

Clyde Shipyards **Task Force Report**

January 2002



SCOTTISH EXECUTIVE



SCOTLAND OFFICE

dti

Department of Trade and Industry

Clyde Shipyards **Task Force Report**

January 2002

MINISTERIAL FOREWORD



WENDY ALEXANDER, MSP
MINISTER FOR ENTERPRISE,
TRANSPORT AND LIFELONG LEARNING



BRIAN WILSON, MP
MINISTER OF STATE,
INDUSTRY AND ENERGY



GEORGE FOULKES, MP
MINISTER OF STATE,
SCOTLAND OFFICE

This report shows how a collaborative approach can produce positive results. In July 2001, BAE SYSTEMS Marine, operator of the two remaining upper Clyde shipyards at Govan and Scotstoun, announced the redundancy of 1,000 workers. Talk then was not only of the devastation felt by the workforce, but also the potential impact on the local economy. Five months on, the number of redundancies has been more than halved and the Clyde is now well placed to win orders that will secure employment for many years to come.

Shipbuilding has changed radically over the years, not least naval shipbuilding. As a predominately naval builder, BAE SYSTEMS Marine operates in a highly competitive industry. The key to a company's success lies in its people - their skills, knowledge and abilities, how well these skills are used, and how well people are encouraged to learn continually.

But lifelong learning is not a concept that relates solely to individuals - companies also need to learn continually by looking at the 'best in class' for their sector and by understanding those systems, techniques and processes which support their people and ultimately help the company to succeed. That is why a study visit to Germany was undertaken by some of the task force members in October 2001 to compare work processes on the Clyde with those currently in use elsewhere. A number of valuable lessons were identified during the visit and have helped to shape the recommendations in this report.

BAE SYSTEMS Marine has developed a 10-year business strategy that will maximise the skills of its workforce and recognise the three shipyards of Govan, Scotstoun and Barrow as centres of excellence in their own right. This report endorses the company's strategy and its approach to addressing the challenges. But it goes further; it provides a clear direction and priorities for *all* partners in the task force - BAE SYSTEMS Marine, Trade Unions, Scottish Enterprise, Scottish Engineering, Glasgow City Council, Employment Service, Clydeport and, of course, the Scottish Executive, Scotland Office and DTI. *All* partners must be committed to turning recommendations into action if we are truly to work in partnership and realise our vision of a secure and successful shipbuilding industry on the upper Clyde.

Already a partnership approach has secured a significant order from the MoD for two Alternative Landing Ships Logistics to be built at the upper Clyde yards. This contract offers a substantial forward workload for the company and the workforce, and has helped to reduce, and prevent further, the number of redundancies. It also demonstrates the Government's continuing commitment to shipbuilding in the UK and the benefits to our Scottish yards.

We have much to do to ensure the future of an industry of which we feel rightly proud. That is why we will review our progress after six months and twelve months. We now have an opportunity to show the world once again that *Clydebuilt* means *well built*. Our task is to grasp that opportunity.

CONTENTS

Page

ACKNOWLEDGEMENTS

06

EXECUTIVE SUMMARY

07

CHAPTER 1: BACKGROUND AND CONTEXT

1.1	Background to task force	16
1.2	Membership and remit of task force	16
1.3	Remit of Strategy sub-group	18
1.4	Remit of Skills sub-group	18
1.5	Remit of Community Regeneration and Land Use sub-group	19
1.6	Remit of Redundancy Management sub-group	19
1.7	Scope of report	20

CHAPTER 2: STRATEGY

2.1	Introduction	22
2.2	Industry overview	22
2.3	Changing procurement environment	27
2.4	Markets	30
2.5	Learning from the visit to the German industry	34
2.6	BAE SYSTEMS Marine strategy	38
2.7	Critical future risks for the Clyde yards	47
2.8	Government assistance	48
2.9	Conclusions and recommendations	50

CHAPTER 3: SKILLS

3.1	Introduction	56
3.2	Learning and development in BAE SYSTEMS Marine	56
3.3	Issues affecting the skills supply	58
3.4	The range of trades and skills available	59
3.5	Skills for the future	61
3.6	Conclusions and recommendations	64

CONTENTS

Page

CHAPTER 4: COMMUNITY REGENERATION AND LAND USE

4.1	Introduction	68
4.2	Context	68
4.3	Upper Clyde regeneration zone	69
4.4	The Scotstoun shipyard	70
4.5	The Govan shipyard	71
4.6	The shipbuilding communities	72
4.7	Other opportunities	76
4.8	Conclusions and recommendations	77

CHAPTER 5: REDUNDANCY MANAGEMENT

5.1	Introduction	80
5.2	The PACE Initiative	80
5.3	Service provision	81
5.4	Resettlement targets and performance monitoring	84
5.5	Issues	85
5.6	Conclusions and recommendations	88

CHAPTER 6: CONCLUSIONS 90**APPENDIX: SUB-GROUP MEMBERS** 91**ABBREVIATIONS** 92**BIBLIOGRAPHY** 93

ACKNOWLEDGEMENTS

In addition to the 25 members of the Clyde Shipyards Task Force, a large number of people have assisted in the process of preparing the report. We would like to thank the following for their contributions:

Jacqui Bowcock	BAE SYSTEMS Marine
Dr Graham Butt	Mecklenburg-Vorpommern State Ministry of Economics
Brian Caine	BAE SYSTEMS Marine
Charles Draper & colleagues	MoD
Suzanne Hamilton	Frontline Consultants
Huw James	BAE SYSTEMS Marine
Juergen Kennemann	Aker MTW Shipyard, Germany
Don Logan	BAE SYSTEMS Marine
Sandra McConnell	BAE SYSTEMS Marine
Julie McDonald	BAE SYSTEMS Marine
Juergen Meyer	German Federal Ministry of Economics and Technology
Alex Mosson	Lord Provost of Glasgow
David Murray	BAE SYSTEMS Marine
Herbert von Nitsch	Blohm+Voss Shipyard, Germany
Mick O'Connor	BAE SYSTEMS Marine
Dr Andreas Schuseil	German Federal Ministry of Economics and Technology
Richard Scott	Janes
Tony Simpson	BAE SYSTEMS Marine
Hugh Toner	Glasgow City Council
Brian Whitfield	BAE SYSTEMS Marine

... and all MPs, MSPs and Councillors who contributed ideas and comments to the task force.

EXECUTIVE SUMMARY

Introduction

Over most of the past century, the River Clyde has earned a reputation as the world's leading centre of shipbuilding. Great ships were launched from Clyde slipways and many thousands were employed in a workforce that revelled in the knowledge that their skills and toil provided some of the world's most beautiful ships. Clydebuilt was the hallmark of naval and maritime excellence.

However, towards the end of the century, the shipbuilding industry in the UK went into serious decline and the shipyards on the upper Clyde in Glasgow were reduced to two – at Govan and Scotstoun.

The two yards are now operated by BAE SYSTEMS and form an integral part of the BAE SYSTEMS Marine three yards strategy, which seeks to make its workforce more competitive in order to win more contracts in a changing and declining market. In July 2001, BAE SYSTEMS announced the compulsory redundancy of 1,000 workers in order to bring its River Clyde workforce to a base figure of around 2,000.

The main elements of the BAE SYSTEMS Marine strategy include:

- Managing the three yards as one business;
- Rationalising the scale of activity in employee numbers;
- Undertaking a programme of demolition to cut overhead costs and to implement an associated programme of investment;
- Identifying Govan as a steelwork centre of excellence;
- Identifying Scotstoun as a centre of excellence for exporting, outfitting and designing, and launching the first Type 45 destroyer; and
- Identifying Barrow as a centre of excellence for nuclear submarine and Type 45 assembly.

Immediately following the BAE SYSTEMS announcement, the Minister for Enterprise, Transport and Lifelong Learning, Wendy Alexander MSP, responded by establishing the Clyde Shipyards Task Force, which she chaired.

Other members included George Foulkes MP, Minister of State at the Scotland Office, and Brian Wilson, Minister of State, Industry and Energy. BAE SYSTEMS, Clydeport, the Department of Trade and Industry, the Employment Service, Glasgow City Council, Scottish Engineering, Scottish Enterprise Glasgow, the Scottish Executive, and the appropriate trades union representatives also participated.

An early task was to disaggregate the work of the task force into four workstreams which considered:

- How robust was the three yards strategy of BAE SYSTEMS?
- What changes in the skills mix of the workforce would be necessary to meet the challenges of the future?
- How might local communities be affected and what might be done to improve the built environment and to offer support? and
- What might be done to reduce the numbers made redundant compulsorily, and how might any who find themselves unemployed be assisted back into work or training?

The Strategy

It is not immediately obvious that a profitable and competitive way for BAE SYSTEMS to build a ship is to form the steelwork in Govan, fit-out in Scotstoun and float the ship to Barrow for assembly. The task force wrestled with this approach but acknowledges that there is no financial or technical reason why it would not work. It accepts that other, foreign yards have adopted this method of building ships. The task force accepts that the proposed completion of sections on the Clyde yards will increase from the current 35% to 80% of outfitting work, providing more labour hours and skilled work on sections on the Clyde before they are moved to Barrow.

Shipbuilding is changing. There are a number of factors driving a reshaping of the industry, including a decrease in procurement and an increase in the technical specification of defence systems. Fewer ships are now being ordered by governments, and much greater attention is being given to value for taxpayers' money, but the MoD now has the largest warship programme for many years. There is also an increase in competition. In the 1950s, only ten countries could build major warships. Now there are 38. Within the UK, merchant shipping has declined to the extent that warships and auxiliary construction is now the only major market for the UK industry.

BAE SYSTEMS Marine is predominately a warship builder. The MoD spends around £1 billion per annum on this area of defence equipment. The MoD applies smart acquisition, which seeks to ensure value-for-money by a variety of techniques, including greater industrial participation in planning, and appropriate mixes of prime contractorship, competition and partnering as appropriate to the circumstances. One of their aims in deciding on acquisition solutions for particular programmes is to ensure the maintenance of an efficient and capable supplier base, including appropriate design capabilities, for future acquisitions. It is also Government policy that new warship hull construction should be undertaken in the UK. There may be opportunities to increase the emphasis on the importance of sustaining the high value added design and systems work for the UK industry.

Currently, the Govan, Scotstoun and Barrow yards employ approximately 80% of the UK's warship design, build and integration skills base. However, given BAE SYSTEMS Marine's current business strategy, the success of this nationally important business is almost completely dependent upon continued success in winning warship design and build contracts.

Within this context, the task force's view is that the BAE SYSTEMS strategy is coherent and robust. However this view is predicated upon a number of assumptions. Essentially, the company must strive to win further export orders, win a significant element of the aircraft carrier design and build role, and the MoD's programme should be met.

Skills

The task force is firmly of the view that, in order to be successful, BAE SYSTEMS must reappraise its current and future skills requirements on an iterative basis. In this regard, it views the work of the company as making useful progress.

BAE SYSTEMS will face increasing competition for new recruits, and the image and attractiveness of the shipbuilding industry and BAE SYSTEMS as an employer will be critical in developing and maintaining an appropriate flow of young people into the industry. The experience of the German shipbuilding industry holds lessons for us in this area.

The task force concluded from the comprehensive Training Needs Analysis that, while there are certain occupations at risk, there are opportunities for redeployment. There is also concern that skills shortages will become evident in the medium term since 20% of the current Clyde workforce is over 56 years old.

One way of addressing this, in addition to working to retain key skills within the existing workforce, is to develop cross-skilling. This should be enhanced within a culture of continuous learning. The performance of managers is key to success and attention should be paid to their development.

The task force considers it is essential for the stability of the workforce to continue to secure flexibility agreements in order to avoid the debilitating effects of a hire-and-fire approach, the over-use of temporary labour, and low productivity levels. Again, the company and its workforce are to be commended on progress here. Significant advances have already been achieved in cross-skilling and flexibility, and advantages seem likely to be accrued from a new approach to the systematised integrated design of products (Concurrent Engineering).

A build strategy that utilises the philosophy of Concurrent Engineering and integrated product development, when allied with cross-skilling, will be more likely to maintain the competitiveness of the Clyde yards and alleviate the fluctuating demand for skills inherent in the shipbuilding processes of the past.

Community Regeneration and Land Use

The Govan and Scotstoun yards, together with the King George V dock, are the last examples of the working industrial heritage of the upper Clyde in Glasgow.

Around them on either bank of the Clyde are shipbuilding communities whose built environment has been blighted over decades by the decline of the yards.

The task force is of the view that, within the context of the Structure Plan and the City Plan, opportunities to regenerate important sites and properties located around the yards should not be overlooked.

The task force defines the area between the north bank by the Clyde Tunnel in the east and the Glasgow boundary in the west. On the south bank, the areas affected run from the Govan graving docks upriver to the Thales site downriver.

There are several major developments and development proposals on the stocks for the upper Clyde. These include: the digital media campus at Pacific Quay with proposals for 200,000 square metres of commercial space; Braehead, which straddles the Glasgow/Renfrew boundary and which has already created 3,500 jobs and proposes a further 9,500 jobs in retail, leisure and commercial space; the financial services district of Broomielaw; and Glasgow Harbour, a major development of housing, commerce, leisure and retail.

These developments are key to unlocking the true value of the Clyde corridor and each has the potential to bring traffic to the river itself. In recognising the national significance of the river and the need to establish the Clyde corridor as a metropolitan area, there is an urgent requirement to review the transport infrastructure surrounding the upper Clyde. Transport issues include motorway and expressway access, arterial road improvements, light passenger transport alternatives such as guided bus systems and integrated rail links. An integrated transport system will provide much greater opportunities to the shipyard community on both banks of the river.

A number of development opportunity sites have been identified within the shipyards themselves, as well as within the north and south bank zones described earlier. In addition, a few major properties have been listed as being possessed of characteristics which render them suitable for public and private investment in support of the shipbuilding communities.

The task force is aware of an emerging, wider study on the development of the River Clyde corridor. These community regeneration and land use proposals form an input to this work as it affects the upper reaches of the River Clyde within Glasgow.

Redundancy Management

BAE SYSTEMS announced a reduction of their workforce by just over 1,000 in July 2001. This prompted the establishment of the task force and presented the company and its recognised trade unions with the challenge of reducing this number as far as possible, whilst acknowledging the necessity of the company to achieve competitiveness.

The task force acknowledges the responsible way in which negotiations have taken place. It commends the work of each party both in reducing the overall number of compulsory redundancies to approximately 450 at the time of writing and notes that discussions are ongoing.

The task force has established a support mechanism in each yard that involves the Glasgow PACE (Partnership Action for Continuing Employment) team, the Employment Service, Govan Initiative's REACT (Redundancy and Employment Action Team) and Coutts Consulting Group.

Both Clyde yards now have a dedicated Employee Support Centre which provides customised services to any BAE SYSTEMS employee likely to be made, or actually made, redundant. In addition, it makes available an employee call centre helpline, briefing sessions, information packs and a range of other support services.

The contract with Coutts seeks to secure employment or training for 50% of those made redundant within three months, 75% within six months, and to ensure that 95% of those using the services would recommend its use to others.

The task force regrets BAE SYSTEMS' initial decision to make 1,000 of its workforce redundant. The company takes the view that redundancies are required for it to remain competitive. The company will only remain competitive if its workforce is motivated and skilled. We believe that BAE SYSTEMS and its workforce are to be commended on progress made.

For those made redundant, every effort must and will be made to accommodate them in jobs or training.

SUMMARY OF RECOMMENDATIONS

Strategy	Responsibility	Paragraph reference
1 UK Government shipbuilding policy should be restated.	DTI, MoD	2.9.14
2 The creation of a Maritime Industry Co-ordinator should be considered.	DTI	2.9.15
3 The Scottish Executive and DTI should actively encourage Scotland's remaining shipbuilding business to evaluate the potential for collaborative ways of working across the UK industry.	Scottish Executive, DTI	2.9.6
4 The Scottish Executive and Scotland Office should continue to support a positive resolution of the current uncertainty on Shipbuilders' Relief for export warships.	Scottish Executive	2.9.7
5 In addition to current Government activity, every appropriate opportunity should be taken to include Scotland Office Ministers in promoting Clydeside's case in securing new export orders.	Scotland Office	2.9.8
6 The Government should consider whether there are lessons to be learnt from other industrial sectors in the promotion of exports where there are competing bidders.	DTI, MoD	2.9.9 2.9.10
7 The DTI should continue to engage with the MoD to consider the industrial implications of procurement strategies.	DTI, MoD	2.9.12
8 The Government should continue to take account of the detailed industrial implications of its procurement decisions for naval shipbuilding, including design and integration capabilities.	MoD	2.9.12
9 As the specification for replacement vessels for the Royal Fleet Auxiliary becomes clear, early clarification on their designation as warships would be welcomed.	MoD	2.9.13
10 The current high level of support from the most senior Scottish and UK Government Ministers for the industry should continue.	Scottish and UK Governments	2.9.17
11 The Scottish Executive should carry out an audit of the high value added activities within the shipbuilding industries in order to position them within the appropriate context of its industrial policy.	Scottish Executive	2.9.4
12 The Scottish Executive should assess the potential of offset as an export development opportunity for appropriate Scottish companies.	Scottish Executive	2.9.18
13 The Scottish Executive should assess and evaluate related opportunities for Scotland's knowledge based industrial development, including wave energy generation and remotely operated vehicles (ROVs).	Scottish Executive	2.9.19
14 The Scottish Executive and the DTI should consider mechanisms for promoting the prospects for this industry as an appropriate route for investment and career development.	Scottish Executive, DTI	2.9.5
15 BAE SYSTEMS Marine should continue to pursue commercial work where this is compatible with warship capacity demands and a sound business case can be made.	BAE SYSTEMS Marine	2.9.20

SUMMARY OF RECOMMENDATIONS

Skills	Responsibility	Paragraph reference
16 BAE SYSTEMS Marine should develop a relationship with Careers Scotland, Glasgow City Council Education Directorate's Going to Work in Glasgow campaign and the Scottish Executive's Make it in Scotland campaign to continue to attract young people as modern apprentices.	BAE SYSTEMS, Careers Scotland, GCC, Scottish Executive	3.6.2
17 The company should work in partnership with the trade unions to create a network of learning representatives who would be able to give information, advice and guidance on learning and development opportunities.	BAE SYSTEMS	3.6.4
18 The company should set up a learning centre in the Govan yard, as already exists in Scotstoun, to ensure easier access for the Clydeside workforce.	BAE SYSTEMS	3.6.5
19 Further roll-out of the development of cross-skilling in support of the introduction of concurrent working is necessary. Further development of the training needs analysis will also be required.	BAE SYSTEMS	3.6.6
20 BAE SYSTEMS Marine should continue to exploit e-learning developments.	BAE SYSTEMS	3.6.7
21 Externally certificated qualifications should be used, so that the company can be certain of the full extent of employee capabilities.	BAE SYSTEMS	3.6.8
22 The reappraisal of the relationship between the build strategy and skills requires further investigation of how concurrent working may be implemented. The 6 Sigma pilot should be applied to all areas of the build strategy. The philosophy and principles of the core skills embedded in apprenticeships will be required to introduce successful concurrent working.	BAE SYSTEMS	3.6.9 3.6.10

SUMMARY OF RECOMMENDATIONS

Community Regeneration and Land Use

	Responsibility reference	Paragraph
23 Significant investment should be made in the Scotstoun and Govan areas to improve the economic performance of and facilities for the communities.	Scottish Enterprise Glasgow, Scottish Enterprise, GCC, Scottish Executive, etc	4.8.1
24 Funding should be secured as early as possible for the high priority projects listed in table 4.1 to facilitate the regeneration process.	Scottish Enterprise Glasgow, Scottish Enterprise, GCC, Scottish Executive, etc	4.8.1
25 These opportunities and initiatives should be considered by the emerging Clyde working group chaired by Scottish Enterprise and it should be invited to take matters forward with energy and commitment.	Scottish Enterprise	4.8.2
26 Progress on these opportunities and initiatives should be monitored and reported to the Minister for Enterprise, Transport and Lifelong Learning.	Scottish Executive	4.8.2

Redundancy Management

27 Scottish Enterprise should develop appropriate short term 'conversion' training programmes for mature workers seeking to skill-up in order to take advantage of opportunities in growth industries, particularly in the oil and gas industry and in gas central heating installation.	Scottish Enterprise	5.6.2
28 Scottish Enterprise should fund a short-term training and employment subsidy programme to encourage employers to recruit and retrain redundant shipyard workers six months after redundancy.	Scottish Enterprise	5.6.2

Monitoring

29 The Clyde Shipyards Task Force should reconvene in June and December 2002 to monitor implementation and to ensure that progress has been made on the recommendations above.	Scottish Executive	6.5
--	--------------------	-----

CHAPTER 1: **BACKGROUND AND CONTEXT**

1.1	Background to task force	16
1.2	Membership and remit of task force	16
1.3	Remit of Strategy sub-group	18
1.4	Remit of Skills sub-group	18
1.5	Remit of Community Regeneration and Land Use sub-group	19
1.6	Remit of Redundancy Management sub-group	19
1.7	Scope of report	20

CHAPTER 1: BACKGROUND AND CONTEXT

1.1 BACKGROUND TO TASK FORCE

- 1.1.1 The Minister for Enterprise and Lifelong Learning, Wendy Alexander MSP, convened a preliminary meeting of the Clyde Shipyards Task Force in July 2001 following BAE SYSTEMS' announcement of 1,000 redundancies at the Govan and Scotstoun yards on the River Clyde. The first formal meeting of the task force was held in August with four further monthly meetings up until December 2001.

1.2 MEMBERSHIP AND REMIT OF TASK FORCE

- 1.2.1 Wendy Alexander chaired the task force. Membership also comprised the following:

George Foulkes MP	Minister of State, Scotland Office
Brian Wilson MP	Minister of State, Industry and Energy
Gordon Jackson MSP	Scottish Parliamentary Shipbuilding Group
Simon Kirby	BAE SYSTEMS Marine
Sam Cameron	BAE SYSTEMS Marine
Martin Arter	BAE SYSTEMS Marine
Susan Binnersley	BAE SYSTEMS Marine
Tom Allison	Clydeport
Jim Moohan	CSEU Scotland, also GMB
Danny Carrigan	CSEU Scotland, also AEEU
Norman Brice	DTI
Anne Smith	Employment Service
Steve Inch	Glasgow City Council
Malcolm Smith	Scotland Office
Peter Hughes	Scottish Engineering
Ron Culley	Scottish Enterprise Glasgow
Stephanie Young	Scottish Enterprise Glasgow
Stuart Patrick	Scottish Enterprise Glasgow
Peter Reilly	Scottish Enterprise Glasgow
David Stewart	Scottish Executive
Claire Woodward-Nutt	Scottish Executive
Alexandra Stein	Scottish Executive
Tracey White	STUC
Jamie Webster	Union Convenor, Govan
John Dolan	Union Convenor, Scotstoun

- 1.2.2 The remit of the task force was agreed at the preliminary meeting in July. The remit was modified in August to incorporate community regeneration and land use issues as follows:

To consider the immediate and longer term strategic issues facing the Clyde shipbuilding industry, particularly naval, and to identify the changes necessary to ensure a competitive industry to exploit future opportunities. The task force's work will build on earlier reports prepared on behalf of the DTI and Scottish Enterprise.

1.2.3 This included the following objectives:

- *To quantify the range of trades and skills available in the Clyde shipyards;*
- *To identify any mismatch between trades / skills and market opportunities;*
- *To predict the nature, level and phasing of further opportunities for naval shipbuilding (and related industries requiring similar skills) over the next 10 years or more, with reference to earlier studies ;*
- *To consider the implications of the above in the form of appropriate responses and actions, especially the need for training, with reference to responsible agencies and timescales;*
- *To provide strategic direction for the work of the existing local PACE team in its response to the expected redundancies from the Clyde shipyards and to assist the team in identifying appropriate responses. This will include identification of training needs for those leaving employment and appropriate implementation mechanisms;*
- *To consider the implications of the strategy for the shipbuilding communities of Govan and Scotstoun including the wider land use and community regeneration issues; and*
- *To prepare a report for Ministers by December 2001 setting out a recommended plan of action.*

1.2.4 While the main task force met on a monthly basis to provide direction, Ron Culley managed the work programme through four small sub-groups. (Members of each sub-group are listed in the Appendix.) Each sub-group was chaired by a different member of the task force. The chairs of each sub-group reported on progress at every monthly task force meeting. The issues considered by each sub-group are reflected in discrete chapters in this report.

¹ Prospects for the UK Merchant Shipbuilding Industry report for Department of Trade and Industry Engineering Industries Directorate, July 2000, Appledore International / University of Newcastle upon Tyne, and Marine Engineering, Technologies and Services Cluster Analysis report for Scottish Enterprise, June 2000, Frontline Management Consultants and Ron Botham Associates.

1.3 REMIT OF STRATEGY SUB-GROUP

1.3.1 The elements of the overall task force remit relevant to the Strategy sub-group, chaired by Stuart Patrick, were as follows:

- *To predict the nature, level and phasing of future opportunities for naval shipbuilding over the next ten years or more with reference to earlier studies;*
- *To consider the implications of the above in the form of appropriate responses and actions; and*
- *To contribute to a report for Scottish Ministers by December 2001 setting out a recommended plan of action.*

1.3.2 To pursue these tasks, the Strategy sub-group had the following sub-objectives:

- *To review the implications of the current BAE SYSTEMS strategy for the upper Clyde yards at Scotstoun and Govan over at least the next ten years;*
- *To draw out and develop the implications for the upper Clyde yards from earlier studies;*
- *To review the future global market prospects for naval shipbuilding orders and consider the implications for the upper Clyde yards; and*
- *To contribute to a report to the task force identifying actions to provide support in securing the future for the upper Clyde yards.*

1.4 REMIT OF SKILLS SUB-GROUP

1.4.1 The key elements of the overall remit relevant to the Skills sub-group, chaired by Stephanie Young, were as follows:

- *To quantify the range of trades and skills available in the upper Clyde shipyards;*
- *To identify any mismatch between trades/skills and market opportunities; and*
- *To contribute to a report for Scottish Ministers by December 2001 setting out a recommended plan of action.*

1.4.2 In pursuing the elements of the above remit, the Skills sub-group intended to:

- *Quantify the range of trade and skills available;*
- *Outline the skill requirements arising from the BAE SYSTEMS' strategy for the upper Clyde yards;*
- *Outline the skill requirements arising from the recommendations of the sub-group looking at the strategy for the upper Clyde shipyards;*
- *Identify issues affecting the supply of skills over the next 10 years; and*
- *Recommend how the skill requirements may be met.*

1.5 REMIT OF COMMUNITY REGENERATION AND LAND USE SUB-GROUP

1.5.1 The Community Regeneration and Land Use sub-group, chaired by Peter Reilly, was the last of the four sub-groups to be set up following the meeting in August. Its element of the remit was:

- *To consider the implications of the strategy for the shipbuilding communities of Govan and Scotstoun, including the wider land use and community regeneration issues.*

1.5.2 To this end, the sub-objectives of the Community Regeneration sub-group were:

- *To prepare a masterplan covering the Govan and Scotstoun areas of Glasgow showing current land usage and areas of potential development;*
- *To look at the future in-house needs of the shipyards in terms of land use and to make recommendations regarding any future development of land which may become vacant;*
- *To consider the opportunities to develop land in such a way as to attract new industries, existing suppliers and social amenities;*
- *To consider the environmental and sustainable development needs of the area and to recommend early action;*
- *To make proposals for funding initiatives to enable or accelerate developments; and*
- *To identify and develop initiatives to address any pertinent social justice issues and enhance community economic development within the two areas.*

1.6 REMIT OF REDUNDANCY MANAGEMENT SUB-GROUP

1.6.1 The Redundancy Management sub-group, chaired by Steve Inch, looked to shorter term needs as a result of the redundancies announced by the company. Its remit was to bring forward and implement, if necessary, a comprehensive series of measures designed to assist workers threatened with redundancy to move into alternative employment or training either prior to, or as close as possible to, the point of redundancy.

1.6.2 The sub-group operated within the framework established by the PACE (Partnership Action for Continuing Employment) initiative. It utilised the considerable redundancy management experience of the Glasgow REACT team and Employment Service to ensure that the full range of services were made available to members of the BAE SYSTEMS workforce. The main services intended to be provided included:

- *Vocational guidance interviews to establish possible career change or development options;*
- *Personal development programmes;*
- *Job seeking skills workshops;*
- *Access to financial/welfare benefit advice;*
- *Facilitated entry to Employment Service Programme Centres which offer advice on CV preparation, interview techniques etc;*
- *Facilitated entry to the Work Trial initiative;*
- *Access to the Job Transition Scheme Action Fund which can support individuals towards sustainable outcomes;*
- *Access to national and local training programmes; and*
- *Direct approaches to local employers known to be recruiting.*

1.7 SCOPE OF REPORT

1.7.1 This report is set out in chapters covering each of the four workstreams as described above. Each chapter covers the conclusions and recommendations considered by each of the sub-groups and reported to the task force.

CHAPTER 2: **STRATEGY**

2.1	Introduction	22
2.2	Industry overview	22
2.3	Changing procurement environment	27
2.4	Markets	30
2.5	Learning from the visit to the German industry	34
2.6	BAE SYSTEMS Marine strategy	38
2.7	Critical future risks for the Clyde yards	47
2.8	Government assistance	48
2.9	Conclusions and recommendations	50



CHAPTER 2: STRATEGY

2.1 INTRODUCTION

- 2.1.1 This chapter sets out the findings and conclusions of the Clyde Shipyards Task Force Strategy sub-group. The sub-group work programme included:
- Desk research from a wide range of journals, official publications and the internet sources;
 - Presentation of papers by the Defence Procurement Agency (DPA) and the Department of Trade and Industry (DTI);
 - Consultation with the Defence Export Services Organisation (DESO), the Defence Manufacturers' Association (DMA) and Janes;
 - Review of the BAE SYSTEMS Marine strategy comprising:
 - Presentations by BAE SYSTEMS Marine personnel;
 - Visits to the Clyde and Barrow Shipyards;
 - A visit to German shipyards and Government departments as providing a successful naval export industry benchmark.
- 2.1.2 A few members of the sub-group were, under the terms of a confidentiality agreement, given access to detailed BAE SYSTEMS Marine information considered commercially confidential. This material related to details of export contracts currently under negotiation and BAE SYSTEMS Marine's proposed strategy for building the future aircraft carriers.

2.2 INDUSTRY OVERVIEW

- 2.2.1 This section reviews the factors driving change in the defence industry. These factors define the context for market demand and the changing shape of the industry in which the BAE SYSTEMS Clyde yards must compete.

Factors driving demand

- 2.2.2 Two main drivers in the defence environment have triggered a significant reshaping of the industry across the globe. The first is financial, as post-cold war reductions in defence expenditure have decreased equipment procurement in land, aircraft and sea systems. However, whilst this general point is true, it is worth noting that as far as orders for the Royal Navy are concerned, the current programme of new ships is the largest for very many years.
- 2.2.3 The second driver is technological and is described in the 1998 Strategic Defence Review (SDR) as the 'Revolution in Military Affairs'. This reflects the increasing use of information technology in defence systems in:
- Sensors for intelligence, surveillance and reconnaissance;
 - Command, control, communication and computing systems; and
 - The use of long range precision weapons, e.g. cruise missiles steered by signals from global positioning systems.

- 2.2.4 These new technologies increase the capabilities and effectiveness of a modern warship, which is a major issue for customers such as the MoD. For shipbuilders, technology has markedly changed the engineering and systems complexity of a warship, and this is reflected in the portfolio of technical skills now employed.
- 2.2.5 In post-cold war defence, financial and technological drivers combine to produce:
- Lower numbers of, for example, ships or aircraft ordered by governments;
 - Higher purchase costs per unit since the increasing research and development costs must be written off over fewer ships;
 - Increasing levels of complexity in engineering and systems design as additional capability is specified by the end user; and
 - Recognition of a 'through life' cost in terms of the operating and upgrading expenses of the vessel to keep it in line with the significant technological improvements that will occur over its 20-25 year life.
- 2.2.6 Given the context of falling defence budgets (although the UK's defence budget will increase in real terms by about 1% between 2000/01 and 2003/04), the rising cost of warships has intensified the drive for value for the taxpayers' money. This has resulted in new procurement processes designed to drive up effectiveness and innovation, as well as push down costs.

Global industry consolidation

- 2.2.7 These pressures have resulted in a process of major change and consolidation in the European and USA defence industries. Large-scale mergers and takeovers have produced a small number of global companies, including BAE SYSTEMS, that have the technical and financial capability to deliver major new defence systems. Companies not in the consolidation process have adopted alternative strategies, including specialisation on narrow product ranges, diversification into civil work or exiting defence markets.
- 2.2.8 This process of consolidation is relevant to the Clyde since BAE SYSTEMS has been an aggressive player, establishing itself as one of the world's largest defence companies in terms of both scale and technological capability. On a global scale, it now competes with a small number of companies. These include Boeing, Lockheed Martin, Raytheon and Thales (formerly Thomson-CSF). All of these are capable of functioning as the prime contracting organisations (PCO) for multi-billion pound defence contracts.

Competition and capacity

- 2.2.9 In the early 1950s, only ten countries could new-build major warships. By 1985, that number had increased to 38 as governments sought to reduce dependence on imports and use warship manufacture in industrial development strategies to build higher added-value products. This trend both reduced the number of potential export markets for the UK warships and increased the number of competitors.

2.2.10 The overall decline in warship orders must also be seen in the context of the poor competitiveness and decline of UK and European merchant shipbuilding, notably in the face of aggressive pricing practices in the Far East, especially in Korea. A combination of these factors has produced significant overcapacity in shipbuilding. Industry observers estimate this at around 30% across the globe. Within the UK, merchant shipbuilding has declined to the extent that warship and naval auxiliary construction is the only major market for the UK industry.

2.2.11 Over-capacity is not only a UK issue. Other countries have adopted a number of different strategies. Some examples from the United States illustrate this:

- **BIW** - consolidation and new investment:
 - 1995 shipyard bought by General Dynamics;
 - 1996 investment of \$200m;
 - builds destroyers, frigates and military transport ships.
- **Ingalls** - exports and increasing merchant work:
 - builds destroyers, cruisers and assault ships;
 - builds export warships for Israel and Venezuela;
 - builds large cruise liners for US customers.
- **Electric Boat Company** - specialisation and contraction:
 - builds nuclear submarines for the US navy;
 - at the peak of the Cold War employed 25,000, now 7,500.

2.2.12 Several other countries face comparable issues including:

- **Australia**, which is addressing the major political dilemma of closing one of its two naval shipyards with the potential for major job losses in an area already suffering economic decline;
- **Germany**, where warship builders have formed consortia, one for frigates and one for submarines, to compete more effectively in the export markets. The main German submarine builder, HDW, has also formed joint ventures with other European shipbuilders and has recently purchased a shipyard in Greece in which it will complete an order for the Greek navy; and
- **France**, which is facing a one-third decrease in the French fleet between 1988 and 2015. Warship builders face a significant procurement challenge, given that 90% of naval vessels are built in the state-owned DCN shipyard.

2.2.13 The reduction in domestic fleet requirements has increased the relative significance of winning export orders for all warship builders. Exports offer important benefits by providing:

- Additional work throughput that retains the workforce and utilises existing equipment;
- A contribution to fixed overhead costs that can therefore be allocated more widely, which enables more competitive pricing;
- Work for design teams that may otherwise have to be significantly reduced or disbanded, thereby seriously damaging the shipbuilder's competitive capability; and
- 'Through life' support opportunities on existing products, including upgrades of equipment.

- 2.2.14 In addition to direct shipbuilding work, export sales can leverage revenue from combat, communications and sensor systems and subsystems. These can be of higher value than the basic ship cost.

Transnational collaboration

- 2.2.15 In the aerospace and defence electronics sectors, the very high costs of design and development have led to an increasing number of multi-national collaborative projects. Examples include Anglo, French, German and Italian collaboration on a range of aircraft, helicopter, missile and other weapons systems projects.
- 2.2.16 This trend has been less significant in warships, where there have been fewer projects. Those projects which have proceeded have tended to encounter problems. The UK, France and Italy established the Horizon frigate project that ran from 1994-1999, with an initial projection of building 22 vessels; four for France, six for Italy and 12 for the UK. Difficulties included agreements on work share and the technical problems of servicing three different sets of operational requirements from within one design. In 1999, the UK left the project and proceeded with the development work that ultimately emerged as the Type 45 destroyer ordered in 2000. All three countries continued to collaborate on the principal anti-aircraft missile system which will be fitted to the Type 45.
- 2.2.17 While it is not expected that any of the MoD's short-term requirements will be met by multi-national programmes, it is possible that this may be a feature of long-term future programmes. The position of BAE SYSTEMS as a global prime contracting organisation (PCO) may be of benefit to the UK in such collaborations.

Technology transfer

- 2.2.18 Many countries view the shipbuilding industry as an important step in their industrial development. To help accelerate that development, an increasing number of export contracts are sold on the basis of purchasing the design and build of the first ship by the vendor, with second and subsequent ships built in a partner shipyard in the buyer's home country. The vendor is expected to provide technical support to the partner shipyard that will include training and transfer of production techniques and technologies.
- 2.2.19 In real terms, this means that the buyer is transferring significant numbers of assembly work hours into their economy. Examples include:
- **DCN, France** - 3 submarines to Pakistan. 1st built in Cherbourg, 2nd built partly in Cherbourg, 3rd built completely in Karachi;
 - **DCN, France** - 6 frigates to Singapore, 1st designed and built in France, remaining 5 built by Singapore Technologies (Marine);
 - **HDW, Germany** - 3 submarines to Greece, 1st built in Kiel, remaining 2 built in Hellenic Shipyards with a licence to build for other customers; and
 - **Blohm & Voss, Germany** - various frigates to both Greece and Turkey. 1st built in Hamburg with subsequent ships built in-country.

- 2.2.20 This process has important consequences for BAE SYSTEMS, BAE SYSTEMS Marine and their competitor prime contractors as they have to identify competitive advantages for themselves in selling to markets which remain open or need a partnership to establish an industry. A second trend sees new competitors, for example Singapore, emerging rapidly as they progress from basic to more advanced warship and defence systems manufacture. The Singapore government already works in technical alliances with UK, USA and Israeli companies and aims to build a defence industry that is a significant export contributor to the economy.
- 2.2.21 This trend reflects the increasing value of the 'know-how' element of a warship and the implications for the skills mix for European warship builders. There is a strong drive towards higher value added engineering and systems design skills with a relative decrease in craft skills. This trend is evident in the skills profile of the workforce in BAE SYSTEMS and Blohm & Voss in Germany.

Offset

- 2.2.22 Simple direct offset is a process whereby the purchaser country requires the vendor, i.e. the shipbuilder, to place orders for equipment or components from companies in the purchasing country. This reduces the net outflow of funds from the purchaser's economy and stimulates technical or skills development in the local industries.
- 2.2.23 Indirect offset involves, for example, a German shipbuilder arranging for technology from a German software company to be transferred to an indigenous software company in the purchasing country, thus increasing the capabilities of the local software industry.
- 2.2.24 Offset is a major part of very large defence export contracts and has increasingly featured as the key competitive advantage in winning orders. The benefits of innovation in offset thinking and relationships with a wide network of companies were evident in a recent South African deal with Germany:
- Blohm & Voss used their parent Thyssen and subcontractors such as Siemens to offer a comprehensive 'shop window' of potential offsets;
 - Over 35 South African companies were involved and will benefit from the offset deal;
 - South Africa will gain job creation and technological development in future strategic industries;
 - South African export sales will be stimulated by \$2 billion; and
 - There was particular emphasis on healthcare technologies.
- 2.2.25 To succeed in winning export orders requires BAE SYSTEMS Marine to have expertise in offset arrangements. The BAE SYSTEMS merger brings a much greater experience of offset than was previously available to the Clyde yards. There may also be potential benefits for other British companies in being part of indirect offset deals in export warship sales.

2.3 CHANGING PROCUREMENT ENVIRONMENT

- 2.3.1 The Government faces a difficult policy dilemma in reconciling the need to secure improved value-for-money and avoid a monopoly supplier situation with its desire to promote a competitive British shipbuilding industry. This dilemma has important implications for BAE SYSTEMS Marine since it is the largest supplier of warships to the MoD.

UK policy objectives

- 2.3.2 The Ministry of Defence currently spends in around £10 billion per annum with a variety of contractors. This money must deliver equipment that is fit for purpose and assures value-for-money for the taxpayer. The 1998 Strategic Defence Review also identified a clear Government policy towards the UK defence industry: *"A strong industrial base underpins a robust defence policy, so the success of both customer and supplier are intertwined."*
- 2.3.3 The procurement of major defence systems in the UK has seen significant problems in the past, with many projects suffering substantial timescale and cost overruns. Various governments have sought previously to reduce the degree of inefficiency and waste, and one of the most important outcomes of the 1998 Strategic Defence Review was the smart procurement initiative (SPI), which was intended to produce systems *'faster, cheaper and better'*. This is now smart acquisition to emphasise the through-life approach to value-for-money.
- 2.3.4 Defence exports of £5 billion per annum make an important contribution to the UK economy and account for 40% of defence industry output. In addition, substantial cost savings to the MoD are achieved through reduced fixed overhead charges from export defence orders. UK Government is highly supportive of defence exports, subject to strategic and ethical policy guidelines.

Procurement processes

- 2.3.5 Analysis of major procurement problems by the National Audit Office (NAO) and MoD identified the causes as:
- Slippage due to: technical difficulties, budgetary constraints leading to postponement, re-definition of requirements and difficulties over collaborative projects; and
 - Cost over-runs due to: programme changes, changes in equipment specification, poor estimating, and price inflation for defence equipment exceeding inflation in the economy as a whole.
- 2.3.6 The *Acquisition Handbook* sets out the MoD objectives for the SPI:
- To deliver projects within the performance time and cost parameters that were approved at the time a major investment decision was taken;
 - To replace the previous ministry procurement process by one based on acquiring military capability progressively, at lower risk and with the optimisation of trade-offs between military effectiveness, time and whole-life cost; and

- To cut the time for key new technologies to be introduced to the front line, where needed, to secure military advantage and industrial competitiveness.

2.3.7 The essence of smart acquisition lies in the following factors:

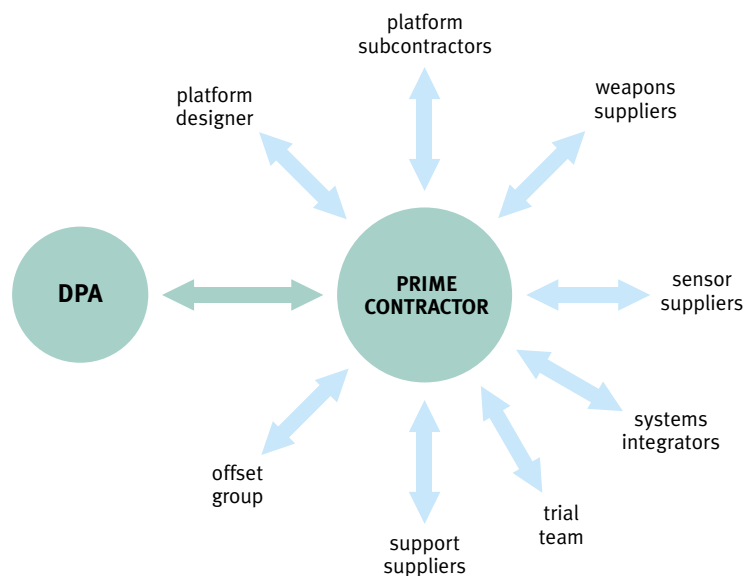
- A new acquisition lifecycle, with a simpler and clearer project approvals process;
- A through-life management plan, i.e. 'cradle to grave';
- Clear and stretching objectives and performance measures; and
- An improved relationship with industry.

2.3.8 An Integrated Project Team (IPT) is created for each major system such as Type 45 or future carrier, with a 'cradle to grave' responsibility for the programme from specification through concept design, delivery and operation when a prime contractorship approach is adopted. It is the responsibility of the IPT to tender for and then select a Prime Contracting Organisation (PCO) that will take responsibility for the delivery of the completed programme to agreed technical and commercial terms e.g. to a fixed price.

2.3.9 Companies such as BAE SYSTEMS consider the PCO role as critical. Securing the PCO role allows the company to:

- Remain at the forefront of decision-making in innovation, technological and engineering knowledge and capabilities, which in turn can help develop products for sale in other markets;
- Secure integration work of sufficient scale; and
- Achieve a good return on investment through good management.

2.3.10 The PCO must in most cases competitively source the components of the project, such as the ship, weapons and propulsion systems, in ways that drive up design innovation and drive down costs. Some of the tasks of a PCO are shown below:



Implications for the Clyde

- 2.3.11 BAE SYSTEMS Marine's Clyde and Barrow yards employ approximately 80% of the UK's warship systems design, build and integration skills base. The company therefore represents a significant configuration of engineering and systems know-how. The continued existence of that asset in its current scale and configuration is almost completely dependent on its continued success in winning MoD warship design and build contracts on the basis of BAE SYSTEMS Marine's current strategy.
- 2.3.12 One change reinforced by smart acquisition for programmes managed in this way is the introduction of the PCO in a role previously delivered by the MoD. In effect BAE SYSTEMS Marine has moved, in most cases, one level down the supply chain to a role of being a sub-contractor to the PCO in future (even where this is its parent company) instead of a contractor to the MoD.
- 2.3.13 The PCO role is often competitively tendered. Thales and BAE SYSTEMS are currently competing for the future carrier PCO work. It is possible that BAE SYSTEMS Marine could play a role as a sub-contractor to either Thales or BAE SYSTEMS as PCO. The PCO will have to abide by current Government policy by having the carrier hulls built in the UK. However, very important elements, such as the high value-added systems work, could theoretically be completed by contractors from outside the UK.
- 2.3.14 Failure by BAE SYSTEMS to win a significant role in the future carrier contract could, to some extent, reduce the need for BAE SYSTEMS Marine's current highly skilled team. This would damage both Clyde and Barrow capability for both future MoD warship work and for competing in export markets.
- 2.3.15 MoD procurement seeks value for money in terms of cost, systems effectiveness and technical innovation. Competition is one key process in achieving value for money. However, the contraction and restructuring of the ownership of the UK warship yards has reduced the scope for competition, leaving only BAE SYSTEMS Marine and Vosper Thornycroft as contractors with the skills and facilities required for the most complex aspects of major warships, although other shipyards have important capabilities. MoD procurement processes have recognised this issue. The recent Type 45 experience suggested that there may no longer be a straightforward economic basis for competition between these two suppliers and the Type 45 procurement process was adapted to reflect that. It recognised that there were greater benefits in collaboration as a means of maintaining specialist capabilities without duplicating the capacity that can no longer be maintained economically.
- 2.3.16 There is a real and significant dilemma for government. On the one hand, competition can drive up innovation, performance and value-for-money, helping in turn to prevent the complacency that being a monopoly supplier could engender. On the other, genuine competition requires duplicate sets of assets and capabilities, neither of which can be fully utilised on an economic basis if solely dependent on MoD orders. This could prevent the investment and further development required to drive up performance.

- 2.3.17 This raises a question as to whether the most important benefits are derived from the knowledge or the physical components of the competitive process. It may be that a 'virtual' knowledge competitor could be created and sourced by the Integrated Project Teams on a global 'best knowledge available' basis as an alternative powerful tool in driving up the performance of the 'physical' supplier that is BAE SYSTEMS.
- 2.3.18 The alternative approach of using, or having to stimulate, competition at the shipbuilding sub-contract level puts competitive pressure on existing yards to improve their efficiency. It would also increase the need for companies to secure other (commercial and export) work if their capability is not to be eroded through under-utilisation. The export potential is constrained by the reluctance of the other purchasers of comparably advanced warships, such as Germany, France and the US, to expose their own industries to competition in this sector. However certain markets exist, and BAE SYSTEMS Marine and its parent company need to pursue these opportunities. The risks of relying on MoD orders alone or of not winning export orders are factors crucial to the company's strategy.

2.4 MARKETS

- 2.4.1 Although the Govan yard, under Kvaerner, was predominantly a merchant shipbuilder, BAE SYSTEMS Marine has evolved to become predominantly a warship builder. This section considers the warship markets in the UK and abroad.

UK warship markets

- 2.4.2 The MoD requirements set the scope and scale of the UK warship market, and the Government's 1998 Strategic Defence Review defines the Navy's role.
- 2.4.3 The Royal Navy is required to be capable of sustained deployment on a worldwide basis, acting either alone or with allied navies, and to be capable of a range of tasks including:
- Military, e.g. sea control, escort, enforcing exclusion zones;
 - Constabulary, e.g. enforcing economic sanctions, anti drug patrols; and
 - Benign e.g. humanitarian aid, disaster relief.
- 2.4.4 To meet these tasks, the Navy requires a range of major warships and support vessels:
- For amphibious operations;
 - As aircraft carriers;
 - As sophisticated defence ships e.g. Type 45;
 - As submarines; and
 - To support, supply and replenish vessels.
- 2.4.5 The diversity of tasks, the need to operate without support from local ports, and the capability to defend against a broad range of potential threats means that UK warships need a high degree of technical sophistication, durability and survivability. To meet this they:

- Have advanced and sophisticated designs to a high standard of engineering in the basic vessel (e.g. stealth characteristics) and its main propulsion systems;
- Operate complex ranges of systems, e.g. sensors, weapons and controls, that require a very high level of engineering design and systems integration; and
- Are expensive to develop, design and build, particularly given the relatively small numbers of each type.

2.4.6 The current profile of warships under construction and included in the MoD's stated future requirements are listed in table 2.1 below:

Table 2.1: Current and planned schedule of warships for the MoD (as at 01/01/02)

Under construction or ordered	Stated future requirements
2 Landing Platform Dock ships (assault ships) with BAE SYSTEMS Marine - currently being fitted out at Barrow to be in service in 2003;	Up to 9 Type 45 destroyers (declaration of intent for 3 already stated see left);
2 Auxiliary Oilers with BAE SYSTEMS Marine - one being fitted out at Govan, one in dry-dock at Greenock, to be in service 2002;	2 or 3 Astute submarines - planned to place order in 2002;
8 Landing Craft Utility with BAE SYSTEMS Marine - being built at Govan for delivery 2002-3;	2 future aircraft carriers - planned first steel cut 2005-6, with ships entering service 2012 and 2015; and
3 Astute nuclear submarines with BAE SYSTEMS Marine - at Barrow, to enter service 2005-8;	1 primary casualty receiving ship - assessment of options underway.
4 Alternative Landing Ships Logistics (ALSL) - 2 ordered with Swan Hunter, 2 with BAE SYSTEMS Marine at Govan;	Further intentions
3 Type 45 destroyers with BAE SYSTEMS and subcontractors - to enter service from 2007 and declaration of intent for a further 3 in the House of Commons in July 2001 (see below);	Future Surface Combatant (Type 23 replacement) requirement for up to 20 vessels with an in-service date of around the middle of the next decade; and
3 offshore protection vessels leased from Vosper Thornycroft - first enters service 2002;	Maritime Water Underwater Capability - in concept phase.
2 Survey vessels ordered from Vosper Thornycroft - built at Appledore to enter service 2002-3; and	Fleet Auxiliary ships
16 Landing Craft Vehicles and Personnel - FBM Babcock.	A series of studies are underway for the Royal Fleet Auxiliary. These are expected to lead to new ships of several different designs to enter service 2008-15.

2.4.7 The important issues that arise for the Clyde from the current order and stated requirements profile are:

- A number of significant orders have been placed as the Royal Navy continues a major updating of its fleet, e.g. Type 45 and ALSL. These offer a substantial forward workload; and
- The future aircraft carriers are a major project and will be the largest and most complex ships built in the UK in decades. As such, they will absorb a very substantial proportion of all of the UK shipbuilding capacity during their planned construction phase from 2005-2014. They are an important opportunity for BAE SYSTEMS Marine.

2.4.8 UK warship and auxiliary orders have become the dominant factors in the UK shipbuilding industry and shortages of work across the UK lead to vigorous lobbying campaigns on behalf of yards and regions with calls for work to be spread across yards. All shipbuilding procurement decisions are politically contentious.

Export warship markets

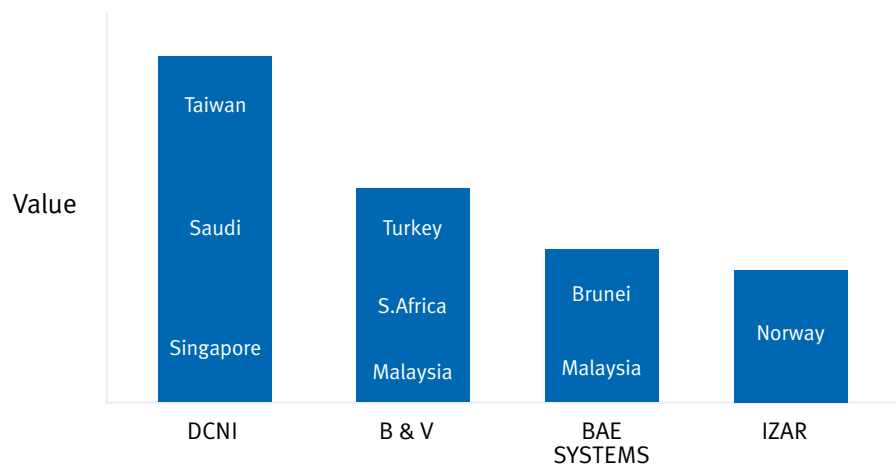
2.4.9 While over 100 countries have some form of naval capability, there is a very limited number of markets for the types of warships designed and built for the Royal Navy or for export by BAE SYSTEMS. Limitations include countries that:

- Build their own high capability vessels and, as in the UK, do not purchase from overseas suppliers, e.g. USA and Canada in North America; France, Germany, Italy and Spain in Europe; Australia, India (to a large extent), Japan, South Korea and increasingly Singapore in Asia. Other markets in Europe, South America and Asia have the capability to build sophisticated warships, but from foreign-supplied designs and with technical assistance;
- UK warship builders would not be permitted to sell to, for either strategic reasons or in line with the UK government's foreign policy; and
- Cannot afford or do not require the high capability vessels of the type specified for the Royal Navy. This includes some European and many Asian Navies, most of the Navies in South America, and all the Navies in Africa.

2.4.10 Details of the future demand for warships are available as most governments publish their requirements in their future defence planning and budgeting processes. In the UK, this material is collected, synthesised and published by the Defence Exports Services Organisation (DESO) as part of the UK Government support for defence exports. This material is made available to all UK shipbuilding and marine equipment suppliers for a nominal subscription and it is continuously updated by DESO as stated requirements emerge or change.

2.4.11 Private sector analysis of the market intelligence material identifies a potential ten-year forward export market of approximately £8.8 billion, with over two-thirds in the high and medium capability ships that are BAE SYSTEMS' target markets. These are intensely competitive markets. BAE SYSTEMS estimates that, considering the last ten years in the high capability warship market, they are positioned in third place by order value behind Blohm & Voss's 28% share, and DCN's 25% share. A BAE SYSTEMS analysis of relevant recent export ship sales is presented below.

High capability warship orders over the last 10 years



2.4.12 The most recent BAE SYSTEMS export successes that have a Clyde impact are:

- Two frigates to Malaysia ordered in 1992; and
- Three offshore patrol vessels to Brunei ordered in 1998.

2.4.13 The key issues in the warship export markets include:

- Financial, both in the competitive price of the vessel and in project funding;
- Long time-scales from stating a requirement to placing an order. For example, the deal for the three Brunei vessels being built at Scotstoun was pursued for 11-12 years;
- Government support for defence exports is very important and can involve significant government-to-government relationship work;
- Long term relationships are particularly important as customers look for effective support over the life of the vessel and shipbuilders look for their potential next order;
- Customer countries increasingly want significant technology transfer, including building the second and subsequent ships in their local shipyards;
- Industrial participation and offset are used to lever local economic and industrial developments as part of the purchase deal;
- Whole ship procurement and turnkey capability such that the customer receives a finished warship with all systems integrated and functioning; and
- Training and ship support throughout its operating life, including opportunities to upgrade.

- 2.4.14 Members of the task force reviewed with BAE SYSTEMS the current list of export sales prospects, noting four active prospects, a further eight showing potential as possible orders up to 2003, and a further twenty-five that are long term. A major campaign to pursue active prospects can cost in excess of £1m.

Merchant ships

- 2.4.15 While owned by Kvaerner, the Govan yard was predominantly a merchant ship builder. The BAE SYSTEMS Marine strategy defines the company's core business as being a warship and naval auxiliary ship builder. The company also intends to pursue specialist commercial contracts that are compatible with warship capacity demands where there is a sound business case.

2.5 LEARNING FROM THE VISIT TO THE GERMAN INDUSTRY

- 2.5.1 The study visit to Germany in October 2001 included meetings with:
- Blohm & Voss, warship and merchant shipbuilders;
 - Aker MTW, merchant shipbuilders;
 - German federal Government representatives; and
 - German state Government representatives.
- 2.5.2 The purpose of this visit was to look at Government policy and compare shipbuilders' operational experience with that of BAE SYSTEMS. This section discusses the results.

Blohm & Voss, military and merchant shipbuilders

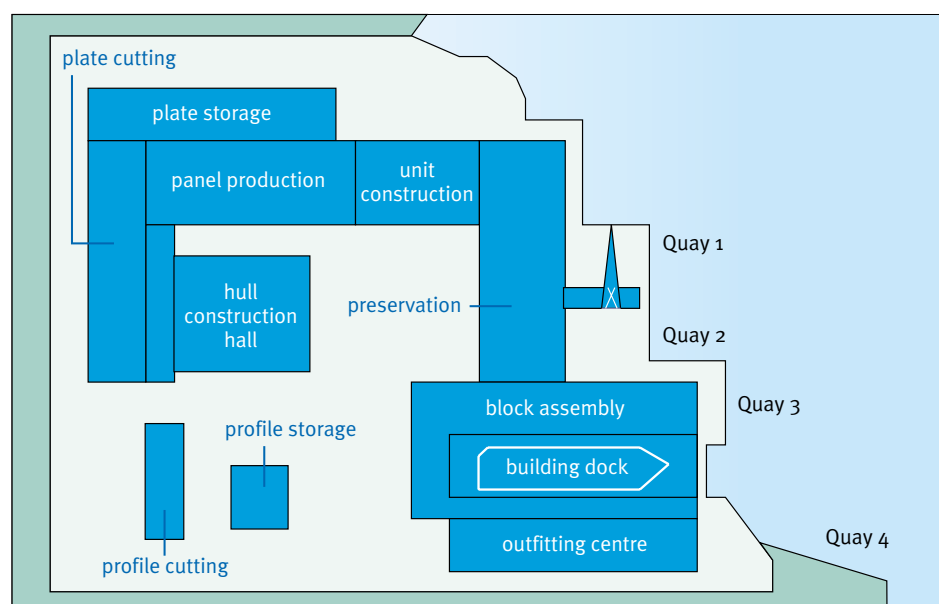
- 2.5.3 Blohm & Voss (B&V) is a subsidiary of Thyssen Krupp, a major conglomerate with 37 billion EU sales. B&V operates a mixed strategy building warships to the MEKO modular design, mega yachts and fast monohull cruise ships. The yard in Hamburg employs 1,000 people, of whom 33% are in production and 66% in engineering and management.
- 2.5.4 B&V has a deliberate strategy to build both military and commercial vessels to provide a secure based load, and it invests in research and development for both programmes. It claims not to receive German Government subsidy for either.
- 2.5.5 B&V is part of the German Frigate Consortium and has had major success in the export markets with over 40 MEKO based ships built or ordered.
- 2.5.6 B&V's strategy is to focus only on those activities where it can add value competitively. As a result, it subcontracts up to 50% of the workload on a new build vessel. For example, its plate working is subcontracted from the Netherlands. B&V has introduced risk sharing partnerships with key outsource suppliers such as ABB and Siemens to replace the conventional, often adversarial, customer-supplier relationship.

- 2.5.7 The company has invested in high technology and laser welding processes and sees itself as a 'future' company in a good industry. Different legal structures and relationships with the trade unions have helped enable the introduction of different work processes such as annualised hours.
- 2.5.8 B&V's major success has been in the export market with over 50 vessels built or ordered, of which over 75% are exported. The company is increasingly selling design and manufacturing know-how, building only the first in class and working with customer countries to develop their warship construction capabilities. B&V also has expertise in designing offset deals.
- 2.5.9 The B&V MEKO design is for a medium capability warship which, unlike the high specification vessels of the Royal Navy, more closely addresses the bulk of export warship market demand.

Aker MTW – merchant shipbuilders

- 2.5.10 As part of the east-west German reunification process, a number of larger shipyards in the old east received significant investment. The Aker yard at Wismar is one of four 'compact' shipyards on the Baltic coast that benefited from the windfall reunification investment. It had £200m invested and addresses markets in container ships and cruise liners. When the rebuild was finished in October 1998, the Aker 'compact' yard had a completely covered flow-line production with modern computer controlled production equipment (see diagram below).

Aker's compact shipyard floor plan



2.5.11 This investment has seen the numbers of employees reduced by 4,500 since 1990:

1990	6,000
1995	1,900
2001	1,500

2.5.12 As a result of this investment in equipment and reduction in employee numbers, the productivity as measured in hours per gross compensated tonne has improved markedly:

1992	31 hrs/gct
1994	25 hrs/gct
1996	22 hrs/gct
1998	15 hrs/gct
2000	13 hrs/gct

2.5.13 Nonetheless, in spite of extensive investment the Aker yard, which is currently subject to EU tonnage limitations, still finds it extremely difficult to compete against Far Eastern (particularly Korean) competition in merchant shipbuilding. This offers compelling evidence as to the improbability of successful UK merchant shipbuilding other than in specific niches.

German federal Government

2.5.14 Discussions with the German equivalent of the DTI identified maritime industries as being both economically and politically significant in Northern Germany. German Federal Government work has included the appointment of a Maritime Co-ordinator with a remit to improve competitiveness across the whole industry. This addresses all aspects of Government policy (e.g. transport, environmental or tax) that may have an impact on the success of the maritime industries, as well as encouraging inter-company collaboration and communication.

2.5.15 The Government also sponsors a national maritime conference at which the German Chancellor delivers the keynote speech, evidencing high profile political support.

2.5.16 The German Government recognises that there will be further substantial contraction from its current 35 shipbuilding and ship repair yards and in the numbers employed. However, it has a strong view that Germany will retain a strategic shipbuilding capacity and that Government has a role in helping manage that process.

German state Government

2.5.17 The Mecklenburg-Vorpommern state Government on the Baltic coast of ex-East Germany has four major 'compact' shipyards and over 100 SMEs in various parts of the marine equipment business.

- 2.5.18 The state Government offers support for environmental and training issues and has been active in promoting shipbuilding as a 'high tech' industry with a positive future. It is important to note that this area has seen extreme downsizing in the numbers employed, and that the number of employees will continue to fall as some of the smaller yards close.

Issues emerging from visits

- 2.5.19 A number of issues relevant to the future of the Clyde yards emerged from the German visit:
- **Specialisation in warship building** - the B&V modular MEKO frigate and corvette design addresses a broad international market. In contrast to designing for the specialist requirements of the UK MoD, B&V can achieve better export market penetration;
 - **Merchant shipbuilding** - the B&V focus on very high value added vessels, e.g. mega yachts and fast monohull cruise liners, requires substantial investment in research and development;
 - **Investment in merchant shipyards** - while the windfall investment in the ex-East German yards has allowed major improvements in shopfloor and engineering productivity, these yards still have difficulty in competing effectively. Their experience reinforces the view that UK shipbuilders are unlikely to re-enter the merchant shipbuilding business other than in a highly specialist role;
 - **Image** - the shipbuilding industry in Germany is defined by the Government as knowledge intensive and high value;
 - **Sub-contracting** - in both merchant and warship yards the underlying theme of 'lose capacity but not the capability' has seen significant advances in the scale and nature of subcontracting relationships including introduction of risk-share partnering; and
 - **Co-operation across yards** - B&V participate in a German frigate consortium and have collaborative arrangements with HDW, a German submarine builder. The Aker MTW yard has also entered workshare arrangements with some of its local competitors in order to reduce cost and improving market competitiveness.

2.6 BAE SYSTEMS MARINE STRATEGY

- 2.6.1 The Clyde yards are now part of a global defence business, and the marine strategy is developed in that context. This section discusses the strategy proposed by BAE SYSTEMS Marine. The relationship between BAE SYSTEMS Marine and its parent company is an important one to distinguish. It is a separate business entity within the group operating at arms length and bidding for work both from BAE SYSTEMS itself and from wider export and domestic markets.

BAE SYSTEMS' strategy

- 2.6.2 BAE SYSTEMS is a major player in the defence business. It has globally significant capabilities in aerospace and defence electronics, and large UK operations in sea, air and land systems activities.
- 2.6.3 The USA spends \$25 billion per annum on military R&D in comparison with \$8 billion in Europe. Presence in the USA is therefore essential for a leading technology company. A number of significant acquisitions in the USA during 2000 established the company in a major role across the Atlantic. Twenty-five per cent of its workforce is now in the United States.
- 2.6.4 While aerospace and electronics are global businesses, a worldwide presence is much more difficult to achieve for shipbuilding since most attractive warship markets (e.g. the US) are currently closed to BAE SYSTEMS or other foreign contractors.
- 2.6.5 BAE SYSTEMS aims to be a technology-based market leader in engineering and systems integration expertise. It considers that success in its role as a Prime Contractor Organisation for major defence projects, such as the Type 45 and future aircraft carriers, is an essential part of that strategy.
- 2.6.6 In view of this, BAE SYSTEMS Marine established a strategy team:
- To develop a robust and financially viable 10-year business plan that would respond to the market issues in the UK industry; and
 - To address the procurement strategy for the Type 45, Astute and future carrier programmes.
- 2.6.7 The strategy team was drawn from across the Marine organisation and charged with the robust assessment and evaluation of the range of potential strategies for the business. It specifically focused on the implications of the DPA's proposed procurement strategy for the Type 45. In particular, it focussed on the company's view of the commercial risks in that proposal for both the short and long term viability of its business. It also addressed the following market issues:

- Dependence on the Royal Navy with its specific focus on complex sophisticated ships with a limited export market;
- Over-capacity in UK shipbuilding;
- New entrants to warship and related shipbuilding, e.g. Swan Hunter moving from offshore construction and conversion to shipbuilding; and
- Potential new entrants to the UK market from Europe, specifically Thales, in pursuit of the PCO role for the carrier project.

2.6.8 The BAE SYSTEMS Marine strategy team concluded that:

- The procurement approach proposed by the DPA in July 2000 would not help to retain UK capability or product affordability in major warships; and
- The uncertainty introduced by the competitive tendering process mitigated against making the capital investment decisions needed to increase productivity and efficiency in the yards.

2.6.9 The strategy development process involved a cycle of activities:

1. Determine the build strategy;
2. Determine capacity utilisation;
3. Determine investment;
4. Determine skills and number of people;
5. Model effect on overheads; and
6. Calculate price.

2.6.10 This cycle was reiterated for a number of possible build strategies. BAE SYSTEMS Marine states that several hundred possible scenarios were considered and eliminated, coming down to a shortlist where detailed workload calculations and capacity charting processes were mapped out for the physical and human resources, for example engineering, designers, electricians, painters, steelwork. This data was then converted into financial models that calculated the effect of the new strategy on existing and potential contracts.

2.6.11 BAE SYSTEMS Marine used the DPA's original strategy for the Type 45 as a baseline. This proposed to build the first and third ships at BAE SYSTEMS Marine, with the second built by Vosper Thornycroft (VT). Subsequent batches of ships would be offered to the cheapest builder. In the company's view, this deal made the Type 45 unaffordable, removed any basis for investment, and suggested no long-term future for Clydeside.

2.6.12 This led to a new proposal to DPA by BAE SYSTEMS Marine to build all 12 Type 45s. RAND Europe, a specialist technical consultancy, was commissioned by the Government to evaluate fully the Type 45 bids. This work informed the alternative T45 procurement strategy announced whereby the construction work on all ships would be shared on an agreed basis between BAE SYSTEMS Marine and VT. Marine will place a subcontract for a portion of the work with Vosper Thornycroft. The intention to increase the order from three to six ships will allow a contract that will provide greater long term confidence and support a business case for the company's investment programme. The principle of workshare between BAE SYSTEMS Marine and Vosper Thornycroft will apply to the whole class.

2.6.13 The main elements of the Marine strategy include:

- The three yards managed as one business, with work going into harmonising processes and culture across the three sites. This includes human resources, business and information technology systems;
- There will be rationalisation in the scale of activity both in employee numbers and in the physical sites, where a programme of demolition will cut overhead costs. There will be an associated programme of investment;
- Govan will be a steelwork centre of excellence for the company;
- Export warships and the first Type 45 will be designed and built at Scotstoun;
- Scotstoun will be the centre of excellence for the outfitting of future Clyde vessels and Type 45 block build and design engineering; and
- Barrow will become a centre of excellence for nuclear submarine and Type 45 assembly, focusing on maximising the utilisation of the Devonshire Dockyard Hall.

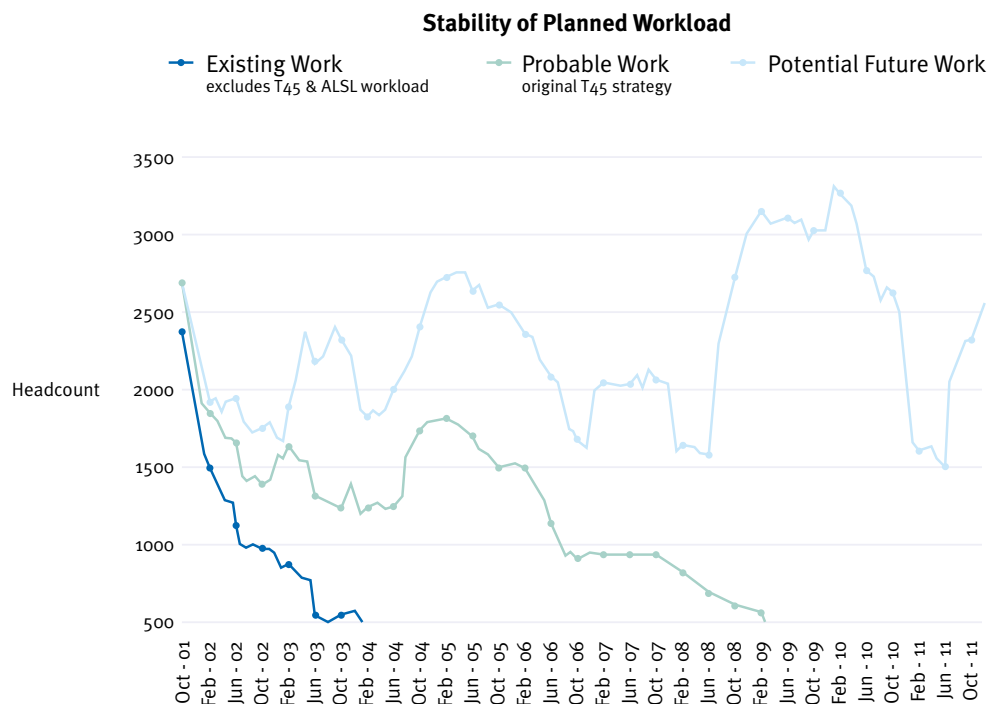
2.6.14 The task force raised concerns about the ability to float large Type 45 blocks from Clydeside to Barrow. BAE SYSTEMS Marine has verified to the task force's satisfaction that there is no technical problem in this process. It has been done before and is used by competitors. It is also noted that the target for percentage completion of fit out of blocks at Clydeside will increase from the current 35% to 80%. This provides relatively more labour hours and more complex work on the blocks before they are moved to Barrow.

2.6.15 The future carrier has an important role in the Marine strategy and, given the scale of the contract relative to total UK shipbuilding capacity, it is likely that some proportion of these vessels would come to the Clyde, whether BAE SYSTEMS wins the prime contract role or not. The main issue identified by the task force is the risk involved for the Clyde if either company bidding for the PCO chooses to sub-contract important elements of the work to foreign contractors.

2.6.16 Current Government policy emphasises the importance of retaining the construction of the ship hulls in the UK. The task force recognises that the high value-added design, project management and assembly work could theoretically be awarded to a foreign competitor. There appears to be some scope for policy to give more emphasis on the importance of the knowledge intensive elements of shipbuilding in maintaining a future naval shipbuilding capability within the UK. It is clear to the members of the sub-group who examined this in detail that the Marine strategy would retain this work for UK companies and that Clydeside would benefit. The task force cannot comment on the proposals from Thales.

Future workload

2.6.17 The future workload for the Clyde based on the Marine strategy is presented in the diagram below.



2.6.18 The workload diagram takes into account the estimated reduction in employee numbers (although these are subject to ongoing negotiation). The workload pattern is strongly influenced by the scale and timing of the major projects, i.e. exports, carrier and Type 45. The risks to this workload are examined in the next section.

2.6.19 It is important to recognise the upward shift in the balance and value of skills in modern warship construction. This can be seen in the vessel's value where the value ratio is estimated to be:

12%	Float	The basic ship
70%	Fight	Sensor, weapons and control systems
18%	Move	Propulsion systems.

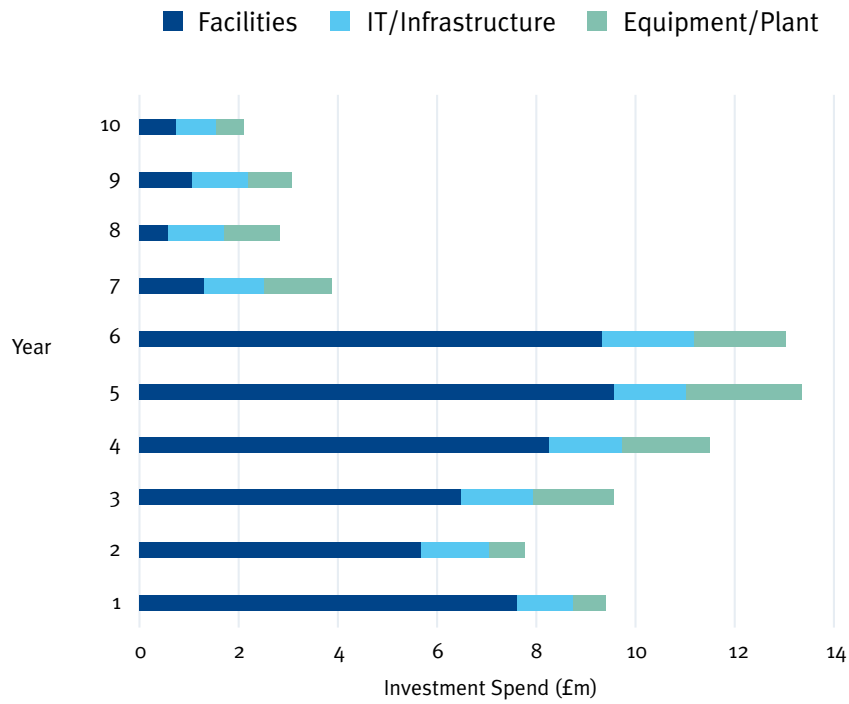
- 2.6.20 Within the construction of a warship, BAE SYSTEMS data shows the balance of labour value to be in high competence skills.

Core high level competencies	Value of marine labour
	Scope as a %
Systems design/integration/engineering	16%
Programme and operational management	14%
Complex outfit/integration/trials	24%
Specialised manufacturing and fabrication	3%
<u>Sub total</u>	<u>57%</u>
 Standard level competencies	
Draughting	20%
Standard manufacturing and fabrication	9%
Standard outfitting and support	14%
<u>Sub total</u>	<u>43%</u>

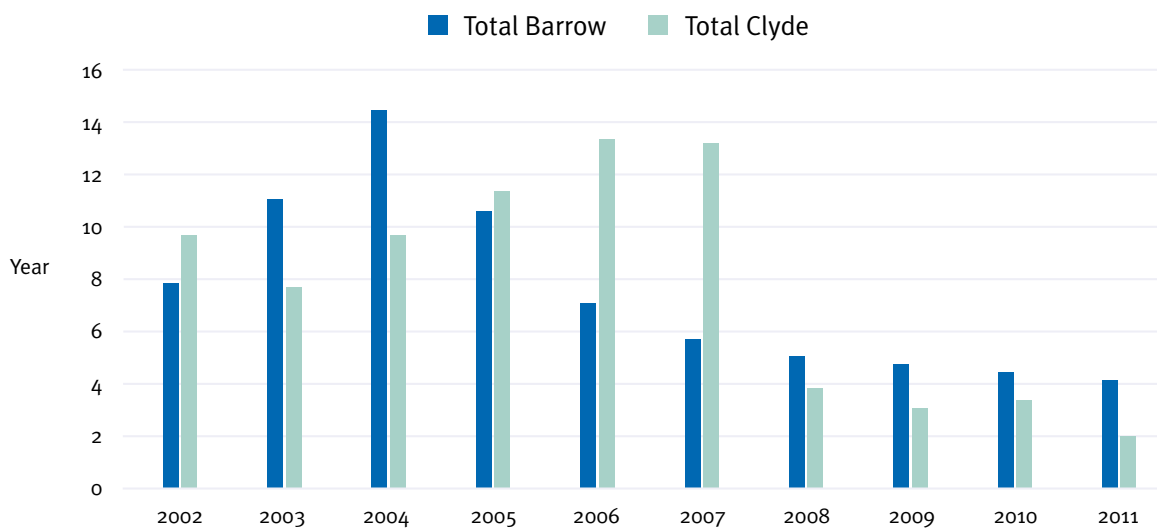
Investment plans

- 2.6.21 The strategy's investment plan is tied closely to the role of each yard, with a strong focus on productivity gains around existing assets. The investment plan reflects improvement in:
- Basic business systems, e.g. materials management, that integrate and improve efficiency across all three yards;
 - Computer aided design systems to enhance engineering and design productivity and reduce costs;
 - Expenditures on facilities, plant and equipment across the three sites to reduce capacity and consolidate the strengths on a number of centres of excellence at Scotstoun, Govan and Barrow; and
 - Reducing the duplication of facilities such as steel-cutting equipment at Barrow. This also increases the inter-dependence between the yards.
- 2.6.22 The projected ten-year expenditure programme is over £150 million. Much of this investment is dependent on orders being placed in accordance with the strategy. The split between the Clyde and Barrow yards is detailed overleaf.

Investment Spend Profile - Clyde



Total Capital Expenditure - Clyde/Barrow



- 2.6.23 Of the estimated £75 million investment shown for the Clyde, the following items have been specified. This does not include investment details for the future aircraft carrier project or IT infrastructure:

**Scotstoun - Current Investment
(Manufacturing Centre of Excellence)**

£1m - Pipe Shop
 £450k - Joiners Shop
 £550k - Further Investment
 (to be allocated)
 £1m - New Module Hall Doors
 £300k - New Crane
 £300k - New Dry Dock Doors

Total - £3.6m

**Scotstoun - Future Investment
(Facilities)**

£4m - RoRo Transport/Route Creation
 £3.5m Site Services
 £1.8m Amenities and Canteen
 £500k Security and Fire Systems
 £400k Manufacturing Centre of
 Excellence
 £1.5m Office Upgrades
 £1.2m Outfit Facilities
 £1.5m Miscellaneous

Total - £14.4m

**Govan - Current Investment
(Steelwork Centre of Excellence)**

£600k - Plasma Burning Machine
 £100k - Transfer Seam Welding
 £250k - Panel Line Welding
 £400k - New Overhead Cranes
 £600k - Modify Doors
 £400k - Miscellaneous Tooling
 £100k - Improved Work Environment
 £150k - Transfer Robotic Cutter
 from Barrow

Total - £2.6m

**Govan - Future Investment
(Facilities)**

£800k - New Office Facility
 £2m Steelwork Centre of Excellence
 £4m RoRo Transport
 £5m Super Berth Creation
 £2.5m Berths Cranes
 £2m Launch Arrangements
 £500k Commissioning Systems
 £1m Site Services

Total - £17.8m

- 2.6.24 Although this investment plan covers physical investment in the yards it does not include the yards' human resources. Clearly investments in skills will need to be significant. This is covered in chapter 3.

Export related work

- 2.6.25 The BAE SYSTEMS Export Shipbuilding organisation is a separate business unit from BAE SYSTEMS Marine. The Export business is a PCO that pursues export orders, manages customer relationships, and subcontracts the various platform and system elements both within and outside BAE SYSTEMS. Marine tenders for vessels where it has a capability, for example the current Brunei offshore vessels or the Malaysian frigates delivered in 1999. Equally there are vessels such as small fast patrol craft that are not within BAE SYSTEMS Marine's product portfolio.
- 2.6.26 As well as finished ships, BAE SYSTEMS' Export Shipbuilding company provides design technology services and consultancy, specialist equipment and in-country support contracts.
- 2.6.27 BAE SYSTEMS Marine is creating a special project team of approximately 20 people tasked with further developing the F2000 series of vessels and the T23 frigate to offer greater affordability and modularisation.
- 2.6.28 This work is seen as consistent with the approach adopted by other leading companies (e.g. the Blohm & Voss MEKO concept) in that it develops 'families' of vessels that customers can specify their requirements around. This offers both better prices and higher customer confidence in a proven design.

Why both Clyde yards are essential to the company's strategy

- 2.6.29 To test the robustness of the Clyde element of the Marine strategy, the hypothetical question was posed 'what would happen to the BAE SYSTEMS Marine strategy if the company did not have the Scotstoun and Govan facilities?'
- 2.6.30 This identified a number of factors that reinforce the importance of both Scotstoun and Govan facilities within the Marine strategy. These are:
 - Export warships - the strategy requires success in export markets and specifies that export warships will be built on the Clyde. The alternative facility, in Devonshire Dockyard Hall (DDH) in Barrow, cannot be used because national security restrictions govern its use. The Astute projected build programme extends until circa 2010, eliminating DDH from export works within that timescale;
 - Build capacity - the Clyde represents a significant proportion of BAE SYSTEMS' build capacity for both blocks and fitting out. The Type 45s could not be built to the contracted timeplan as there would not be enough block build capacity in Barrow to meet that and other work;
 - Carrier programme - without capacity at both Clyde yards, Marine would not be able to compete for the major design and build elements of the carrier programme, which is a major part of the workload in the strategy;
 - Infrastructure losses - the local infrastructure of suppliers and sub-contractors to the Clyde yards would not be readily transportable to Barrow. It is believed that overall Marine capability would be lost as a result; and
 - Skills losses - the company estimates that it employs 80% of the UK's skilled warship workforce and that 40% of them are located in the Clyde yards.

- 2.6.31 While it is reasonable to assume that some employees could relocate from Clyde to Barrow, the company believes that the difficulties of relocating a skilled workforce would be unacceptably high. The company's experience suggests that the numbers that would decide against moving to Barrow would be significant enough to damage the company's technical capability and competitiveness.
- 2.6.32 It is recognised that some of these issues could be addressed through major investment in new capacity at Barrow. For example, a covered assembly hall to build export vessels could be established at a cost of approximately £30 million. However, given the poor market demand and excess capacity issues, this would be a very difficult capital investment case to make within BAE SYSTEMS.
- 2.6.33 In summary, the importance of the Clyde to BAE SYSTEMS Marine's strategy lies in both the physical capacity that the Scotstoun and Govan sites offer and the skills loss to BAE SYSTEMS Marine if these facilities were to be removed. The capacity losses would be unmanageable in meeting the operational requirements of the current order book, and the skills losses are judged by the company to be strategically damaging to its long-term competitiveness.

Conclusions on BAE SYSTEMS Marine strategy

- 2.6.34 The strategy presented by BAE SYSTEMS Marine is seen by the task force as coherent and robust, given the market conditions, current asset base and distribution of skills across the three sites.
- 2.6.35 Recognising the main market drivers of excess capacity and diminishing orders, BAE SYSTEMS' strategy reflects industry trends identified elsewhere in the world:
- Mergers and consolidation, e.g. Marconi Marine, VSEL, Kvaerner;
 - The drive to reduce industry capacity;
 - Pressure to increase productivity and reduce costs;
 - Increased use of outsourcing and partnerships;
 - Product specialisation and market focus; and
 - Dependence on export orders to use capacity and cover overheads.
- 2.6.36 BAE SYSTEMS' strategy is to operate Marine as a warship and naval shipbuilder. The company is clear that it will only pursue commercial work where this is compatible with warship capacity demands and a sound business case can be made.

2.7 CRITICAL FUTURE RISKS FOR THE CLYDE YARDS

2.7.1 The Type 45, ALSL and current export orders provide a base load of work for the Clyde yards. However, this work alone will not be enough to support the ten-year BAE SYSTEMS Marine strategy. Events that significantly altered current assumptions on capacity utilisation, overhead recovery and overall profitability of the business could provoke a major revision of the strategy. These critical events include:

- Failure to win export orders;
- Failure to win a significant carrier design and build role; and
- Any proposed significant delays in the MoD build programme, e.g. carrier and second batch of six Type 45 ships.

Winning export orders

2.7.2 As noted previously, the export warship market is extremely competitive as shipbuilders seek to maintain work and profitability in their design and build capabilities. While the company has had success with the F2000 frigate in export markets (e.g. Malaysia), BAE SYSTEMS Marine needs to continue to win contracts to maintain a throughput of around one ship per annum. We are concerned to ensure that BAE SYSTEMS' commitment to securing orders is maintained since, if unsuccessful, this represents a risk to the strategy.

2.7.3 There are two categories of risk:

- Business risk; and
- Economic and political risks.

2.7.4 The business risk in export orders lies in balancing performance, capability and price competitiveness to win orders. These factors are well understood within BAE SYSTEMS. Additional routes to competitiveness, such as possible offset deals, will be increasingly important. One of the benefits that BAE SYSTEMS brings to the ex-Marconi Marine organisation is expertise in the design and delivery of industrial offset arrangements.

2.7.5 Economic risks are an important issue in export markets since major capital expenditure projects are frequently deferred in times of economic downturn. DESO has identified a number of export projects, some with UK bidders, where warship projects have been repeatedly deferred or suspended indefinitely.

2.7.6 The political risks include ad-hoc events, for example the Chilean Government reaction to the Pinochet affair, and the relationships between the UK and potential customer governments.

Winning a significant role in carrier design and build

- 2.7.7 It is UK Government policy that the hulls for the two future carriers will be built in the UK. Given the limited capacity for major shipbuilding projects, combined with the physical scale of the carrier project, BAE SYSTEMS Marine is well placed to bid for some parts of the carrier contract for steelwork and fabrication on the Clyde.
- 2.7.8 The risk lies in whether BAE SYSTEMS will win the competition to be the Prime Contracting Organisation for the carrier. This has already been discussed in the previous section.

Significant delays in MoD build schedule

- 2.7.9 A significant delay in the carrier build schedule, for technical or budget reasons, would change BAE SYSTEMS' capacity assumptions and would introduce a new 'gap' with implications for the Clyde workforce in the period from the estimated first steel cut in 2005 onwards. A long deferment in ordering Type 45 ship numbers 7-12 might also have an impact. However, given the advanced state of that programme, this is considered less probable. Clearly the MoD's smart acquisition initiative is designed to avoid such delays.

2.8 GOVERNMENT ASSISTANCE

- 2.8.1 The current administration has introduced a range of measures to assist the UK shipbuilding industry improve its competitiveness as a way of increasing profitability and employment. In addition, ministers have emphasised in various speeches that they consider shipbuilding to be an important industry for the UK.
- 2.8.2 At the start of 1998, the DTI established the Shipbuilding Forum with cross-industry membership comprising shipbuilders and ship repairers, unions, customers, MoD, Government departments, training bodies and various trade associations. Its objective was to improve industry competitiveness. When it reported in December 1998, it identified 40 recommendations for action.

Current Government assistance

2.8.3 Working within the EU rules on industrial subsidy, a number of initiatives are supported by the UK Government. These are mainly targeted at the commercial market sector and include:

- **DTI benchmarking project** - helping yards identify productivity improvements by comparing themselves in 70 or more key performance activities against the matrix of 'world class' performances;
- **Master class** - DTI made a grant to the Shipbuilders and Ship Repairers Association (SSA) of £2.8m, representing 50% of the project's costs to fund two broad themes. The first theme is academic research into relevant subjects such as design for manufacture and improved manufacturing techniques. The second, a 'Masterclass', involves consultants visiting yards and holding seminars on productivity improvements. This was launched in June 2001, and 22 companies have signed up to have these studies done to date;
- **Marketing** – recognising that marketing is an area where UK shipyards have traditionally been weak, DTI has 50% funded an SSA project to produce a marketing strategy and draw up a database of potential customers. The project employs two people whose task is to actively promote these prospects; and
- **Training** – recognising the problems of an ageing workforce and the need to increase training to meet modern technical requirements, training was identified as a key forum recommendation. The Engineering and Marine Training Authority (EMTA) has taken the lead role in this and a number of pilot projects are being designed.

Defence procurement and exports

2.8.4 The UK Government policy states that warship hulls for the Royal Navy should be built in the UK. In addition, the MoD has a requirement for a UK warship building industry that:

- Is capable of meeting its operational capability requirements;
- Maintains indigenous strategic technologies;
- Retains options for competition where this seems likely to be the best route to secure value for money; and
- Promotes export sales to maintain a UK capability

2.8.5 The UK Government is active in warship export support in three broad roles:

- Political support – Government ministers advocating and actively promoting UK defence sales to potential customer governments;
- MoD support – assistance from the armed forces and the MoD in demonstrating and promoting UK-produced defence systems to export customers; and
- Export marketing support – the Defence Export Services Organisation's role in coordinating Government and industry marketing opportunities, including market research and helping promote UK defence equipment and services overseas.

Shipbuilders' Relief Fund

- 2.8.6 The shipbuilding intervention fund and the shipbuilders' relief fund were paid to UK shipbuilders as subsidies to assist them in competing with lower world prices. For commercial vessels these subsidies, delivered in the UK to a maximum of 9% of the contract value, were abolished across the EU from 31 December 2000 since they were judged as having failed either to improve the competitiveness of UK/EU yards, or to protect them against unfair Korean competition. The European Commission is currently reconsidering the position. However, shipbuilders' relief for building warships remains in place at 2%, although this too is currently being reviewed.

2.9 CONCLUSIONS AND RECOMMENDATIONS

- 2.9.1 This section sets out issues for action or further development.

Recognising the knowledge value in the shipbuilding industry

- 2.9.2 **Recognising knowledge assets** - a traditional and widely held view of shipbuilding is that it is a relatively low technology industry. Our examination of modern warship design and construction processes in the UK and Germany emphasises that the knowledge component in the industry is very significant. Warship design and building on the Clyde demonstrates engineering and systems design work of great complexity that demands high standards of engineering skill and innovation. The Clyde yards provide a knowledge and manufacturing asset of national significance.
- 2.9.3 While approximately 20% of the value lies in the ship build process, the design and systems integration work has a significant impact on the skills required of the workforce and on the shifting balance of those skills with relatively fewer craft jobs and a growing proportion in high technology work. As the technology driven 'revolution in military affairs' continues, this trend may be expected to accelerate, with ongoing market demand for increasingly fewer but more technically sophisticated systems.
- 2.9.4 An audit should be carried out of the high value-added activities within shipbuilding industries to position them within the appropriate context of the Scottish Executive's industrial policy (recommendation 11). Placing traditional manufacturing industries such as warship building and engineering in an appropriate context as knowledge-rich and knowledge-competitive businesses will add understanding and value to the Scottish Executive's industry and skills policy development processes.

- 2.9.5 **Industry image** - in common with other European shipbuilding industries, the UK industry has undergone a very significant decline in the last two decades. While Government Ministers have stated publicly that shipbuilding and marine industries remain important for the UK, continuous press announcements of redundancies and closures do not help to project shipbuilding as a future industry. The opportunities for an effective competitive naval shipbuilding industry remain strong. The Scottish Executive and the DTI should consider mechanisms for promoting the prospects for this industry as an appropriate route for investment and career development (recommendation 14).
- 2.9.6 **Commercial shipbuilding** - the visit to Germany, particularly to the Aker-MTW yard, and discussion of the severe competitive challenges faced by German yards, in spite of investment of hundreds of £millions for complete reconstruction and re-equipment, makes clear the improbability of a significant scale of high volume merchant shipbuilding on the Clyde. Future success will be dependent on the warship and other specialist niche markets such as those pursued by Fergusons at Port Glasgow. We recommend that the Scottish Executive and DTI should actively encourage Scotland's remaining shipbuilding business to evaluate the potential for collaborative ways of working across the UK (recommendation 3). This should draw lessons from the visit to Holland by the Shipbuilders and Shiprepairers Association (SSA), DTI, trade unions and Society of Maritime Industries in 1999.

Government roles

- 2.9.7 **Shipbuilders' Relief Fund** - We recommend that the Scottish Executive continues to support a positive resolution of the current uncertainty on Shipbuilders' Relief for export warships (recommendation 4). This financial support in improving price competitiveness is a valuable contribution to UK companies' export warship sales efforts.
- 2.9.8 **Export support** - the importance of high level political support in major defence equipment sales is recognised. We welcome the continued active support of UK Government Ministers in promoting warship and other defence export contracts. Every appropriate opportunity should be taken to include Ministers from the Scotland Office in promoting Clydeside's case in securing new orders (recommendation 5).
- 2.9.9 **Export collaborative bidding** - It is considered important that industry be encouraged to adopt a more collaborative approach for export bids. We recognise the issue of a 'level playing field' for UK warship builders, but note the changed structure of the industry, with only BAE SYSTEMS and Vosper Thornycroft remaining as significant suppliers.

- 2.9.10 The operation of Government defence export support systems by DESO may benefit by reflecting those changes in ways that maximise the success for the UK industry as a whole, such that UK shipbuilders are not competing against each other in export bids. The German frigate and submarine consortia offer useful examples. In the UK, the DTI operates a process of 'internal' bid assessment and selection for export power station contracts such that only one UK contractor can tender with undivided UK Government support. The Government should consider whether there are lessons to be learnt from other industrial sectors in the promotion of exports where there are competing bidders (recommendation 6).
- 2.9.11 **Defence procurement systems** -we recognise the dilemmas that MoD and, in particular, the DPA face in ensuring value for money in major defence contracts through Smart Acquisition. The initial Type 45 process highlighted the contractor's risk of both BAE SYSTEMS and VT potentially investing to build one or two ships, leaving one in a 'winner takes all' position for later ships, with the other facing substantial financial or capability losses. The MoD have recognised this risk and adopted a collaborative solution involving both companies. Given the consolidation of the UK warship industry, the flexibilities inherent in smart acquisition should be used to ensure that procurement decisions taken on individual programmes promote the longer term availability of the industrial capability needed to provide a competitive environment for future orders.
- 2.9.12 The requirements of balancing the needs of the MoD, the taxpayers, other warship builders and UK industrial capabilities are complex and fall outwith the scope of the task force's brief. However, we recommend that the DTI continue to engage with the MoD to consider the industrial implications of procurement strategies (recommendation 7). The aim must be to drive up value for money without risking the loss of significant pockets of strategic capability, such as in the design, build and systems integration skills in the Clyde and Barrow yards. In particular, we recommend that the Government should continue to take account of the detailed industrial implications of its procurement decisions for naval shipbuilding, including design and integration capabilities (recommendation 8).
- 2.9.13 **Warship designation policy** - we note the MoD's stated requirement for a number of replacement vessels for the Royal Fleet Auxiliary. As the specification for replacement vessels becomes clear, early clarification of their designation as war ships would be welcomed (recommendation 9).

A UK shipbuilding policy statement and maritime policy co-ordinator

- 2.9.14 A considerable number of MoD orders have now been placed or are projected. It is noted that the very considerable of work in the carrier programme will create a peak demand that absorbs most available UK shipbuilding capacity for several years. There is an opportunity to exploit this workload to help the UK industry make appropriate investments that may increase its effectiveness in export markets. Opportunities for exploiting the high value-added knowledge involved in this industry could also be explored. However, beyond the future carrier in about 2015, this volume of MoD work will reduce to lower levels. At the very least, it will be important for all Government departments to work together to consider in advance the implications of this completion of MoD future stated requirements. For these reasons, it would also now be timely for Government departments to restate their shipbuilding policy in the light of this report (recommendation 1).
- 2.9.15 **A Maritime Policy Co-ordinator** - we note the progress of the UK shipbuilding forum and, drawing on the Dutch and German experience, suggest a further development of that forum to consider the appointment of a Maritime Industry Co-ordinator (recommendation 2). The role of the Maritime Co-ordinator in Germany is to bring all interested parties together from industry and Government and to improve German competitiveness in shipbuilding, shipping and the harbour economy. The role is expected to improve horizontal co-ordination between the yards, as well as vertical co-operation between academia, design companies and other parts of the supply chain. The role is at an early stage in Germany, but has very firm commitment from the federal Government. In the UK a co-ordinator could act as a clear link with the current Shipbuilding Forum and could take on a brief that includes exploring opportunities in wider marine related industries such as remotely operated vehicles.
- 2.9.16 An important priority for the co-ordinator's work is a process of engagement with the MoD which, as the major customer for most UK shipyards, has an extremely significant role in the future of the industry. We recognise that this position was achieved by failure in merchant shipbuilding competitiveness, rather than MoD design. However, this degree of dependence can only be reduced by increasing the amount of non-MoD work.
- 2.9.17 **High profile political support** - we recommend the continued high level support from senior Scottish and UK Government Ministers for the industry as being strategically significant in the economy, with particular focus on the high technology and knowledge components in warship construction (recommendation 10).

- 2.9.18 **Offset opportunities** - we recommend that the Scottish Executive assesses the potential of offset as an export development opportunity for appropriate Scottish companies (recommendation 12). This could yield benefits both for those businesses and for BAE SYSTEMS in offering increasingly innovative offset packages in support of their export warship marketing efforts. The value of offset in winning orders is increasing as more companies and countries become active in exporting. We are not aware of any mechanism that currently assists Scottish companies engage in offset work and recommend that the Scottish Executive considers the development of such a process.

Opportunities related to marine industry development

- 2.9.19 In noting the largely unrecognised high technology and systems engineering elements of the Clyde shipbuilding industry, we recommend that the Scottish Executive assesses and evaluates related opportunities for Scotland's knowledge based industrial development (recommendation 13). We note the work carried out by Scottish Enterprise in examining the potential of Scotland's marine industries. Two examples of areas where further work could be beneficial are:
- **Wave energy generation** - We note the global prominence achieved by a small country such as Denmark in wind-power generation. A context of the increasing importance of renewable energy sources, Scotland's natural position in wave resources, and the technical developments in Scottish institutions may offer an important opportunity for the development of this industry in Scotland; and
 - **Remotely operated vehicles (ROVs)** - We note the DPA requirement for manned and unmanned underwater weapon systems and, noting the concentration of ROV companies serving the oil industry, recommend that the Scottish Executive studies the potential for a specialist cluster development in this high technology niche.
- 2.9.20 BAE SYSTEMS' strategy is to operate Marine as a warship and naval shipbuilder. However, we would recommend that the company should continue to pursue commercial work where this is compatible with warship capacity demands and a sound business case can be made (recommendation 15).

CHAPTER 3: **SKILLS**

3.1	Introduction	56
3.2	Learning and development in BAE SYSTEMS Marine	56
3.3	Issues affecting the skills supply	58
3.4	The range of trades and skills available	59
3.5	Skills for the future	61
3.6	Conclusions and recommendations	64

CHAPTER 3: SKILLS

3.1 INTRODUCTION

- 3.1.1 A Training Needs Analysis (TNA) provided the information to identify the range of skills and trades available on the Clyde and the skill requirements in the medium term (beyond five years). Less certain, however, is the longer term view (beyond 10 years). The TNA identified both the trades and skills of the groups of workers being made redundant and those to be retained. Information on the surplus trades and skills "at risk" was also considered in relation to the work being undertaken in respect of redundancy management.
- 3.1.2 The information from the TNA was assessed alongside demographic and West of Scotland labour market projections to identify issues affecting the general supply of skills. The options for ensuring an appropriate supply of skills were stimulated through case studies of up-skilling, multi-skilling and cross-skilling², Engineering and Marine Training Authority (EMTA) research, consultation with a number of experts and a review of BAE SYSTEMS' Learning and Skills Programmes. The main reports considered are outlined in the bibliography.

3.2 LEARNING AND DEVELOPMENT IN BAE SYSTEMS MARINE

- 3.2.1 BAE SYSTEMS is a recognised Investor in People. The Marine Management Team has developed and implemented forward-looking "people plans" as part of the overall business strategy, aiming at creating an agile and flexible organisation, developing and maintaining the talent pool and embedding high performance criteria. "Togethr" is a company owned jointly by Xchanging and BAE SYSTEMS Marine, which delivers the Human Resources services necessary to implement the HR strategy and policy.

Growing tomorrow's workforce

- 3.2.2 Through teacher placement, Ambassadors into Schools, curriculum support, and work experience (for around 90 young people each year) the company works collaboratively with schools to bring the excitement and challenge of engineering to young people through its Schools' Network.

² Cross-skilling is where workers possess a range of skills appropriate to more than one work process and are used flexibly on a project or within an organisation. It is about developing a range of competencies within the workforce to enable the full utilisation of these capabilities. It also allows the individual the opportunity to add to their existing competencies to meet the needs of the industry, the company and their individual aspirations.

Multi-skilling, up-skilling, skills enhancement and inter-changeability are all synonymous with the term cross-skilling, but their application will vary in almost every situation, be that in electronics, aerospace, electrical engineering, mechanical engineering, foundry, fabrication, shipbuilding or ship repair. The challenge is to ensure that all parties understand in each case the application of cross-skilling within the upper Clyde shipyards.

- 3.2.3 BAE SYSTEMS Marine has an established Modern Apprenticeship (MAs) programme following the EMTA framework for craft and technical occupations. Currently 162 under-25 MAs are in training. Through the idea that it is *"cool to succeed"*, the company actively promotes success in study. In addition, a range of personal development opportunities such as outward-bound, Young Enterprise, Millennium Volunteers, Queen's Silver Medal, Apprentice Innovation Challenge and an International Exchange programme are supported.
- 3.2.4 Apprentices with high potential can proceed to the Graduate Development Programme (GDP). The GDP is an extensive programme of learning and development to encourage the professional development of graduates and the achievement of Chartership with the Institution of Electrical Engineers (IEE), the Royal Institution of Naval Architects (RINA) or the Institution of Mechanical Engineers (IMechE).

Learning culture and employee development

- 3.2.5 The company's Performance Development Review process provides the focus for objective setting and learning and development planning. It is a core business process, linked to company objectives, values and competencies. A wide range of programmes is available, from personal effectiveness to technical areas.
- 3.2.6 The company's Virtual University launched in 1998 is the umbrella *"to foster a culture of life-long learning in the workplace, to enhance performance and so improve the financial results of the company"*. It covers education, training and development, the acquisition of new technologies, strategic research, research partnerships, leadership development, the identification and deployment of world-wide engineering and business best practice. Support includes an Intranet based Learning and Development Guide, summarising over 3,000 programmes across BAE SYSTEMS, the company-wide Learning Centre Resource Network, the Strategic University Partnership Policy to manage academic learning and research relationships, and a website with over 300 best practice case studies.

New starts, flexibility and cross-skilling

- 3.2.7 Competitive pressures require a constant re-appraisal of current and future skill requirements. New Start has been designed to deliver new skills and flexibility and cross-skilling training, developing skills outside those traditionally accepted as core to an occupation. Recent examples include:

New Starts	Flexibility and Cross Skilling
20 Modern Apprenticeships aged 25+ Electrical Engineers - 18 month programme	Steelworkers learned to sling and drive remote control cranes
	Pipe fabricators learned to weld. 30 steelworkers re-trained in elements of electrical work
15 Draughtsmen	Welders and fabricators learned to band electrical cables
	Sheet metal workers learned to weld
	Self-verification and inspection of work

3.3 ISSUES AFFECTING THE SKILLS SUPPLY

- 3.3.1 Glasgow is now well represented in sectors which are growing and continuing to grow, relative to the rest of Scotland. Continued, but slower, growth is forecast for Glasgow during the next decade, in the context of a slow-down in the world economy before the events of 11 September 2001. The major construction investments proposed, with an estimated 6,500 jobs across a range of skilled and semi-skilled occupations, may create pressures in particular on the youth labour market. Jobs growth in Glasgow is accordingly likely to be relatively faster than in the west of Scotland and Scotland as a whole.

Jobs should grow

- 3.3.2 Overall, jobs in Glasgow are expected to grow by 6%, from 396,000 in 2001 to 418,300 in 2010. This continues the growth since 1995, but at a slower rate.

Unemployment has come down

- 3.3.3 Since 1996, unemployment in Glasgow has fallen from 8.8% to 5.1% (October 2000), but hidden unemployment remains a major issue. The employment rate is the measure of those in work as a proportion of the working age population and, rather than the headline unemployment figures, indicates the real scale of the gap between Glasgow and the rest of the UK. Whilst the gap has narrowed somewhat in recent years, reaching the UK average would require an extra 71,000 Glasgow people to be in jobs.

The workforce will grow

- 3.3.4 Strathclyde Labour Information Market Services (SLIMS) forecasts an additional 9,000 people in Glasgow's workforce by 2008, a 2% increase compared with a marginal decline in the west of Scotland overall.

But the workforce will age

- 3.3.5 The workforce will age considerably. The 16-to-24 age group will increase by 3.3%, the 25-to-34 age group will decline by 19%, while the over-45s will increase by 12%. One implication is that, in the following decade there will be dramatic falls in the overall size of the workforce.

Skills and qualifications

- 3.3.6 The shifting balance of jobs towards activities demanding higher level skills will require both improved educational attainment levels and greatly increased up-skilling and re-skilling activity amongst the employed workforce. Educational qualifications tell a mixed story. School-leavers in Glasgow lag well behind the rest of Scotland for both Standard Grade and Higher achievement, and the gap has not narrowed significantly. Conversely, the proportion of the working age population with degree level qualifications is ahead of Scotland at 26%.
- 3.3.7 BAE SYSTEMS, like other employers, will face increasing competition in securing well qualified young people. The general image and attractiveness of both shipbuilding as a career and BAE SYSTEMS as an employer will be critical in maintaining an in-flow of young people to shipbuilding. However, the low employment rate and the scale of "hidden" unemployment presents opportunities to consider non-traditional entrants to shipbuilding.

3.4 THE RANGE OF TRADES AND SKILLS AVAILABLE

- 3.4.1 The TNA identified the range of trades and skills available in the three functions of BAE SYSTEMS Marine on the Clyde: engineering, operations and services (HR, finance, procurement, commercial, product and process assurance).
- 3.4.2 Managers in each function were asked to consider role profiles, performance development reviews, competencies, business drivers, skills matrix, sales and operations planning (S&OP), age profiles, and comment on:
- Skills required for each job role;
 - Difference between number of employees with these skills and the number needed;
 - Level and necessity of each skill;
 - Critical skills that need to be retained;
 - Age profile;
 - Training solution and priority; and
 - Number of employees on restricted duties (those requiring rehabilitation or redeployment as a consequence of serious medical condition).
- 3.4.3 The assumptions about future work underlying the TNA are set out in table 3.1 overleaf. The assumptions did not include work related to glass reinforced plastic (GRP) hulls, and therefore the analysis of trades and skills makes no comment on the skills required for such construction.

Table 3.1: Current and future work opportunities

Current	Future Commitments	Future Opportunities
T23 Frigates	T45 Anti Air Warfare Destroyer	Future aircraft carrier (CVF)
Offshore Patrol Vessels (OPV)	Alternative Landing Ship Logistics	
Land Craft Utility		Export Vessels (similar to OPV)
Anchor Handler Support Tug Vessels		Astute Class Submarine (additional vessels)
Auxiliary Oiler (AO)		
Astute Class Submarine		
Landing Platform Dock (LPD)		

3.4.4 Based on these assumptions about future work, the TNA concluded that:

- Occupations were at risk, but there are potential redeployment opportunities;
- Age profiles suggest potential shortages in the medium to longer term, particularly in Operations where 20% of the workforce are aged over 56;
- Skills can be identified that need to be retained to meet future work commitments;
- A cross-skilled workforce, with a common pool of skills, is necessary for future success;
- There is a need to build and expand on current learning and development opportunities, particularly in developing a learning culture;
- The introduction of the computer Integrated Business Systems (IBS) will increase the requirements for cross-skilling; and
- The introduction of Performance Centred Leadership (PCL) will develop the key behaviours of managers.

3.4.5 The next section outlines the gains already made by BAE SYSTEMS and the trade unions in flexibility and cross-skilling, and proposes further development of these approaches through the idea of Concurrent Engineering.

3.5 SKILLS FOR THE FUTURE

- 3.5.1 The manner in which different skills are grouped together has an impact on employment trends within the shipyards. Achieving sustainable levels of employment in the Clyde shipbuilding industry depends on both the overall strategy for building ships and the nature of the relationship between skill groups. The evidence suggests that the overall strategy for building ships has not changed dramatically over the past decade. Units were built principally in the module hall, in a sequential process, achieving a maximum of 70%+ outfitting prior to launch. This is illustrated by figure 3.1.

The last ten years

- 3.5.2 The UK Ministry of Defence's policy of smart acquisition, and competition from cost efficient overseas yards, has seen a major emphasis on productivity and competitiveness over the last decade. Whilst the overall build strategy, based around a sequential process, has not changed, significant integration within the build stages, but not across the different stages, has been achieved through flexibility agreements with the trade unions (see Fig. 3.1, top section). Prior to the introduction of flexibility agreements, there was a high number of discrete skills and trades which did not move across the lifecycle boundaries. There were several consequences in managing the peaks and troughs in the demand for labour and skills:

- a hire-and-fire approach;
- a high dependency on temporary labour; and
- low productivity levels.

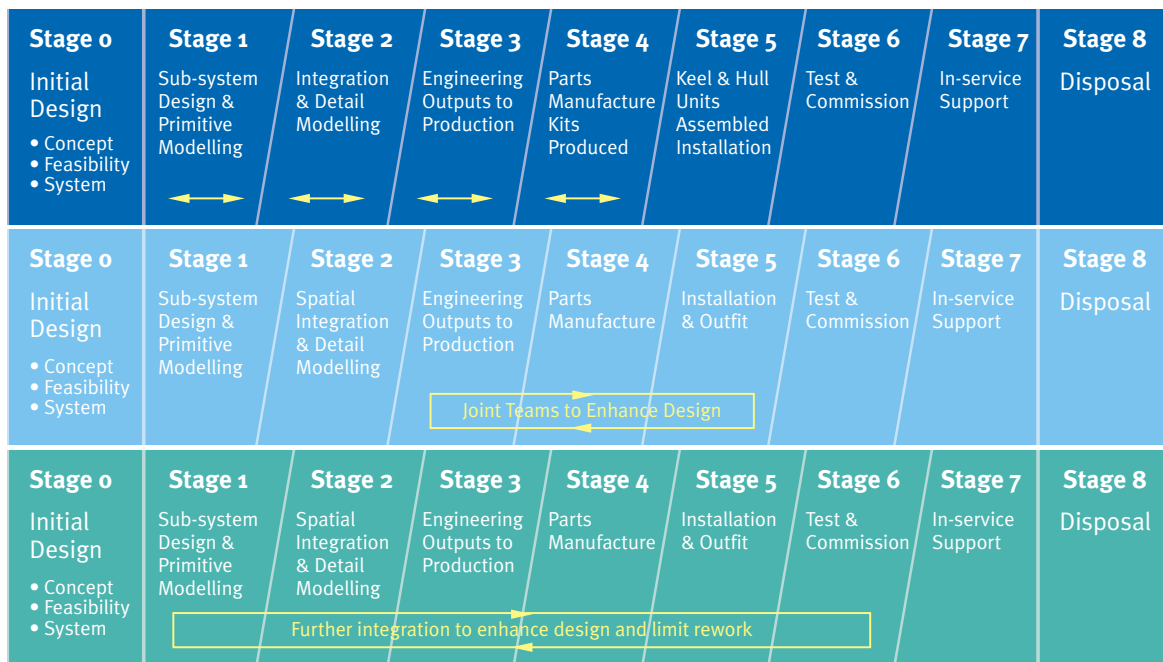
More recently

- 3.5.3 The productivity and competitive pressures led to a need to move more swiftly through the lifecycle stages. Examples of new initiatives include:
- Stages 0 - 3 Design to specification - multi-disciplined teams;
 - Stages 4 - 5 Lean manufacturing - self-verification; and
 - General Business Improvement Programmes - Total Quality.

Figure 3.1

**Build Methodology -
Product Development Life-Cycle, BAE SYSTEMS Marine Ltd**

■ Build Methodology 10 Years Ago
 ■ Current Build Methodology
 ■ Future Build Methodology



Product Definition →

- 3.5.4 More recently, full flexibility between trade groups has been achieved to enable employees to undertake a range of tasks to complete a job (see Fig. 3.1, middle section). This helps to maximise productivity and manage fluctuating labour demands. Flexibility includes self-servicing, self-verification and work associated with other trades.

The future

- 3.5.5 BAE SYSTEMS has worked with the MoD to develop a long term value-for-money relationship, which enables the pattern of under investment to be reversed and provides for sustainable levels of employment. However, the drive for productivity improvements and competitiveness continues.
- 3.5.6 Significant advances in flexibility and cross-skilling have already been achieved by the company and trade unions working in partnership. The strength of this partnership will be vital in meeting the challenge of block build. This new construction process will require a period of learning. The faster the process of learning, the more quickly competitiveness can be achieved. Since there have been no dramatic changes in the construction of ships for the last ten years on the Clyde, the time required to learn, for both management and the workforce, is difficult to estimate. However, significant gains will accrue if systems and processes can be developed and implemented to allow fast learning, knowledge capture and transfer.
- 3.5.7 Concurrent Engineering (CE) is a systematic approach to the integrated, concurrent design of products and related processes, including manufacture and support. This approach is intended to cause the developer, from the outset, to consider all elements of the product lifecycle from concept through disposal, including quality control, cost, scheduling and user requirements. Integrated Product Development (IPD) is a philosophy that systematically employs a team of functional disciplines to integrate and apply concurrently all necessary processes to produce an effective and efficient product that satisfies the customer's needs. The benefits of CE and IPD include 30% to 70% less development time, 65% to 90% fewer engineering changes, 20% to 90% less time to market, 200% to 600% higher quality, and 20% to 110% higher white collar productivity. (As reported by the National Institute of Standards & Technology, Thomas Group Inc., and Institute for Defence Analyses in Business Week April 30, 1990.)
- 3.5.8 A build strategy that utilises the philosophy of CE and IPD, that learns and adapts systems and processes as a consequence, will deliver ships faster and more efficiently. When allied with cross-skilling, it is more likely to maintain the competitiveness of the Clyde yards and enhance job security by alleviating the fluctuating demand for skills inherent in the shipbuilding process of the past (see Fig. 3.1, bottom section).

3.6 CONCLUSIONS AND RECOMMENDATIONS

3.6.1 We recommend that the following is adopted by BAE SYSTEMS Marine.

Growing tomorrow's workforce

3.6.2 BAE SYSTEMS Marine should develop a relationship with Careers Scotland, Glasgow City Council Education Directorate's Going to Work in Glasgow campaign and the Scottish Executive's Make it in Scotland campaign to continue to attract young people as modern apprentices (recommendation 16). Relationships and initiatives may require to be re-affirmed during the merger of the Careers Service and the Education Business Partnership. The Engineering and Marine Training Authority's (EMTA's) CD-ROM on engineering careers should be promoted more generally in schools. As an early action, we suggest that careers in the shipyard are included in the Going to Work in Glasgow campaign.

3.6.3 We note that BAE SYSTEMS Marine has encountered no issues in recruiting and retaining graduates, although the company has expressed concerns at a UK level on graduate recruitment.

Learning culture

3.6.4 BAE SYSTEMS Marine should work in partnership with the trade unions to create a network of learning representatives who would be able to give information, advice and guidance on learning and development opportunities (recommendation 17). The introduction of learning representatives should be seen as complementary to the role of line managers and supervisors and not as a replacement.

3.6.5 The company should set up a learning centre in the Govan yard, similar to the existing one at Scotstoun, to ensure easier access for the Clydeside workforce (recommendation 18). It should consider the relationship with the wider efforts in the city to encourage lifelong learning through the Real Partnership and the Real centres located in local libraries. Access to learning could be further promoted through use of the Learndirect Scotland telephone help-line, which provides information on learning across Scotland. An indication of the progress of a broad learning culture would include an increase in use of the learning centre and out of hours learning.

Learning solutions

- 3.6.6 Further roll-out of the development of cross-skilling in support of the introduction of concurrent working will be necessary (recommendation 19). A flexible, adaptable workforce will be the key to the success of the three yards strategy. Continuing joint discussions between the trade union and company on cross-skilling, upskilling and investment in training programmes are required. Cross-skilling enhances job security and begins to alleviate issues in the fluctuation of demand for skills inherent in the ship building process. The TNA has begun some of this work, but development will be required to identify:
- Cross-skilled craft groupings;
 - Opportunities for qualification to an equal level in a second occupation, e.g. the twin apprenticeship model developed at Falkirk College; and
 - Career progression tracks.
- 3.6.7 We note that the company has been an early adopter of e-learning. This has the potential to enhance the traditional learning process when the two are blended and we would encourage the company to continue to exploit such developments (recommendation 20). The Scottish University for Industry (SUfI) provides advice and guidance and signposts funding for the development of e-learning.

Employee development

- 3.6.8 We would recommend use of externally certificated qualifications, so that the company can be certain of the full extent of employee capabilities (recommendation 21). Transferable and transparent qualifications offer an effective and efficient way to capture knowledge, skills and capabilities and to develop future skills and apprenticeships. The company should continue to ensure that skills and qualifications are kept up to date, in support of the competitiveness of the business.

Concurrent working

- 3.6.9 The reappraisal of the relationship between the build strategy and skills requires further investigation of how concurrent working may be implemented (recommendation 22). The competitive nature of shipbuilding requires faster cycle times to build ships with an integrated approach to design, manufacture and support. Capturing the knowledge and learning and feeding that into all stages of the build strategy will require a whole workforce learning and development strategy based around knowledge and skill transfer.
- 3.6.10 For this reason, we firmly believe that the 6 Sigma pilot, a business performance measure, should be applied to all areas of the build strategy. We note that EMTA is introducing national occupational standards and that these could be used to support the introduction of 6 Sigma. The philosophy and principles of the core skills embedded in apprenticeships will be required across the workforce to introduce successful concurrent working.

CHAPTER 4: **COMMUNITY REGENERATION AND LAND USE**

4.1	Introduction	68
4.2	Context	68
4.3	Upper Clyde regeneration zone	69
4.4	The Scotstoun shipyard	70
4.5	The Govan shipyard	71
4.6	The shipbuilding communities	72
4.7	Other opportunities	76
4.8	Conclusions and recommendations	77

CHAPTER 4: COMMUNITY REGENERATION AND LAND USE

4.1 INTRODUCTION

- 4.1.1 One of the implications of BAE SYSTEMS' announcement of redundancies was a significant downturn in the required capacity of the shipyards. The task force was equally concerned about the possible physical impact upon the local communities of Govan and Scotstoun.
- 4.1.2 Accordingly, a workstream was identified by the task force to look at the issues of community regeneration and land use. This included consideration of what steps might be required to ensure that development opportunities reflected the needs of the local communities. Opportunities within the river corridor and surrounding areas, should operations at either yard be reduced significantly, were also considered.

4.2 CONTEXT

- 4.2.1 Glasgow begins the new millennium with great confidence based on practical successes over the past decade, which have helped strengthen its economic performance and provided a vibrancy for the future. The city has seen a significant shift from heavy industry to service sectors and has managed the transition successfully. Shipbuilding remains a major component of Glasgow's economy. Local communities are dependent on the strong performance of the yards and their associated businesses.
- 4.2.2 The Govan and Scotstoun yards, together with the King George V dock, are the last examples of the working industrial river on the upper Clydeside and in Glasgow. They continue to be of significant economic importance to the city. The economic performance of the Glasgow yards is of critical importance to the people who live and work in the area. Investment in the physical, skills and social infrastructure of these communities is essential to maintain confidence, attract further investment and accelerate economic growth.
- 4.2.3 The policy context for community regeneration and land use in the Govan and Scotstoun areas is provided by the Structure Plan and City Plan. The Glasgow and Clyde Valley Joint Structure Plan sets out a common strategy for the long term development of Glasgow and the Clyde Valley. It identifies the Clyde waterfront as a Metropolitan Flagship Initiative. It also proposes that development should capitalise on the existing economic clustering and reclaim the waterfront for the local community by introducing mixed commercial and housing developments as well as improving transport links.
- 4.2.4 The finalised draft City Plan, which is intended to accord with the Structure Plan, highlights the Clyde's unifying role within the city and reinforces this through common approaches to infrastructure and urban design. Within both Scotstoun and Govan, the Plan identifies the need to establish stronger links between the river frontage and adjacent communities and to improve cross-river links. South Street is identified as a potential Industrial Improvement Area and Transport Corridor. The plan prioritises the production of a Local Development Strategy for Govan/Partick as a means of delivering detailed planning solutions that mobilise public and private investment following full community and partner consultation.

- 4.2.5 In considering land, property and other issues as part of the community regeneration and land use workstream, it has not been possible in the time available to carry out a full investigation of costs relating to all opportunities and other initiatives. Experience has enabled best estimates to be determined. In some cases, figures are only indicative. However, this does serve to highlight the wide range of opportunities available for development and other initiatives at varying stages in the areas surrounding the shipyards.

4.3 UPPER CLYDE REGENERATION ZONE

- 4.3.1 In carrying out its study, the task force concentrated on the industrial areas of the shipyards and their environs. The areas of interest on both banks comprise significant segments of Social Inclusion Partnerships (SIPs). On the north bank is Dumbarton Road Corridor Social Inclusion Partnership. Greater Govan SIP includes the Govan yard and other sites on the south bank .
- 4.3.2 The upper Clyde has several major developments and development proposals on the stocks. These include: the digital media campus at Pacific Quay with proposals for 200,000 square metres of commercial space; Braehead which straddles the Glasgow/Renfrew boundary, has already created 3500 jobs and proposes a further 9500 jobs in retail, leisure and commercial space; the financial services district of Broomielaw; and Glasgow Harbour, which is a major development of housing, commerce, leisure and retailing. These major developments are key to unlocking the true value of the Clyde corridor and each has potential to bring traffic to the river itself.
- 4.3.3 In recognising the national significance of the river and the need to establish the Clyde corridor as a true metropolitan area, there is an urgent requirement to review the transport infrastructure surrounding the upper Clyde.
- 4.3.4 Transport issues include motorway and expressway access, arterial road improvements, light passenger transport alternatives such as guided bus systems, and integrated rail links. Glasgow City Council and Strathclyde Passenger Transport have initiated studies in this area. Clydeport is also considering public transport options for Glasgow Harbour and beyond. Transport will also be considered by the public sector partnership looking at the wider Clyde corridor. An integrated transport system will provide much greater opportunities to the shipyard community on both banks of the river.

North Bank Boundary

- 4.3.5 The boundary of the zone runs from the Clyde Tunnel in the east to Glasgow City boundary at Yoker. Immediately adjacent to the eastern boundary of the zone is the site of Clydeport's Glasgow Harbour development. Clearance work on this 40 hectare site is due to commence in January 2002 to make way for approximately 2,500 housing units and 40,000 square metres of office leisure and retail space.

South Bank Boundary

- 4.3.6 On the south bank, the zone runs from the Graving Docks in the east to the Thales (formerly Barr & Stroud) complex in the west. On the eastern perimeter of this area is the prestigious Pacific Quay development, where site preparation work is already underway to accommodate major commercial development of 200,000 square metres, including the BBC. This is due for completion in 2004. Pacific Quay is designed as a digital media campus employing in excess of 3,500 people.

4.4 THE SCOTSTOUN SHIPYARD

- 4.4.1 The site of the Scotstoun yard (formerly Yarrow's) on the north bank covers 23 hectares and is owned by BAE SYSTEMS. The company has plans to demolish some unused buildings within the complex to allow better utilisation of their asset. At the west end of the site is the former Glass Reinforced Plastic (GRP) shed and slipway adjacent to the drydock (Fig 4.1). Both properties are surplus to the yard's requirements. The shed has been marketed by BAE SYSTEMS for some time, but it is very specialised due to the high roof height and slipway. Clydeport has agreed to search for a user of the drydock such as a ship repair company.

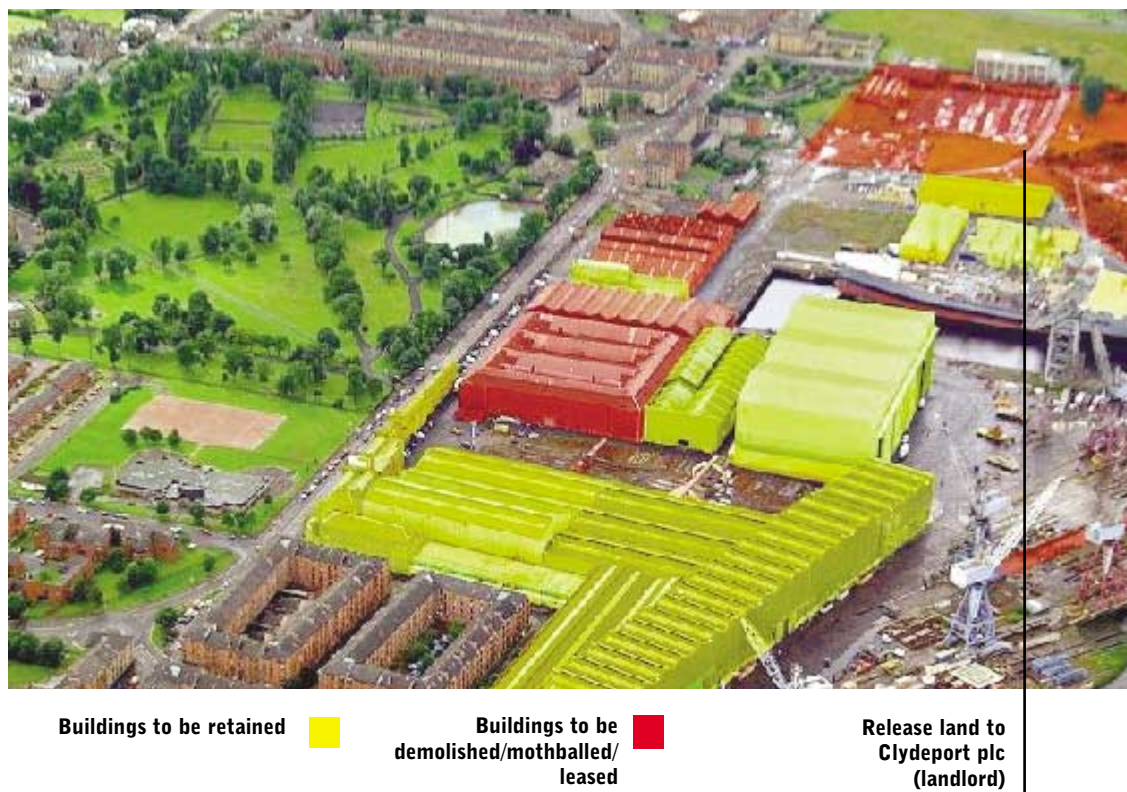
Fig 4.1 Scotstoun Site - Restructuring Facilities Rationalisation Impact



4.5 THE GOVAN SHIPYARD

- 4.5.1 The Govan yard, formerly Kvaerner, is on the South Bank and covers 42 hectares. It is owned by Clydeport and leased to BAE SYSTEMS (Fig 4.2). Six hectares of the site to the west is unused and the landlord proposes to relocate a materials recycling plant, operated by Malcolms, to this location. In addition, following investment by BAE SYSTEMS in new modular offices within the yard, it is likely that the shipyard operator will vacate the main office block which runs along Govan Road.
- 4.5.2 The presence of such large, dominant, unoccupied buildings in the centre of Govan would have a major negative impact on the confidence of the community and the surrounding businesses. The offices require extensive refurbishment, but have the potential to be developed into business space and provide a major opportunity in the Govan area.

Fig 4.2 Govan Site - Restructuring Facilities Rationalisation Impact



**Govan Yard - grade A listed****National Cycle Route**

- 4.5.3 The buildings within the Govan yard comprise a 2,934 square metres main building and a 1,521 square metres extension, both of whose main elevations are grade A listed and therefore of national significance. In addition to façade and roof repairs, the services would require significant investment. The accommodation would lend itself to conversion as a mix of open plan, cellular and self-contained offices, together with a shared resource such as a boardroom. Estimated costs of refurbishment are £4 million, a portion of which would require to come from the public sector.

4.6 THE SHIPBUILDING COMMUNITIES

North Bank

- 4.6.1 The aggregated population of the Yoker, Scotstoun and Whiteinch communities is approximately 17,000. The community incorporates the Dumbarton Road Corridor Social Inclusion Partnership. Youth unemployment is particularly high. Lone parent households are 50% higher than the Scottish average and education attainment levels are 13% below the Scottish rate.
- 4.6.2 The development of the area has been dictated by the infrastructure associated with the industries along the river. South Street provides the main arterial route, although proposals to improve and extend the route to Yoker Relief Road have never been implemented. South Street improvements are estimated to cost £5-10 million, with construction of the Yoker Relief Road costing £7-9 million. Estimates for this work are between £6 and £8 million.
- 4.6.3 On the eastern boundary of the north bank is **Rothesay Dock** and the 24 hectare site of a proposal for housing development promoted by Clydeport in partnership with Scottish Power. Planning consent for this has not been granted.
- 4.6.4 Route 7 of the **National Cycle Route** between Glasgow and Loch Lomond was opened In 1989. The Partick to Yoker section utilises the former railway line and is elevated between five and six metres above the surrounding area. The embankment presents a major physical and psychological barrier between the residential areas to the north and South Street and the river to the south and is seen as a threat to the security of existing properties on either side of the route.
- 4.6.5 While there is local support for the removal of the elevated embankment, there are obstacles which would make this problematic. There are 13 bridges which would require removal, resulting in 11 new road crossings for cyclists. Removal of the embankment would require the relocation of the cycle track and also remove a potential segregated public transport route.



National Cycle Route



Yoker Resource Centre

- 4.6.6 An alternative scheme of environmental improvements and enhanced security is suggested for investigation as a matter of priority. Estimates of the costs of such improvements over the three kilometre length of walkway, assuming minimal contamination, are around £600,000.
- 4.6.7 In terms of the opportunities for new **industrial development**, vacant land and property is dispersed throughout the Scotstoun area. The range of industrial property located south of Dumbarton Road provides opportunities for businesses to operate with relatively low overheads close to the city centre. There are over 100 existing businesses in the area. In addition to BAE SYSTEMS, these include engineering, automobile repair, storage and scrap, storage and distribution and retail warehouses. Certain businesses that benefit from yard employees' custom would be vulnerable if BAE SYSTEMS downsized.
- 4.6.8 Clydeport has negotiated the relocation of a bus depot to a two hectare site on South Street. In addition, there is one significant site of four hectares on South Street currently in the ownership of a developer, which could accommodate a range of industrial and commercial development providing employment opportunities which are not dependant on shipbuilding. The owner is willing to look at development proposals. Subject to the mix of development and market conditions, the public sector shortfall funding input is estimated at £350,000.
- 4.6.9 Both Yoker and Whiteinch communities have indicated their wish to develop a **community resource/workshop/training** base within their areas. In view of the levels of youth unemployment and educational attainments, such centres are seen as essential to the regeneration of the area.
- 4.6.10 Staff at the **Yoker Resource Centre**, which is a Glasgow City Council facility, have already identified the considerable need for an increase in the employment and training opportunities for local residents. There is an outstanding opportunity to develop a community campus incorporating the present Yoker Resource Centre and the rehabilitation of the adjacent Neighbourhood Centre, including the local Housing Association, Community Council and youth project office. The building is the former Yoker Primary School owned by Glasgow City Council. It requires re-roofing and major treatment for wet and dry rot. The estimated capital spend to effect comprehensive refurbishment is £1 million, part of which may be funded from SIP resources. This would include the construction of intensive training facilities and the capital costs for a digital learning centre and a youth internet centre.
- 4.6.11 The **Digital Learning Centre** would form part of the local digital inclusion strategy. The centre would consist of drop-in facilities and a suite of networked computers. Annual running costs would be in the order of £130,000.



Whiteinch and Scotstoun Neighbourhood Centre

- 4.6.12 The **Youth Internet Centre** would consist of facilities for intensive work with young people, computers and other ICT equipment and resources, and a café. Running costs would be around £90,000 a year.
- 4.6.13 Plans have been developed for the development of a new neighbourhood centre on the current site of the **Whiteinch and Scotstoun neighbourhood centre**. The proposals include workspace units and housing. The Church of Scotland, Housing Association and 25 user groups have expressed interest in taking part in the redevelopment. Much of the funding for the project is in place, but top-up funding of around £450,000 would be required to enable the project to commence. This would include the costs of providing outreach facilities for the youth internet café.
- 4.6.14 There is also demand for a community facility at Scotstoun. Glasgow City Council would be required to consider funding this facility and further resources, circa £300,000, would be required from other sources. An appropriate site has yet to be identified.

South Bank

- 4.6.15 The south bank zone has a population of 25,000 and is part of the Greater Govan Social Inclusion Partnership. For the past 14 years, the area has been supported by Govan Initiative, one of Glasgow's eight Local Development Companies. This area was identified as a SIP partly due to the significant decline over the years in shipbuilding and related industries leaving high unemployment and poverty.
- 4.6.16 Located at the eastern edge of the zone, **Govan Town Hall** is an 8,000 square metres building, partially occupied by GCC Social Work Department. It requires major refurbishment which would enable the property to complement the proposals for the Digital Media Campus at Pacific Quay. Market information indicates that, in addition to the formal commercial space proposed, independent companies within the industry are seeking smaller, lower cost office and workshop space. There is also a trend for companies to locate close to others in the media to enable the exchange of ideas, informal partnerships and sharing of resources.
- 4.6.17 Govan Town Hall could also accommodate facilities for training organisations. Discussions have begun with major operators in the media industry to develop the proposals and seek sponsorship. In spite of Govan Initiative spending £1 million on refurbishing the first floor only three years ago, refurbishment costs are now estimated at £2 million. An application for European funding for the incubator space will be made in February 2002 and a start to refurbishment could be made by April 2002.

**Graving Docks****Water Row**

- 4.6.18 Adjacent to Pacific Quay is the **Graving Docks** site owned by a private developer. The docks are grade A listed and are presently an eyesore and a safety hazard. Early action of making the site secure, demolishing unwanted buildings and clearing overgrown vegetation would be a major boost to the community. Development plans include the provision of 15,000 square metres of commercial space, hotel, leisure/ food outlets and 500 housing units. The development is aiming to be completed in 2004 when the BBC intends to open its Pacific Quay premises. While an early action programme would cost in the region of £250,000, it is unlikely that the developer would make any contribution to the works at this stage.
- 4.6.19 **The Shed** at Govan Road/Clydebrae Street is a large building which is currently unsightly and under utilised. It housed the theatrical dramas 'The Ship' and 'The Big Picnic' during Glasgow's reign as City of Culture in 1990, but little else since. The owner's agent has advised that his client has no plans to sell it or invest significantly in it and this has been the position since 1990.
- 4.6.20 **Water Row** is a 2.55 hectare riverside site owned by Glasgow City Council. Partly occupied by residential caravans, the remainder of the site is home to a local market. The site has some industrial contamination and the Underground runs beneath the site. Depending on the development design, brownfield ground correction would cost between £450,000 - £1,000,000.
- 4.6.21 One possible use of the site would be housing development, although it has been identified as a possible relocation of a further education facility requiring river access.
- 4.6.22 Glasgow College for Nautical Studies (GCNS) has an international reputation in nautical education and training. It is the only mainstream Nautical College in Scotland and is one of only three colleges in the UK to offer courses leading to every Seafaring Certificate of Competency. Currently the college enrolls over a third of the total British Shipping Industry recruitment, amounting to approximately 200 Cadet Officers every year in both deck and engineering disciplines and additionally about 100 Cadet Officers from overseas for their initial three-year course. GCNS provides vital support to the ship management industry based in Glasgow and in doing so contributes significantly to the Scottish economy.
- 4.6.23 Water Row has potential to accommodate a first class training centre, encompassing the whole range of activities currently undertaken by the Faculty of Marine Studies. It would allow expansion and diversification in line with current strategy. There is a slipway and sufficient water frontage for all water-based activities. Transport links are excellent via the underground station and buses. The site has ample space for a hall of residence to accommodate students attending short courses. Such a use could bring additional facilities and jobs to the heart of Govan.



Pearce Institute

- 4.6.24 The **Pearce Institute** is a large grade A listed building. Built in 1906 in honour of Govan's first MP, Sir William Pearce, owner of the Fairfield Shipyard whose wife gifted it to the community, it houses the Iona Community, the Braendam Family Link and a host of community groups. It has a prominent position at Govan Cross. The building is managed by a Trust and terms of the deed have made it difficult to operate at break-even. Consequently the Trust can no longer maintain the building and its tenants have recently been given notice to quit.
- 4.6.25 The building requires major investment infrastructure and services. While there are lifts, there is very limited access for disabled people because of floor layouts. Toilets, electricity supplies and heating are all sub-standard.
- 4.6.26 Mothballing the building and making it secure while alternative uses are considered would require an estimated £400,000. Allowing the building to deteriorate and decay would be a major blow to the community. Considerable investment of up to £5 million would be required, although its listed status may attract funding from the Heritage Lottery Fund and Historic Scotland. Due to the complications of the trust deed and the scale of funding required, any permanent solution would take some time to secure.
- 4.6.27 The **Hills Trust Building** is also located in Central Govan and is leased to Govan Initiative Ltd., which has developed it as the location for the Cisco Systems Networking Academy, a training centre in IT technical skills for school leavers. This project is almost fully funded and work on the building has commenced. Govan Initiative hopes to expand the Hills Trust Campus to the adjoining football pitch to develop a community education campus. Consideration is being given to a similar project being emulated on the north bank of the river.

4.7 OTHER OPPORTUNITIES

- 4.7.1 Building on the experience being developed by Govan Initiative with Cisco Systems Inc., there is an opportunity to provide a second **Community Technology Academy** located within the Dumbarton Road Corridor SIP. The facility could be located within the new Yoker Resource Centre and would start to address the issues of high youth unemployment and low educational standards.
- 4.7.2 To meet the demand of businesses attracted to the Digital Media Campus, work is currently underway through Govan Initiative Ltd to develop a **Media Industry Training Programme**. This might be sponsored by a leading industry name, addressing needs for graduate training, school leavers (similar to the model of the Academy) and the unemployed in the area.

- 4.7.3 There is also an opportunity for **Learning Grid Infrastructure**, similar to the plans to build a high capacity wireless infrastructure in Greater Govan. This would use the learning platform and the applications offered through the National Grid For Learning and Cardonald College. The object of this initiative would be to provide comprehensive access to learning at a place, in a timescale and through a medium that meets the specific needs of the local community. The experiment can be replicated in the Dumbarton Road Corridor SIP. The project requires investment in transmission equipment located at high points within each area and pick-up equipment at the destinations. These could be housed in both the Yoker and Whiteinch centres.
- 4.7.4 Scottish Enterprise Glasgow is in discussion with the city's three universities regarding the development of an **Institute of Science and Technology**. Such a prestigious facility could enhance the reputation of the City and be a catalyst for academic and spin-out development. The most suitable site for the institute would be outwith, but close to, the zone, possibly within the Glasgow Harbour site at the River Kelvin. The capital cost of an institute would be approximately £35 million.
- 4.7.5 Scottish Enterprise Glasgow is currently negotiating a joint venture with Forward Scotland to carry out a feasibility study on a **Centre for Sustainable Technologies**. While the study is at an early stage, it is felt that such a centre with its associated companies and organisations would be best located within the area under consideration.
- 4.7.6 Strathclyde European Partnership has intimated to Scottish Enterprise Glasgow that it would give consideration to a European contribution of up to £5 million for **early action on land and property** adjacent to the river, on condition that this sum could be matched by other resources.

4.8 CONCLUSIONS AND RECOMMENDATIONS

- 4.8.1 Listed in table 4.1 overleaf are those opportunities and other initiatives referred to in this report, together with an estimate of what could be done and in what timescales. We recommend that significant investment be made in the area to improve the economic performance of, and facilities for, the communities (recommendation 23). We recommend that funding is secured as early as possible for the high priority projects to facilitate the regeneration process.
- 4.8.2 In addition, we recognise the recent initiative taken to secure the comprehensive development of the upper reaches of the River Clyde from the City of Glasgow boundary down river to the Erskine Bridge. Accordingly, we recommend that the opportunities and initiatives outlined in this report and summarised in table 4.1 overleaf be considered by the emerging working group chaired by Scottish Enterprise, and that it be invited to take matters forward with energy and commitment (recommendation 25). We also recommend that progress on these opportunities and initiatives be monitored and reported to the Minister for Enterprise, Transport and Lifelong Learning (recommendation 26).

Table 4.1 Projects and Costs Estimates

Project	Private Sector cost (£m)	Public Sector cost (£m)	Priority	Term	Potential Sources of Public Funding							
					Scottish Enterprise Glasgow	Scottish Enterprise	European funds (SEP)	Glasgow City Council	Scottish Executive	Heritage Lottery Fund	Historic Scotland	Social Inclusion Partnership
Govan Yard Offices	3.2	0.8	High	Short			•	•	•	•	•	
South Street Improvements		£5-10m	Low	Long			•	•	•			
Yoker Relief Road		8.0	Low	Long			•	•	•			
National Cycle Route		0.6	High	Short					•			•
South Street Industrial	7.5	0.35	Medium	Medium	•		•		•			•
Yoker Resource Centre		1.0	High	Short			•	•	•			•
Digital Learning Centre		0.13 p.a	High	Short				•	•			•
Youth Internet Café		0.09 p.a.	High	Short				•	•			•
Whiteinch and Scotstoun Centre		0.45	High	Short								•
Scotstoun Community Centre		0.3	Medium	Long				•	•			•
Govan Town Hall		2.0	High	Medium	•	•		•	•	•	•	
Graving Docks		0.25	Medium	Medium								
Water Row		not known	Medium	Medium	•			•	•			
Pearce Institute maintenance		0.4	Medium	Short								•
Pearce Institute Redevelopment		5.0	Medium	Long						•	•	•
Inst Science of & Technology		35.0	High	Long	•	•	•		•			
Early Action Property Fund		10.0	High	Short	•		•	•	•			

Term: Short = next 12 months; Medium = 12-24 months; Long = >24 months

CHAPTER 5: **REDUNDANCY MANAGEMENT**

5.1	Introduction	80
5.2	The PACE Initiative	80
5.3	Service provision	81
5.4	Resettlement targets and performance monitoring	84
5.5	Issues	85
5.6	Conclusions and recommendations	88

CHAPTER 5: REDUNDANCY MANAGEMENT

5.1 INTRODUCTION

- 5.1.1 The Clyde Shipyards Task Force has been concerned from the outset to support negotiations between unions and management aimed at mitigating the level of potential compulsory redundancies. This has been carried out through the introduction of a series of remedial measures including:
- Seeking voluntary leavers;
 - Assisting relocation to other BAE SYSTEMS shipbuilding sites;
 - Redeploying workforce within the Glasgow yards, with training, where appropriate; and
 - Promoting employment opportunities elsewhere within the wider BAE SYSTEMS group.
- 5.1.2 At the time of writing, the overall impact of these positive measures has been to reduce the estimated number of compulsory redundancies from the 1,000 originally expected to approximately 450. While this is a positive achievement, it does not deflect from what remains a very challenging redundancy management task.

5.2 THE PACE INITIATIVE

- 5.2.1 The Redundancy Management exercise operates within the Scottish Executive PACE (Partnership Action for Continuing Employment) framework. This initiative, launched in March 2000, was established specifically to allow the Scottish Executive, working with other agencies, to manage potential job losses.
- 5.2.2 The PACE initiative recognises the importance of planning ahead and providing a consistent approach to dealing with companies in difficulty at all stages before, during and after redundancies take place. The PACE approach requires the development and implementation of local plans to take swift and effective action to:
- Work with companies in order to mitigate difficulty and avoid job losses; and
 - Get people back into work as fast as possible where redundancies actually take place.
- 5.2.3 There are currently 22 PACE teams across Scotland. The Glasgow PACE team is led by Glasgow City Council. Its formal membership includes representatives from the Council, Scottish Enterprise Glasgow, Employment Service (ES) and REACT. REACT is a dedicated redundancy management organisation funded by the City Council, Scottish Enterprise Glasgow, Govan Initiative Ltd and the European Social Fund.
- 5.2.4 Immediately after the announcement of potential redundancies was made by BAE SYSTEMS, the PACE team leader contacted the company to outline the range of services which PACE could provide. The PACE team for the BAE SYSTEMS' redundancy exercise has been extended to include representatives from BAE SYSTEMS, the trade unions from both Clyde yards, and representatives from Coutts Consulting Group.

- 5.2.5 Coutts Consulting Group is Europe's largest outplacement agency and has been appointed by BAE SYSTEMS as their overall managing agency for the redundancy management programme. Coutts have experience of being involved in other similar large-scale programmes, such as NEC Livingston and Westland Helicopters.
- 5.2.6 Other public sector agencies, such as the Benefits Agency and Small Business Gateway, will work with the PACE team as and when required.

5.3 SERVICE PROVISION

- 5.3.1 The range of services which will be provided as part of the redundancy management programme include:
 - Dedicated Employee Support Centres at both Govan and Scotstoun;
 - A tailored service menu;
 - An employee call centre helpline;
 - Briefing sessions and assistance packs; and
 - Employee support services.
- 5.3.2 Each of these is outlined below:

Employee Support Centres

- 5.3.3 BAE SYSTEMS has refurbished property in both the Govan and Scotstoun yards to provide Employee Support Centres (ESCs). In line with the PACE principle of *"earliest possible intervention"*, both ESCs opened on 15 October 2001. This was well ahead of the implementation of any compulsory redundancies, but provided services for members of the workforce who had opted for, or might be interested in considering, voluntary severance.
- 5.3.4 The ESCs provide a welcoming environment where members of the workforce can visit before, during or after redundancy to develop a personal plan for their next career step. Employees meet on a one-to-one basis with a consultant or advisor to discuss their experience, interests and aspirations. The aim is to help them to decide which direction they should take, such as employment, training or further education. The centres provide information on job vacancies and opportunities, and a guidance service for entry into further training or education.
- 5.3.5 The Scotstoun ESC is located at BAE SYSTEMS' offices in South Street. There are 18 computers with job search software and three interview rooms. The office includes the presence of Coutts and ES staff on a full-time basis. The ES has provided on-site access to their Labour Market System (LMS) via laptops. LMS has access to information on over 300,000 jobs and is updated continuously. There is also a small selection of jobs and training opportunities on display on traditional vacancy boards. Clients also have access to all Jobcentre vacancies and training opportunities via ES staff on site, the ES website or the WORKTRAIN website. Staffing levels will be directly related to the level of demand for ESC services.

- 5.3.6 The Govan ESC is located at BAE SYSTEMS' premises on Govan Road. The office has six computers with job search software and one interview room. The ES is offering the same service and access to jobs and training as in Scotstoun. The office has full-time Coutts and ES coverage, plus REACT advisors.
- 5.3.7 The ESCs are open daily. Opening hours will be reviewed once the full release programme is known in line with the requirements of the workforce. The demands of workforce members on shift work will be taken into account in determining the eventual pattern of opening hours.
- 5.3.8 Each of the organisations present at the ESCs has experience of dealing with large-scale redundancies and has the staff expertise for dealing with such a situation. In order to maximise the effectiveness of this joint staffing arrangement, agreements have been reached on the demarcation of tasks in the ESCs between the three organisations.
- 5.3.9 Under this agreement:
- Coutts will provide office management, job search training and one-to-one counselling;
 - ES provide job-matching to their LMS vacancy database, marketing to employers and early access to ES programmes, including Programme Centres, Work Trials, New Deal 18-24, New Deal for Lone Parents and Travel to Interview scheme; and
 - REACT augment Coutts staff in providing vocational guidance and personal development advice.

Services to be provided

- 5.3.10 The specific menu of services to be provided within the ESCs includes:
- Introductory briefings;
 - One-to-one coaching/development sessions;
 - Group workshops and seminars;
 - PC-based job search;
 - CV preparation;
 - Vocational guidance interviews;
 - Interview techniques;
 - Individual career transition planning;
 - Job seeking skill workshops;
 - Early access to ES Programmes listed above and Scottish Enterprise Glasgow managed national training and retraining programmes; and
 - Access to benefit/taxation advice including 'in work' benefits.

Employee Helpline

- 5.3.11 An important part of the redundancy management programme will be the active promotion of the services available to the workforce through the ESCs. In order to facilitate access to these services, Scottish Enterprise Glasgow will fund, at an estimated cost of between £200,000 and £250,000, the establishment of a telephone-based call centre helpline and database service. This will provide a freephone helpline number to allow employees to register their details and receive signposting advice on available services. For workers who may be made redundant, the call centre will undertake proactive outbound calling in order to reach those who are no longer based on, or near, the shipyards.
- 5.3.12 Employees who use the call centre will have their details entered into a confidential client database. The database will be shared by Coutts and the PACE partners to ensure that employees receive a consistent single door approach, no matter what service they are looking for. The database will also provide an effective management tool to assist in tracking employees' chosen directions and to allow systematic reporting of the outcomes of the redundancy management programme for the task force and all partners.

Briefing sessions/information packs

- 5.3.13 The task force and BAE SYSTEMS have agreed that there needs to be a comprehensive schedule of briefing sessions organised. These will help to inform employees under threat of redundancy of the chronology of the process, the support available to help them find work or training, and the range of career options open to them. At these briefings, each of the PACE partners and other members of the task force will outline the services their organisation provides. These will be summarised in an employee support pack given to all attendees. These sessions will be designed to give members of the workforce the opportunity to raise questions on all aspects of the redundancy programme.
- 5.3.14 As the anticipated release programme means that employees are likely to be made redundant in tranches over a number of separate release dates, it is essential that as many workers as possible are made aware of the extensive and comprehensive nature of the support on offer prior to redundancy notification.
- 5.3.15 The information packs made available to employees contain the helpline freephone number and information on all the partner organisations' services.

Employer contacts/Job Fairs

- 5.3.16 The task force will be proactive in sourcing vacancies with other employers both in the Glasgow area and further afield. In advance of any compulsory redundancies taking effect, discussions have taken place with employers in industries where the skills held by the BAE SYSTEMS' workforce would be an appropriate match. This has included:
- Companies which supply services, or sub-contract, to BAE SYSTEMS;
 - Companies which are in industrial sectors known to be experiencing recruitment difficulties;

- Organisations which deal with the recruitment and/or training needs of other industrial sectors, including the oil and gas sector and the construction industry;
- Employers and trade associations which can circulate details of worker availability to their memberships, with a focus on those in the engineering sector; and
- ES staff who manage the vacancy notification service in both Glasgow and the wider Glasgow travel-to-work area.

5.3.17 BAE SYSTEMS has contacted over 300 companies with whom it deals and has received a number of encouraging responses. Each of these leads is being pursued in order to maximise the potential for outplacement.

5.3.18 The task force will also utilise Job Fairs as a means of matching employers seeking labour with employees likely to be made redundant. The first Job Fair will be held in January 2002, or on a date more suitable to coincide with the final release programme.

5.4 RESETTLEMENT TARGETS AND PERFORMANCE MONITORING

5.4.1 Both the Glasgow PACE team and Govan Initiative's REACT team have an impressive record in dealing with large-scale redundancy situations in Glasgow. However, each redundancy situation is unique and the level of success will depend on the overall jobs market, the scale and process of release, and the types of skills being released. The types of recruitment and training incentives available to potential employers are also of importance.

REACT

5.4.2 Over the last few years, the REACT team have, for example, worked in a number of difficult situations within Glasgow, achieving the following levels of placement:

Scottish Pride	92% into employment or training within 3 months;
Kvaerner Govan	80% into employment or training within 3 months; and
Howden Buffalo	91% into employment or training within 3 months.

Employment Service

5.4.3 The ES has 18 JobCentres within Glasgow. For the year to March 2001, the ES in Glasgow took over 48,000 vacancies and found work for over 23,000 unemployed people. In the last two years, the ES has assisted many companies in a redundancy situation, including Bairdwear, C&A and Rolls Royce.

Coutts Consulting

5.4.4 As part of their contract with BAE SYSTEMS, Coutts Consulting has been set the following quantitative and qualitative targets:

- Each registered employee to have an individual career transition plan;
- Each registered employee to have a professionally prepared CV;
- Each registered employee to be invited to all Job Fairs;
- 50% of registered compulsory redundees resettled (eg. in employment, self-employment, training) within 90 days of termination; and
- 75% of registered compulsory redundees resettled (eg. in employment, self-employment, training) within 180 days of termination.

5.4.5 Coutts has also been set targets for service quality, as follows :

- 95% of employees would recommend the service;
- 90% of employees are satisfied or more with the service quality; and
- 90% of employees adopted a more positive attitude to redundancy and job search.

5.4.6 Progress against these targets will be monitored on a weekly, monthly and quarterly basis. If progress falls behind the targets, action will be taken. The information to be collected will include:

- Number of employees registered;
- Number of client contacts made;
- Number of seminars attended;
- Number of contacts with employers;
- Number of vacancies sourced;
- Number of interviews arranged; and
- Number of clients resettled.

5.5 ISSUES

5.5.1 The partnership approach to redundancy management at BAE SYSTEMS has so far been successful. We are confident that the services which are proposed will provide a high standard of support to all clients. Success in resettling employees will be dependent on various issues that are unique to this situation.

Early intervention

5.5.2 The experience of the PACE partners in other redundancy exercises in which they have been involved is that, when a workforce is under threat of redundancy, the earlier support organisations can gain access to that workforce the better. Clearly, however, early intervention can have the effect of unsettling employees who would not otherwise have been affected by the redundancy situation.

5.5.3 BAE SYSTEMS has provided two excellent facilities as site offices. However, for operational reasons related to the completion of existing orders, the original provisional release dates for the redundancy programme have been deferred and the anticipated workload for the ESCs has not yet materialised.

- 5.5.4 This deferral has allowed more time than expected to organise the briefing sessions for employees. This may prove vital, as the likely release method of staggered tranches could mean large numbers of employees leaving on a number of pre-determined dates. If employees had not previously had experience of the team and the ESC contacting them at their place of residence, persuading them to return to their previous place of employment is less likely to be successful.
- 5.5.5 The preferred method of working with groups of employees under threat has also differed at BAE SYSTEMS. The sub-group's remit is to assist workers *"prior to, or as close to, the point of redundancy"*. However, many of the BAE SYSTEMS' employees threatened with redundancy are, understandably, reluctant to take another job prior to redundancy notification given the potential financial implications. Equally understandably, BAE SYSTEMS is reluctant to authorise voluntary leavers prior to finalising its own future work skill requirements.
- 5.5.6 As a consequence, very few employees are keen to actively explore employment opportunities prior to redundancy being formally confirmed. Ultimately, therefore, the majority of the client group to be dealt with by the team may already have been made redundant prior to contacting the ESCs. This reduces the scope to make effective early interventions.

Trades and demand

- 5.5.7 The process of resettling redundant employees is not as straightforward as filling a number of vacancies with the same number of people. The skillsets held by the redundant workers do not, for example, necessarily match the skills required in the current labour market. One of the clear issues with the BAE SYSTEMS' redundancy situation is the likelihood that there may be large numbers of employees being made redundant over a short space of time who have very similar experience and skillsets.
- 5.5.8 During the 12 month period between June 2000 and June 2001, the ES was notified of over 50,000 vacancies in Glasgow. The sectoral breakdown for the top nine sectors was as follows:
- | | |
|-----------------------------------|-----|
| • Wholesale retail distribution | 23% |
| • Financial and business services | 18% |
| • Hotel and catering | 16% |
| • Public service | 12% |
| • Other service activities | 8% |
| • Construction | 6% |
| • Health and social work | 6% |
| • Transport and storage | 6% |
| • Manufacturing etc. | 2% |
- 5.5.9 The local labour market demand may therefore be insufficiently strong to meet either the volume or nature of the skills which will be released. This suggests a need for re-training and re-skilling initiatives, utilising packages involving New Deal 18-24 and Training for Work for clients aged 25 and over.

Transition and training

- 5.5.10 Re-training and re-skilling workers in different trades and skills is a way of matching workers to jobs. However, there are various issues in undertaking what would seem to be a simple task:
- Training may be expensive and there are few public sector initiatives that will meet training fees for mature workers; and
 - The time lag between starting training and starting employment may be such that any short-term skills shortage may already have been resolved.
- 5.5.11 The difficulties experienced by employees who move into self-employment or further education vary from those who move into training. However, they still relate to the differences between a good solution in theory and a workable solution in reality.

Assisting the transition

- 5.5.12 As stated above, there is a mismatch between the skillsets of redundant workers and the skillsets required in the local labour market. This is especially apparent in light of the predicted upsurge in demand for skilled construction industry workers in Glasgow. Re-training and re-skilling initiatives, such as New Deal 18-24 and Training for Work, offer support for employees in a transitional phase. However, we are aware that the qualifying rules (e.g. period of time unemployed) and participation terms (e.g. weeks-based) for these programmes may not meet the specific employment/training requirements or financial circumstances of many of the individuals who may be made redundant.
- 5.5.13 Consequently, there appears to be a case to consider the introduction of a 'tailored' version of the Training for Employment Grant Scheme (TEGS). This is aimed at addressing long-term unemployment and currently operated by Scottish Enterprise Glasgow using SE Glasgow/ESF funding, especially at a later stage in the resettlement process.
- 5.5.14 We are mindful of the performance targets agreed between BAE SYSTEMS and Coutts Consulting. However, the achievement of these targets may still mean that 25% of registered redundant workers remain without employment after six months. This could equate to between 100 and 150 people moving towards long-term unemployment. The introduction of a tailored TEGS should therefore be considered as a means of addressing the problem of residual unemployment.
- 5.5.15 Under TEGS, employers qualify for a subsidy worth approximately £3,350 over a 26 week period. This consists of a wage subsidy approximately £100 per week (including NI) and a one-off training grant of £750 to a training provider for an approved individual training plan. As the current TEGS scheme is normally fully subscribed and has to operate within an approved ESF programme, this would require an additional financial allocation to be made by Scottish Enterprise to Scottish Enterprise Glasgow.

5.6 CONCLUSIONS AND RECOMMENDATIONS

5.6.1 Redundancy management at BAE SYSTEMS is ongoing, but the following initial conclusions are suggested at this stage:

- The substantial reduction in the level of expected compulsory redundancies from the 1,000 announced in July 2001 to approximately 450 at the time of writing is welcome. Discussions between the company and trade unions are ongoing on this level of redundancies;
- It was originally expected that redundancies would be made from October 2001 onwards. Site offices and support programmes were put in place to deal with this timescale. It is noted that this timescale has now slipped and is also subject to ongoing discussions;
- Release in tranches underlines the importance of the organised briefing sessions. An attempt to contact hundreds of employees after they have been made redundant is unlikely to yield a high success rate;
- Job Fairs would seem to be an excellent way of 'matchmaking' potential employers with skilled employees seeking work. However, this should be done at a time that will produce the optimum benefit for both;
- The reduced likelihood of employees leaving in advance of being made redundant means that the ESCs will mostly be dealing with employees who have already been made redundant;
- The skills profile of redundant workers will represent a mismatch with the skills demand in the local labour market; and
- Qualifying regulations and financial implications may preclude or dissuade redundant workers from participating in re-training or re-skilling programmes.

5.6.2 We would therefore recommended that, subject to further consideration of how to add value, it might be helpful to consider the following:

- Scottish Enterprise should develop appropriate short-term 'conversion' training programmes for mature workers seeking to skill-up in order to take advantage of opportunities in growth industries, particularly in the oil and gas industry and in gas central heating installation (recommendation 27). Consideration is currently being given to the potential of two courses: a 26 week practical skills course designed to enhance the skills of redundant staff to install gas central heating systems; and a 10 week course for gas engineering operatives to provide the knowledge and skills required to carry out basic gas distributive tasks in a safe manner. A starting date of late January 2002 is planned; and
- Scottish Enterprise should fund a short-term training and employment subsidy programme to encourage employers to recruit and retrain redundant shipyard workers six months after redundancy (recommendation 28). The subsidy would equate to 50% of wage for six months, to a maximum of £100 per week including NI, with a £750 training allowance to allow personnel to develop higher level skills training that would enhance their competitiveness in the labour market and meet the aim of raising the skill level of the labour force.

CHAPTER 6: **CONCLUSIONS**



CHAPTER 6: CONCLUSIONS

- 6.1 The task force addressed the challenges presented by the downsizing of the workforce of the Clyde yards with serious intent. Over a period of five months, we have sought to produce a report that is balanced, takes account of wider considerations in world shipbuilding and, perhaps most of all, is inclusive.
- 6.2 We did not spend much time reflecting on what might have been, or in reminiscing about past glories. Instead, we looked to a future that is bright with possibilities, but still needs careful attention.
- 6.3 Much valuable work has already been done. We find much to commend in the relationship between the company and the workforce in what has been a difficult time. Their joint approach to flexible working and to workforce development is exemplary. However, in order to remain competitive, new orders must be won.
- 6.4 The Clyde stands on the brink of having an order book that will secure employment for many years into the future. It has been some time since such a claim could be made.
- 6.5 We are keen to ensure that the implementation of our recommendations is monitored. The task force will reconvene in six and twelve months' time to ensure implementation and to confirm progress on the recommendations (recommendation 29).
- 6.6 Many people are to be thanked for their contribution to the work of the task force. However, their work will only have been useful if the shipbuilding industry in Govan and in Scotstoun thrives on the investment promised and the orders won in the face of heightened competition.

APPENDIX: SUB-GROUP MEMBERS

Strategy

Stuart Patrick (Chair)	Scottish Enterprise Glasgow
Sam Cameron	BAE SYSTEMS Marine / SSA
Martin Arter	BAE SYSTEMS Marine
Danny Carrigan	CSEU Scotland, also AEEU
Norman Brice	DTI
Brian Mellon	Frontline Consultants
Tracey White	STUC
Peter Hughes	Scottish Engineering
Alexandra Stein	Scottish Executive

Skills

Professor Stephanie Young (Chair)	Scottish Enterprise Glasgow
Bill Butler MSP	
Susan Binnersley	BAE SYSTEMS Marine
Sandra McConnell	BAE SYSTEMS Marine
Jim Moohan	CSEU Scotland, also GMB
Jim Steele	Engineering and Marine Training Authority (EMTA)
John Scott	Scottish Enterprise Glasgow
Alistair Aitken	Scottish Executive
Claire Woodward-Nutt	Scottish Executive

Community Regeneration and Land Use

Peter Reilly (Chair)	Scottish Enterprise Glasgow
Malcolm Craig	BAE SYSTEMS
Euan Jamieson	Clydeport
Calum Graham	Drumchapel Opportunities
Ian Manson	Glasgow City Council
Damien Yeates	Govan Initiative
Claire Woodward-Nutt	Scottish Executive

Redundancy Management

Steve Inch (Chair)	Glasgow City Council
Joyce Blair	BAE SYSTEMS Marine
Julie McDonald	BAE SYSTEMS Marine
David Miller	Coutts Consulting Group
Anne Maria Smith	Employment Service
Russell Stevenson	Glasgow City Council / PACE
John Johnson	GMB Convenor, Govan
Michael Cummins	REACT
Duncan McPhee	Outfitting Trades Convenor, Scotstoun
Dave Donald	Scottish Enterprise Glasgow

ABBREVIATIONS

AEEU	Amalgamated Engineers and Electricians Union
ALSL	Alternative Landing Ship Logistics
AO	Auxiliary Oiler
B&V	Blohm+Voss, German shipbuilder
CE	Concurrent Engineering
CofE	Centre of Excellence
CSEU	Confederation of Shipbuilding and Engineering Unions
CVF	Future aircraft carrier
DEFRA	Department for Environment, Food and Rural Affairs
DESO	Defence Export Services Organisation
DMA	Defence Manufacturers' Association
DPA	Defence Procurement Agency
DTI	Department of Trade and Industry
EMTA	Engineering and Marine Training Authority
ES	Employment Service
ESC	Employee Support Centres
ESF	European Social Fund
GCC	Glasgow City Council
GCNS	Glasgow College for Nautical Studies
GDP	Graduate Development Programme
GMB	General and Municipal Boilermakers
GRP	Glass Reinforced Plastic
IEE	Institution of Electrical Engineers
IMechE	Institution of Mechanical Engineers
IPD	Integrated Product Development
IPT	Integrated Project Team
LMS	Labour Market System
LPD	Landing Platform Dock
MA	Modern Apprenticeship
MoD	Ministry of Defence
NAO	National Audit Office
OPV	Offshore Patrol Vessels
PACE	Partnership Action for Continuing Employment
PCL	Performance Centred Leadership
PCO	Prime Contracting Organisations
REACT	Redundancy and Employment Action Team
RINA	Royal Institution of Naval Architects
ROV	Remote Operated Vehicle
SDR	Strategic Defence Review
SIP	Social Inclusion Partnership
SLIMS	Strathclyde Labour Information Market Services
SPI	Smart Procurement Initiative
SSA	Shipbuilders and Shiprepairers Association
STUC	Scottish Trade Union Congress
SUFI	Scottish University for Industry
TEGS	Training and Employment Grant Scheme
TNA	Training Needs Analysis
VT	Vosper Thornycroft

BIBLIOGRAPHY

Chris Dodds and Ben Maguire, *The Scottish Shipbuilding Industry*, Scottish Economic Bulletin, 57 (Scottish Education and Industry Department, September 1998)

The Acquisition Handbook – A Guide to Smart Procurement, Ministry of Defence

BR1806 *British Maritime Doctrine*, Naval Staff Directorate

EMTA Marine Sector Training and Development Report, EMTA Document

The European Maritime Research and Development, Ronald Vopel European Commission, Brussels

European Shipbuilding 1997/98: New Challenges Employment, Wages and Working Conditions, Study for the European Metalworkers' Federation (EMF), by Heiner Heseler and Reinhard Dietrich, January 1998

Europe's Defence Industry: A Transatlantic Future?, Gordon Adams et al, Centre for European Reform

Graduate Apprenticeship Framework Chemical industries Association/Chemical Manufacturing & Processing NTO framework document

Graduate Apprenticeships – Rewarding Career Opportunities in Marine Engineering, BAE SYSTEMS promotional brochure

Independent Publishing Ltd, SL School Leaver Magazine, the National magazine for Courses and Careers

Marine Engineering, Technologies and Services Cluster Analysis report for Scottish Enterprise, June 2000, Frontline Management Consultants and Ron Botham Associates.

Naval Shipbuilding in Europe, Wim Smit, Roland de Penanros, Haicote Kulve, Bjorn Hagelin, Ian Goudie, Chapter 10 for the COST A10 Project, March 2001

Prospects for the UK Merchant Shipbuilding Industry report for Department of Trade and Industry Engineering Industries Directorate, July 2000, Appledore International / University of Newcastle upon Tyne,

Reforming Career and Technical Education Teacher Licensure and Preparations: A Public Policy Synthesis, Information paper 2001, Kenneth C Gray and Richard A Walter, Ohio State University, 2001.

Seapower at the Millennium, Edited Geoffrey Till, Sutton Publishing 2001

Skills and Training as a Key Factor in the Competitiveness of the European Shipyards, Dr. Heiner Heseler, University of Bremen, 2000

The Shipbuilding Dispute between the EU and Korea, Revised version of a Lecture by Dr. Heiner Heseler, University of Bremen at Korea University, Seoul Graduate School of International Studies, by invitation of the Friedrich Ebert Foundation Korea, December 2000

The Strategic Defence Review – Supporting Essays, Ministry Of Defence, July 1998

Towards an Integrated Maritime Policy – The Importance of Training in the European Union, Karsten Seidel, BIBA/AMRIE, 16th December 1997

Defence Systems Daily, Various news articles www.defence-data.com

Janes –various news articles www.janes.com/defence/

Website for the Defence Industries – various articles www.global-defence.com

Global Defence Review – various articles www.naval-technology.com



Clyde Shipyards **Task Force Report**

January 2002