

## THE CONCEPT OF THE INTERMODAL TARIFF STRUCTURE FOR SEA-BORNE EXPORTS.

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At the outset it is necessary to define inter-modalism to understand the inter-modal tariff structure. The definition is found in the concept of a total transport chain from the point of production to the point of final sale/use. It would therefore mean that sea transport which provides a vital link in the international transport of goods is connected with canal, road or rail.

It would also imply pre-carriage by canal, road or rail to the main point of transport and on-carriage by the same modes to the final place to which goods are destined. It should be remembered that the ports provide the most important interface in the flow of commodities between countries. This concept of the total transport chain has been increasing in importance as a result of technological developments, particularly containerisation. Incidentally many goods are now moving under a single contract, with a single document covering sea and inland transport.

It is now accepted that different modes of transport complement one another and advantages of complementarity are embodied in the concept of the total transport chain. It should, however, be remembered that competition among different routes with different combinations of modes has also increased. This would however not reduce the advantages of inter-modalism. There is also a great awareness of standardisation of containers, transport equipment in so far as they relate to freight containers, and development of infrastructure facilities.

The majority of the containers used are built to ISO specifications permitting their ease and ubiquitous use on an international scale. The basic containers most commonly handled are built of steel or aluminium with modular or either 8' x 8 or 8' x

8.6' the latter being applicable to the North American trade. Their length is 10 ft., 20 ft., 30 ft., 35 ft., or 40 ft., 10 ft. and 35 ft. not being very common and usually found on the short sea trades. The most popular size is of lengths 20 ft. and 40 ft. and modular or either 8' x 8.5' or 8' x 8'.

Cubic measurement, weight and utilization factors may be enumerated as follows for guidance. (General Purpose Containers).

In explaining the inter-modal tariff structure it should be remembered that essentially it is differentiated to cover the main transport sector and inland transport sector and the former is further differentiated on the basis of the organisation of the main transport sector on liner terms or non liner terms.

Let us commence with the main transport sector. We are aware that under the system of Liner services providing a conventional service, the general level of tariff rates are determined by the capital value of investments and operational costs. The latter however, have the following three cost elements:

- 1) Line haul costs (voyage related costs)
- 2) Costs incurred in ports when cargo is loaded and discharged (cargo related costs)
- 3) Insurance costs of goods during handling and transit (Item 3 is generally included in 1).

In order to cover costs the most remunerative rates are determined. Many variables influence the rate formation, they include the storage factor of the commodity, the value of the commodity, elasticity of demand for the commodity, tonnage, alternative competitive sources of supply etc., substitutes and inter alia characteristics of the liner service. The influence of each variable is invoked on account of technical features of vessels for discriminatory pricing policy. The technical features of the vessel require that the loadability factor should be in the ratio of 1 M = 1 W as the most ideal relation-product etc. A discriminatory pricing pattern is embodied in the concept of 'What the traffic can bear', normally followed under the Liner System. It may further be pointed out that under the Liner System certain products are carried at lower than average cost which perhaps is one reason for discriminatory pricing.

This brief description is introductory to understand liner tariffs based on container vessels

because containers have now become an important additional feature in the service and container costs should therefore be added. These costs could be enumerated as follows:

### Cost Per Container

- (a) Capital cost which includes,
  - (i) depreciation
  - (ii) interest
- (b) Others costs which include,
  - (i) maintenance
  - (ii) insurance
  - (iii) inspection

The shipowner has two ways of acquiring containers, by purchasing or leasing. Most shipping companies own some containers and lease these to others. Leasing fees cover all the above cost items, plus interest. The leasing fee is normally paid per annum or per number of days. Normally the leasing fee per day is small, the longer the period the container is leased. For instance, the leasing fee for 100 days is less than 100 times the leasing fee for one day. The leasing fee can be used as a guide for determining container costs. In principle the annual cost for containers would be the same whether it is a leasing company or a shipping company. The leasing fee itself, however, also includes interest which should not be included in Shipping Company's container cost.

The detailed approach of estimating annual container cost could be indicated as follows:

- a) find value of container
- b) decide interest-provide rate to be used
- c) estimate annual interest on (a)
- d) obtain annual leasing fee for container
- e) deduct (c) from (d) to find leasing fee excluding interest
- f) divide (e) and (d)
- g) obtain leasing fee for a number of days in service
- h) multiply (g) by (f) to find container cost for a given number of days in service.

The influence of stowage in tariff formation as explained earlier in respect of conventional vessels is now replaced by the weight volume constraints of the container and the shipowners attempt to maximise these constraints depending on the measurement weight character of commodities. The influence of other factors however do not vary so long as the shipping services are provided on liner terms.

It may be mentioned that Conferences specify a minimum box rate and would not attempt to lift any commodity less than the minimum. It should however be remembered that incomes derived from the bunker surcharge or currency adjustment factor, are outside the specified minimum box rate fixed for containers

Having explained sea freight let us now consider tariff rates applicable to the inland sector. It may be recalled that at the outset we referred to pre-carriage to the main point of transport and on-carriage from the destination point of main transport, that is, loading and discharging ports.

Pre-carriage of containers (FCL) for loading, initially to container yard either by rail or truck is on shippers account (merchant haulage) and would not enter the freight components. Lifting of the container from chassis and placing at container yard (tally) loading container on board vessel, lashing and securing are on the shipowners account, which would normally be recouped by him as service and handling charges.

As regards LCLs, bringing cargo to assembly shed containers, bringing container from CFS to ship's side, loading container into ship, lashing and securing will be on shipowners account. Service and handling charges would therefore be part of a multi-modal tariff structure. The tariff will specify whether these charges are subject to CAF and BAF.

Generally a stevedore company or companies will attend to all stevedoring work whilst a tally company /companies will attend to related work on the basis of separate stevedore tariff and tally tariff respectively. From among the different cost items enumerated it is easy to identify stevedoring items. It is assumed that the stevedoring company is the terminal operator and these services are provided on behalf of the shipowner.

As regards on-carriage, after discharging at the main port, the consignee may pick-up the FCL container from the container yard at his own expense (merchant haulage).

The shipowner will however bear costs related to discharging the container from vessel and placing at container yard, tally, lifting container or chassis, and would recover these charges as enumerated above.

When the shipowner, at his own expense, undertakes to bring the container to the consignee's site, this is called carrier's haulage and it would be on con-

signee's account, for inland transport to be paid by the merchant to the carrier will be according to inland haulage tariff of the Conference.

If the container is delivered to an inland destination by road, the factors which will influence the tariff will be the service time of container, its weight and size, trailer unit with the prime mover, the drivers time and the distance covered. If these factors determine the norm of inland rate concessions, additional charges are made on the basis of alternative arrangements for return of the container loaded or additional delay in discharging the cargo. It may happen that the prime mover may make a futile trip without the container if there is a delay in discharging.

If the merchant wishes to perform his own haulage, the carrier may by prior arrangement release containers to the merchant at terminal or yard subject to certain handover conditions.

The factors determining the cost of delivery of container to the merchant's warehouse would undoubtedly relate to the factors enumerated earlier under carrier haulage.

As regards LCL containers, unpacking of containers in the terminal shed will be done by a Terminal Operator and tally by a tally company on different tariff rates whilst bringing goods from terminal shed to consignees warehouse will be by the trucking Company or Railways.

In examining the cost of delivery inland by rail, for example, over the U.S. 'Micro Bridge' or any other European service, it should be mentioned that the railways are linked to container yards and the actual cost of transport is generally measured in units of ton miles per hour. This is however the product of cargo tonnage and average speed of the train in m.p.h. Cargo tonnage will depend on various characteristics of the vehicle, size, type and number of cargo carrying units and commodity type carried; whilst the speed of the train is determined by motive power of the vehicle, the vehicle drag force characteristics and the variety of delay causing factors. It should be remembered that total weight of train freight cars will be the sum of cargo weight of the individual freight cars, whilst the gross weight of the individual freight cars, whilst the gross weight of a locomotive is related to its horsepower and number of axels.

The cargo tonnage transported by the train certainly affects the ton miles per hour by the vehicle

and the gross weight of the train affects the speed at which it travels. The rail line haul cost could therefore be investigated by deriving family short run average cost curves analogous to the plant unit cost curves of a firm. Here, however, the plant is a railroad freight train and the plant's scale varies as the size of the locomotive changes. It is therefore possible to infer determination of the cost of rail transport of the containers.

### Conclusion

Inter-modalism in relation to Sri Lanka's own local sector is limited in scope. This is partly due to the traditional trading system of the country. Container Freight Stations or Inland Container Depots are the main link in the promotion of a multi-modal system with facilities available for the carriage of containers, handling and positioning of containers at inland depots.

The development of hinterland container facilities in Sri Lanka has hitherto been restricted to areas in and around north of Colombo within a radius of approximately 15 miles from the port. It has been reported that fifteen organisations have received approval of the government to establish Container Freight Stations (CFS) and some are in operation. It is to be expected that the main industrial areas of the metropolis in the south will have their CFS' in the near future. With the rapid development within the country Inland Container freight stations will become a requirement in the movement of containers by rail or road. There is no rail movement of containers in Sri Lanka at present though experiments had been carried out by the railway authorities and a lending firm. Also, occasionally a container on a trailer or a heavy vehicle could be seen on the main trunk roads lifting goods for big development projects.

It needs to be mentioned that the movements from the CFS to the port does not at present form part of an intermodal movement in the sense of forming a single transaction with regard to the responsibility of the carrier. The position would, however, change in the future with the issue of house Bills of Lading and MTD documents. At present the movement of containers from a CFS to the port is strictly merchant haulage requiring the shipper to bear the cost separately from that of ocean freight.

At the consignees and particularly in the UK, Continent, USA and Red Sea destinations requests for inter modal rates are accommodated. In the UK the inland leg is undertaken both by rail (freight liner)

and truck, using the grid system for purposes of computing the inland transport cost, in respect of the latter for the shipping line to absorb any difference in cost. Some of the favoured inland locations for the Sri Lanka Shipping Corporation's containers have been Leigh, Leeds and Birmingham, and also destinations such as Bristol, Avonmouth Manchester and Liverpool served from Felittowe.

In the US, legislation forbids absorption of inland charges by shipping lines but allows port equalisation. Favoured inland destinations for Sri Lanka's cargo in the USA are St Louis, Cincinnati, Oklahoma, Nashville, Denver, Dallas, Detroit and Ponghkeepsie.

As regards carriage of containers from the Red Sea port of Aqaba to inland destinations competitive trucking charges have been negotiated by the CSC against shipments moving regularly on the Ceylon Shipping Corporation Pacific Intercon Lines Service to these destinations.

It would thus appear that the likely beneficiary is the shipper, from the intermodal system, who would deal with only one part and reduce the different legs of the journey to one transaction. It would also result in unimodal carriers becoming through transport specialists and together with freight forwarders evolving into giant consortia.

	Volume Capacity	Utilization Factor	Weight Factor	Utilization Factor
8'x8'x20'	30.0 cbm	21.5 cbm	18,000kg	17,500 kg
8'x8.5'x20'	31.0 cbm	23.0 cbm	18,720kg	
0'x8'x40'	65.5 cbm	43.0 cbm	27,070kg	17,500 kg
9'8.5'x40'	63.1 cbm	46.0 cbm	27,530kg	in the UK

It must be emphasised that before Sri Lanka is affected by such a giant stride planning should commence to accept the likely changes.