Facts to consider when developing a new port

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Continuous and increased demand for energy, development and construction translates into huge demand for bulk commodities of raw materials, food stuff, fertilizers and finished products. This trend has created an unprecedented demand for shipping transport and, consequently, for port services and related infrastructure at local, regional and global level.

In a bid to reduce the mile/tonne cost, bigger vessels are being built. As a result, ports that failed to foresee the trend or which cannot adapt their installations are now facing serious limitations in the number of vessels they can accommodate at any one time, and in their capacity to accept and efficiently serve oversized vessels. This results in reduced productivity and loss of income for the exporting country, enterprise and the port itself.

Catching up

Spiralling demand has created a sharp increase of shipping freight in both the bulk and container shipping sectors. In an effort to maximise revenues in the shortest possible time, and catch up with the market, ports often opt to keep their installations in continuous use. As a result, in some less developed or organised countries, this often leads to infrastructure maintenance being neglected or postponed until a later date, rather than halting operations. In the short term, this may seem like the answer to keeping up with demand and reducing congestion, but long-term it inevitably leads to breakdowns which further add to the long lists of waiting vessels.

Increasing domestic demand also cuts into available stocks of coal, iron ore, bulk cement, clinker or grain, and may shift the bulk of international trade from countries with established export patterns to others which are ill prepared for a sudden influx of vessels arriving at their doorstep, creating more commodity demand 'hot spots', as well as congestion and backlogs at their ports.

Too little, too late?

At dry bulk ports around the world – from India, Australia, Africa and the Americas – plans are in place to expand, enhance and increase throughput capacity.

But is it too little, too late? Based on the assumption that port equipment, software and services have developed considerably in the past number of years, it is worth posing a few questions about the essential points for consideration when planning a new port or renovating an existing port or terminal.

Question: ***Why must the port be built, renovated or expanded?***

Apart from the obvious commercial trends, other deciding factors in creating, renovating or expanding a port could include: discovery of a new mine of expansion of an existing one, increasing production output for exports; backlogs at other ports in the area; development of a new industrial zone requiring raw materials; a factory altering its production line and becoming an exporter.

Question: ***What type of port should it be?***

We are focusing on bulk terminals, so we need to consider the right equipment for fast loading/discharging operations.

A coal terminal's proximity to the mine can have a serious effect on the strength of the supply chain.

The main types of cargoes that will pass through the port dictate whether Open or Closed Storage facilities (or a combination of the two) will need to be built. Segregation of cargoes according to type and/or grade is of utmost importance as mingling may alter specifications or reduce cargo values significantly or – in the worst case – make it necessary to dispose of them completely. Strong sided structures/separators and concrete flooring is therefore essential to avoiding foreign materials contaminating the mix, and of course this adds to the cost of port development.

Question: ***Where should it be built?***

Onshore, offshore or estuary? The location of a new port is a key consideration and – depending on the answer – it presents a range of different challenges, approaches and solutions for port development.

Issues to be considered include: port protection from adverse weather conditions to ensure uninterrupted round-the-clock operations; sufficient water depth for the largest of vessels to stay afloat at all times (thus cancelling out tidal effects); distance from the open seas in order to avoid lengthy (and costly) pilotage and tug services.

In an estuary or tidal port, silting may require continuous dredging which will increase port costs over the years. But if regular dredging is not carried out, it can have a serious impact on the port's ability to handle larger vessels.

For offshore ports, proximity to the shoreline is an important factor in maintaining continuous cargo flow and necessitates more complex logistics coordination. Easy and safe access by authorities and surveyors are required. Other aspects need to be considered when looking at the port's location, including:

- **Distance from the mine or producing factory** to the port. The further the distance, the thinner and more vulnerable the supply chain will be to conditions that can disrupt the flow of goods. Natural disasters such as heavy rains, mud slides or severe storms and train derailments can result in large port backlogs for vessels waiting for their cargoes to arrive from the hinterland.
- Where trucks are used to transport cargo to the storage/stock piling sites, the state of the **local roads network** and its ability to sustain heavy loads needs to be carefully considered, as well as the ability for road maintenance to be carried out on a regular basis.
- **Alternative routes** also need to be factored in the formula. Increased traffic may result in accidents, so a prudent port operator should always have in mind alternative routes for getting freight to the port by truck.
- In order to minimise disruption that increased traffic will inevitably bring, the **distance** of the port from nearby cities, towns and villages, as well as important natural habitats or archaeological sites, needs to be considered.
- **Energy demand**. Ports are huge consumers of energy, so they must be in a place where the energy grid is both sufficient and reliable, in order to support operations continuity 24 hours a day, seven days a week.
- **Security**. Bulk ports/terminals require large areas of land and their perimeter can be several kilometres long. This can raise security issues as the perimeter can be difficult and expensive to fence and guard continuously, in accordance with port security requirements.
- **Safety**. Heavy machinery constantly at work within the port limits present significant safety issues. Well-defined procedures are therefore essential to protect the well-being of those working in the port. And in case of accidents, clear and fast routes to the nearest first aid station or hospital must be identified and properly maintained.

Question: *The port is built and ready – now what?*

International trade is sensitive to a wide range of influences including: exchange rate fluctuations, interest rates, government regulations and world events, to name just a few.

Serious studies of cyclical trade patterns should be made in order to catch up the enterprise's local or international growth as well as the country's ability to generate income in a booming international trading environment, increase energy or re-export goods to various destinations.

Likewise, the decision by private enterprises or governmental bodies to build a port may be influenced by their ability to raise funds or the impact of an adverse economic environment which may cause delays and increase the final cost.

Question: *How will the port influence local communities, environment and culture?*

According to the latest MARPOL convention, in future, bulkers trading in certain areas should discharge their hold washings only at receiving facilities and not at sea. The growing trend towards more such regulations in wider areas will eventually have a global impact, and non-conforming ports will find themselves blocked in their operations.

Environmental issues are becoming increasingly important. As bulk ports often generate dust or other pollutants, distance from population centres must be considered. Bulk cargo stored in the quay may escape in the sea, either in dust form or as a solution after a heavy rain. The mixture of bulk cargo and sea water may also be detrimental to the surrounding environment or marine habitat. This is a growing cause of protests by environmentalists, local fishermen or even the tourist trade of an area. Opposing actions by such groups can reduce ports' ability to handle certain cargoes.

Many local communities are now gaining a louder voice in issues affecting their environment. Therefore, consultation with their representatives to reach a consensus is a must for development.

Onshore, offshore or estuary? The location of a new port is a key consideration. It presents a range of different challenges, approaches and solutions for port development.

Another consideration is the influence a new port will have on not only the environment, but also the local community and culture.

Developing a new port can bring a new lease of life to sometimes run-down or neglected areas, thanks to the creation of new jobs for the local population, as well as improvements to the local transport and energy grids. The resulting influx of people will have a knock-on effect on the local economy by increasing neighbourhood trade and boosting ancillary services such as ship's repairs stores, provisions handling enterprises, bunker suppliers, courier facilities, and even small restaurants serving the port.

Question: ***How will the port be operated, managed and serviced?***
Perhaps the most important factor in the success of a new port is the way in which it will be managed and operated by the respective government, port trust or fully private enterprise.

Each model has its own merits, but the landlord model has been proved successful in many world ports. Under this model, land and waterfront infrastructure is leased by the port authority to privately run companies. Industrial production, cargo handling and other essential operations and services are done by specialised companies who provide and maintain their own superstructure including buildings and equipment at competitive prices (e.g. installations, offices, sheds, warehouses, container freight stations, workshops). The port authority is responsible for issuing Rules and Regulations and establishing the framework for health, safety, environment, emergency, security as well as the leasing of plots and maintenance and development of infrastructure. The port is not involved in any operational activities, such as tugs, pilotage, linesmen, stevedoring and warehousing as they are all handled by private companies.

The 'landlord port' is currently the dominant port model in larger and medium-sized ports. Good examples of landlord ports are Rotterdam, Antwerp, New York and Singapore but regional examples can also be found in Saudi Arabia, Iran, Oman and India.

Wherever you go

At dry bulk ports around the world, importers, exporters and shippers know GAC. Thanks to its unique matrix of wide-ranging shipping, logistics and marine services interwoven with an extensive network of offices and recognised sub-agents around the world, GAC is there to serve the dry bulk trade.

Since its establishment in Kuwait in 1956, the GAC Group has evolved into the world's leading provider of shipping, logistics and marine services. Today, it is a truly global operator offering its unique blend of integrated services on all continents.

GAC delivers on its promises with day-to-day activities that represent value for money, quality, continuity, innovation and global reach. More than 8,000 employees around the world at nearly 300 offices make up the GAC community. Wherever you go, you will find GAC professionals dedicated to providing the best possible service as they work across cultures, borders and time zones.

The Group's commitment to the international dry bulk trade was underlined late last year with the opening of its major Australian operation, a network of offices covering the country's major ports. Particular focus is placed on coal and iron ore export ports.

So, whether it be coal from China, fertilizers from India or iron ore from Australia, GAC has what it takes to meet the needs of dry bulk shippers and to work in partnerships with the ports that serve them.

ABOUT THE AUTHOR AND THE COMPANY

Kostas Kakaris is a graduate of the Athens Economic University, and got his first taste of shipping when he joined a ship management company in 1974. After two years at sea in the early '80s, he held a range of management posts with various Greek and International Shipping, Chartering & Trading companies. From 1999 to 2002 Mr Kakaris was part of GAC's Hub Agency team in Athens, moving to London in 2002 as the leader of the European GAC HUB in order to develop GAC's European/Black Sea and Mediterranean agency network. Since 2006 he has been charged with the task of developing the Group's global dry bulk business. He is an active member of the Hellenic Shipbrokers Association (Dry Cargo committee).

GAC is a world leading provider of shipping, logistics, marine and related services.

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