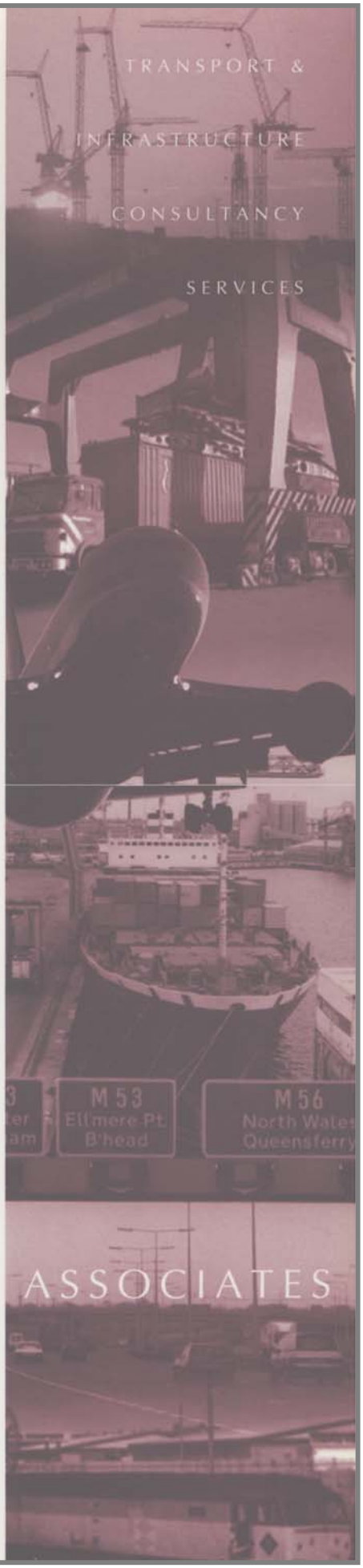
Evaluation of projects for Ireland's unit load port capacity requirement to 2014 and beyond

Draft Final Evaluation Criteria

November 2005



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1 Introduction

1.1 Background

In January 2005, the Minister of State Pat the Cope Gallagher launched the Irish Government's Ports Policy Statement. 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 that lie ahead is the provision of adequate in-time port capacity, particularly for unitised trade. The Policy Statement sets out a framework to ensure that capacity needs are identified, planned and progressed in a coordinated manner.

As an initial step in this process, the Department of Communications, Marine and Natural Resources consulted with the commercial ports handling unitised trade to determine their view of port capacity, and how they intended to deal with the projected capacity requirement.

In addition, the Department recently appointed Fisher Associates to advise on (*inter alia)* evaluating the projects submitted by the commercial ports, with a view to informing the Department's recommendations to Government. A Steering Group comprising representatives from DCMNR, the Irish Maritime Development Office and the Departments of Environment, Finance and Transport has been established to facilitate and oversee the work of Fisher Associates.

The purpose of this process is to satisfy the Government that the anticipated capacity requirement to 2014 and beyond can be efficiently and adequately met, by implementation of some combination of the key projects referred to above, following an independent evaluation of these.

In principle, the Government 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 were found wanting in that regard, and if some level of State aid was considered essential in order to meet the national capacity requirement.

In line with standard corporate governance requirements regarding, *inter alia*, company borrowings, participation in joint ventures etc, as set out in both the Harbours Acts 1996 to 2000 and the Code of Practice for the Governance of State Bodies, the consent of both the

Minister and the Minister for Finance will be required. Any project(s) in this regard 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 Timetable

An introductory meeting took place between the port companies and Fisher Associates in Waterford on 29th September. Key future dates in the timetable for the assessment are detailed below:

Activity	Dates
Consultation on this document with stakeholders. Comments must be submitted by the deadline.	to 9th November
1) Final evaluation criteria, and 2) template for use by port companies in submitting their proposals, both issued to port companies.	1) 14th November 2) 21st November
Relevant components of Fisher Associates' report on productivity to be issued to port companies. The purpose of this is to assist the port companies in preparing their submissions.	21st November
Period for preparation of submissions based on the template.	14th November to 13th January
Period for clarifications on the submissions received.	30th January to 17th February
Port company presentations to Consultants and Steering Group.	22nd February

Following this, Fisher Associates will carry out an independent evaluation of the submissions against the evaluation criteria. This should be presented to the Steering Group for its approval in March 2006.

1.3 Evaluation Criteria

Following consultation with the Steering Group, Fisher Associates have prepared the evaluation scheme outlined in this paper:

- Section 2 summarises the proposed approach, and identifies the key criteria to be used for assessing projects.
- Section 3 shows how the criteria relate to government objectives as set out in the Ports Policy Statement.
- Section 4 describes how the criteria would be measured.

The objective of the evaluation is to provide a framework against which the projects can be assessed to ensure they are of a sufficiently high standard, and are capable of timely delivery to meet the capacity requirement. The ability for projects to be financed without recourse to State support is a key issue.

In advance of finalising the template for submission of proposals we are giving key stakeholders an opportunity to comment on the proposed process. If you have any comments please send them by e-mail to irishports@fisherassoc.co.uk by the 9th November 2005.

2 Summary of Approach

The evaluation of proposals for increasing the unit load capacity of Irish ports will be based on a multi-criteria assessment.

It is intended to use a relatively short list of criteria, in order to focus on measuring and comparing the most important indicators of project performance.

The criteria have been chosen to reflect the government objectives set out in the Ports Policy Statement (2005) – location, contribution to regional and national capacity requirements, funding, impact on externalities, efficiencies and costs.

Port companies that have indicated they wish to expand will be asked to put forward proposals in a standard template that facilitates comparison on the basis of the selected criteria. They will be expected to put forward more than one proposal, including not only their preferred scheme but also a "do minimum" scheme for creating additional capacity at a low capital cost, and (possibly) an intermediate scheme that creates additional capacity closely phased to increase with growth in demand.

The port companies will also be invited to present their views on the consequences of a "do nothing" investment strategy, and there will be a general check on the credibility of their proposals, if necessary with requests for modifications.

The evaluation of projects will be based on common assumptions about external parameters such as traffic growth, interest rates, and land and sea transport costs.

The projects will initially be evaluated separately, but competition between projects for the same markets (and any complementary effects), will be taken into account when compiling the overall recommendations to the Steering Group.

The proposed criteria are set out in Table 2.1 overleaf. They have been identified by long listing the criteria that are used regularly in this type of assessment, then eliminating:

- Criteria that are relatively unimportant in the context of Ireland.
- Criteria that are not expected to vary significantly between Irish ports at the level of information currently available.

- Criteria that are difficult to measure or assess objectively (with exceptions for major issues that can only be assessed subjectively).
- Criteria that overlap extensively with other criteria on the long list.

Table 2.1: Proposed Evaluation Criteria
1 Capital cost per unit of additional port capacity
1.1 Total cost
1.2 Funding structure
1.3 Phasing
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
5 Land transport externalities
5.1 Impact on road traffic 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

3 Mapping Criteria Against Government Objectives

The criteria for project prioritisation set out in the 2005 Ports Policy Statement are:

- **Location**: This is taken to mean proximity to markets and shipping routes, easy access to national transport corridors, consistency with the National Spatial Strategy, and minimisation of environmental impact.
- **Contribution to regional and national capacity requirements**: This is taken to mean a high degree of certainty that the appropriate amounts of additional capacity will be provided in advance of demand, and that the geographical distribution of this capacity will reflect the geographical distribution of demand for Ro-Ro and Lo-Lo services in Ireland, less the amounts of capacity already provided in regional markets.
- **Funding**: The Ports Policy Statement makes it clear that projects are to be funded as far as possible by port companies, port users, and private investors. Where available EU funding may also be appropriate. Exchequer funding is not, in general, expected to feature in priority projects. Exchequer funding would be considered only as a last resort.
- **External impact**: The most important external impacts are assumed to be road traffic congestion, and other environmental impacts.
- **Efficiency**: This is taken to mean the provision of additional capacity to port users at the lowest possible all-in cost[1], subject to the quality of service being acceptable. Key performance indicators such as cargo handling rates (TEU or trailers per ship hour) and cargo dwell times are often used as a proxy for efficiency, but require careful interpretation.

[1] The generalised cost of cargo handling includes not only the costs of providing port services, but also associated costs incurred by port users, such as ship and truck turnaround times and inventory costs.

- **Cost**: The most important criterion is capital cost per unit of additional capacity, which provides an incentive for ports to make optimal use of their existing assets. However use of existing assets beyond this point will lead to a deterioration in service quality and / or higher port operating costs, which should also be taken into account in the evaluation

The Ports Policy Statement emphasises increasing competition within and between ports, and encouraging private investment.

Finally the Policy Statement requires project assessment to take into account the:

- EU Directive on Market Access to Port Services (still facing strong opposition in the European Parliament). This will be considered when assessing projects' contribution to increased competition.
- EU Motorways of the Sea initiative and the Marco Polo Programme for the promotion of short-sea shipping. The likelihood of funds from this source will be taken into account in the assessment of project funding structures.
- EU rules on State Aid. Most of these considerations have been incorporated into the criteria proposed in Table 2.1, although they are often expressed indirectly.

Preference will be given to self-financing projects, using internal funds, private investment and commercial bank loans. Exchequer support may be used for project funding only in the last resort, where the port company:

- Can demonstrate a strong business case for the project.
- Has rigorously examined all alternative funding options, and can explain why these are not appropriate.
- Has no other means of funding at its disposal (including sale of non-core assets).

Port companies will be requested to submit Environmental Impact Assessments for each project, at a level of detail commensurate with the stage reached in its design. These will be used to review potential costly mitigation measures (Criterion 1.1) and / or the risk of long delays in obtaining permits (Criterion 6.3).

4 Measurement of Proposed Evaluation Criteria

This section describes the proposed evaluation criteria in more detail, and indicates how they would be measured.

4.1 Capital Cost per Unit of Additional Port Capacity

This set of criteria measures the cost effectiveness of proposed investments, focusing on three aspects:

- The total cost per unit of capacity (1.1).
- The funding structure proposed for the project (1.2).
- The phasing of the investment in relation to the build-up in demand (1.3).

4.1.1 Total Cost per Unit of Capacity

The first problem is how to define the capacity of the project. For **Lo-Lo** terminals this will depend on the amount and type of container handling equipment that is installed, which is difficult to foresee in advance because of the speed of technological change. We therefore propose to standardise estimates of capacity (and costs) by assuming that new Lo-Lo terminals will eventually be provided with one ship-to-shore gantry crane (SSG) per 100m of quay, and that each SSG will have a capacity of 120,000 TEU p.a.

Having established the maximum potential capacity of each Lo-Lo terminal, the information template would request cost estimates for equipping it to achieve its maximum theoretical capacity. Differences in terminal area would be reflected in the costs of the container yard equipment required to support the maximum SSG throughput.

Terminals which occupy only a small area of land will have to stack boxes higher, and will therefore require either a different technology (RTGs rather than straddle carriers or reach stackers) or more units of equipment to compensate for the larger number of wasted moves when accessing the stack. The calculation of the container yard equipment required to support the cranes will be based on a standard container dwell time (say 5 days) which will be the same for all ports.

Differences between Lo-Lo terminals in the depth of water provided will be taken into account in criterion 2.2 (nominal shipping costs), which includes the cost advantages of using larger vessels.

The use of standardised assumptions about terminal equipment and operating practices will facilitate comparison between different schemes by focusing on differences in civil works construction costs. It is possible that some of the port companies will have different, strongly held views about the way in which they would operate their terminals. If these appear realistic, appropriate adjustments will be made to the estimates of both capacity and cost.

Similarly, the assessment of small projects which do not involve extensive civil works will be based on the procurement schedule proposed by the port, although the resulting increases in capacity will be calculated on the basis of standard parameters (such as TEUs per crane) unless there is any reason not to do so.

Ro-Ro terminals have a different set of problems, relating to the close inter-relationship between freight and passengers using multi-purpose ferries. Some terminals provide large parking areas for cars, and may include passenger terminal facilities in cost estimates. This will be dealt with by removing from the capacity figures and cost estimates those project components that can reasonably be assumed to be primarily of benefit to passengers. Alternatively the potential costs and benefits of each project to ferry passengers may be dealt with separately under Criterion 3.3.

A second problem arises because Ro-Ro terminal capacity is heavily dependent on the balance between accompanied and unaccompanied freight units. The former move through the port very quickly, whilst the latter require substantial areas of parking. We will deal with this by assuming a standard traffic mix for all ports, based on the current national average. This will only be amended if any of the ports has a strikingly different traffic mix as a result of its location, when the evaluation will incorporate some form of market segmentation.

Joint Lo-Lo / Ro-Ro terminals create additional problems in capacity estimation, as their potential throughput will depend on the balance between these two very different types of traffic. If possible, we propose to use the national average traffic mix (perhaps adjusted for any major changes predicted in the traffic forecasts) to calculate the length of quay and terminal area that it is appropriate to assign to each type of traffic. The capacity and development costs of each component would then be calculated separately using the combined cost estimates submitted by the port company.

This is an issue which will have to be considered at least twice: firstly when assessing the relative merits of individual proposals; secondly when combining them to form overall recommendations.

External costs: The cost estimates prepared by the port companies should include mitigation measures to offset any adverse environmental impacts, if these are likely to be a condition for the grant of planning permission.

Similarly, they should include the costs of any additional road construction which will be required to accommodate port traffic, outside as well as inside port boundaries, if provision for this has not already been included in the NRA major inter-urban (MIU) network plan, the Department of Transport's 10 Year Transport Infrastructure Plan, or local authority capital expenditure budgets.

Other issues: The cost estimates provided by port companies will have to be broken down in some detail to ensure that projects are being compared on a like-for-like basis. For example, one company may include office and computer systems costs, whilst another excludes them. This can be partially overcome by providing the port companies with specific instructions for completion of the information template, but it is still likely that some subsequent adjustments will be required to put the cost estimates on a comparable basis.

4.1.2 Funding Structure

Other things being equal, priority will be given to projects that do not require Exchequer funding, and to projects which do not result in significant increases in port charges above their present level.

The port companies will be requested to prepare, in a standardised format, a simple financial model showing how each project will be funded, including the proportions of the investment to be financed from internal funds, private capital, bank loans, and other sources. The port companies' own contributions may include sale proceeds from the disposal or leveraging of non-core assets, for example surplus land.

The project's commercial viability and bankability will be assessed by independent financial modelling, with preference given to projects that appear to be financially robust. The model will be used to check that funding assumptions (including loan repayments) are sustainable at expected levels of traffic and tariffs.

Although it is unlikely that any of the projects will be sufficiently developed to allow banks or private investors to make a formal commitment to their financing, letters of support from external funding sources should be submitted where available. These will be taken into account in assessing the risks that the proposed funding will not be forthcoming (Criterion 6)

If the project appears to be commercially viable it will be assumed that private finance (equity or loans) will materialise in due course. The only exceptions will occur if there are expected to be difficulties in relation to private funding, or technical, economic or legal issues which will make the negotiation of a contract for private funding difficult.

4.1.3 Investment Phasing

Other things being equal, priority will be given to projects whose capacity can be phased in line with demand. This will be measured by constructing an index that compares the timing of capacity (or capital expenditure) with the growth demand. In practice the key measurement is likely to be the ratio between the Net Present Value of future capacity (or capital expenditure) and the Net Present Value of future demand, with the time series for each discounted at the Department of Finance test discount rate.

4.2 Supply Chain Costs per Unit of Additional Throughput

This set of criteria includes:

- Port operating costs per unit of additional throughput (2.1).
- Nominal shipping costs per unit (2.2).
- Nominal road transport costs per unit (2.3).
- Opportunities for modal choice (2.4).

4.2.1 Port Operating Costs

Information on port operating costs will be requested on an incremental basis, linked to specific increases in Lo-Lo or Ro-Ro throughput. This is intended to flush out:

- Regional differences in port operating costs due to differences in wage rates, manning levels, organisational efficiency and other productivity differences.

- The operating cost implications of building additional capacity in small units that fill up quickly, versus large, indivisible units that have high fixed costs but also benefit from economies of scale.
- The additional operating costs associated with the "do nothing" or "do minimum" scenarios, when existing terminals become congested.

The port operating costs included in this criterion are labour, fuel & power, repair & maintenance, and insurance[2]. These accrue to the port company and (more specifically) the cargo handling companies.

The other important cost that needs to be taken into account is ships' time, either at berth (a measure of the operational efficiency of the project) or waiting for a berth (a measure of regional demand-supply imbalances in port capacity).

4.2.2 Shipping Costs

Differences in shipping costs between projects will arise because of two main factors:

- Location (distance from the main sea routes).
- Ship size (which is dependent on the depth of water provided).

Both of these are difficult to measure. In the case of **location**, the main problem is the existence of several separate markets, which are also growing at different rates. A project that is well placed in relation to the central corridor across the Irish Sea will be less well located in relation to routes from Continental Europe.

In addition, ships operate complex multi-port schedules - although a terminal in Waterford would be nearer to Rotterdam than one in Drogheda, this will make very little difference to ship operating costs if the ship is going on to the Clyde.

In the case of **ship size,** it is not immediately clear whether or when providing deeper water would attract larger ships to the Irish market. Even if some shipping lines take advantage of it, many will not.

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[2] Depreciation and financing charges will be covered by criterion 1.1, whilst miscellaneous overhead expenditures are difficult to calculate and are unlikely to vary much between ports.

Unlike with bulk trades, it is not clear what effect the use of larger ships will have on freight rates in the unitised trades. However the effect could be large if the provision of a deepwater Lo-Lo terminal results in direct deepsea services rather than the transhipment of deepsea traffic via UK or Continental ports.

Shipping costs can be measured in terms of ship operating costs or sea freight rates. Although freight rates are a better measure of the impact on the Irish economy, they are difficult to reduce to a single figure because they depend so much on the direction of trade, size of customer, timing etc. This criterion will therefore be based on standard ship operating costs, perhaps categorised by ship size / type. These would be similar for all ports per unit of distance travelled.

4.2.3 Road Transport Costs

Road transport costs are a measure of the distance of each port from the main origin-destination points for Irish trade. They would be based on standard road vehicle operating costs per km, perhaps adjusted to take into account speed differences and congestion costs in different parts of the highway network. In the “do nothing” and “do minimum” cases, an additional allowance would be included for any truck waiting times at the port.

The main problem in estimating land transport costs arises from the overlapping nature of port hinterlands. We propose to base the analysis on an agreed geographical distribution of cargo origin-destination points in Ireland, and to examine the way in which port traffic flows might change as capacity is added at different locations.

4.3 Other Economic Impacts

In practice, additional Lo-Lo and Ro-Ro capacity will not be built in isolation – there will usually be other beneficiaries such as passengers or general cargo, particularly if the construction of a new Lo-Lo or Ro-Ro terminal releases space elsewhere in the port for other users. There may also be costs to other port users if the terminal appropriates land previously used for other purposes, or slows down or impedes the handling of other types of cargo. These “knock on” effects on other parts of the port are often very significant.

Four “third party” economic impacts have been identified:

- Changes in effective capacity for other port traffic.
- Changes in handling costs / quality of service for other port traffic.
- Income from additional port traffic (N. Ireland, ferry passengers, cruise ships etc).
- Income from other economic activities (foreign direct investment, port-related industry, tourism etc).

4.3.1 Changes in Capacity for Other Port Traffic

Port companies will be asked to estimate the effects of the project (positive or negative) on their capacity to handle other types of traffic. However projects will only be awarded points under this heading if it can be demonstrated that the additional capacity is likely to be required, or that losses of capacity would result in the diversion of traffic to other ports.

4.3.2 Handling Costs / Quality of Service (Other Traffic)

This would be treated in a similar way, by inviting the port companies to put forward their views on the operational effects of the project on other types of traffic (if any). If the consultants’ port visits identify any significant “knock-on” effects on other port traffic, more attention will be given to developing appropriate ways of measuring them.

4.3.3 Port Income from Additional Traffic

Whilst most of the economic evaluation will be conducted on the basis of “fixed matrix” traffic flows, assuming that the port projects have no effect on cargo volumes or origin-destinations, this criterion will relax that assumption by focusing on additional project-specific traffic flows.

The most obvious of these is the ability of additional capacity created in the vicinity of Northern Ireland to attract traffic from Northern Ireland, thereby generating additional earnings in Ireland from the provision of port services and associated activities such as trucking.

Another example would be the income obtained from passengers if the ferries carrying trucks and trailers also brought in significant numbers of passengers.

There are two ways of dealing with mixed passenger-freight facilities:

- Deducting from the capital costs of the project the part related to handling passengers, assuming that this capacity would be built elsewhere at a comparable cost if not included in the project.
- Including the full costs of the passenger facilities in Criterion 1.1 and the associated benefits in Criterion 3.3

There are pros and cons to both approaches, which will be easier to assess once the consultants are more familiar with the passenger ferry market in Ireland.

The final example relates to the potential for attracting cruise ships – calls that would not be made at all if suitable facilities were not provided by the project. These are likely to be few in number but, as previous studies have shown, have a considerable economic impact.

4.3.4 Income from Other Economic Activities

Ports have always provided a stimulus to economic growth, attracting new industry and investment. Any unique features of the proposed projects in terms of their contribution to Irish economic growth would therefore be incorporated into this criterion.

However unitised cargoes, unlike bulks, have rarely attracted major industrial development to a country. It is also unlikely that there will be very much difference between the projects in their ability to attract other economic activities to Ireland.

This criterion may therefore reflect mainly the multiplier effects of port investments on the regional and national economy.

4.4 Regional Distribution of Port Capacity

There are three issues to be considered in relation to this criterion:

- Achieving a geographical distribution of port capacity that is broadly similar to that of the market.
- Ensuring that new port capacity is built where it is most needed.
- Meeting the government's long-term objectives for distribution of economic activity, by regulating investment in congested areas and stimulating economic growth in the less developed areas.

The first issue is already covered by Criterion 2.3 (road transport costs), but the other two issues form the basis for Criteria 4.1 and 4.2.

4.4.1 Location of Capacity in Relation to Need

Port capacity is not always best located closest to the market. More distant ports may be growing faster because of economies of scale, shipping company logistics (ability to fit in the maximum number of round trips per day), efficient management and competitive pricing policies, or simply because customers like them. For ferry services there is also a "club" effect – the more services that are operated from a port the easier it is to attract customers (and new ferry lines) because fall-back services are always available if the intended sailing is missed or withdrawn.

Port investment should therefore be related to potential shortages of capacity as individual ports continue to grow at either the national average rate or by steadily increasing their market share. Criterion 4.1 (the need for additional capacity at each port) can be measured in two ways. The simplest way is to look at existing berth utilisation rates, to estimate how quickly the port is likely to run out of capacity. However berth utilisation rates may be high because of inefficient working practices resulting in long ship turn-round times, or even because of differences in the way ports measure berth utilisation.

A more effective measurement would be ship waiting time costs in the "do nothing" situation. This allows the effect of port size on waiting times[3] to be taken into account.

4.4.2 Consistency with National Spatial Strategy

This will consider the need to develop port business and related access at strategic locations (nationally and regionally), to support the National Spatial Strategy's objectives of achieving an improved balance of economic activity, by supporting the potential of regions to play a stronger national and (where appropriate) international role. A method for measuring this criterion will be developed during the course of the study.

[3] Queuing theory shows that the larger the number of berths in a port, the lower the ship waiting time at any given berth utilisation rate

4.5 Land Transport Externalities

The effect of port projects on other road users can be measured in terms of road congestion, or as the capital cost of mitigating that congestion by building new roads (included in Criterion 1.1).

Because of the lumpiness of road investment, and the difficulty of getting road projects into the programme, it will be necessary to consider both of these effects side by side to avoid double counting.

4.5.1 Traffic Congestion

The effects of road congestion on port traffic have already been considered in Criterion 2.3 (road transport costs). Criterion 5.1 would measure the impact of additional port traffic on the congestion levels experienced by other road users.

We do not propose to undertake any detailed traffic modelling, but suggest instead a fairly simple indicator, to be worked out jointly with the Department of Transport, such as the weighted average ratio of traffic:capacity on all trunk roads within a defined radius of each port.

Traffic and capacity would be defined in terms of vehicles per day, capacity would be based on the number of lanes available, and the weighting would be phased on the road lengths for which individual traffic:capacity ratios could be estimated[4].

Because a given ratio would impose higher absolute costs on road users in a large urban area than in a small one, the weighted average ratio for roads in the area behind each port (based on traffic counts, local knowledge or direct observation) would be multiplied by either the total length of the trunk road network in the defined area, or a rough estimate of the number of vehicle-miles travelled each day on these roads. Further discussions are needed to refine this concept.

For most ports the analysis will be based on recent traffic data. For Dublin, however, the effects of opening the Port Tunnel in 2006 will be taken into account.

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[4] The segmentation of the road network will depend on its layout, the location of traffic count stations, and the Department of Transport's views on the location and length of bottlenecks.

Port traffic will cause congestion not only on the trunk road network, but also in local access roads, where it is likely to be a major nuisance to local residents. This will be discussed with the local planning authorities, but will probably be treated as a timing risk by assuming that projects with adverse local traffic effects will be more likely to be delayed by local opposition at the planning application stage.

4.6 Risks

Project risks are important not only in evaluating individual projects, but also in assembling them into a portfolio which will ensure that Ireland always has sufficient port capacity available.

Four sub-criteria have been identified:

- Credibility of the promoter's Business Plan.
- Capital and operating cost risks.
- Timing risks
- Financial and market risks.

4.6.1 Credibility

There is a risk that the promoter's proposals are unrealistic. This will be viewed in two ways: firstly by requesting that the information templates are prepared on the basis of standard assumptions about market conditions, financial parameters etc; secondly by scrutinising the proposals for over-ambitious assumptions, arithmetic errors etc. The practical track record of the project sponsors in building and operating similar projects elsewhere will be taken into account.

There are operational and financial risks in the management of new facilities. For example, the promoter may not achieve the productivity proposed, thus failing to realise potential capacity. Past performance standards at each port will be taken into account when assessing ability to meet the industry-wide efficiency norms used to calculate capacity increases in Criterion 1.1. Track record in financial management of promoter's existing businesses will be taken into account.

Consideration will also be given to levels of compliance with corporate governance standards for State bodies, as set out in *inter alia* the Department of Finance's Code of Practice.

4.6.2 Escalation of Capital and Operating Costs

The scoring of projects in relation to their capital cost risk will be based on:

- The level of detail at which the project has been designed and costed - the greater the detail, the more reliable the cost estimates are likely to be.
- Site characteristics.
- Technical complexity and extent of innovation.
- Proposed contractual arrangements, such as transfer of construction cost risks.
- Scope for “add-ons” which may be required to gain permission to build (for example environmental mitigation measures, road access improvements, more distant dumping of dredge spoil, dredging, rehabilitation of contaminated land).
- Price escalation caused by project delays.

The scoring process will be subjective, and based on the consultants’ and Steering Committee’s own expertise.

If it is assumed that all of the Lo-Lo and Ro-Ro projects are operated in a similar way (see Criterion 1.1) there will be very little variation in operating costs. Operating risks will only become a significant consideration if one or more of the projects involve fairly unique operating system, if there are believed to be economies of scale, or if there are significant regional variations in input costs.

4.6.3 Delays in Project Completion

The risk of a project not being completed on time will depend on:

- The credibility of the work programme put forward by the project sponsor.
- The stage of development it has reached already – the more advanced it is now, the greater the probability that it will be completed on time.
- The need for permits and authorisations, particularly those requiring extensive consultation, environmental impact assessments or planning inquiries. This would include applications for the right to develop the foreshore.

- The probability of design changes and variations in contracts. Many of the technical factors that increase costs can also delay projects.
- The promoter's track record in completing projects on time.

Like cost risks, timing risks can only be based on subjective judgement. This will be particularly important in the case of delays caused by requirements to comply with relevant environmental legislation.

4.6.4 Financial and Market Risks

Changes in external conditions (traffic, cargo handling charges, land prices, interest rates etc), which reduce the commercial viability of the project, will weaken the resolve of the promoter to go ahead with it in its original form. Because they are primarily commercial, these risks can be quantified by using a financial model to test the robustness of the project. By applying similar sensitivity tests to all projects, it should be possible to identify which are most "at risk" to changes in market conditions.

The government wishes to see financially strong port companies. The effect of projects on port companies' balance sheets will therefore be considered, as will their ability to implement projects in less favourable market conditions.

4.7 Promotion of Competition

Criterion 7 measures the amount of additional choice that will be available to port users as a result of the proposed project. This can be expected to have some effect on both port charges and quality of service.

Competition is a difficult to measure. The number of companies providing comparable services is one indicator[5], but there are many ports (for example Hong Kong) where the existence of multiple operators has done little to drive down prices. The overlap between port hinterlands is another indicator, but one for which it is difficult to obtain more than anecdotal information.

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[5] A better indicator is the Herfindahl-Hirschman index, which takes into account the distribution of market shares as well as the number of operators

Compliance with the EU Directive on Market Access for Port Services is another way of measuring competition, but it may not be possible at this stage to obtain adequate information about the intended terminal operators, or the procedures to be used for selecting them.

Finally it may be difficult to say whether an existing operator or a new entrant will control the new capacity. If the new entrant were a shipping company, the impact on competition could extend well beyond the ports sector.

Port companies will be asked to indicate any effects their proposals may have on the expected level of competition, either within or between ports (including ports in Northern Ireland), and to indicate their intentions in respect of the assignment of operating rights.