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AFFA Project Transportation Management

Introduction

Project transportation generally refers to but limited to delivery of entire plants, large consignments of industrial equipment, manufacturing equipment. It is considered to be the most complex of all cargo movements and requires skilled rigger, training, lifting and moving equipment and teamwork.

Project transportation covers:

- a) Pre-move project analysis
- b) Establishing a working group and management
- c) Route planning and optimization
- d) Cost planning
- e) Permit handling, customs clearance and attendance to authorities
- f) CTU loading and planning
- g) Transportation insurance
- h) Warehousing and storage

A freight forwarder handling project cargo must be knowledgeable in all aspects of movements of goods.

Chapter 1: What is the term heavy-lift in today's market?

Objectives:

At the end of this chapter, students will be able to understand the term heavy lift and its application.

What are the so-called heavy lifts in today's market?

In the immediate past, any load which is heavier than what a cargo ship can handle would be considered as heavy lift; this may be just a few tons but with better technology and more powerful cranes available both on board ships and on shore; the definition of heavy lift begins to change, depending on what industry the client may be involved with. Some would use the lifting capacity of a general cargo ship as a reference. Compare its capacity with that of the general cargo ships of pre-containerization age; indeed any load above 5 tons would be classed as heavy-lifts as seen in the tariff books of many ports around the world. However, according to Thorleifasson [of BBC Chartering], only unit of above 700 tons should be considered as heavy-lift! But for practical consideration in most parts of the Asian and Pacific region; our definition of heavy lift may be a lot lower than that figure as we have to take into consideration the equipment generally available in the local market or the regional market as well as the demand of the local industries.

On the other hand, we should also consider the volume of such market from a business point of view. According to g-Captain report, the wind blades constitutes some 20% of such cargo defined as heavy lifts; they may not be heavy but certainly very bulky. Of course, in the market many much heavier and larger dimensions products such as generators, locomotives, dredging equipment and other special equipment are being handled as heavy-lifts as individual units or together in containers as part of a single shipment.

It is also noted that the tremendous growth of an industry often creates a demand for different handling requirement. In the case of oil and gas industry, the concept of “Basket” is being standardized to achieve the same objective: speedy handling; safety and cost saving. It may be more suitable for that industry but it may be suitable for the movements of any project which has components or parts of similarity.

Like all unitization or standardization; initial investment cost will have to be considered carefully as recovery will depend on its utilization rate over the years.

One source declared that in view of the availability of containers world-wide; it made practical sense for manufacturers to design their products to fit into a 40-ft container platform; this will ensure the products can have more options in transportation. Such a step will certainly have advantage in transportation as containerization today commands over 80% of all merchandise goods.

One of the earliest industry to take this step are the solar panel manufacturers. Many have designed their units either to fit into the standard ISO 20 or 40 footer. This has allowed the product to be easily transported by all modes except by air which may not fit the normal transport routine.

Chapter 2: Why the need for heavy-lift?

Objectives:

At the end of this chapter, students will understand the need that arises from the world market for heavy-lifts.

Students should also know the needs of developing economies and market demand for equipment to their region.

How do they come about?

With globalization in sourcing of goods; mainly as the result of containerization over the past 50 years plus the growing capacity of air transport, MNCs are prepared to site their production lines anywhere as long as they have all the advantages in production. This objective has driven the intense growth of world trade since 1985 when WTO replaced GATT as the monitor of world trade. It had reported that from 1985 to 2000, the world GDP grew only 200% while the world trade grew 400%! This could come about essentially because of the continuous decrease in transport cost; thus drawing even cheaper products into the world trade.

And now with the containerships increasing their load capacities with the latest Triple-E ship carrying over 18,000 TEU; the unit cost will continue to fall or at least remain constant through intensive competition in the foreseeable future.

Over the past 20 years, with larger air freighters entering the trade, the growth of air cargo volume also increased tremendously. Although after 2006

downturn, the traffic does appears rather sluggish. But again the growth of air cargo has permitted manufacturers to site their production lines over a wide geographical location based on cost and skills availability. The growing capacity of air freighters has contributed to this phenomena.

What have contributed to their movements around the world?

The growth of the developing economies; especially in the Far East has contributed to the fast expansion of the industrial output; bearing in mind that most of the economies in this region have to import large volume of raw materials to process in order to generate the finished products.

Take for example the setting up of a steel plant; the so-called project winner may not own any production lines to produce the required machinery. He would just contribute his expertise and experiences to source from what he deems to be the better products to meet the objectives of the plant owner; of course within the projected cost. It is not surprising that a number of the major components could be sourced from 2 or more different countries around the world.

Chapter 3: The Role of Technology in Heavy Lift Cargo Movement.

Objectives:

Student should understand the role of technology and its usefulness for various modes of cargo movements.

How has technology affected the sourcing of such cargo?

With intense competition in the world market, many of the modern machinery are of high value specifically designed and constructed for the buyer concerned and production time may take months if not years. In such scenario, it is obvious that handling such consignment requires dedication and plenty of experience and planning. And all necessary preparations must be planned in advance to avoid delay or even more unfortunately damage to the cargo. Any accident can mean much delay to the commissioning of the project. This will have immense financial consequences for huge projects.

How has technological changes in the various modes contributed to such scenarios?

a. Road Transport

Over the past 70 or so years, the commercial truck has increased its capacity and pulling power by over 10 folds since it was introduced. With better roads and better road systems, this mode of transport has dominated short haul transportation the world over. Especially since the advent of

containerization which essentially emphasizes door-to-door service. And with improving technology, it is not surprisingly that we see modular unit being developed and designed to haul hundreds of tons of heavy lift in a single operation.

In most EU member countries, the length of 18.25 m seems to be the limits allowed for such trucks. Though some member countries are experimenting with the so-called monster trucks, the introduction of such trucks on some roads has already alarmed the car motorists. But with controlled ‘experiments’ held in Netherlands, Sweden and Finland, the general outcome seems positive; as less number of trucks are needed on the road to haul the same amount of cargo.

Whether EU would finally accept the introduction of such trucks remains to be seen. Though it is for certain roads and the related infrastructure will need drastic changes; including accepted rules and regulations currently in force.

Under the various EU Directives, on the account of environmental issues, movements of cargo over 125 km are being encouraged to use either IWT or rail/road combined transport mode.

This mode of transportation is practically the only mode available for the last mile operation unless the site has rail siding or located along a waterfront where LASH barges can reach. But do note that most of these heavy lifts for major projects construction are practically sent or sited at remote areas which will require detail planning to overcome numerous obstacles along the route.

In practice however small the risk may be, it must be minimized with possible damages totally avoided. Crossing over bridges with restricted

load limitation, narrow road with weight limits; over-head power lines are all issues to be resolved with local authorities in most instances. And such local authorities most of the time lack the experience to handle or make such decision quickly.

b. Rail Transport

Rail freight seems to try to revive its role in freight transportation; especially in China and India. In North America, the 7 Class A rail freight operators have proven to be competitive over certain sectors; although trucking still haul over 70% of inter-state cargo movement.

In EU, essentially because of environmental issues, rail freight together with Inland Waterway are being advocated as the better choices for distance above 125 km.

It should be noted that EU has made good progress on the maximum axle load of the wagons; increasing to 32.5 ton per axle. Such load factor can only be achieved because of high technological advancement in the manufacturing of such axle load.

A good example of rail freight could be the transportation of large number of heavy duty tanks in North America which can be done within a few days right across the continent. For countries with large land masses, like Russia, China, India or even Brazil; rail freight appears to offer the best inland solution for cargo transportation while offering development opportunities along the rail track at any time in the future. The development of the weekly rail freight services from China to Germany and Belgium is a case in point; it is much faster than shipping though the total volume is still small. With the resources found in the CIS countries, the rail linkage is a necessity for their future growth as this mode will be

their only option for cheaper transport; being located hundreds of kilometers from the oceans.

c. Sea Transport

As noted above, the introduction of containerization to international shipping has indeed revolutionized sea transport. Since its introduction in the mid-60s, it has captured over 80% of all merchandise traded across the world. Coupled with the ever growing sizes of containerships, sea transport cost will remain very competitive. Even cargo traditionally deemed to be the reserve of dry bulk carriers is being containerized.

For example the grain shipments from North America to China and Japan. The main reason for this change is essentially caused by the imbalance of trade along the Pacific shipping routes; thus allowing shippers in North America to pay a much lower freight rate as against shipment by the traditional bulk carrier.

The increase in the capacity of the containership has literally forced the port operator to have larger and faster quay cranes to meet the volume of containers to be loaded/unloaded within the given time during each port call. This has resulted in requiring cranes capable of lifting two or even three containers per lift to increase productivity. This necessitates the quay crane to have lifting capacity of nearly 100 tons. It means that singular units of 100 tons can be handled at container terminal and this has impact on the cost of lifting heavy units across the ship's rail. Of course, assuming that the dimensions of the unit are within the working range of such crane. In the past, it may require the mobilization of shore crane to lift such cargo at a much higher cost [assuming that the ship deployed does not have the required lifting capacity]. With the lifting capacity solved, containership

can cope with such unit; using flat rack, open top or suitably designed unit to offer such service. In fact, many manufacturers are beginning to design their products within the dimensions of the 40 footer containers. Do bear in mind that a 40-ft container has a floor space of 320 sq ft of area to work with. This will have future impact on the way such projects or machinery will be moved across the globe.

d. Air Transport

With the advent in technology, air craft has increasing the lifting capacity through such models like the 747, 380 or Anton-124. With higher lifting capacity, the cost of air transport has become 'affordable' to many products; especially the relatively lighter high value electronic items. This mode of transport has grown tremendously over the past 30 years especially in the Far East and the Middle East. Though with the high cost fuel and the much improved shipping connectivity, this node of transportation will continue to face many challenges. Take the case of rail freight, for instance, the time taken from the Far East to Europe is almost halved as against shipping; with further improvement in documentation processes, communication systems and probably a larger standard gauge across the Euro-Asia land mass thus enabling much higher speed than the current average of 45 km/hour; the total time taken may become even more competitive.

Chapter 4: The Role of the Freight Forwarder in Heavy-lift Project Cargo Management.

Objectives:

By then end of this chapter, the student will be able to understand the important role that the freight forwarder plays in bringing the project together from beginning to final installation of the goods.

What role does the freight forwarder play in such cargo movements?

In view of all the processes involved on the flow of such cargo, the freight forwarder, being the ‘architect of transport’ has a vital role to play. As noted, planning and documentation play a vital role in the flow of such cargo across borders; freight forwarder is the only party with the connections as well as the experience to handle such movements in most circumstances. His ability to coordinate all the parties who are involved in the whole process in avoiding unnecessary delays or stoppages is vital to the success of such project.

This is especially so when such projects are normally sited at remote location of many developing economies across the globe. Such locations also mean having to deal with local authorities which may have very little experience for such undertaking and can delay many decision making processes.

As with many aspects of the logistics industry, it is noted that the EU Community has organized a special unit under FEM, [Federation Europeene de la Manutention] [an acronym in French] under the general material

handling umbrella. They have committees organized to review and record the handling of all kinds of cargo; including the generally accepted term for heavy-lift project cargo.

The objective has been defined thus: “produces all mechanical equipment that relate to the movements, storage, control and protection of materials, goods, and productions throughout the process of manufacturing, distribution, consumption and disposal”.

The federation has divided their interests into 7 categories:

- Conveyor for Bulk Handling;
- Cranes and Lifting Equipment;
- Elevating Equipment;
- Industrial Trucks;
- Intra-logistics Systems
- Mobile Elevating Work Platform; and
- Racking and Shelving

This organization has the following objectives:

- Encouraging the technological progress and safety at work in the field of handling equipment
- Harmonizing of legislation and standardization as well as acceptance testing at international and European levels in order to facilitate the exchange of goods across borders
- Assisting and advising authorities responsible for questions concerning handling equipment at European level.

Based on the experiences of FEM, ASEAN/Asian operators should also follow such footstep to create a similar effort so that this aspect of freighting and cargo handling becomes more professional with guidelines

provided for continuous improvement. This will allow continuous development of the industry thereby improving efficiency, safety and productivity in the long term.

Such an approach is essential as Asia develops its industrial might and project cargo movements will continue to expand in volume and as also density. This will require collective efforts from all operators within the freighting industry as well as those from the manufacturing sector to act together to remain relevant to the globalized economy.

Chapter 6: Specialization in Heavy Lift Cargo – The Basket System.

Objectives:

The objective of this chapter is let students understand the depth of specialization in handling of heavylift cargo.

There is more than one association involved in the handling heavy-lift movement around the world. Some may be specialized in certain industry. This is the case with the oil and gas industry where the operators create a specialized sector to handle the heavy-lifts within the industry. Hence, a more convenient type of container is created; and conveniently called “Basket”.

The so-called cargo basket is also designed based on accepted ISO standards. The cargo basket structure is defined by ISO EN 12709 and DNV CN 2.7-1.

Whereas the ‘Special Basket’ is basically designed for specific piece of equipment.

All these basket are designed with fork-pockets for fork-lift operation and also with pad-eyes for lifting purpose [EN12079 and DNV CN27.1]

Basically, it shows that Asian operators should also act in such manner so that the industry can progress likewise rather leaving such important industry to depend on mere experiences and chances in operation.

Based on such developments in the world trade, there is certainly a need for the freight forwarding associations in Asia to study this approach in working with the manufacturing sectors to create common interests and objectives in this aspect marketing their goods.