses, as the increase is expected to be short-term and employers have the option of utilizing the work visa/authorisation scheme to fill any vacancies that arise.

Recommendations

- Current educational provisions, including the Dundalk Institute of Technology's new degree programme, are adequate to meet market needs
- While shortages are not anticipated in the immediate future, they could be addressed through the Work Authorisation/Visas programmes should they arise.

Skills Group 4 Regional and Town Planners

The boom in construction activity from 1996-2000 created an enormous workload for planners, particularly in the Local Authorities. This workload increased further as a result of the Planning and Development Act 2000. The Government reacted in two ways. Firstly, it introduced the 'fast-track' Work Authorisation/Visas scheme to facilitate employers who required planners as a matter of urgency. Secondly, it increased the provision of post-graduate programmes in the area of planning.

Table 3.5 Current Population of Students Studying Urban and Regional Planning

Course Level	Year 1	Year 2	Year 3	Year 4	Year 5	Year 6
Post Graduate					65	49
Degree	40	35	30	30		
Total	40	35	30	30	65	49

Source: HEA

Table 3.5 above shows the number of students currently participating in courses in Planning in University College Dublin and the Dublin Institute of Technology. There is a Masters programmes in UCD, which has approximately 50 Planning graduates produced annually.

In effect, there are two programmes, which produce graduates who are recognised by the appropriate institutes as qualified to work as 'planners'. These programmes are the post-graduate course in UCD and the undergraduate programme in DIT.

The numbers attending the post-graduate programme in UCD were increased significantly a couple of years ago, in response to a request from the Department of Education and Science, which was concerned about reports of acute shortages in this area. It is generally accepted that this substantial increase in student intake will be sufficient to meet the market requirements for planners in the medium term.

However, feedback from the sector indicates that there continues to be a small number of vacancies for planners and many of these are proving difficult to fill. There has been substantial recruitment of planners from abroad; a forthcoming study by DKM consultants will show that almost 30% of those employed as planners in the economy are non-nationals. Interestingly, however, most of the recruits appear to have come from within the EU; figures from the Work Authorisation/Visas scheme show that only 35 persons were recruited as planners between July 2000, when the scheme was introduced, and December 2002.

The employment graph in Figure 3.10 shows that the employment of town planners declined during 2002, after rising from 400 in the second quarter of 1999 to a peak of 900 in the third quarter of 2002.

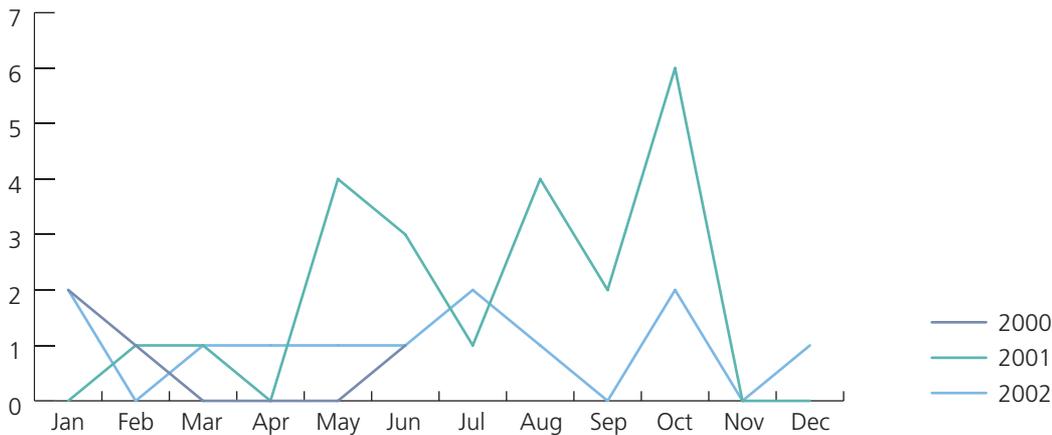
Figure 3.10 Employment Trends of Town Planners, Q2 1999 – Q3 2002



Source: Derived from CSO figures

However, the employment of town-planners is so low in absolute terms that the official statistics, which forms the basis of both the historical estimates and the forecasts in this report, could not be described as even reasonably accurate. It is highly unlikely that the employment of town-planners declined at all during 2002 as feedback from the industry and in particular, the Local Authorities indicate that there are still unfilled vacancies in this occupation.

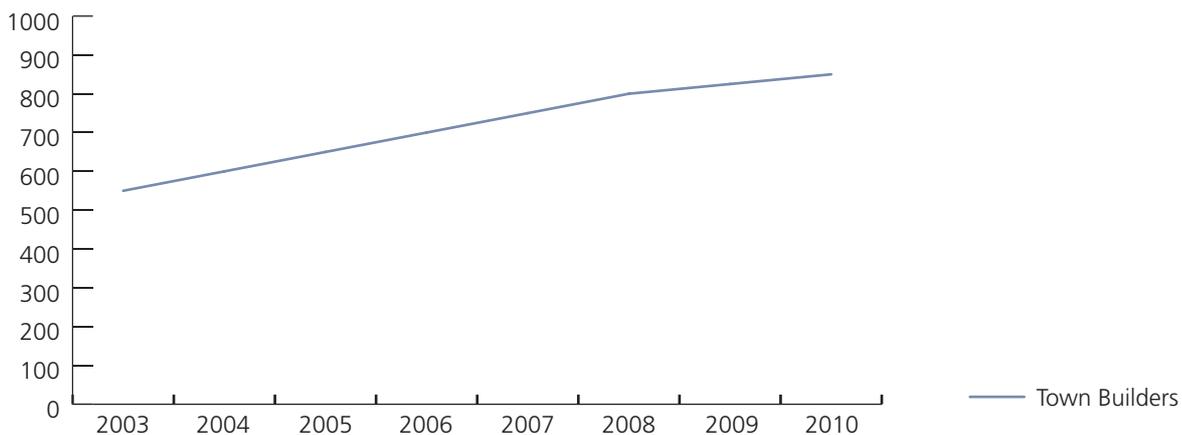
Figure 3.11 Recruitment of Town Planners under the Work Authorisation/Visas Schemes, July 2000 – June 2002



Source: Department of Enterprise, Trade and Employment

The relevant professional institutes estimate that there are about 550 persons employed as planners at the end of 2002. However, the work-load of the planner has increased significantly in recent years, particularly as a result of changes introduced under the Planning and Development Act, 2000. The professional Institutes estimate that there will be a total market requirement for about 850 planners.

Figure 3.12 Forecast Employment of Town Planners, 2003-2010



Employment for planners is expected to rise from 550 currently to 850 by 2010. The employment level for planners is then expected to stabilise at approximately 850.

Recommendations:

- Current educational provisions are not adequate to meet short-term needs; however, provisions are adequate for the medium to long term.
- The Local Authorities should be encouraged to fully avail of the Work Authorisation/Visa scheme to fill vacancies for town-planners in the short-term.

Skills Group 5 Project /Contract Managers

There are approximately 117 students studying construction management in their final year at degree or at post-graduate level. In addition, there are approximately 266 students in their final year on diploma programmes in construction management. Finally, there are approximately 488 students completing the certificate programmes in construction management in the Institutes of Technology.

Furthermore, there are a small number of students studying the subject at post-graduate level and there is a part-time course in the Dublin Institute of Technology with about 35 students.

Table 3.6 Current Population of Students Studying Construction Management

Course	Year 1	Year 2	Year 3	Year 4	Year 5
Degree in Management	134	104	89	113	4
Diploma in Management			266		
Cert. in Management	544	384			
Total	678	488	355	113	4

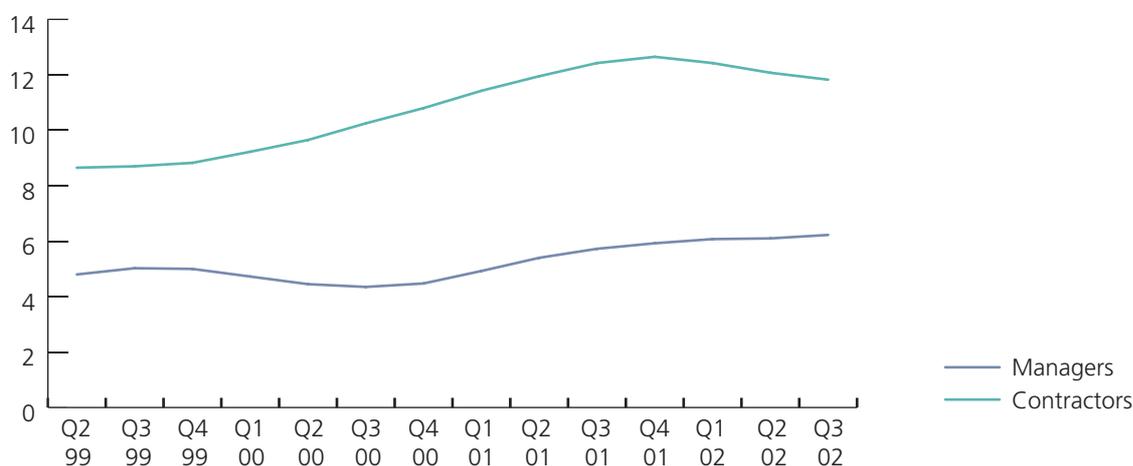
Source: HEA and the Department of Education and Science

The annual outflow of graduates from management programmes from the third-level sector was not sufficient to meet demand, which increased by around 1,000 over the three years 1999-2002.

In the case of management occupations, however, a considerable source of the supply comes from within the existing workforce. The Construction Industry Federation (CIF) in particular, delivers a number of part-time training courses in site management in Dublin, Cork, Galway and Waterford, which have an approximate annual throughput of 100. The CIF also deliver programmes in safety management in all regions with an approximate annual turnover of 500.

Both building managers and building contractors are represented in the official nomenclature and not surprisingly, employment in both of these occupations has been rising steadily between the second quarter of 1999 and the third quarter of 2002. The employment trends are shown in Figure 3.13 below.

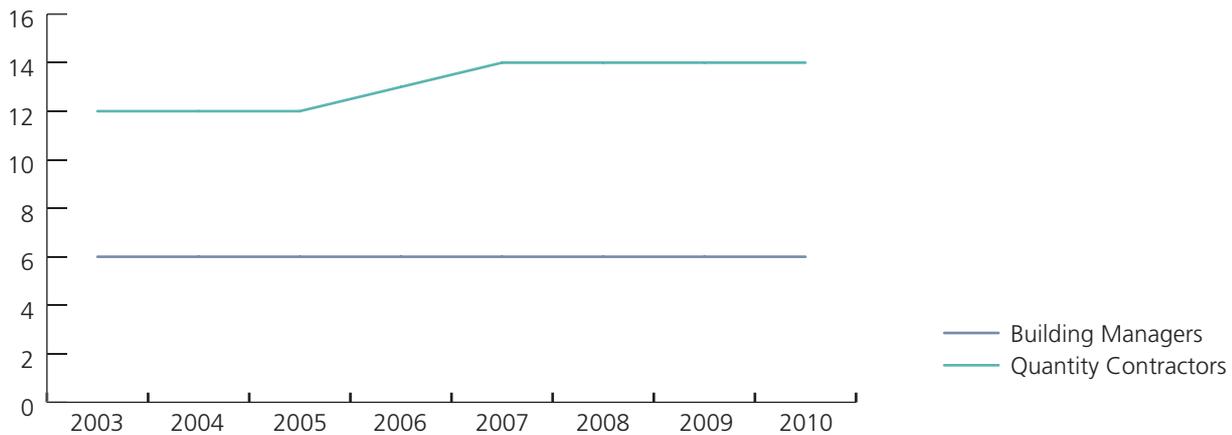
Figure 3.13 Employment Trends of Managers and Contractors, Q2 1999 – Q3 2002



Source: Derived from CSO employment estimates.

The increase in the number of contractors, in particular, has been quite considerable; significantly it has been much greater than the overall increase in employment. Thus, there has been a considerable increase in the usage of contractors in the construction industry in recent years. Thus, while the total numbers employed in construction are predicted to fall over the period 2003-2010, the number of contractors may continue to rise.

Figure 3.14 Forecast Employment of Building Managers & Building Contractors, 2003 –2010



Source: Derived from CSO employment estimates.

Feedback from the industry indicates an increasing demand for persons with project management skills. The increasing scale of many projects, particularly in civil engineering, means that the role of the project manager has become much more complex and it has assumed a critical importance to the industry in recent years. The qualification of ‘project manager’ requires at least a degree qualification, if not indeed a post-graduate qualification. Historically, the education system has not provided a sufficient number of graduates qualified in this discipline to degree level. However, the level of provision has increased considerably in recent years and additional programmes are expected to come on-stream over the next few years.

Skills Group 6 Electricians & Plumbers

The crafts of electricians and plumbers are sometimes referred to as the mechanical/electrical crafts. They are employed extensively on building sites and also on large projects in both the non-residential and social infrastructure areas.

One of the interesting aspects of electricians is that a significant number are employed in other sectors. Indeed, it is estimated that of the 22,000 electricians working in the economy at the end of 2002, approximately one in three are working outside the construction industry, mainly in engineering and electronics. This must be taken into account in assessing the demand for electricians.

Both of these occupations are designated apprenticeships and, consequently, the domestic supply of qualified persons to these occupations is provided by the apprenticeship system. Furthermore, the apprentices are officially classified as employees. Consequently, unlike the situation in respect of professional and associate professionals working in the construction sector, these workers are already employed before they acquire their qualifications.

Table 3.7 Numbers of Apprentices in Skills Group 6 by Phase, 2002

Phases	1	2	3	4	5	6	7	Total
Electricians	1,388	687	1,953	10	2,173	14	1,073	7,298
Plumbers	572	302	955	1	794	8	207	2,839

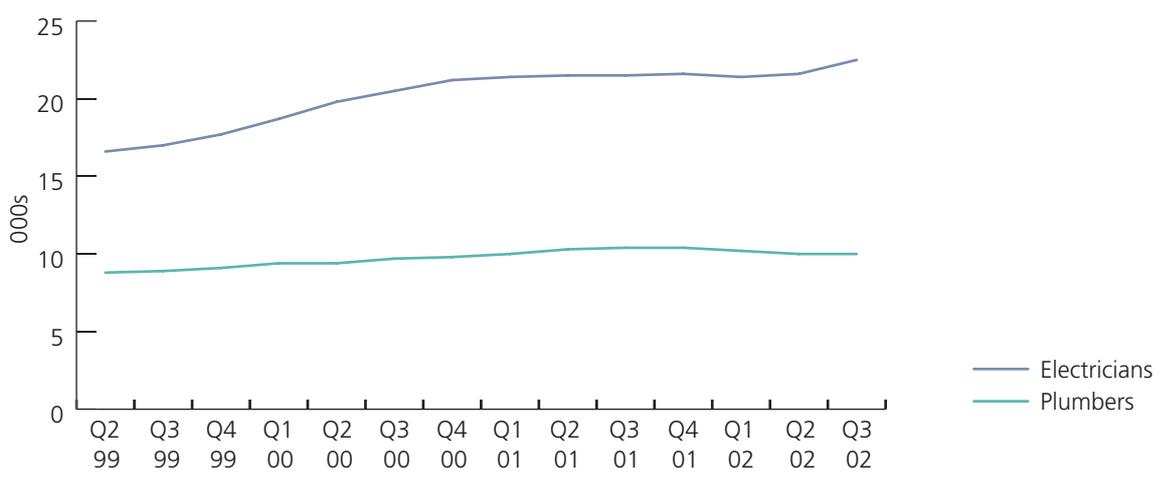
Source: FÁS apprenticeship statistics.

The apprenticeship system takes four years. The number of apprentices who receive the National Craft Qualification is always below the numbers who have registered approximately four years earlier. The difference is a function of a number of factors, including the dropout rate, and the redundancy rate.

The average overall attrition rate over the four years is approximately 20% although this varies between trades. In general, the less skilled trades have a somewhat higher rate of attrition than the more skilled trades such as electricians and plumbers, which have relatively high completion rates. In the case of the former, it is estimated that as many as 1,900 will qualify in 2006, while the corresponding figure for plumbers is approximately 700.

While these outflow projections are very high in comparison to historical levels, the demand for electricians, in particular, has been growing strongly in recent years. Thus, as shown in Figure 3.15, the employment of electricians increased from over 16,000 in the second quarter of 1999 to over 22,000 in the third quarter of 2002. The situation in respect of plumbers is quite different. The numbers employed in this category increased by a couple of thousand in the last three years.

Figure 3.15 Employment Trends of Electricians and Plumbers, Q2, 1999-Q3, 2002



Source: Derived from CSO employment estimates.

The growth in the number of apprentices in the mechanical and electrical trades is a function of the increasing numbers of young people who were sponsored by employers in the construction industry. It is interesting to compare the total number of first year apprentices with employment trends in the relevant craft over the last four years because the apprenticeship system represents the only domestic source of supply into these craft occupations. These trends are shown in Table 3.8 below.

Table 3.8 Comparison between Apprentice Intake Levels and Total Employment Trends, 1998-2002

Trade	Average Employment ⁶ in 1998	Average Employment in 2002	Increase 1998 – 2002	Apprentice Intake 1998 – 2002
Electrical	16,400	23,000	6,600	8,000
Plumbers	8,700	10,200	1,500	3,100

Source: FÁS Apprentice Statistics.

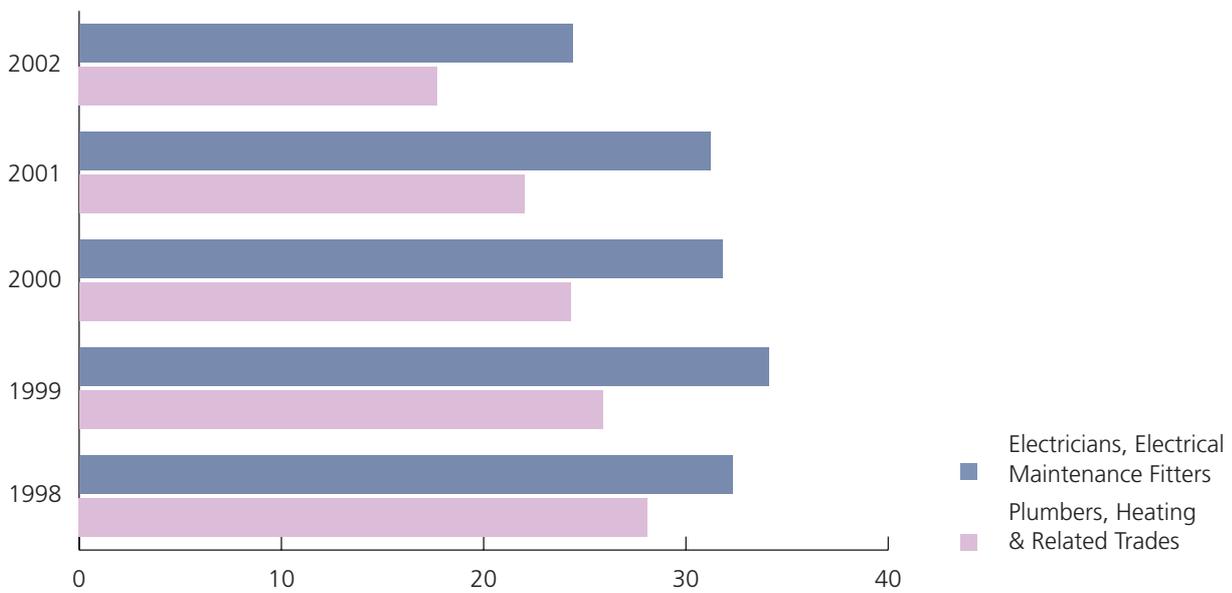
The figures show that the outflow from the apprenticeship system is below the market requirements in the case of electricians for the period 1998 – 2002, bearing in mind that the average total attrition rate in the apprenticeship system is approximately 20% and there will be an annual employment replenishment rate of approximately 3%.

However, the outflow from the apprenticeship system in respect of plumbers appears to mirror almost precisely the market requirement for plumbers over the period.

Another way of assessing the appropriateness of the supply of apprentices in the context of market demand is by analysing recent trends in the ratio of apprentices to total employment. The current ratio in the case of both electricians and plumbers is approximately 30% and this is exceptional by historical standards. This suggests that employers may have experienced difficulties recruiting qualified craft-persons during the boom of the last three years and, to a certain extent, may have attempted to make-up the shortfall through employing apprentices.

⁶ The employment figure refers to the employment of both craft-persons and apprentices.

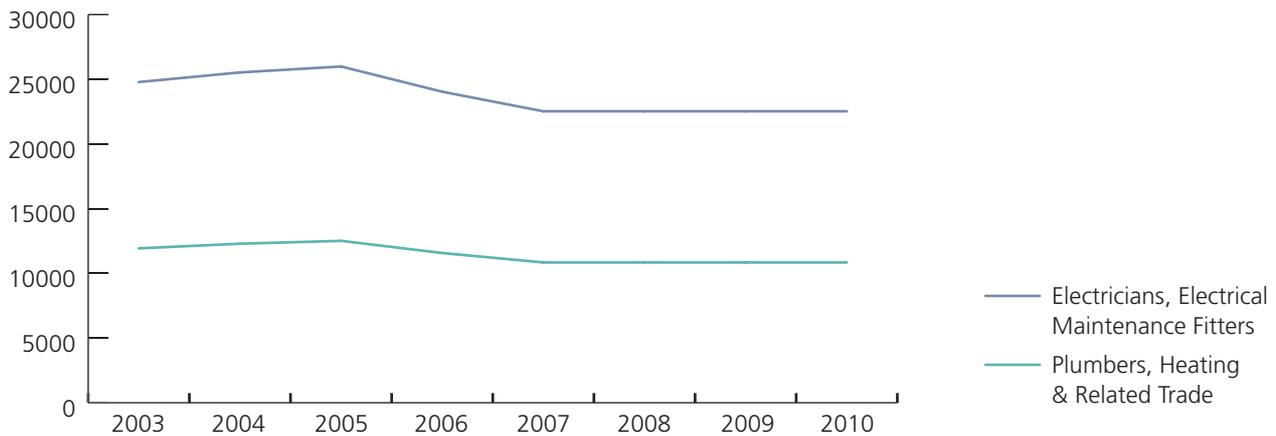
Figure 3.16 Percentage of Apprentices to Craftpersons in Plumbing and Electrical Skills, 1999-2002



Source: Derived from FÁS Apprenticeship Statistics.

The relatively high levels of sponsorship of apprentices over the last three years will not create major problems in the short-term because the anticipated increase in private residential development should compensate to a considerable extent for the downturn in non-residential development. However, as shown in Figure 3.17, the medium term forecast is for a decline in the recruitment of both electricians and plumbers. Consequently, a continuation of the current sponsorship levels would result in a considerable over-supply of persons qualified in these trades. This is particularly so in the case of plumbers because there are relatively few alternative sources of employment outside of the construction industry.

Figure 3.17 Forecast Employment of Electricians and Plumbers, 2003-2010 (000's)



Fortunately, there is evidence that employers are beginning to reduce their sponsorship rates. The graph in Figure 3.19 shows that the sponsorship levels in the case of electricians, in particular, have declined since 2001. The decline in respect of plumbers, however, is more modest.

Figure 3.18 Sponsorship Rates for Apprentice Plumbers and Electricians



Source: FÁS apprenticeship statistics.

The recommendation of this report is that the sponsorship rates of apprentice plumbers and electricians should be carefully monitored. The analysis in this report shows that if the levels do not decline within the next twelve months, the craft graduate class of 2007 will face a very difficult labour market in Ireland. By monitoring the situation, it will be possible to ascertain whether a situation of over-supply is developing. This will allow for an appropriate course of action to be taken, if necessary.

Recommendations

- Recent sponsorship levels of apprentice electricians and plumbers are higher than forecast requirements for these skills. However, the number of apprentices entering these trades has started to decline. The sponsorship rates need to be monitored carefully to ensure that a situation of over-supply does not develop.

Skills Group 7 Carpenters, Plasterers, Bricklayers, Painters and Glaziers

Carpenters, plasterers, bricklayers and painters are often referred to as being the construction trades. They are principally employed in the residential market and overall have benefited from the recent boom that this market has experienced.

The construction trades are similar to Skills Group 6 (i.e. Electricians and Plumbers) in that training is through a designated apprenticeship system and these apprentices are officially classified as employees. It is necessary for employment to be secured before apprentices commence their training. Again, similar to the previous skills group, the apprenticeship process requires 4 years to complete with a mixture of off and on the job training.

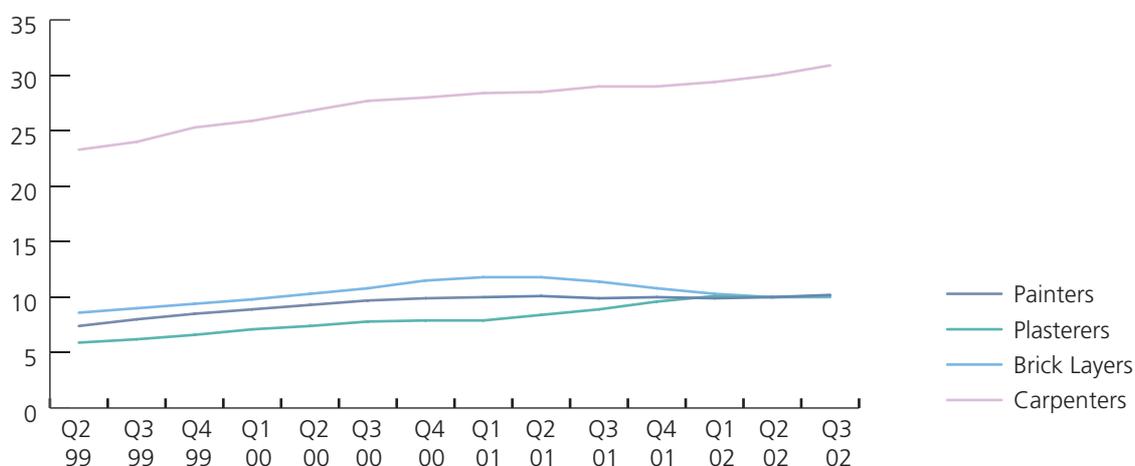
Table 3.9 Numbers of Apprentices in Skills Group 7 by Phase, 2002

Phases	1	2	3	4	5	6	7	Total
Carpenters	1,485	632	1,243	10	1,238	4	617	5,229
Painters	111	20	129	1	113	1	72	447
Bricklayer	416	128	336	3	333	4	174	1,394
Plasterer	127	75	229	0	173	1	44	649

Source: FÁS apprenticeship statistics.

Table 3.9 shows the number of apprentices by phase in 2002 in skills group 7. The figures show that there was a total population of 7,719 in 2002. There is a significant difference between the number of apprentices registered as painters and plasterers and those who are registered as bricklayers and carpenters.

Figure 3.19 Employment Trends in the Construction Trades, Q2 1999 – Q3 2002



Source: Derived from CSO figures

This difference is not entirely due to differences in the numbers in employment. Thus, the employment of carpenters increased from 23,300 in the second quarter of 1999 to 30,900 in the third quarter of 2002 (see Figure 3.19) – representing an annual increase of approximately 2200. The employment levels of painters have remained constant at 10,000 since the end of 2000 similar to that of plasterers. Employment for bricklayers, on the other hand, increased to a high of 12,000 mid 2001 followed by a slight decline to the current level of 10,000.

Table 3.10 Comparison between Apprentice Intake Levels and Total Employment Trends, 1998-2002

Trade	Average Employment ⁶ in 1998	Average Employment in 2002	Increase 1998 – 2002	Apprentice Intake 1998 – 2002
Painters	6,800	10,300	3,500	600
Plasterers	5,500	10,000	4,500	750
Bricklayers	8,000	10,000	2,000	1,700
Carpenters	22,300	32,000	9,700	6,250

Source: FÁS Apprentice Statistics.

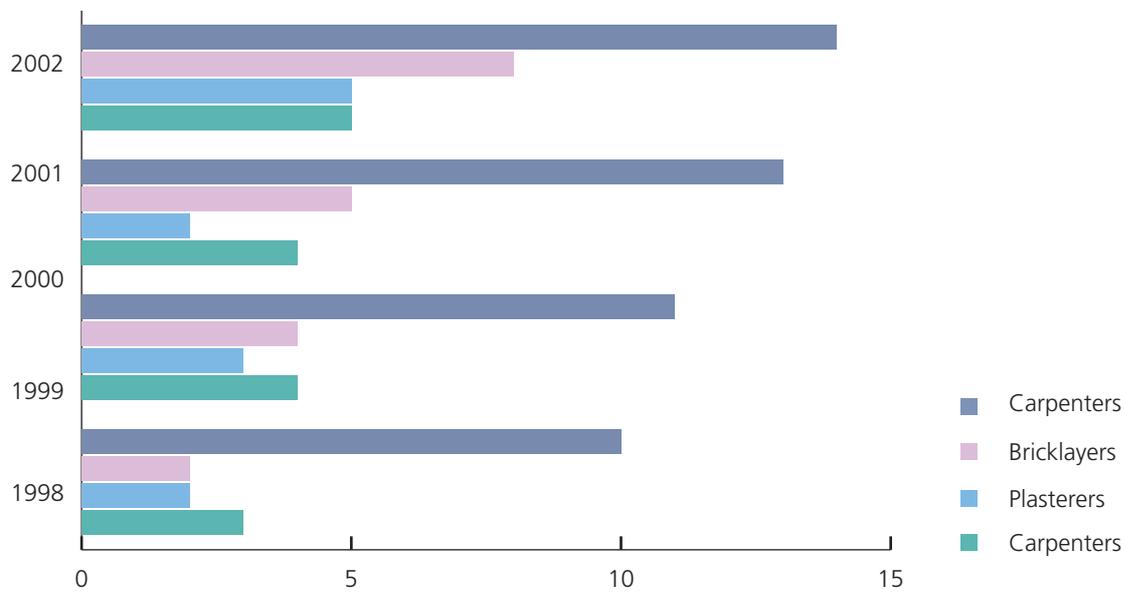
The growth in the number of apprentices in the construction trades is a function of the increasing numbers of young people who were sponsored by employers in the construction industry. It is interesting to compare the total number of first year apprentices with employment trends in the relevant craft over the last four years because the apprenticeship system represents the only domestic source of supply into these craft occupations. These trends are shown in Table 3.10 above.

The figures show that the outflow from the apprenticeship system was significantly below the market requirements in the case of plasterers and painters for the period 1998-2002, bearing in mind that the average total attrition rate in the apprenticeship system is approximately 20% and there will be an annual employment replenishment rate of approximately 3%.

In the case of carpenters and bricklayers, the outflow from the apprenticeship system was below market requirements but the extent of the shortfall was not as significant as in the case of the other trades. This is particularly so in respect of bricklayers.

⁶ The employment figure refers to the employment of both craft-persons and apprentices.

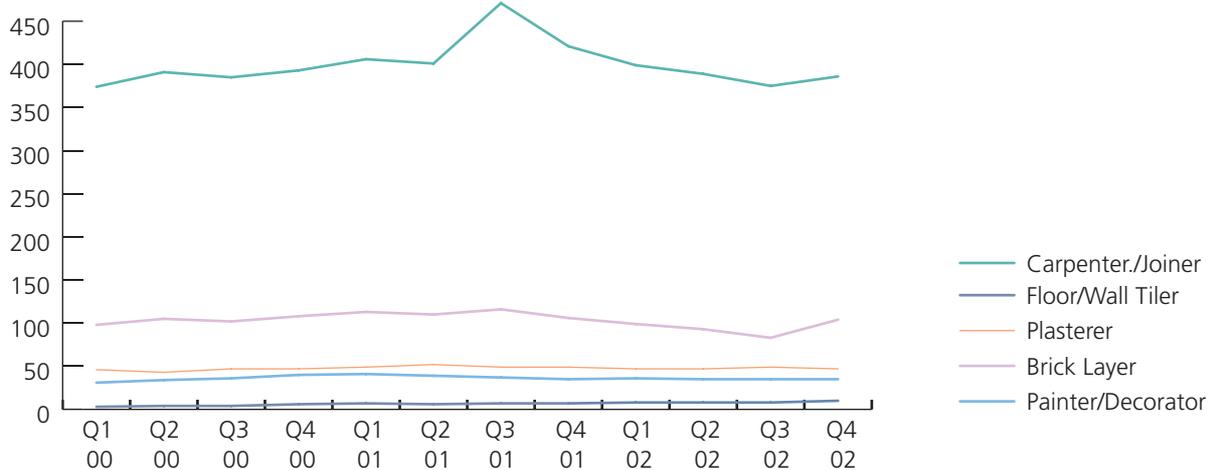
Figure 3.20 Percentage of Apprentices in the Construction Trades, 1999-2002



Source; Derived from FÁS apprentice statistics

These differences are reflected in the trends in the ratio of apprentices to total employment for the period. Thus, the ratio of apprentices to crafts-persons has increased most dramatically for bricklayers with an increase from 2% in 1999 to over 7% in 2002 (see Figure 3.20). Apprentice carpenters have the highest percentage representation of the construction trades in the industry at 14%. Figure 3.20 clearly indicates that, with the exception of carpenters, the apprentice/craft ratio for the construction trades is considerably lower than other craft occupations. The reason for this is not evident and it is necessary to examine this further so as to establish an explanation.

Figure 3.21 Sponsorship Rates for Apprentices in the Construction Trades, Q1, 2000-Q4, 2002.

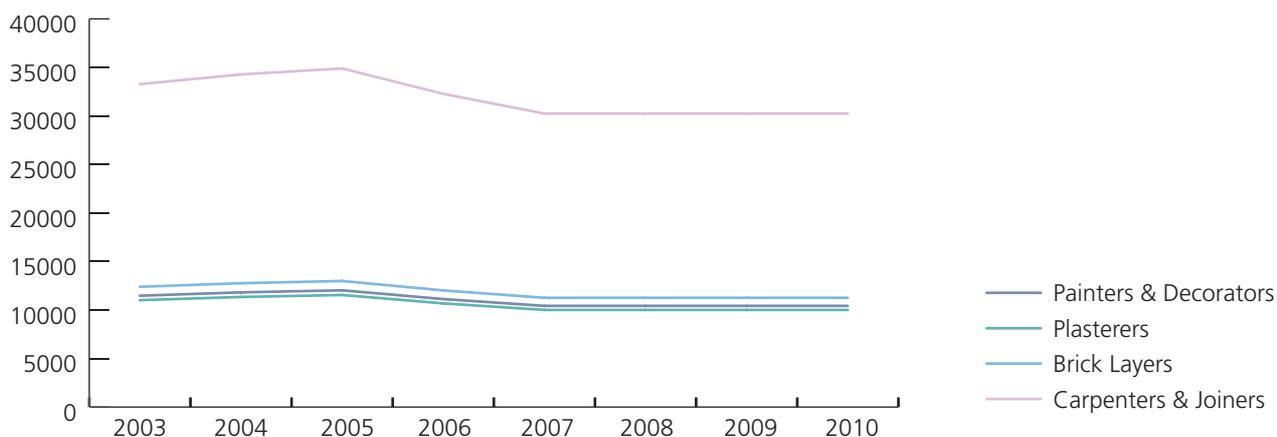


Source: FÁS apprenticeship statistics.

As Figure 3.21 above demonstrates, despite the increase in level of the employment in the construction trades in recent years, the levels of sponsorship by employers has remained fairly stable in the 2 years represented. This would suggest that unqualified workers are being employed to complete these tasks. While it is possible that employers' recruited qualified craft workers from abroad to meet the increase in demand, this explanation does not explain why employers availed so extensively of the apprenticeship system in the case of electricians, carpenters and plumbers but did not do so for the 'wet-trades'. This is an area that requires further exploration.

Figure 3.21 shows that, unlike the situation in respect of electricians, the sponsorship rates of apprentices in the construction trades have actually increased over the last two quarters, particularly for carpenters and bricklayers. This trend is consistent with the analysis in the report, and specifically the contention that residential construction activity is increasing and that yet another record level of new house construction was achieved in 2002.

Figure 3.22 Forecast employment of the Construction Trades, 2003-2010



The construction trades are predicted to continue to increase for the first half of the forecast period due to the sustained growth in the housing market. However, employment levels will begin to reduce from 2006 with the number of carpenters required falling to below 30,000.

There is a concern, however, that the level of sponsorship is too low in relation to the level of activity, particularly in the case of bricklayers, although the substantial increase in sponsorship in 2002 may represent a welcome change in this trend. Nevertheless, the recommendation of this report is for a short survey of employers to establish the reasons for the low rate of sponsorship in these trades – with the exception of carpenters – as a matter of urgency.

Recommendation

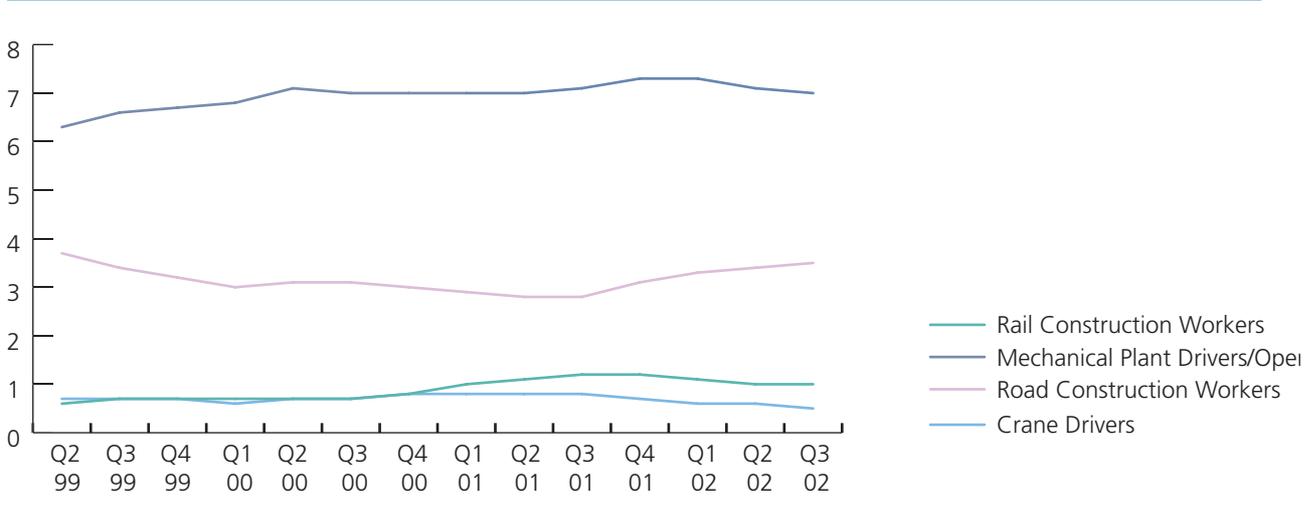
- Current sponsorship rates of apprentices in the construction trades, with the exception of carpenters, are relatively low. The Expert Group should commission a short survey to identify the reasons for these low rates as a matter of urgency.

Skills Group 8 Crane Drivers, Plant Operators, Road & Rail Workers

The market requirement for this group of skilled workers is strongly influenced by the levels of civil engineering and, to a certain extent, major projects in the non-residential area and in social infrastructure.

Employment in these skills increased during 1999-2001, but there is some evidence of a decline in recent months of both crane drivers and drivers and operators of other mechanical plant. Surprisingly, the number of road-workers appears to have declined somewhat during 2000 and 2001, before reverting back to their 1999 levels of 4,000.

Figure 3.23 Employment Trends for Plant Operators, Crane Drivers, Road/Rail Construction Workers, Q2 1999 – Q3 2002



Source: Derived from CSO estimates of employment.

The extent of the decline, however, in absolute figures is modest, and may reflect sampling error in the base data.

These skills are not represented in the formal apprenticeship system. However, FÁS does provide training for those working in these occupations through two major training programmes, the Construction Skills Certification Scheme and the Road-Worker Training Programme. These programmes are summarised below.

The Construction Skills Certification Scheme, which was launched in 1997, provides training and certification for an extensive range of skills in non-craft skilled construction occupations, that is Skills Group 7 and Skills Group 8. In particular, the programme focuses on four broad occupational categories; construction operatives, plant operators, roofers and scaffolders. However, within these categories, training is offered for specific skills within these occupational categories.

FÁS has already provided training for over 2,000 workers in these skills. It is mandatory for all persons working in these skills to achieve certification from the Scheme. Consequently, FÁS estimates that as many as 20,000 persons will eventually receive training and certification.

In addition, FÁS has launched a training programme specifically targeted at road workers which provides instruction in areas such as asphalt laying, small equipment operation and so forth. FÁS intends to provide training for about 7,000 road workers and supervisors in relevant skills over the next few years.

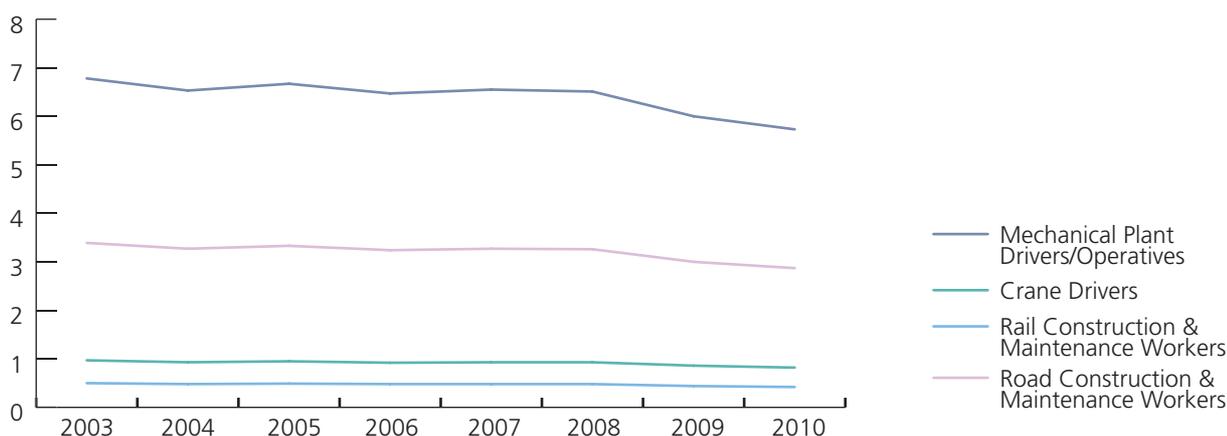
Table 3.11 Specific Skill Areas Covered under the Construction Skills Certification Scheme

Occupation	Specific skill application
Construction Operative	Paving/kerb laying Pipe laying Steel-fixing Concreting
Plant operator	180 degree Excavator (e.g. JCB) 360 degree Excavator < 5 tons 360 degree excavator > 5 tons Articulated dumper Tractor/dozer (e.g. bulldozer) Crawler crane Mobile crane Tower crane Site dumper Slinger/signaller (Banksman) Telescopic Handler (Teleporter)
Roofer	Roof and Wall Sheeting Built up roof felting
Scaffolder	Basic Advanced

Source: FÁS.

The employment forecasts for these groups show a gradual decline beyond 2006. This reflects the fact that many of the major components of the National Development Plan are expected to be completed in the period 2006-2008. However, there will continue to be a relatively high level of civil engineering activity throughout the forecast period. There will be a relative shift in the focus of activity, however, from the construction of roads to projects in waste management, sewerage and energy. Inevitably, this will result in some reduction in the level of demand for those skills which are most associated with road construction in the latter part of the forecast period.

Figure 3.24 Forecast employment of Plant Operators, Crane Drivers, Road & Rail Construction Workers, 2003-2010



Thus, employment of mechanical plant operators and drivers is forecast to decline to around 6,000 from around 7,000 currently, while road workers are also expected to experience a sharp decline in employment.

The training of skilled construction workers, who are not part of the designated apprenticeship system, has been neglected for many years. FÁS has developed an extensive array of courses for these workers in recent years. This initiative is very welcome and it should continue to be supported by the State.

Recommendation:

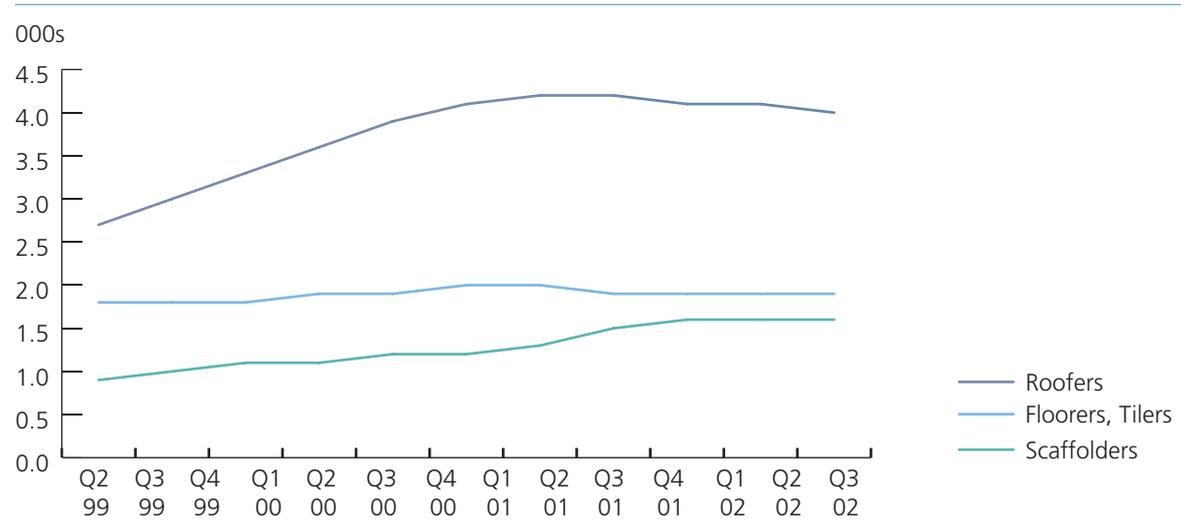
- FÁS should continue to provide courses for skilled construction workers who are not part of the designated apprenticeship system.

Skills Group 9 Floorers, Roofers, Scaffolders

Skills Group 9 is made up of a number of non-craft construction skills, which are more related to building activity rather than civil engineering activity.

As such, employment in these skills has been increasing since 1999 reflecting the strong performance of the residential construction sector. The exception is scaffolders, where employment has been declining through 2002. This is not surprising, as the employment in scaffolders would have been adversely affected by the contraction in commercial development in particular.

Figure 3.25 Employment Trends of Roofers, Scaffolders and Floorers Q2 1999 – Q3 2002



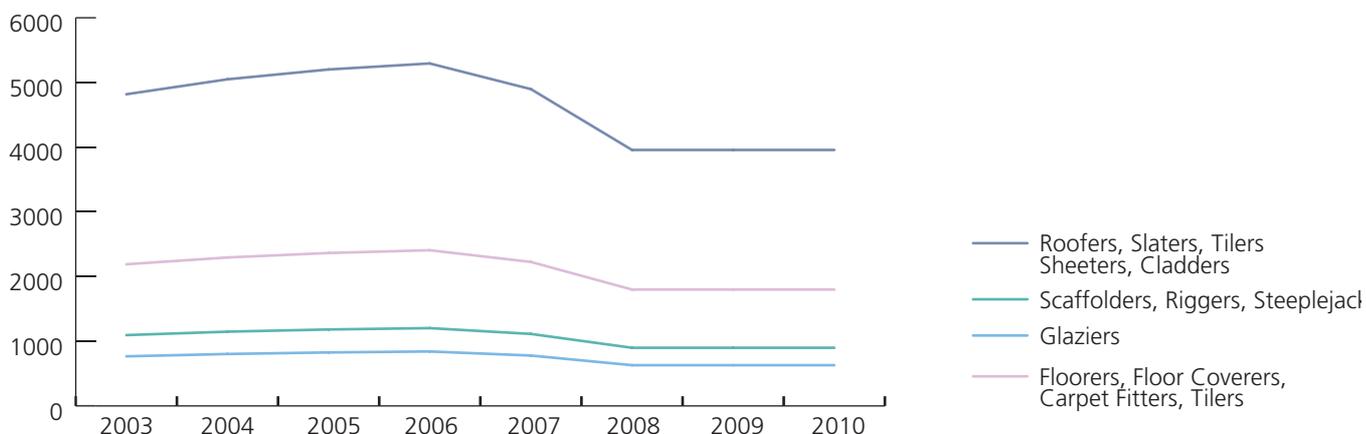
Source: Derived from CSO estimates on employment

The employment for roofers has been increasing strongly from about 2,600 in the second quarter of 1999 to almost 4,500 by the third quarter of 2002. Roofers have been recruited in significant numbers over the last few years to deliver the record levels of annual house completions.

As residential activity is forecast to continue at record levels for the next three years, the demand for roofers and floorers will actually increase in the short-term. The employment of scaffolders may remain more or less constant as commercial development continues to contract.

There will be a decline in the market requirement for all of these skills beyond 2006, reflecting the fact that annual house completions are forecast to decline to around 50,000, having peaked at 60,000 in 2005. The decline in employment, however, should be relatively modest.

Figure 3.26 Forecast Employment for Roofers, Scaffolders, Floorers and Tilers, 2003-2010



These trades are not part of the designated apprentice system. Nevertheless, FÁS provides training and certification for both roofers and scaffolders under the Construction Skills Certification Scheme. The trade of wall tiler is now a designated craft and the FÁS National Apprenticeship Advisory Board are exploring the possibility of extending the apprenticeship system to other trades.

Recommendation:

- FÁS should consider extending formal training and certification structures to all skilled construction workers

Skills Group 10 Skilled Construction Occupations

Developments within the construction industry, driven by a combination of factors such as environmental and safety legislation, the increased scale of projects, the emergence of new materials and the diffusion within the sector of information and communication technologies, have given rise to a requirement for new skills-sets. The most important of these skills-sets relate to project management, waste disposal and demolition, environmental awareness, materials technology and safety.

Understandably, in view of their recent emergence, many of these skills are not clearly defined in the official occupational nomenclature.

FÁS also offers an extensive range of training programmes aimed at manager, supervisors and professionals in the industry in waste management and environmental issues. Table 3.10 below provides an indication of the range of programmes which are on offer from FÁS in these areas. These are provided to persons already working in the construction industry.

Table 3.12 FÁS Training Programmes in Waste Management and Environmental Issues

Waste and demolition	Environment Issues
Waste management	Site suitability assessment
Waste facility operator	Laboratory procedures
Leachate management and control	Radon gas remediation and prevention
Landfill gas monitoring and control	Water and waste water plant operation
Demolition waste	Graduate Diploma in envir. Protection
	Leakage detection

There is no information available on the numbers employed in environmental or demolition work. The recommendation presented below is designed to redress this situation.

Recommendation:

- An expert group should be convened, including representatives of the CSO, with a view to exploring the possibility of including new construction skills, either through modifying or clarifying existing classifications or developing new additional ones, in the official nomenclature.

