Information Paper based on Report of Fisher Associates consultants regarding future seaport capacity requirement for unitised trade in Ireland.

October 2006

Contents

ABBREVIATIONS **3**

1 INTRODUCTION **4**

1.1 BACKGROUND 4
1.2 FISHER ASSOCIATES STUDY: OBJECTIVE 5
1.3 REPORT 6

2 APPROACH **7**

2.1 EVALUATION CRITERIA 7
2.2 SUBMISSION TEMPLATE 9
2.3 PRODUCTIVITY REVIEWS 10
2.4 TRAFFIC SCENARIOS 11
2.5 EVALUATION MECHANISM USED BY FISHER ASSOCIATES. 13

3 SUBMISSIONS RECEIVED BY FISHER ASSOCIATES. **14**

3.1 GREENORE PORT 14
3.2 BREMORE PORT 16
3.3 DUBLIN PORT 19
3.4 ROSSLARE EUROPORT 22
3.5 PORT OF WATERFORD 24
3.6 PORT OF CORK 26
3.7 SHANNON FOYNES 28

4 FISHER ASSOCIATES REPORT:BROAD CONCLUSIONS **30**

4.1 OVERALL **30**

4.2 LOLO CAPACITY **31**

4.3 RORO CAPACITY **31**

4.4 STRATEGIC ISSUES **31**

4.5 NATIONAL SPATIAL STRATEGY **32**

4.6 NORTHERN IRELAND SEAPORT CAPACITY **32**

4.7 FUTURE ACTION ARISING FROM FISHER ASSOCIATES REPORT **32**

APPENDIX I: SUBMISSION TEMPLATE **33**

Abbreviations

CD:	chart datum
GDP:	gross domestic product
ha:	hectare
LoLo:	Lift-on Lift-off
m:	metres; million
pa:	per annum
RoRo:	Roll-on Roll-off
TEU:	twenty foot equivalent unit

1 Introduction

1.1 Background

Information Paper

The purpose of this paper is to provide information on the final report of Fisher Associates, which was delivered to the Department of Transport in June 2006. In drafting this paper, the Department's approach is to avoid publication of material considered to be of a commercially sensitive nature. Consistent with this approach, the Department has endeavoured to publish as much information as possible in this paper and has consulted with individual ports regarding commercially sensitive information in this context.

The conclusions of the report outlined in this paper are those of Fisher Associates and not necessarily those of the Department.

Fisher Associates

The Government published its Ports Policy Statement (available at www.transport.gov.ie) in January 2005. The Policy Statement aims to better equip the port sector and its stakeholders to meet national and regional capacity and service needs.

One of the key challenges identified in the Statement is the provision of adequate in-time port capacity, particularly for unitised traffic. The Policy Statement sets out a framework to ensure that capacity needs are identified, planned and progressed in a coordinated manner.

As part of this process, the commercial ports handling unitised trade were consulted by the Department in early 2005 to determine their view of port capacity, and how they intended to deal with the projected capacity requirement. In addition, Fisher Associates consultants were appointed by the Department in September 2005 to evaluate projects submitted by the commercial ports with a view to informing the Department's recommendations to Government. Further information on Fisher Associates is available at http://www.fisherassoc.co.uk/.

A Steering Group, chaired by the Department and comprising representatives from the Irish Maritime Development Office and the Departments of Environment, Heritage and Local Government and Finance, was established to facilitate and oversee the work of Fisher Associates.

The purpose of the process was to help determine, following an independent and expert evaluation, whether the anticipated capacity requirement to 2014 and beyond could be efficiently and adequately met by implementation of some combination of key projects being progressed by the port companies. In carrying out their study, Fisher Associates were requested to take account of port capacity in Northern Ireland.

To create a complete picture, Fisher Associates requested port companies to consider low cost ways of obtaining more capacity from existing assets, as well as major investment projects.

In principle, the Department expects that the market itself should decide which projects or combination of projects are completed. As outlined in the Ports Policy Statement, direct Government intervention would arise only if the market proved to be incapable of delivering, and if some level of Exchequer investment was considered essential in order to meet the national capacity requirement.

In line with standard corporate governance requirements, the consent of both the Minister for Transport and the Minister for Finance will be required for company borrowings, participation in joint ventures etc. These requirements are as set out in both the Harbours Acts 1996 to 2000 and the Code of Practice for the Governance of State Bodies. Any project(s) must also be in compliance with the Guidelines of the Department of Finance for both Public Procurement and Appraisal and Management of Capital Expenditure Proposals in the Public Sector.

1.2 Fisher Associates Study: Objective

As indicated above, the objective was to advise the Department whether the anticipated capacity requirement for unitised cargo to 2014 and beyond could be efficiently and adequately met by implementation of some combination of projects identified by the relevant port companies and terminal operators.

The terms of reference specified four key tasks:

1. Refine, having carried out an internet based consultation process, the criteria to be used for project evaluation.
2. Draw up a uniform template for submission of detailed project proposals.
3. Pending receipt of proposals, independently assess the scope for efficiencies within existing areas of ports handling unitised trade.
4. Evaluate the projects submitted, taking account of the analysis, as a basis for the Department's recommendation to Government.

The Steering Group recognised three key questions that the report addresses:

- Can demand for unitised port capacity be met without Exchequer funding?
- What are the strengths and weaknesses of proposals?
- What is the overall shape of future development?

1.3 Report

Fisher Associates were also requested to produce a number of deliverables that were required to facilitate the process:

- Report on evaluation criteria
- Submission template
- Productivity reviews for individual ports and terminals
- Traffic scenarios

The assignment was undertaken as a consultative process, with Fisher Associates working with the port companies on the one hand, and the Department and Steering Group on the other. The process included:

- A two day seminar in early December 2005.
- Presentations by port companies to the Steering Group in early March 2006.

The Final Report was the last deliverable required of Fisher Associates.

The consultants note in their report that reforms to date in the Irish Ports industry have resulted in a competitive marketplace for port services. This can be seen in the range of choice available to shipping lines, which have freedom to move between ports, and in the charges for port infrastructure and services, which are relatively low in comparison with NW Europe.

Fisher Associates state that all of the port companies are actively seeking new customers, and are keen to expand so that they can further improve the range of services offered. This study has been based upon information provided by these companies, much of which they regard as commercially sensitive.

2 Approach

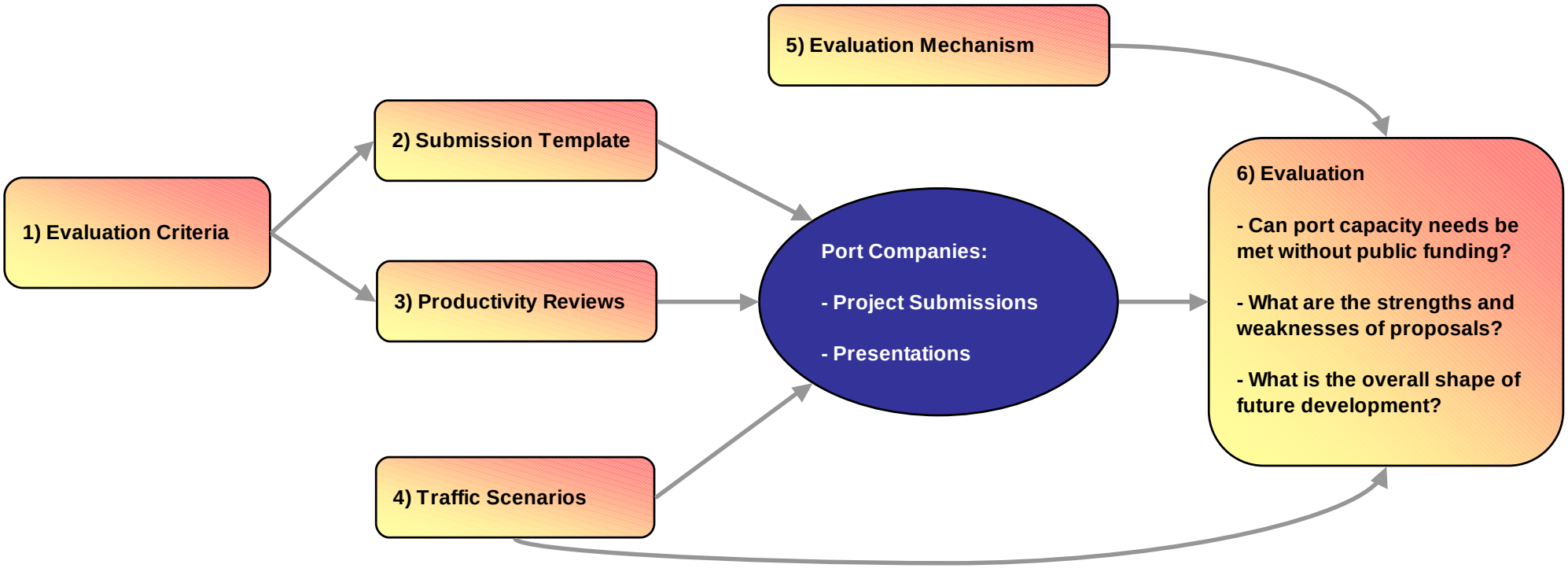
This section details the approach used by the consultants to undertake the evaluation. This is illustrated in Figure 2.1.

2.1 Evaluation Criteria

Fisher Associates developed evaluation criteria against which projects were assessed. This was achieved through consultation with the Steering Group and the ports industry, culminating in a final set of criteria issued to port companies in late November 2005. The criteria summarised in Figure 2.2 reflect the policy objectives set out in the Ports Policy Statement concerning: location; contribution to regional and national capacity requirements; funding; impact on externalities; efficiencies and costs.

Figure 2.2: Evaluation Criteria	
1	**Capital cost per unit of additional port capacity**
1.1	Total cost
1.2	Funding structure
1.3	Phasing
1.4	Contribution to longer term development of port facilities
2	**Supply chain costs per unit of additional throughput**
2.1	Port operating costs per unit
2.2	Nominal shipping costs per unit
2.3	Nominal road transport costs per unit
3	**Other economic impacts**
3.1	Impact on effective capacity for other port traffic
3.2	Impact on handling costs / quality of service for other port traffic
3.3	Port income from additional traffic
3.4	Income from other economic activities
4	**Regional distribution of port capacity**
4.1	Distribution of new port capacity according to forecast requirements
4.2	Consistency with the National Spatial Strategy, and regional and local development plans
5	**Land transport externalities: Impact on road Congestion**
6	**Risks**
6.1	Overall credibility of business plan
6.2	Risk of escalation of capital and operating costs
6.3	Risk of delays in project completion
6.4	Other financial and market risks
7	**Promotion of competition & security of supply**

Figure 2.1: Fisher Associates: Approach



2.2 Submission Template

Fisher Associates developed key principles and a submission template to provide a standardised format against which port companies could submit projects for assessment. Utilising principles favoured by international agencies, port companies were requested by the consultants to provide at least 2 or 3 alternative scenarios as follows:

- A “Do Nothing” scenario involving no capital expenditure.
- For existing facilities, a compulsory “Do Minimum” scenario that provided a short to medium term boost to capacity (with relatively limited capital expenditure). These scenarios could involve: the modest acquisition of more mechanical equipment; the introduction of labour reforms and other procedural changes to improve productivity; tariff changes to reduce dwell times; the relocation of activities within the port’s existing operational area; the rehabilitation of existing areas of unused land. Small scale civil engineering investments could be required, such as fencing, paving, changes to internal road layouts etc.
- Considering the critical importance of financial viability, a possible halfway “Do Something” phased scenario could also be proposed (i.e. between “Do Minimum” and “Preferred Project”). These scenarios could involve similar activities to “Do Minimum”, but perhaps with significant investment in equipment. It would not involve significant civil works, although works such as strengthening of existing quays might feature.
- A possible “Preferred Project” which provided a substantial increase in capacity but required relatively high capital expenditure. These would include major civil works resulting in the creation of significant new infrastructure, quays or extensive areas of back-up land.

The submission template was structured to provide information relevant to the evaluation criteria:

- Defining the project
    - civil works
    - operating proposals
    - mechanical equipment
    - capacity
- Financial viability
    - cost estimates
    - financial model
    - funding structure

- Third party impacts
    - other port activities
    - National Spatial Strategy
    - Road network
    - local & regional plans
    - economic development
    - environment
- Background
    - plans/drawings
    - organisational structure
    - performance indicators
    - financial position
    - labour force
    - corporate governance

To facilitate submission of financial information, a spreadsheet was developed by the consultants to provide a template for companies to develop financial models. The full submission template is reproduced in Appendix I.

2.3 Productivity Reviews

The key port and terminal locations with existing or proposed unitised port capacity were:

- Greenore (LoLo)
- Drogheda (LoLo and RoRo)
- Dun Laoghaire (RoRo)
- Dublin
    - Dublin Ferryport Terminal (LoLo)
    - Marine Terminals Limited (LoLo)
    - Ocean Terminal (LoLo)
    - P&O Irish Sea (RoRo)
    - Stena Line (RoRo)
    - Irish Ferries (RoRo)
    - Norse Merchant Ferries (RoRo)
- Rosslare (RoRo)
- Waterford (LoLo)

- Cork (LoLo and RoRo)

- Shannon Foynes (LoLo)

Fisher Associates visited these facilities, and discussions were held with each company to identify what productivity improvements might be possible. The consultants wrote individual reviews for each terminal, and these were submitted to the port companies as inputs for their project submissions.

2.4 Traffic Scenarios

The graphs in Figure 2.3 and Figure 2.4[1] illustrate the contributions of ports to handling unitised traffic. Recognising that ports in Northern Ireland also serve the Republic, Northern Ireland's ports are also included.

Figure 2.3: Lo-Lo Ports

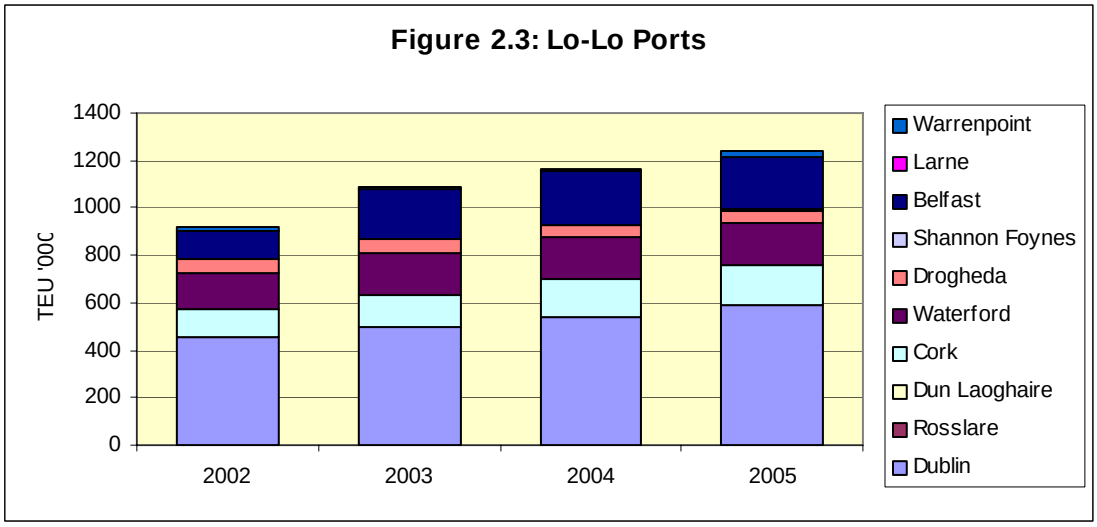
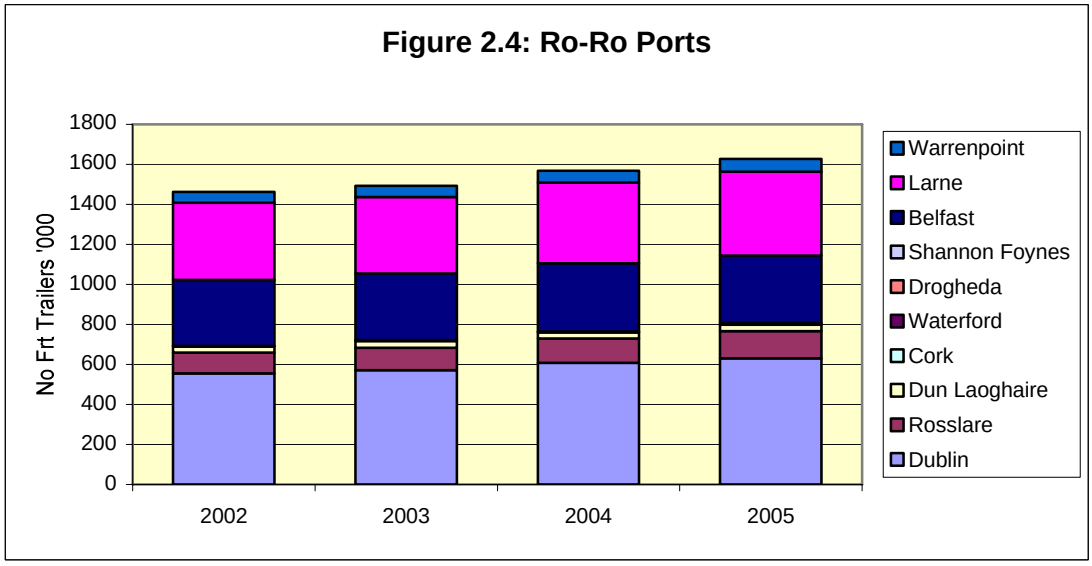


Figure 2.4: Ro-Ro Ports



[1] Source: Irish Maritime Transport Economist Volume 3 (available at www.imdo.ie)

Fisher Associates developed scenarios for future demand against which the adequacy of expected capacity could be assessed. From a strategic perspective, it would be more damaging for the forecasts to be too low than too high. There must be a risk averse assumption that the traffic volumes will not be exceeded, otherwise port capacity may have an unacceptably high probability of falling short. On the other hand, if the safety margin is too high, investment will be difficult to encourage and / or excess capacity may be significant.

Fisher Associates developed two scenarios for evaluating port companies' proposals:

- Base case scenario to be used for evaluating most criteria and relied on the actual capacity forecasts for LoLo and RoRo calculated by Fisher Associates and outlined at section 4.1 below.
- Risk averse scenario to be used to evaluate risks. This assumes that there is less than a 10% probability of the projected traffic volumes being exceeded.

Thus national scenarios for RoRo and LoLo traffic were prepared. Forecasts were not prepared for individual ports. The broad methodology comprised:

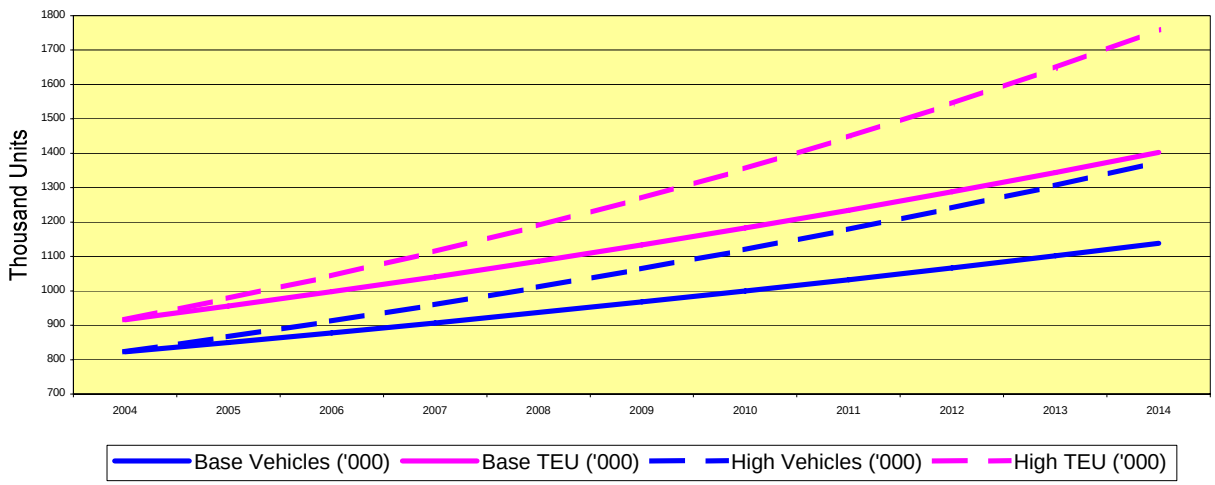
- Analysis of past trends.
- Review of shipping services.
- Macro-economic forecasts.
- Comparison with previous forecasts.

The consultants then generated the scenarios based on three key variables:

- Anticipated growth in GDP.
- Relationship between GDP growth and unitised traffic.
- Changes in market share of LoLo and RoRo.

The results of this exercise are shown in Figure 2.5.

Figure 2.5: Fisher Associates: Unitised Traffic Scenarios



2.5 Evaluation Mechanism used by Fisher Associates.

As stated elsewhere, the premise of this study was that the market would decide which projects go ahead. The evaluation mechanism is thus not required to identify winners and losers, or approve certain projects and not others. In absolute terms, the mechanism is required only to identify whether the market is likely to supply sufficient capacity to meet demand.

The key criteria for the mechanism were that it should be simple and transparent.

Weighting of criteria was considered but not adopted. There were three reasons for this:

- It requires value judgements to be made between the importance of different criteria, and these are then difficult to sustain given different values held by various stakeholders.
- Given the significant number of capacity solutions on offer, it is also difficult to balance short term capacity needs and financial imperatives, against long term strategic needs and vision.
- The use of weightings was not considered appropriate in a process that does not entail the selection of “winning” or “losing” projects.

The evaluation has therefore been conducted by Fisher Associates in relative terms. The projects proposed have been reviewed against each evaluation criterion. This provides an overall assessment of which projects perform best against which criteria, and identifies their strengths and weaknesses. However, for reasons of commercial sensitivity, the Department does not propose to publish the detailed evaluation undertaken by the consultants of the submissions received.

The consultants consider that this approach thus provides information to the Department from a strategic policy perspective but avoids direct intervention. At the same time, it enables better understanding of the key risks that affect the market’s ability to provide timely capacity.

3 Submissions received by Fisher Associates.

Submissions relating to increases in LoLo capacity were received from port companies at Greenore, Drogheda, Dublin, Waterford, Cork and Shannon Foynes. Submissions relating to increases in RoRo capacity were received from ports at Drogheda and Rosslare.

Dun Laoghaire Harbour Company is the only company currently handling unitised cargo that did not submit a proposal, as it has no plans to increase unitised capacity.

Some ports have submitted a single Preferred Project, but most have also put forward smaller “Do Minimum” and “Do Something” proposals suitable for early implementation. In some cases these are complementary to the port’s Preferred Project, providing additional short-term capacity quickly. In other cases the proposals put forward represent genuine alternatives.

The key characteristics of each submission are described below and are based on information contained in the final report of the consultants and, in some cases, additional information supplied by the ports concerned. Please note that all diagrams in the section were supplied by the ports concerned to Fisher Associates.

It might also be noted that each submission, by its nature, reflects the state of development in respect of the relevant port’s proposal at a particular point in time and will not reflect subsequent developments.

3.1 Greenore Port

Greenore Port does not currently handle LoLo traffic. It has submitted a single proposal for a new 300 m quay that will also be used for general cargo (Figure 3.1). Part of the terminal will be reclaimed from the sea, and if necessary the quay could be built in two stages. The quay will have a water depth of -11.0 m CD, but the access channels into Carlingford Lough are dredged to -6.3 and -5.9 m CD, restricting the size of vessel able to access Greenore Port.

The developer plans to use mobile cranes rather than high capacity ship-to-shore gantry cranes, and will transfer labour from other port operations as and when needed, rather than recruiting a separate labour force for the terminal.

Greenore Port advises that ample back-up storage and depth exists alongside the terminal. Two alternative assumptions have been made with regard to throughput. In the first case it is assumed that about 44,000 TEU will be handled by 2010 and in the second case throughput is assumed to have reached 87,000 TEU. It is also expected to handle between 30-65,000 tonnes of general cargo in 2010.

It is assumed that 300 m of berth will be constructed and all dredging and reclamation completed at the outset. An environmental impact assessment is currently being carried out, and a planning application is likely to be submitted in the second half of 2006. If there are no unforeseen delays, the project could be operational in 2008.

The developer Greenore Port Ltd is a private company part owned by Dublin Port Company.

Figure 3.1: Development Proposals - Greenore Port

3.2 Bremore Port

Drogheda Port Company commissioned a new terminal at Tom Roe's Point in 2000, but this will not be large enough to accommodate the transfer of traffic from Drogheda North Quays when they are redeveloped, and has insufficient depth of water to accommodate the larger LoLo vessels now being introduced into the Irish Sea.

Drogheda Port Company has therefore submitted a single proposal for the new multi-purpose Bremore Port, for LoLo, RoRo and other types of traffic, to be built in three phases (Figure 3.2). LoLo traffic would be transferred from Tom Roe's Point, which would then be developed as a terminal for smaller bulk / break-bulk vessels. Drogheda Port Company states in this regard that the development of the Bremore proposal was a response to the infrastructural capacity deficit within the port.

Phase 1 comprises 500 m of LoLo quay, two RoRo berths, and facilities for 1.0 million tonnes of bulks and general cargo, all within the protection of a 2.3 km breakwater. Approximately 58 ha of land would be reclaimed from the sea. The depth of water is to be -10.5 m CD initially, but the quay walls would be designed for subsequent deepening.

The capacity of Phase 1 is 350,000 TEU for LoLo traffic, 406,000 freight units for RoRo, and 1.0 m tonnes pa for bulk/break-bulk cargo. The terminal would also handle ferry passengers, and passenger and trade cars.

A preliminary hydrographic survey and assessment of the maritime environment was done in 2003. The project is at the outline design stage, and a considerable amount of work is needed to bring it to fruition.

Options on the necessary land have been acquired, but planning permission is still required. The project is supported by Fingal County Council, the planning authority, and by the adjoining local authority, Meath County Council, which has zoned 250 acres as an industrial and logistics park to exploit the project's economic development potential.

Drogheda Port Company will most likely act as a landlord port authority, leasing parts of the facility to private port operators, or forming joint venture

arrangements. The intention is to find a private sector partner before proceeding to the detailed design. A request for Expressions of Interest was circulated in January 2006.

It is understood that fifteen expressions of interest were received by the closing date in March 2006, and the port company has completed a short-listing process. The company expects to have a joint venture agreement in place at the earliest opportunity.

Figure 3.2: Development Proposals – Bremore Port Phases 1 to 3

3.3 Dublin Port

LoLo

Around 59% of the Republic's LoLo traffic is handled at Dublin Port, and the existing facilities are believed to be operating at around 68% of capacity.

Dublin Port Company has submitted two projects, both for an increase in LoLo capacity (Figure 3.3).

Figure 3.3: Development Proposals – Dublin Port Company

The first project involves two components. The first is the construction of a new 360 m quay wall along the full length of Alexandra Quay East (Figure 3.4). This will be designed to accommodate larger container ships than can use the quay now, and will include a crane beam to allow the present operator (Portroe Stevedores Ltd) to install ship-to-shore gantry cranes, substantially increasing the LoLo capacity of the quay. The area behind Alexandra Quay (8.2 ha) will be repaved to permit use of rubber-tyred gantry cranes in the container yard, substantially increasing stacking densities (Figure 3.4).

The second component will be the extension of the DFT (Dublin Ferryport Terminals) container yard to the north of Alexandra Road, including closure of a short section of the road. Bulks and general cargoes will continue to be handled over the Alexandra Quay West berths and the Ocean pier i.e. the pier that separates Alexandra Quay East from Alexandra Quay West.

The second project is Phase 1 of the 21 ha Foreshore Reclamation scheme, which has been under discussion for several years. This would involve the

construction of a new 360 m quay and the reclamation of 9 ha of land behind it. The remainder of the site would be reclaimed later, possibly for other uses such as RoRo and cruise ships. The new LoLo quay would provide the same depth of water as the Alexandra Quay reconstruction (-11.0 m CD).

Figure 3.4: Reconstruction of Alexandra Quay East

Dublin Port Company considers that the Alexandra Quay and DFT container yard projects would increase LoLo capacity by 175,000 TEU pa, and the Foreshore Reclamation scheme by 600,000 TEU pa.

The capacity increase associated with the Alexandra Quay extension is dependent on matching investments from the terminal operator (Portroe Stevedores Ltd). An increase in capacity could also be obtained through investment in equipment and efficiency gains for the Marine Terminals Limited terminal. Dublin Port Company states that this is a matter for the terminal operator.

The reconstruction of the Alexandra Quay East and the extension to the DFT facility could be completed by end-2007. Due to the time that is likely to be needed to complete statutory processes, Dublin Port Company envisages construction of the Foreshore Reclamation taking place between 2009-2011. It would therefore be additional to the Alexandra Quay East reconstruction and DFT extension, rather than an alternative.

RoRo

Around 76% of the Republic's RoRo traffic is handled at Dublin Port, and the existing facilities are believed to be operating at around 74% of capacity.

Celtic Link has recently started operating on the unused part of the P&O terminal site. Dublin Port Company estimates this adds about 100,000 freight units of capacity, but this would be at the expense of trade car capacity.

3.4 Rosslare Europort

Rosslare Europort does not handle LoLo ships, so its proposals are concerned only with RoRo traffic. It has submitted three projects: Do Minimum and Do Something schemes are based on improving efficiency through land use redistribution within the existing port, whilst the Preferred Project includes the development of a fifth RoRo berth at Fisherman's Quay.

The Do Minimum proposal includes purchase of a wider (single deck) linkspan for Berth 2, an increase in the yard area for accompanied vehicles, relocation of the railway station and removal of rail tracks to remove bottlenecks at rail crossings, and purchase of three extra tractors. Whilst it produces a small increase in capacity by removing the yard area constraint, its main purpose is to improve the quality of service offered by the port and replace the ageing Berth 2 linkspan.

The Do Something proposal includes the Do Minimum works, but adds second decks to the Berth 2 & 3 linkspans to allow them to accommodate larger ships, and provides 7 ha of additional vehicle parking (Figure 3.5).

The Preferred Project extends the Do Something scheme by dredging the approach channel, turning circle and berths, and reconstructing and extending Fisherman's Quay to provide an additional 300 m ferry berth with a double deck linkspan. It also includes some additional buildings for the statutory authorities operating at the port (e.g. Customs and Immigration Services) and the purchase of an additional tractor unit.

The Do Minimum scheme would increase the port's capacity of 144,000 freight units pa by around 15,000 units pa, the Do Something scheme by 65,000 units pa, and the Preferred Project by 204,000 units pa.

Development plans assume that long-term traffic growth in its main market – ferry services to the UK – will be accommodated primarily through a progressive increase in ship size, rather than an increase in the number of ships handled or additional sailings in the off-peak times during the day.

Planning permission is required for all three projects, and is likely to take between 6-9 months to secure. The earliest dates by which the projects could be operational are mid-2008 for the Do Minimum scheme, end-2009 for the Do Something scheme, and end-2013 for the Preferred Project. The three projects are designed to be sequential rather than alternatives, so are likely to result in incremental increases in capacity, which are broadly in line with the growth in demand.

The projects would be developed by Iarnród Éireann, which is responsible for the management and operation of the harbour.

Figure 3.5: Development Proposals - Rosslare Europort

3.5 Port of Waterford

Port of Waterford Company has put forward three proposals for increasing the capacity of the Belview LoLo terminal to the east of the city:

- A Do Minimum scheme involving the purchase of one additional reach stacker.
- A Do Something scheme involving the straightening of the rail track behind the quay to provide 0.2 ha of additional stacking area. It also includes the additional reach stacker that forms the basis of the Do Minimum scheme.
- A Preferred Project that involves building 300 m of new quay at Belview approximately 350 m downstream from the existing terminal, to be used mainly for bulk cargo (Figure 3.6). The 200 m of quay adjoining the container terminal, which is currently used for bulks, would then be redeveloped as an additional container berth. The Preferred Project also incorporates the railway realignment and additional reach stacker included in the Do Something scheme.

Port of Waterford aims to move directly to construct the Preferred Project.

Figure 3.6: Port of Waterford - Belview Terminal Expansion

The Belview terminal is located 15 miles from the open sea, and has a depth restriction of –6.5 m CD in the approach channel, so that larger container ships will only be able to access the port during a restricted tidal window.

All of the statutory permissions for the three schemes are in place or likely to be completed soon. The port company believes that the new bulk quay could be operational by the beginning of 2008. The two smaller schemes would be undertaken only when needed, most probably around 2012-3.

The Belview terminal will continue to be operated by Waterford Container Terminal Ltd., a subsidiary of the port company.

The estimated capacity of this terminal without carrying out any construction or purchasing additional equipment is 250,000 TEU. It is estimated that the Do Minimum scheme would increase the capacity to 270,000 TEU. The Do Something project would bring total capacity to around 306,000 TEU, while the Preferred Project would increase capacity at the port to 394,000 TEU approx.

3.6 Port of Cork

The Port of Cork Company has put forward a Do Minimum scheme and a Preferred Project for increasing LoLo capacity.

The Do Minimum scheme at Tivoli comprises moving a private container storage & repair yard to free up an additional 0.64 ha of land, developing a former car compound for the storage of empty containers, buying an additional straddle carrier, and increasing the workforce/introducing more flexible working arrangements.

The Preferred Project is the phased development of a new container terminal at Oyster Bank (Ringaskiddy). The eventual capacity of the terminal would be 600,000 TEU pa (Figure 3.7).

Figure 3.7: Port of Cork - Oyster Bank Development

The Preferred Project assumes that the Do Minimum scheme will bridge the capacity gap in the short term until the Oyster Bank Project is operational in 2010/2011. Growth projections suggest that the additional capacity provided by the Do Minimum scheme will not cater for the projected throughput after 2010.

Port of Cork Company has also considered building a smaller scale terminal at Oyster Bank (with two berths), operating this jointly with the existing Tivoli container terminal, but considers this idea to be unsatisfactory because:

- The additional costs that would be involved in expanding the Oyster Bank terminal at a later date.

- The practical difficulties and additional operating costs of running a split terminal operation.
- Inability to realise value from the Tivoli estate early enough to contribute towards the capital costs of the Oyster Bank development.
- The high initial cost of the reduced Oyster Bank Scheme.
- The significant additional investment required in Tivoli to keep it operational beyond 2010.
- The prevailing stevedoring arrangements in Tivoli.

Tivoli terminal is operating at around 90% of capacity. The Tivoli upgrading scheme would provide 35,000 TEU pa of capacity, and could be completed by 2007. The Tivoli upgrade already has planning permission and the works have been put in hand.

There is a restriction on the length of ship, which can be accommodated at the Tivoli terminal. There is a significant draft restriction in the approach channel to Tivoli (-6.5 m CD), which cannot be deepened because of the Jack Lynch road tunnel. The Oyster Bank development, for comparison, would have a water depth of –13.5 m CD, enough to accommodate mainline vessels as well as feeders.

Phase 1A of the Oyster Bank project could be operational by 2011, and would provide 480 m of quay with 300,000 TEU pa of capacity (a net increase of 120,000 TEU pa following the closure of the existing container terminal).

Phase 1B of the Oyster Bank development would provide a further 100,000 TEU pa of capacity through the purchase of additional mechanical equipment. After completion of Phase 1A in 2010 the existing container terminal at Tivoli would be sold or redeveloped. Tivoli contains two Seveso top tier sites and in order to realise the full potential value from the Tivoli Estate these two facilities would eventually need to be relocated.

Phase 2 includes the construction of an additional 250 m of quay, with associated back-up area and equipment. Only Phases 1A and 1B are included in the submission.

The engineering work and environmental impact statement for Oyster Bank are reasonably well advanced, and planning permission and other statutory permits will be applied for later this year. Consultants are about to be appointed to prepare a financing plan for the Oyster Bank project.

In view of the stage that has been reached in planning Oyster Bank, and the time needed to complete its construction, it is likely that the Tivoli upgrade will precede the Oyster Bank development.

3.7 Shannon Foynes

Shannon Foynes Port Company is a relative newcomer to LoLo operations, with its first service starting in November 2004. It serves a more local catchment area than the other Irish ports, and is located on the west coast of Ireland away from the main shipping routes. As a result, its proposals for expanding LoLo capacity are relatively modest, and are linked to wider development plans whose main aims are to increase bulk throughput and accommodate break-bulk traffic.

Figure 3.8: Shannon Foynes - Foynes Quay Extension

Two proposals have been put forward. The Do Something project (Foynes Extension) involves strengthening the western jetty, infilling an existing dock basin and adding an additional 100 m of quay (Figure 3.8). This would be used mainly for LoLo traffic, with around 0.2 m tonnes pa of bulks. There would also be some expenditure on general infrastructure and services, and investment in mechanical equipment. Shannon Foynes Port Company estimates that the project could be operational by 2009.

The Preferred Project involves the development of 700 m of new quay on Foynes Island, with 35.5 ha of back-up land and up to 20 m depth of water (Figure 3.9). The Island would be linked to the mainland by a new 600 m causeway, and a further 500 m of quay plus liquid bulk facilities could be added at a later date if the demand materialises.

Figure 3.9: Shannon Foynes - The Foynes Island Project

The Foynes Island project is intended to handle just under 1.0 million tonnes pa of bulks and 35,000 TEU of LoLo traffic in 2010, the earliest date by which it could become operational. Some bulk cargoes would be relocated from the existing port in Foynes, and some would be transferred in the event of the closure of Limerick Docks.

It could provide water depths up to –20 m CD, suitable for large bulk carriers but of limited value to the small container feeder ships using the port.

The port's existing LoLo capacity is around 30,000 TEU pa, and either project would increase it to around 60,000 TEU pa, enough to meet the expected growth in local traffic. It could be increased further if necessary by reducing the amount of space allocated to bulks.

Both projects require further development work; however, the Do Something scheme outlined above is more likely to proceed in the first instance.

4. Fisher Associates Report: Broad Conclusions

The broad conclusions of Fisher Associates are presented below. For reasons of commercial sensitivity, the Department does not propose to publish the detailed evaluation undertaken by the consultants of the submissions received from the above-mentioned ports.

4.1 Overall

Comparing the existing port capacity (i.e. without any new projects going ahead) to anticipated future demand, the Fisher Associates study makes the following conclusions regarding capacity for unitised trade:

- In the Base Case Scenario[2]:

  - LoLo: Available capacity would effectively be fully utilised by 2014.

  - RoRo: An additional capacity required of 69,000 units by 2014 (9% approx. of total RoRo units handled by Republic of Ireland ports in 2005).

- In the Risk Averse scenario[3]:

  - LoLo: An additional capacity required of up to 350,000 TEU by 2014 (35% approx. of total TEU handled by Republic of Ireland ports in 2005).

  - RoRo: An additional capacity required of 306,000 units by 2014 (38% approx. of total RoRo units handled by Republic of Ireland ports in 2005).

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[2] The Base Case scenario was used for evaluating most criteria and relied on the actual capacity forecasts for LoLo and RoRo calculated by Fisher Associates and outlined at 4.1 above

[3] The Risk Averse scenario was used for evaluating risks and was developed because, from a strategic perspective, it would be more damaging for the forecasts to be too low than too high.

The Risk Averse scenario is based on the assumption that unitised traffic will have a growth rate of 1.15 x GDP growth, rather than the 0.75 x GDP growth assumed in the Base Case (i.e. just over 50% higher). The Risk Averse scenario assumes subjectively that there is a less than 10% probability of the traffic forecasts being exceeded.

4.2 LoLo Capacity

- There is currently significant available capacity for LoLo.
- Even if none of the major LoLo schemes were to be implemented, there would be sufficient capacity to meet traffic anticipated in the Base Case scenario if all of the smaller schemes went ahead.
- In the more prudent Risk Averse scenario, capacity would be reached by about 2015 if none of these major schemes progressed.
- It is therefore unlikely that any Government intervention will be required to prevent a national shortfall in LoLo capacity.
- There is a risk that Government intervention will be required beyond 2014 should no major LoLo project proceed.

4.3 RoRo capacity

- Although less than in the case of LoLo, there is current available RoRo capacity.
- If neither of the proposals submitted by Drogheda Port Company (at Bremore in Co. Dublin) nor Rosslare Europort were to go ahead, national RoRo capacity is likely to be reached around 2009 in the Risk Averse scenario, but not until 2014 in the Base Case.
- To ensure timely supply of facilities, Government intervention may be required to encourage the construction of additional RoRo terminals. The key unknowns clouding this issue are:

    (i) The future growth rate of RoRo traffic.

    (ii) The future supply structure of the industry, and the extent to which there will be new entrants.

    (iii) The ability to use off-peak capacity, and the deployment of larger ships.

    (iv) The desirability or otherwise of allowing RoRo traffic to divert to ports in Northern Ireland, where there is significant spare RoRo capacity available, including the effects of traffic diversion on the Republic's logistics efficiency.

4.4 Strategic Issues

Fisher Associates conclude that the future shape of the unit load sector will be determined by three strategic issues:

(i) The ability of Drogheda Port Company to secure enough traffic and finance to make viable its proposal for a new port development at Bremore in Co. Dublin;

(ii) The ability of the Port of Cork Company to secure funding for its project;

(iii) The extent to which Ireland faces a genuine shortage of RoRo capacity.

4.5 National Spatial Strategy

The study by Fisher Associates concludes that:

- All projects submitted are generally consistent with the objectives of the National Spatial Strategy, and are located in or close to its five main gateways.
- The National Spatial Strategy identifies strategic merit in relieving pressure on Dublin through targeted interventions in building up port capacity elsewhere.

4.6 Northern Ireland Seaport capacity

In carrying out their work, Fisher Associates were requested to take due account of relevant port developments in Northern Ireland, which may have implications for port capacity in the Republic.

Fisher Associates conclude that:

- The port sectors in the Republic and Northern Ireland are complementary in that a RoRo capacity surplus exists in Northern Ireland and a LoLo capacity surplus in the Republic.
- A large amount of spare capacity exists in Northern Ireland for RoRo traffic (44% utilisation rate in 2004).
- Much less spare capacity exists for LoLo (current Northern Ireland LoLo capacity is 200,000 TEU per annum, equating to 15% of the Republic's LoLo capacity).
- However, the Port of Belfast has plans for additional LoLo terminal capacity.

4.7 Future Action arising from Fisher Associates Report

It is clear that the projects being progressed by the ports sector have the potential to deliver adequate port capacity going forward, in line with the Government's Ports Policy.

However, developments in relation to the provision of port capacity will need to continue to be actively monitored by the Department over the coming period.

Appendix I: Submission Template

	Do Nothing	Do Minimum	Project
1. CIVIL WORKS			
Capital dredging • location & dimensions of areas to be dredged (including spoil dumps) • quantity and type of material to be dredged (m^3) • increase in maximum draft of vessels able to use unitised cargo terminals at various tidal windows (m) • other types of vessel benefiting from the proposed dredging works • main purpose of dredging • requirement for maintenance dredging			X
Other marine works (breakwaters, nav aids etc) • location, size, and purpose			X
Additional operational quay for unitised cargo • length (m) for LoLo & quarter deck RoRo • berths (for stern-ramp RoRo) • water depth alongside (m) • linkspans (no. and type)			X
Additional back-up land for unitised cargo • gross land area (ha) • net storage area (ha) • proposed land use pattern		X	X
Buildings • usable floor area (m^2) • function		X	X
Utilities & other works (including lighting) • list and describe significant changes		X	X
Proposed construction programme • current status • start date and completion date for each major item • conditions for achieving start and completion dates		X	X
Estimated capacity • LoLo (TEUs) • RoRo (trailers, trade vehicles, cars) • Passengers • Other cargoes	X	X	X

	Do Nothing	Do Minimum	Project
2. MECHANICAL EQUIPMENT			
Quay cranes • number, type, lifting ability		X	X
Yard equipment (straddles, RTGs, RMGs, reach stackers, heavy FLTs etc) • number, type, lifting ability		X	X
Other significant items (inc IT systems)		X	X
Proposed operating procedures	X	X	X
3. OPERATING PROPOSALS			
Expected operator of new facilities • relationship to port (customer, existing operator, subsidiary of port company etc) • selection process • contractual arrangements		X	X
Performance targets (LoLo, RoRo) • ship turnaround times • cargo dwell times • labour productivity	X	X	X
4. COST ESTIMATES			
Capital costs • total (itemised) • phasing by year		X	X
Increase in annual operating costs • port company • terminal operators • other port service providers	X	X	X
5. PROPOSED FUNDING STRUCTURE			
Capital costs funded by: • port company internal resources • port company loans • terminal operator/service providers • other private investors • other		X	X
Procedures for implementing funding structure • action plan • status of negotiations with other participants • time requirements		X	X

	Do Nothing	Do Minimum	Project
6. FINANCIAL MODEL			
Increase in revenue • traffic volume in 2005 (TEUs, trailers) • forecast traffic growth • port capacity now and in future • unit revenues now and in future • revenue from other sources	X	X	X
Increase in operating costs	X	X	X
Depreciation	X	X	X
Financing costs • interest • capital repayments • dividends	X	X	X
Key financial indicators • pre-tax profits • net cash flow • debt:service cover ratio • internal rate of return on capital employed • internal rate of return on own funds	X	X	X
7. IMPACT ON OTHER PORT ACTIVITIES			
Activities affected by the project		X	X
Physical impact • change in asset base caused by project • change in performance indicators • change in traffic volumes		X	X
Financial impact • change in revenues • change in operating costs • additional investment needs • sale proceeds/transfer value of assets		X	X
8. EXTERNAL IMPACTS			
Road network • increase in traffic on port access roads • additional investment requirements	X	X	X
Land development • port-related industry • other		X	X
Contribution to regional & local development and National Spatial Strategy		X	X

	Do Nothing	Do Minimum	Project
9. ENVIRONMENTAL IMPACT			
Environmental impact assessment • extent of studies undertaken to date • key findings • principal environmental concerns • potential environmental benefits			X
Planning framework • existing development plans • project compliance • positive and negative contributions		X	X
Planning applications and permits • current status • procedures still to be completed • expected time requirement		X	X

	Do Nothing	Do Minimum	Project
10. BACKGROUND INFORMATION For all port activities, inc non-unitised Port plans • layout of existing port operations • long term development plan Organisational structure of port • port company • main terminal operators, leaseholders and port service providers Financial position of port company • port company accounts for last three years • breakdown of revenues and operating costs by major activity • financial forecasts to 2009 Labour force (port company and operators) • labour employed in the handling of unitised cargo over the last five years • labour costs for unitised cargo operations over last five years Current performance indicators for unitised cargo • number of berths/quay length (m) • back-up area (ha) • berth utilisation rate (%) • average cargo per ship (tonnes) • average turnaround time per ship (hours at berth) • average waiting time per ship (hours) • labour productivity (TEUs or trailers per worker pa.) Corporate governance statement	Relates to existing operations		