Major Projects Association

Managing the Resource Gap

Seminar 132 held at the Royal Aeronautical Society, London
13th March 2007

Key conclusions

- There is a significant resource gap looming in the next three to eight years. This applies to skilled people, as well as materials, plant and infrastructure such as ports, road and rail to receive and distribute materials.
- No single agency in Government or industry has the whole picture although some industries are better placed than others. An example is the construction industry because of work they have done themselves and because of an initiative sponsored by the Office of Government Commerce (OGC).
- Some industries – such as IT – are planning to make more use of offshore resources. This was thought by some to be a short term expedient rather than something to be relied on in the long term. Certainly in terms of cost (rather than raw capacity) it only works for a short time.
- There is a world shortage of project managers. This cannot be helped by technology – as might be applicable to a shortage of (say) bricklayers which could be offset by e.g. prefabrication.
- There are measures that can be taken to attract people into the project management industry, to train them and retain them. But this has to be done in an organised, determined way. Use multi-skilling and cross-functional training. Know your existing resource well (really well).
- It is everyone's experience that provided they are properly supervised, young people have much more to offer than their limited experience might indicate. Also, the importance of domain knowledge in the project manager is often overestimated. It is important that clients take these points on board.
- Do not underestimate the quality of resources that can be found abroad – they can be amongst the best. But nothing is in place regarding the mutual recognition of qualifications. Also, there are bureaucratic obstacles and a political sensitivity to worker migration.
- In the UK the Association for Project Management (APM) has become very much more active in developing structures for the professional recognition of project managers leading to their enhanced status. This is a vital ingredient in solving the problem of making the profession more attractive.
- There is an opportunity for the APM to work with the London Games 2012 to promote the profession of project management.

Introduction

Effective resourcing of projects with people, facilities, materials and funding is an essential cornerstone of the major projects industry. The seminar presented a consolidated view of the predicted workload in the UK, showing projected demands and capacities across selected market sectors and regions through to 2011 and beyond. Forecasts were framed within an overview of the country's economic outlook and the effect of globalisation.

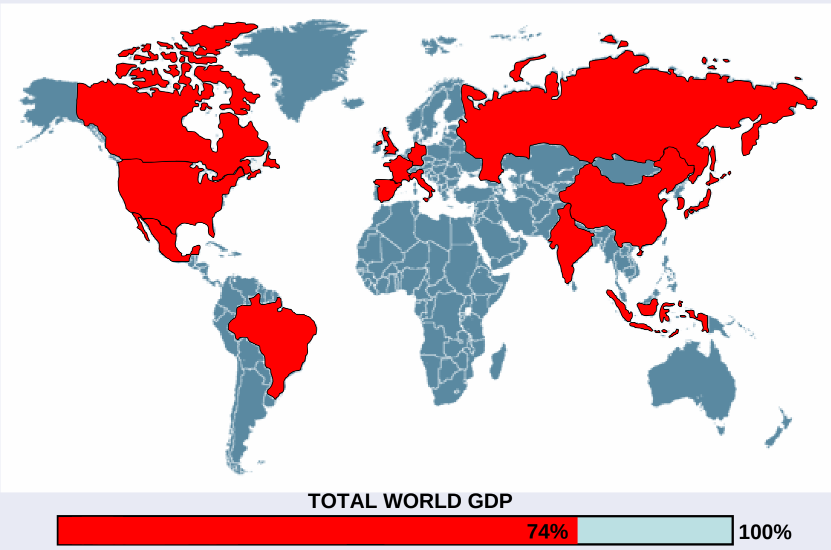
Following a discussion of the forecasts, speakers from different market sectors presented their views of the predicted gap in resources and the challenges that exist to ensure that adequate capacity will exist when required. In particular, suggestions were advanced on how the human resource pool could be improved.

Economic outlook – global and UK

Current and forecasted gross domestic product (GDP) and inflation levels around the world were described, setting the scene in relation to the UK forecasts.

The map below shows that the top 15 countries in the world for GDP growth today produce almost three-quarters of the world's GDP total. The UK GDP is not forecast to grow very much in relation to some countries, but as one of the world's top 15, its demands are far from insignificant.

Top 15 GDP countries today



In 2006 UK GDP was sixth highest in the world, and is forecast to increase for the period 2006–11 by 2.4%. The Bank of England anticipates consumer price inflation (CPI) to reduce from its current level of 2.7% to closer to the Treasury target of 2.0%, and is forecasting interest rates to fall in 2007.

…continued

trends to import labour are helping to reduce inflation in the UK, but in reality may be forcing other countries into higher inflation levels as they look to attract the labour they each require. 2005 saw the largest ever entry of foreign workers to the UK, totalling some 400,000. There were 1.51 million foreign migrants working in the UK in 2005, representing 5.4% of the employed population, with 45.3% of the foreign workforce living in Greater London. In the construction industry, labour inflation is forecast to stabilise with the help of migrant workers, although there are fears about the availability of skilled labour.

The general trends in the consumption of steel and copper between 2000–08 show that the UK faces increasing competition for certain commodities. For instance, global consumption for all construction metals has increased since 2000, with China alone accounting for 68% of the increased consumption of steel, growth that now appears to have peaked. China has also dominated consumption figures for copper, at 71% of the total.

The Construction Skills Network (CSN)

The CSN provides the most detailed analysis of the workflow and project type available for the construction industry. Experian run the model used to forecast the occupational skills requirement by region and sector over a five year period.

A number of different data sources are used in the model to provide a consensus view of skills and training needs of the construction industry. These include general UK economic data, construction industry and employment related data, and feedback from CSN stakeholders.

The seminar heard how construction output is now roughly tracking UK GDP, with about 2.6% annual average growth predicted over the next five years (higher in the East and South East of England, and Greater London). There will be steady growth in housing and non-residential building, particularly education, but despite an increase in projects, infrastructure output will be less in real terms in 2011 than it was in 1991.

Aggregating 25 employment occupations in the construction industry into four sectors – managers, construction professionals, tradespeople and others – demand in all four sectors is expected to grow substantially over the next five years, with an annual total requirement of over 87,000 new employees. Although most of them need to be tradespeople, the requirement for managers and construction professionals is significant – over 9,000 managers and 12,000 construction professionals each year. The long gestation period needed for some skills and the fact that ‘repair and maintenance’ accounts for 40%–45% of total construction activity will constrain resources for major projects.

Ways in which the construction industry could make up the shortfall include:

- Increase training levels by major investment in colleges, apprenticeships and on-site training programmes
- Make more use of ‘smarter’ construction – but this can move processes off-site and just transfer the problem elsewhere
- Make the industry more attractive to newcomers entering the job market or by attracting skilled workers currently employed in other areas
- Attract more people from overseas

Project mapping

This is a new tool being developed by the CSN to deliver better information to the construction industry. It is updated quarterly and shows project values, nationally, regionally, sub-regionally and by sector. By pinpointing current and planned major projects it enables the forecasting of capacity in terms of labour and materials supply.

Office of Government Commerce (OGC)

The OGC has introduced the ‘Kelly programme’, with the aim of improving key sectors of government procurement, including construction, by:

- Providing industry with clearer information about public sector demand
- Gaining a better understanding of markets
- Sharing market intelligence
- Responding to demands of the market

A senior stakeholder group considers the planned public sector construction programme and the impact it is likely to have on the industry resource capacity using a Public Sector Construction Demand Database (PSCDD) which analyses forward looking construction plans. Information from both public sector clients and suppliers is fed into an econometric model which will assess the impact of a project, whether it can be delivered on time, to budget, to quality and give value for money.

Such forecasts enable the level of investment to be decided and the information is disseminated to public sector stakeholders and industry.The model can also be used to assess the effect on resource capacity of projects not proceeding, commercial construction booms on public sector projects and the movement of migrant labour.

UK resource demand

Forecasted spending plans on construction were outlined:

1. Building sector (2007–11)
- Commercial offices: £11.5 billion
- Retail: £5.4 billion
- Schools programme: £7.2 billion
- Public health buildings: £7.6 billion
- Overall value of major residential schemes: £20.5 billion

2. Infrastructure:
- Power: 8–10 nuclear power stations costing £1.5 billion each with construction starting in 2009
- Transport: 10 year plan (2002–12) includes £22 billion on roads; £33 billion on rail; £51 billion on local transport
- Airports: £6.5 billion on the 3 London airports over the next 10 years
- Water: £15 billion and an operational expenditure of £12 billion between 2005–10

…continued

3. Olympics 2012:

The forecast spend of £3.2 billion between 2007–12 could escalate to £10 billion plus, effectively adding around 1.5%–2% to the workload in the South East region. The project will consume 300,000 tonnes of steel and 200,000 cubic metres of concrete – adding about 2.5% and 1% respectively to the UK demand.

4. Pressure on materials resources

With the construction sector set to expand by 3%–4% annually over the next five years, by 2011 the output will be 12.5% up on 2006, putting considerable pressure on materials suppliers. For instance, higher energy costs (particularly oil) will have a big impact on cement, bricks, blocks and blacktop production, whilst legislation can affect the supply and price of UK sourced materials in various ways:

- Aggregates tax forces up concrete prices
- Climate change levy affects all major manufacturers
- Working Time Directive affects the whole industry
- EU Emissions Trading Scheme affects major oil users
- Planning regulations impact on quarrying and may affect the supply of aggregates

The global materials market is forecast to have a value of $603.7 billion by 2010 – an increase of 27.5% from 2005, which presents a number of challenges. For instance, prices for cement are set to increase globally due to strong demand, increased transportation costs and high fuel and energy prices, whilst oil supplies, and materials such as copper which is sourced mainly from Zambia, are dependant on political stability.

However, construction materials supplies are probably safer now than at any time in the past because of global buying practices, ‘business to business’ (B2B) transactions and better procurement routes. Certainty of supply will be achieved through centralised buying, bulk purchasing and establishment of key suppliers.

The changing face of human resources

The British workforce has become much more diverse over the last 150 years and that flexibility has underpinned the economic success of the UK and the success of major projects. In 1901 almost as many women worked in domestic service as today work in the construction sector – 2 million women in domestic service in that year and 2.4 million people in the construction sector today.

The office has also changed: 2.5 million workers are physically based in their homes but connected to their company by modern technology. For a large international company the engineering drawing office is global: design is initiated in one place and work progresses on a 24-hour basis by being shifted around the world. If design talent cannot be found in one country it can be found in another and this directly affects the delivery of major projects.

Large organisations were traditionally located close to their service providers, but transport difficulties and high office rentals in and around city centres has resulted in companies outsourcing much of their off-site operation to give greater flexibility and reduce overheads.

…continued

Institute of Building (CIOB) survey in 2006 revealed that 77% of members had experienced significant problems in recruitment during the preceding 12 months. Prospective candidates either do not have the required skills or are not located in the right place, and industry becomes locked into mobile and migrant labour. In order to tap into the global market of 100 million graduates, much closer attention should be paid to branding: a recent survey revealed that only 10% of company web sites were attractive to graduates.

Areas of competence can be extended in various ways, for instance through access to online learning, or the opportunity to move around an organisation. It is vital that core skills are maintained – for instance project managers need refresher courses to avoid their skills becoming rusty.

Maximising existing resources

1. Set up a database to enable instant information about everyone on the payroll, where they are currently working, when they will finish a particular assignment and what their skills and competencies are.

2. Organisations should promote a culture that accepts change and encourages an attitude in which resources are not regarded as static. Roles within an organisation should be seen as staging posts in career moves on to higher things. It is important to identify promising individuals and make them known to the rest of the organisation.

3. A company must be proactive rather than reactive in terms of the employment packages offered to employees, and must be aware of how people are feeling about their job and keep them informed of opportunities.

4. Money and time should be invested in understanding the marketplace by rigorously recording and updating information about your market. Reputation, image and benefits are important in recruiting staff, but exciting work is really important and it is critical for a growing business to provide opportunities. Information kept in ‘black books’ should be shared around the organisation.

5. Pay attention to the fragile psychological bond that exists between the individuals and the company. Staff need to feel part of the business and be motivated to understand where they fit in, where they are going and that individual worth is recognised. For instance, when staff are seconded to a freestanding project or joint venture, management needs to be clear about where people’s loyalties lie: the company or the project.

The project management challenge

There is huge global demand for project management skills, not just in the construction industry, but in areas such as the voluntary sector, IT, defence, health, education.

What is driving the demand?

- Accelerating pace of change
- Greater focus on improving governance
- Increased fear of project failure
- Growing recognition of importance of professional competence
- More discriminating and demanding clients
- Larger and longer lasting projects
- Offshore activities and overseas demand

Arguably the demand is not simply in terms of numbers of project managers, but in the level of competency. This lack of competency results in poor performance and the non-materialisation of promised benefits. The biggest priority is to increase the professionalism and skill set of project managers in order to deliver projects more successfully. Project management is an activity which is only now beginning to be recognised as a profession, with the UK leading most other countries in the world.

Project management has to be made a much more attractive career to increase the flow of people into the discipline. This raises the question of whether companies should look to 'in-house' development of project management skills with clients and suppliers. Increasing numbers of companies are providing training facilities and sponsoring university students to encourage them to move into their businesses. Judging by membership of the Association for Project Management (APM) there is a particular gap in project managers in the younger age band (21-30).

The APM is actively:

- Pursuing chartered status for the APM and individual project managers
- Encouraging new entrants to the profession
- Ensuring appropriate ongoing knowledge and competence for all participants
- Enhancing the profile of the profession to become a 'career of choice'
- Supporting higher education institutions
- Taking project management into schools
- Collaborating with corporate institutions

Resource demand and the London 2012 Olympic Games

The 2012 Olympic Games is one of the largest UK projects in recent times and the Olympic Delivery Authority (ODA) finds itself in a race, not just for time, but for resources. It is charged not only with the delivery of the Olympics, but with the responsibility for leaving a legacy in terms of physical infrastructure and a trained and skilled workforce.

The workforce required for the Olympic Park, the Olympic Village and the adjoining retail development totals about 18,000 people. If transportation infrastructure and peripheral issues are included, the requirement will reach 20,000 at the peak of the programme, with a similar number engaged in off-site activities such as prefabrication. With growth in construction activity in London forecasted to increase by 6%–7% over the next few years, a potential lack of human resources represents a real and major challenge.

As a client, the ODA is reliant on the construction industry to deliver. The aim of the ODA is to be an attractive and responsible organisation, not only to its business partners in the supply chain, but to all those in the workforce. It aims to achieve this through, for example, high standards of health and safety, good employee facilities, and encouraging and contributing to education and training.

Conclusion

The overall message from the seminar was that within the major projects industry there is a scarcity of both human and physical resources.

Some useful points were made about the way in which use of existing human resources should be maximised, in particular making sure that for each individual there is a real sense of progression and career development, and that really competent people are given the task of managing others.

One very important question that came out of the day was whether it is possible to assess a total resource requirement for the UK economy and if so, who should be responsible for collecting the data.

Participating organisations

Arup
Association for Project Management
BAE SYSTEMS
BAE SYSTEMS, Air
BAE SYSTEMS, Submarines
Balfour Beatty plc
Bechtel Ltd
British Energy
British Telecommunications Plc
CITB
CJ Associates
Cross London Rail Links Ltd
Department for Transport
EC Harris LLP
EDF Energy
Experian Ltd
Franklin + Andrews
Henley Management College
John Laing Plc
KBR
KPMG LLP
Major Projects Association
Metronet Rail
Mott MacDonald Group Ltd
MTR Corporation
Network Rail Infrastructure Ltd
Office of Government Commerce
Olympic Delivery Authority
PA Consulting Group
Rolls-Royce plc
Said Business School
Siemens Business Services
The Nichols Group
Transport for London
Union Railways Ltd
Westfield Shoppingtowns Ltd