7. MARKETING MANAGEMENT FUNCTIONS

Selling, pricing, providing advice to customers in the area of logistics and materials handling, and promoting the railway product are the main "doing" elements of Marketing in a railway context. It is important that these activities should operate in harmony with one another, in order to achieve maximum impact in the marketplace. The responsibility for ensuring that these activities complement one another is that of the head of the Marketing unit.

7.1 The Sales Function

A railway organization which is customer-focussed will have a team of representatives, a *sales force,* whose primary (and crucial) role is to maintain continual liaison with customers. In conjunction with operating personnel at the field level (freight and passenger terminals, local stations), this sales force provides the main point of contact between the railway and its customers and as such can make or break the railway system's image in the eyes of its clientele.

Selling, or the generation of new business for the railway, is just one of the functions of the sales force. Other major salesforce functions include:

- *Customer Servicing*, or representing the needs of existing customers to those units of the railway organization (e.g.. Operations) which are responsible for service delivery
- *Sales Reporting,* or reporting on business, physical volume (passenger/passenger km or tonnes/tonne km trends within assigned sales territories or market segments
- *Market Intelligence*, or the collection of information on the tariffs, services and activities of competitors

The sales force will be most productive if its individual members are permitted to specialize in particular market segments. In the freight business, this specialization might involve the coal, bulk cement and bulk ore segments being serviced by one sales representative, the container and intermodal segments by another sales representative and so on. Similarly in the passenger business, one sales representative might service the group tours segment, another the business travel segment, and so on. Such specialization will enable sales personnel to become familiar with the specific needs and problems of particular groups of customers and to effectively represent their interests of these customers in dealing with those units of the railway organization which are primarily responsible for service delivery.

In its most advanced form, a railway sales force will have a detailed knowledge of the corporate, production and distribution plans of its principal customers, and will be able to use this knowledge in order to develop jointly with these customers a *price/service package* [12] which

[12] For railway freight traffic, a price/service package might include all activities associated with door to door delivery of consignments at a competitive tariff rate. For railway passenger traffic, a price/service package might include

could effectively tie the business of the latter to rail over long periods of time. Top flight railway sales representatives will develop almost as much knowledge about their customers' businesses as the customers themselves.

The primary task of the sales force will be to visit customers on a regular call cycle, e.g.. once or twice per month, 3-4 times per year, twice per year, etc. The frequency at which customers are visited will depend upon the actual or potential size of their business to the railway.

Full development of the sales function will involve setting sales budgets or targets, in both physical and financial terms, coupled with incentive rates of pay, for individual sales representatives. Under this arrangement, sales representatives would participate in target setting, but once the targets have been agreed, would be bound to meet them, in order to qualify for incentive pay.

7.2 The Pricing Function

The setting and structuring of passenger fares and freight tariffs is one of the most important functions of the Railway Marketing unit. It will normally be the direct responsibility of the head of the Marketing unit, who will be assisted by a Rates, or Tariff Administration, Manager and associated staff. However, decisions about the pricing of very major traffics will often be taken at the highest levels of management in the railway organization.

Different conditions apply to the pricing of passenger and freight traffic. Passengers normally travel at *published* fare rates (i.e. published in the sense that the fare rates are officially gazetted in the railway system's Book of Fares, which may or may not be revised annually). Passenger fares, especially at the lower end of the scale, are often subject to the scrutiny and approval of governments (and in some cases parliaments). Considerably more flexibility, however, usually applies to the pricing of freight traffic. To the extent that the railway has the commercial freedom to vary its charges, the same approach to price setting will apply to both passenger and freight traffic.

The railway pricing function is likely to have to undergo a significant change as a consequence of the emergence in the region of the concept of *open track access* (which has already been widely accepted in Europe, North America and Australia). Subject to contractual conditions being met, open track access allows usage of railway infrastructure by private sector operators who provide and operate their own locomotives and rollingstock. The concept is potentially applicable both to passenger and freight services, but initially is more likely to be applied to freight services which have the potential to offer attractive financial returns for private investors and operators. If the concept gains momentum throughout the region it could fundamentally change the traditional role of railway organizations. Rather than being comprehensive service providers, railway organizations would instead become infrastructure providers and would levy charges on private operators for their usage of that infrastructure. Under the open access regime, railway marketing personnel are likely to have an important role

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comprehensive travel arrangements (hotels, sightseeing, rail and local transport) for an all-inclusive charge per passenger.

in setting and reviewing the structure and level of track access charges.

7.2.1 Railway pricing concepts and principles

(a) Railways as price takers

This document has already outlined some of the constraints imposed by governments on railway managers in this area, but to the extent that they have the freedom to set prices below a ceiling set by governments, marketing managers have a duty to set prices, or to decide on the acceptance or rejection of traffics *for which prices are established by competition*, with reference to costs.

This last-mentioned point is an important one, since in a market economy the level of prices is a function of the intensity of competition more than of any other factor. The market sets the prices and producer organizations, including railways, must then decide whether the profit margins possible from these prices will be sufficient to satisfy overall corporate profit objectives. This is not to suggest, however, that the focus should entirely be on prices. The scope to implement cost reduction strategies should also be fully investigated, in order to ensure a more attractive margin of profit from individual traffics. This would imply the need for an effective traffic costing system which will produce reliable estimates of costs which are specific to individual traffics, both passenger and freight. The specifications of such a system are discussed in chapter 8.

(b) Traffic acceptance/rejection criteria

It was suggested in chapter 2 that satisfaction of the needs of all customers (actual as well as potential) might not necessarily be consistent with the achievement of corporate goals and that one essential requirement of a good marketing system is the capacity to target those customers, or potential customers, whose business will contribute most to the achievement of these goals. Figure 7-1 illustrates how the process of evaluating the profit contribution from individual traffics might work in practice. In the example shown, three hypothetical traffics, each having the same origin and destination, have the potential to generate the same level of revenue, but for different levels of cost. The actual nature of these traffics is unimportant for the purposes of illustration. They might be freight traffics or they might be passenger traffics. In either case, the same principles will apply.

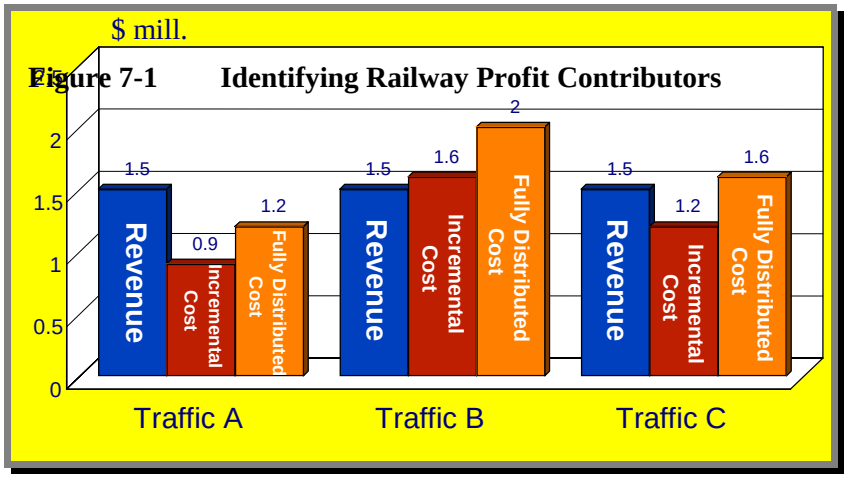


Figure 7-1 Identifying Railway Profit Contributors

Two types of cost are shown for each traffic:- one, an *incremental cost*, which is the addition to the railway system's total costs resulting from carrying the particular traffic; and the other, a *fully distributed cost,* which includes overhead, or fixed, costs in addition to the incremental costs just described. For the purposes of this example, it is assumed that the potential revenue yield from each traffic *is determined by the level of tariffs offered by competitive transport modes.* It is thus beyond the control of the railway system. The level of costs, however, is to a large extent, determined by management decisions, but will nevertheless differ from traffic to traffic, depending upon the characteristics of the traffic being costed.

The cost relativities shown in the example are unimportant, except that they illustrate the approach to be taken by the railway management in deciding whether to accept or reject a new traffic opportunity. In the case of *Traffic A*, there is a significant positive surplus of revenue over the level of fully distributed cost, and hence Traffic A would in normal circumstances be accepted. The revenue yield from Traffic B, however, would be insufficient to cover even its incremental cost and in normal circumstances this traffic would be rejected. In the case of Traffic C, revenue yield would be sufficient to cover the incremental cost associated with the traffic, but would be insufficient to cover its estimated fully distributed cost. In this case, the railway management *would be fully justified in accepting the traffic, since it would provide a financial contribution above the level of incremental cost to offset system wide overheads* (which would not change as a result of its acceptance).

(c) Price as a capacity rationing mechanism

Many of the region's railways face a shortage of track capacity - at least on their major trunk lines. Their capacity problems are compounded by the traditional priority given to passenger trains, which often leads to a denial of track capacity for the operation of freight trains and hence to the risk that profitable or potentially profitable freight traffic could be lost by the railway.

Scarce track capacity may be rationed in one of two ways: it may be done directly by changing operational priorities in favour of profitable traffic or it may be done indirectly through the pricing (tariff setting) mechanism.

Some of the region's railway systems have been considering the use of pricing as a means of rationing scarce track capacity in favour of profitable freight traffic. Specifically, this would be achieved by including in passenger train costs, and ultimately in passenger fares (if permitted by government regulations), an opportunity cost equal to the freight haulage revenue which would be foregone as a result of passenger trains occupying operating paths which would otherwise be available for freight trains.

Even if railway organizations are prevented from setting passenger fares, the cost data so developed may be used as a basis for lobbying governments in order to create a better understanding of the full consequences of allocating priority to passenger trains.

7.2.2 Setting of Passenger Fares

Although, as has been observed, railway passenger fares are in many cases subject to

fairly tight control by governments and railway organizations have little option but to accept traffic at published rates, there is considerable scope for innovation in modifying fare structures even where price regulation is enforced.

For example, in the area of rail commuter traffic, the fare structure may be varied in order to modify demand in peak travel periods when the resources of the railway are under greatest pressure. This strategy, known as a ***peak load pricing*** strategy, overall will have a neutral impact on fare revenue collection, since fares will be increased during specified peak periods and reduced during specified off-peak periods. However, if the right relationship is struck between peak and off-peak fares, then such a strategy can have substantial benefits in terms of reducing the pronounced peaks usually associated with morning and evening urban rail travel and contributing to a more even demand pattern over at least 12 hours (0600 hours-1800 hours), per day.

An alternative to a peak load pricing strategy is an ***off-peak*** pricing strategy whereby discounts are offered off the standard commuter fare for travel outside of designated peak periods. Such a strategy has the dual objective of redistributing demand from peak to off peak travel periods and of attracting new passengers from other urban transport modes. One railway system which has introduced an off-peak pricing strategy for its commuter traffic is the Malaysian Railway (KTMB), as may be observed from box IX.

Similarly, innovative fare structures can facilitate integrated or transfer ticketing between different urban transport modes. Such a strategy is being appraised by KTMB for application to its commuter services in the Klang Valley, as may be seen in box IX.

Box IX **Innovative approached to fare structuring on the KTM commuter network**

In August 1995 electrified commuter rail services were inaugurated on a double track network of 153 km in the Klang Valley, which includes Kuala Lumpur, the capital city of Malaysia. These services are being managed under their own identity as *KTM Komuter*. Bus feeder links between commuter stations and off-rail origins/destinations are provided through arrangements with Intra Kota and Park May, the two major urban bus operators in Kuala Lumpur. A limited number of car parking spaces at some stations provide for *Park and Ride* traffic.

Market research carried out prior to the launching of the services indicated that the commuting public were willing to pay premium fares for rail travel on the basis that it would be more comfortable, faster and free of congestion, as compared with bus travel. Accordingly, KTMB set the initial fares for the service at a level 15-20% higher than equivalent bus fares, with a minimum RM (Malaysian ringgits) 1.00 for the first 11.1 km within a zone, RM 0.09 per km for 11.1 to 45 km, and RM 0.06 per km thereafter. Under this structure, a 70 km commuter trip would cost RM 5.55 (approximately US$ 2.20).

KTMB then incorporated in the commuter fare structure an off-peak flat fare of RM 5.00, available for travel anywhere on the commuter network during a weekday after 9.00 am. Assuming a return journey, the same 70 km commuter trip if taken on a weekday after 9.00 am would cost only RM 2.50, or about 45% of the standard fare.

Future pricing initiatives being contemplated by KTMB for its commuter services include a common ticketing arrangement with the feeder bus operators (involving the use of electronic smart cards) and an all-inclusive Park

and Ride ticket. ***Sources: ESCAP Survey Mission and Country Report for Malaysia***

A final type of innovation in the fare structure applicable both to commuter and longer distance passenger traffic is the concept of the *stored value* ticket. This provides an incentive for increased rail travel by permitting passengers to bulk buy their tickets at a reduced fare per trip, and if well managed such a pricing strategy can lead to substantially increased ridership. Within the region, not all segments of the passenger business for rail are price controlled, however, and for those segments which are not subject to fare caps, there is considerable scope to tailor fare/service packages to suit the needs of different categories of passengers. In this context several examples are available from within the region. In Indonesia and India, comparatively short distance services catering mainly for the needs of business travellers have been targetted, while also in India and in Pakistan, the long distance overnight travel market has been targetted (see box X).

Box X Strategic pricing of passenger services – the experience of India, Indonesia and Pakistan

Some of the region's railways, which otherwise face fare regulation for the lowest fare segments of their passenger business, have a degree of pricing freedom at the top end of this business and have responded with price and service packages targeted at promising market segments. In most cases, the targeted market segments are generating revenue which more than covers their operating costs, and in some cases targeted segments are self sustaining (i.e.generate sufficient revenue to provide for asset renewal). India, Indonesia and Pakistan exemplify railway systems which have been able to apply strategic pricing in order to enhance the financial performance of their passenger business.

1. ***India***. The *Shatabdi Express* trains operated on 7 medium distance routes originating from the capital, New Delhi, answer the need for business travel to and from important commercial centres not more than 500 km from the capital. These trains are comprised of a mixture of air-conditioned cars with fully reclining seats and non-air-conditioned cars with bench seats. They operate to fast schedules (maximum speeds generally 130 km/hour), and depart in the morning and early evening. First class fares have been fixed at rates exactly double those of the economy class. As an example, the first class fare from New Delhi to Amritsar (a distance of about 450 km) is Rs.840 (approximately US$ 23.50) while the economy fare is Rs. 420 (US$ 11.75). For the overnight travel market, Indian Railways operate *Rajtani* sleeping trains between Delhi and the state capital cities of India. These trains offer premium comfort standards as compared with regular sleeping trains, with only 18 sleeping berths per car, instead of 48-72 berths in the case of the regular trains. The fares of the *Rajtani* services are 25% greater than the fares of services with 48 sleeping berths per car, but include the cost of an evening meal and breakfast. Also at the premium end of the rail passenger market in India are the "hotel trains" offering travel, accomodation and tour packages, generally of a week's duration. The first of these services, the *Palace on Wheels* which started in 1981 will soon be followed by five more. Fares are expensive - of the order of US$ 300 per person per day, but passengers receive all meals, accomodation and local tours in addition to travel.

2. ***Indonesia***. Fast passenger trains have been operated on the 180 km route between Jakarta and Bandung for about 8 years. These trains, known as *Parahyangan* expresses, have two classes of accomodation - fully air-conditioned executive with a fare of Rp. 25,000 (about US$ 10) and non air-conditioned business class with a fare of (US$ 6.80). Travelling time is about 2 hours and 40 minutes, with 8-10 services per day, and morning and evening departures are scheduled to allow passengers a full business day at destination. During 1995, the *Parahyangan* trains were supplemented by premium class *Argogede* trains which run to faster schedules (2 hours and 15 minutes), but have only one early morning and late evening departure per day. The fare charged for this service is Rp.30,000 (US$ 12). Fares on *Parahyangan* services are double those of the premium class bus operators on the route, but the railway maintains a dominant market share because it can offer transit times which are at least 30% shorter than road services. The punctuality of these trains is closely monitored.

3. ***Pakistan***. In April 1996, the Pakistan Railways in a bid to attract increased patronage of its Lahore-Karachi passenger services as well as to lift the financial performance of these services introduced a new fully air-conditioned overnight train composed entirely of sleeping cars. This train ,the *Karachi Express*, runs to a non-stop 15.5 hour schedule on the 1230 km route between the two cities. Two classes of sleeping berth are available - a lower class of 76 berths in each of 14 cars and an upper class of 22 berths in a single car - giving a capacity for the train of 1086 passengers.The regular lower class fare is Rs.1430 (approximately US$ 37.60), but a special promotional fare of Rs.1300 is being offered during the winter months to maintain high load factors. A small fare differential is maintained between this train and the *Shalimar Express*, which operates on the same route, but to a significantly slower schedule. The *Karachi Express* has achieved an average load factor of 85% since its launching and generates enough revenue to cover not only its variable cost, but its fully allocated cost as well. It is the only passenger train in Pakistan to do so.

Sources: ESCAP missions and Country Reports

7.2.3 Setting of Freight Tariffs

There are basically two types of rail freight tariff. One type is a rate which is published in the Railway Tariff Book and is available to all freight customers, while the other is a negotiated rate which is usually covered by a written freight haulage contract between a railway and individual customers, and is only available to the contracting parties.

(a) Published freight tariffs

Traditionally, railway freight tariffs were always published. Their main feature was that they were (and in some cases still are) inordinately complex, covering many commodity classifications and graduated by distance within small intervals. The current Goods Rate Table of the Pakistan Railways, for example, contains 30 different commodity classes, but the tariff rates applicable to these classes are graduated by intervals of 10 km from 251 km up to 600 km and of 20 km thereafter up to 5,000 km.[13] This makes the task of calculating applicable tariff rates an extremely complex one for railway staff and their customers alike. For example, calculating an all-up tariff for hauling a particular commodity a total distance of 1,000 km involves the application of rates for 55 individual distance intervals.

In recent years, some of the region's railways have made considerable progress in streamlining their traditional railway freight rate structures, by broadbanding both commodity and distance classes.

However, traditional commodity and distance based freight rates have been made practically obsolete by the advent of container traffic on rail, since the commodity contents of containers are irrelevant both to the costs of railway operators and to the charges they may apply for haulage. (The first factor is mainly related to the overall weight of the container and its contents, while the second is usually determined by market competition). Container tariffs have therefore evolved as rates per container unit, graduated by size, e.g. 20 ft, 40 ft, etc, and

[13] Pakistan Railways: *Goods Rates Table*, 1August 1996.

(possibly) by loaded/empty status[14], and quoted for a given route. Such rates are widely known as ***"box rates".*** The tariff setting practices of containership operators have had a lot to do with the adoption by railways of box rates for containers. Clearly, it is important that the rate structures which are adopted and applied by railways should reflect internationally accepted practice in the transportation of containers. The recent experience of the Viet Nam Railways in launching its container transport service provides a useful demonstration of this, as can be seen in box XI.

Box XI Container tariffs in Viet Nam

Vietnam Railways launched into container haulage only in early 1996, with the acceptance of container traffic between the northern port of Haiphong and Hanoi. Its entry into this business was prompted by the poor availability of efficient alternative transport services (the highway between the two cities being heavily congested and in a poor state of repair and riverine services being prevented by the lack of suitable off-loading facilities in Hanoi).

Initially, the railway was unprepared to accept this new business - it lacked the specialized rollingstock, handling facilities and, above all, a commercial philosophy and system to support container haulage. It also lacked a suitable tariff structure and initially attempted to apply traditional commodity based rates (for five classes of goods) to container movement.

Recently, a specialized container tariff was established. It is distance based and graduated by intervals of 1-100 km, 101-700 km, 701-1300 km, and greater than 1300 km, but it is a wagon weight based rate rather than a box rate. For example, the charge applying to the use of wagons capable of carrying two 20 ft containers is based on the nominal payload of the wagon (normally 30 tonnes), while that applying to the use of a wagon capable of carrying a single 20 ft container is based on the greater of the actual weight of the container or a 20 tonne minimum. This rate structure could penalize customers who are forced by lack of suitable wagons to load a single 20 ft container on a two slot wagon.

In June 1996, Vietnam Railways entered a joint venture agreement with the New Zealand Railway company to establish specialized container haulage and handling services in Viet Nam. The success of that joint venture will depend upon it being able to compete effectively in both service and price. The latter should be based on internationally accepted charging practices for container haulage, but above all should be competitive. Application of the existing rate structure to a Hanoi-Haiphong TEU movement would result in a charge of Dg.378,750 (about US$ 34.50), assuming the container was loaded as one of a pair on a wagon. This charge, however, could easily double when handling and local delivery charges are added. A freight forwarding company representative in Hanoi indicated that the prevailing all-inclusive

[14] Throughout the region, rates for empty container haulage are usually about half those for loaded container haulage. **However, the only basis on which such a differential can be justified is that it reflects competitive forces.** It cannot be justified on the basis of cost differences since, owing to the influence of wagon and container tare weight, the cost of carrying a loaded container is rarely as much as double that of carrying an empty container. Railway organizations which currently apply such a tariff structure should, unless they are bound to the contrary by government policy, consider bringing empty and loaded container rates closer to parity. A similar observation applies to preferential tariffs applied to the haulage of export containers, except that in this case any rate differential, unless justified by competitive pressures, ***should be eliminated completely.*** Railway organizations cannot be expected to be the providers of subsidies to any section of the rail user community. This is properly a role for governments, many of which, in any event, still insist that their railway systems work towards the achievement of full cost recovery!

road charge was US$ 80 per TEU container, but that road charges as low as US$ 60 per TEU were becoming common. ***Sources: ESCAP Survey Mission and Country Paper for Viet Nam***

Another disadvantage frequently associated with a published freight tariff structure is that rates cannot be varied on the authority of railway management alone, often requiring government (and in somes cases) parliamentary endorsement. Different railway systems have adopted different approaches to this problem. One railway system visited during the course of the ESCAP survey missions indicated that while it could not vary the rates in its tariff book without government approval, it did have authority to arbitrarily reclassify commodities from low rated classes to high rated classes and also to vary the minimum chargeable tonnage per wagon, in order to improve revenue yields from traffic moving at published rates.

However, discounting off published rates is a practical option for most of the region's railways. Discounts may take the form of a reduction in the rates billed or of rebates credited to a customer's account after the freight bill has been paid. If discounting is applied, care must be taken to avoid adverse reaction from other customers who might consider themselves disadvantaged by being denied discounted rates. There has to be equity in the rules applying to rate discounts, and most importantly there has to be an adequate quid pro quo for discounted freight charges. Usually, this takes the form of a guaranteed minimum volume of traffic (tonnes, TEU, number of wagons or trains loaded) within a specified period, but discounts can also be applied in order to induce other types of efficiencies in the use of railway resources by freight customers, such as discounts for individual wagon loading above a specified minimum tonnage or cubic measure, or for rapid turnround of wagons at loading points.

(*b*) *Negotiated freight tariffs and long-term haulage contracts*

As suggested earlier, negotiated freight rates are usually incorporated into written long term haulage contracts between a railway and individual major customers. Such contracts normally have a tenure (period of application) of 3-5 years, but in some cases apply for periods of as short as 12 months.

A minority of the region's railways depend on haulage contracts for most of their freight revenue, but there are strong advantages to be gained by railways from contracting with freight customers, not the least of which is the maximization of profitable freight volume and the removal of uncertainty about revenue levels. Usually, customers signing haulage contracts with railway organizations will agree to commit a minimum volume of traffic per month or year to the railway and in return will receive a reduced freight rate and a guaranteed standard of service. Some contracts include penalty clauses for shortfalls of performance by either party. For example, if customers fail to load minimum volumes within specified periods (assuming no adverse impacts from railway service), they might be required under the terms of the contract to pay a higher freight rate. Similarly, if the railway fails to deliver the specified standard of service (e.g. satisfying 100% of all wagon orders, or meeting transit time requirements), it might be required under the terms of the contract to compensate the customer by reducing freight charges or paying rebates.

The freight tariff(s) negotiated as part of a haulage contract will usually be subject to revision (to recover cost increases) *within the period of the contract*. This frequency and extent of tariff revisions can either be determined by agreement between the parties (as is the case with the container haulage agreement currently in force in Thailand - see box XII) or specified in

the contract. In some cases contract tariffs are subject to automatic adjustment in line with the movement in official price indexes - for example, in Australia, steel haulage contracts concluded between the railway systems and the main steel producer, BHP, have for many years contained freight rate adjustment clauses permitting movement of rates in line with a composite (and complicated) index made up of several relevant official indexes, such as the railway labour cost index and the fuel price index. *In order to avoid disputes, it is highly desirable that any railway organization contemplating adopting this method of adjusting the level of its contract tariffs should choose a relatively uncomplicated adjustment formula.*

The minimum requirements for haulage contracts to apply successfully might be stated as follows:

- Customers should be able to offer a *sufficient volume of traffic to regularly fill dedicated block freight trains* operating between specified origin and destination pairs, and to commit to moving a *minimum volume within a twelve month period*

- Customers should be able to adhere to a *relatively uniform loading pattern* - that is, they should be able to provide sufficient loading for a fixed number of trains per day or per week, in order to avoid pressure on limited crew, motive power and wagon resources, or alternatively to avoid underutilization of committed resources;

- Customers *must provide their own efficient loading and unloading facilities*. These must be rail connected (or, alternatively, be located near major railway marshalling yards) and desirably be capable of receiving and despatching entire trains - in order to avoid costs of train assembly/disassembly, which would have to be passed on in the haulage tariff

- The railway must have the ability to *provide dedicated resources for the operation of block trains, as well as to guarantee block train customers operational priority*, if required (in many cases, block trains need to operate to timetables and in some cases may compete with passenger trains for line occupation)

- Both parties must be willing, and have the capacity, to *make long term contractual commitments* (most haulage contracts are negotiated for periods of 3-5 years)

The types of commodity traffics which are best able to meet these requirements are bulk traffics, such as coal, other bulk minerals, bulk agricultural commodities, bulk fertilizer, petroleum and cement. However, in some cases container traffic flows have been able to satisfy these requirements, especially where they have been organized to feed containers from ports to hinterland ICDs. The railway systems of Malaysia and Thailand have achieved a creditable level of success in contracting with major shipping lines (in the case of Thailand) and inland terminal operators (in the case of Malaysia) for container block train operation. Indeed, the five year contract initiated between the State Railway of Thailand (SRT) and the American President Line (APL) in 1989 for the haulage of containers from Sattahip and subsequently from Laem Chabang Port to an ICD at Bang Sue in Bangkok perhaps provides a model which other railway systems can adopt or adapt to their own requirements (See *box XII*).

Box XII Long-term haulage agreement: Thailand

A five year agreement for the of containers between Eastern Seaboard ports and Bangkok was first concluded between the State Railway of Thailand and the American President Lines in 1989. This agreement was renewed for a further five years in 1994. The key features of the agreement are:

(i) **The railway is required to provide a train service consisting of the two way movement of container flat wagons between the Eastern Seaboard ports and Bangkok, *irrespective of whether these wagons convey containers or are empty.*** The significance of this is that, in the case of empty train running (perhaps to suit customer operational requirements for wagon re-positioning), the railway is entitled to be paid the full rate of the agreed tariff applicable to haulage of trains loaded with containers. [It is understood that this condition was modified in the second contract to permit payment of 80% of the charge applicable to loaded trains]

(ii) **The customer (APL) is responsible for container loading and unloading, and for the provision and maintenance of all container and cargo handling equipment, at the rail served ICD.**

(iii) **The railway must provide locomotives, crews and container wagons to operate Eastern Seaboard container services, the level of these resources being determined by the daily peak number of services to be operated**. The latter is based on a 12-month operating plan jointly agreed and reviewed by the parties at 6 monthly intervals. This plan also provides the basis for setting both an average or *norm* and a *minimum* number of trains to be run daily. The configuration (number and type of locomotives and wagons) of these trains is separately specified in the contract.

(iv) **There is a base tariff for haulage of single container units, with two separate rates, for containers of up to 20 feet in length and for containers of greater than 20 feet in length.** These rates apply irrespective of whether containers are loaded or empty, or whether they are for import or export. From year 3 of the agreement (1991), they have been charged on a *per train* basis. Tariff rates may be jointly reviewed from time to time at the option of either party, taking into account *comparative road transport tariff rates*, changes in customs regulations affecting road movement of import of containers under bond, and changes in the pattern of ICD development.

(v) **Discounts off base haulage tariffs are applied: (a) when the number of trains operated per day is equal to or exceeds the agreed norm [as per item iii above], up to the agreed daily maximum; and (b) when customer owned wagons are supplied for the traffic**. The first type of discount is intended to encourage a uniform pattern of service, while the second is aimed at minimizing railway capital outlays. The rate of the private wagon discount is fixed by the agreement at 10% and is applied in proportion to the customer's share of the total number of wagons deployed, e.g. if the customer supplies 50 out of 200 wagons for the service, the rate of discount applied to *train tariff rates* will be 2.5% (25% of the 10% discount).

(vi) **Penalties are applied in the form of a percentage of the minimum train charge when trains are cancelled by the customer - except when at least 30 days notice of cancellations is given.** When the railway cancels trains or when factors such as force majeure or vessel breakdowns apply, no charges are raised.

Source: *Agreement between the State Railway of Thailand and the American President Lines for Haulage of Containers between the Eastern Seaboard Ports and Bang Sue* (Bangkok), 1989

Long term haulage contracts will also be suitable in cases where customers can commit

to the provision of their own rollingstock and/or locomotives. An example is to be found in the "Own Your Own Wagon" scheme of the Indian Railways. The OYO scheme works on the basis of customers making lease payments amounting over a year to 16 per cent of the cost of a wagon. In return for their contributions to the capital costs of rollingstock, they pay discounted freight tariffs and receive guaranteed wagon clearance on demand. At the time of the ESCAP mission to the Indian Railways in September 1996 approximately 12 freight customers had availed themselves of the OYO incentives and they included tea factories, fertilizer factories, cement plants and petroleum companies. The scheme has the potential to release funds currently expended by the railway on new wagon acquisition (estimated at about US$ 560 million annually) for infrastructure development.

It is important to note that, whatever the form and structure of the tariff system adopted for long term rail haulage contracts, the actual charges established must be competitive with those applied by alternative transport modes. In this context, the most successful agreements will invariably be those which permit regular review (and adjustment if necessary) of contract tariffs in relation to the charges of competing transport modes.

7.2.4 Track access agreements and charges

Track access agreements represent an extreme extension of the principle of tariff incentives for private ownership of locomotives and/or rollingstock in the sense that customers agree to supply not only motive power and rollingstock but operating manpower as well and for a specified fee receive access to the railway's tracks under certain terms and conditions.

From the perspective of the railway organization an open track access policy has the advantage of avoiding major investments in motive power and rollingstock, so that funds can instead be channelled into route infrastructure improvement and/or expansion. The "competition" for track capacity created by new entrants into railway service provision might also act as a catalyst for improved operational performance in the provision of services which remain with the railway organization. One disadvantage of the policy is that if track capacity is already severely limited it will force the railway organization to ration capacity by cancelling, suspending or downgrading the operational priority of services remaining under its control. Another potential disadvantage is that the railway organization may not immediately (or ever) be able to shed all of the costs associated with services transferred to open access operators - while it might be relieved of responsibility for capital investments in locomotives and rollingstock, it might not be able to transfer operating personnel to the new entrants, and might therefore continue to have to carry the costs of these personnel.

The Pakistan Railways is the first railway organization in the region to embrace the open track access concept, and at the time of the ESCAP mission in October 1996 was preparing to call for bids from the private sector for the provision and operation of block trains conveying fuel oil for power generating stations on lines designated as part of an "Open Access Network".

The track access charges proposed by Pakistan Railways (PR) for payment by open access operators under this system are to have two components - one, a fixed component, or "slot" charge, will be payable for each round trip generated, to cover occupation of a train operating path, or slot, and the other, a variable component, will be payable as a rate per gross tonne-kilometre (*GTK*) generated, to cover track wear and tear due to train operation. The

alternative to this method of track access charging would be to set a fixed charge for a round trip, but such a method could unfairly penalize lighter trains which would impose smaller track forces and hence less damage to track. The "two part" charge proposed by PR gives rise to an apparent anomaly in the sense that lighter, more frequent trains will attract a smaller *GTK* charge than heavier, less frequent trains, yet will use more track capacity. However, since lighter trains will generate more *GTK* to transport a given annual tonnage, their operators will pay a larger overall amount for track access and as a consequence will have a financial incentive to invest in more powerful locomotives in order to increase train size and reduce frequency.

In the case of the open track access system proposed by PR, only the slot charge will be set by the railway, the GTK variable charge being determined by the bidding process. Nevertheless, studies undertaken by PR demonstrate very clearly the importance of fixing the slot charge at a level which will ensure an optimum utilization of line capacity. Where both components of the track access are set by the railway, the challenge lies in setting rates at levels which will ensure balanced achievement of the objectives of adequately recovering track maintenance costs on the one hand and making most efficient use of line capacity on the other.

The access conditions[15] being proposed by the Pakistan Railways (PR) for open track access contracts include :

- **Safety.** A requirement for open access operators to comply with government safety regulations and PR working rules and to satisfy PR that their train crew have been adequately trained and can drive competently; and a requirement for all vehicles used on the Open Access Network to conform to PR and government railway inspectorate standards for the design and maintenance of new vehicles

- **Environment.** All open access operators are to follow the government's environmental policy and in particular are to take measures to minimize the risks and impact of causing environmental damage

- **Liabilities.** Rules are established for PR and open access operators to indemnify each other for damage, losses, proceedings, claims, orders and out of pocket expenses (other than those due to fair wear and tear) arising directly from their operations on the Open Access Network and from any failure to comply with their obligations under the Access Agreement

- **Alterations to the Network**. Where either PR or open access operators desire to make changes to the Open Access Network that will materially affect the interests of any other user, the PR is obliged to consult with all affected users of the relevant part of the Open Access Network. Rules are established to resolve any disputes arising from proposed network alterations

- **Train Schedule**. PR is required to: (a) maintain a system for timing and pathing

[15] Source: *Draft Standard Track Access Agreement*, 13 July 1996.

trains over its Open Access Network; and (b) agree with each open access operator the train schedules to be operated, together with arrangements for handing over operational control from one party to the other and the locations where this is to take place. PR is forbidden, without prior agreement, to alter an operator's schedule beyond the pre-determined tolerance or variation expressly provided for in the agreed train schedules and operators seeking such changes must, through PR, secure the agreement of other users

- **Alterations to Access Conditions**. PR is required to consult with all other users if it wishes to change access conditions, while open access operators are required to notify PR of any proposed changes to these conditions. Changes to access conditions may be implemented if approved by all parties to these conditions

- **Performance Monitoring**. PR is required to establish a system for monitoring train performance against agreed schedules and for establishing the causes of any train delays or cancellations

7.3 The Materials Handling/Logistics Management Function

This function involves advising customers in traffic handling matters, such as for example, the appropriate layout and equipment of loading/unloading stations or sidings as the design of rollingstock to meet both customer and railway needs for efficient, low cost rollingstock. It applies mainly to freight business, but in certain circumstances will also be equally relevant for passenger business.

For freight business, this function must be considered part of the all inclusive "package" offered to customers in order to meet their need for door-door transport. Rail must offer expertise in this field, in order to be able to effectively counter the threat of competition from other transport operators who will almost certainly provide such a service.

An important aspect of the logistics management function should be the continual monitoring of technological developments in freight wagon design and the coordination of actions necessary for the railway to adopt and apply this new technology which will have benefits both for the railway and its customers.

Maximization of the payload capacity of wagons in relation to their tare weight should a major priority of logistics management specialists. The relationship between payload and tare weight is best expressed as a ***gross weight to net weight (G/N) ratio*** for individual wagon designs. Within the region, which has a concentration of metre gauge railways, this ratio is usually within the range of 1.8: 1 or 2.0:1 for most wagon types. In effect, this means that for every tonne of paying traffic, a wagon will contain one tonne of non paying steel. Modern efficient wagon designs, however, have gross/net ratios of 1.3:1 and even less.

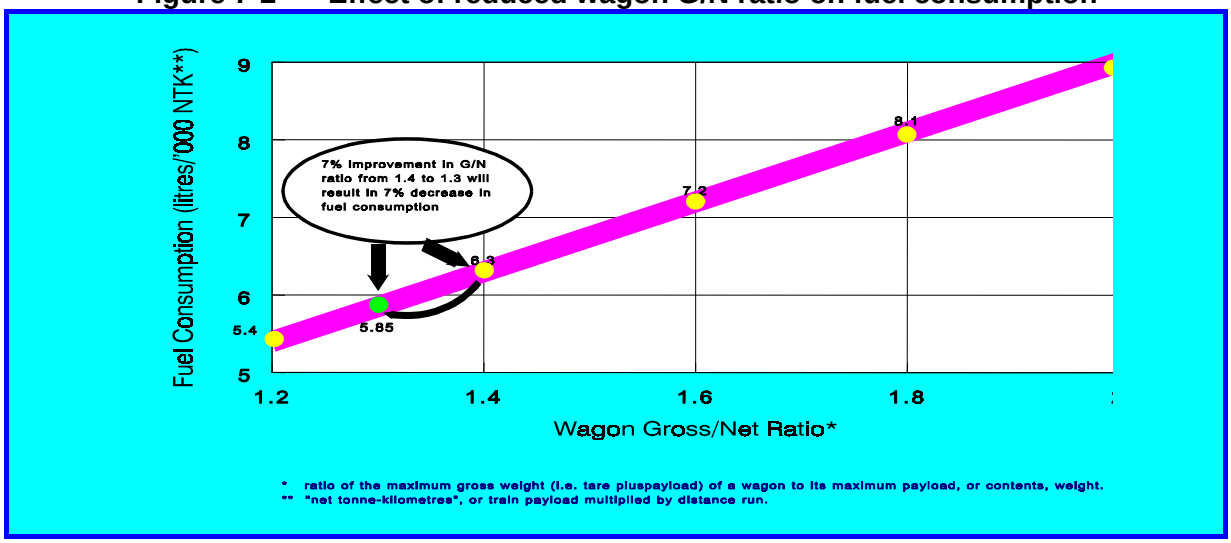
Efforts have been made extensively by many of the region's railway systems to improve the efficiency of their wagon designs. This can be achieved by using lighter but stronger materials (such as carbon fibre materials) for wagon superstructure and underframe

construction, as well as by adopting improved bogie designs which minimize weight transfer to the track. The pay-off for the railway and its customers in terms of greater fuel efficiency and improved productivity of wagons and locomotives can be substantial. This payoff results from reduced rates fuel consumption per chargeable traffic unit, a reduced need for investment in wagons and (possibly) locomotives, reduced wagon maintenance costs, lower track maintenance costs (if train gross tonnages and lengths can be reduced), and a lower train crew unit cost.

Figure 7.2 demonstrates the sensitivity of fuel consumption to a reduction in wagon gross/net ratios. This example is based on an assumed rate of fuel consumption for a modern diesel electric locomotive of 4.5 litres per thousand gross tonne-kilometres. It indicates that when fuel consumption is related to *net tonne-kilometres* (which is often the base unit for the determination of haulage charges) a reduction in wagon gross/net ratios, *without any change in train gross weight*, will yield a linear reduction in fuel consumption. In a typical situation involving a reduction in the G/N ratio for a container flat wagon from 1.4: 1 to 1.3: 1[16], the fuel consumption rate would reduce proportionately (by about 7 per cent) from 6.3 to 5.85 litres per thousand net tonne-kilometres, assuming, of course, that containers could be loaded up to the new wagon payload limit. In such a case the railway would realize an additional operational benefit in the form of greater flexibility to "blend" heavy with light containers in making up trains, but it is difficult to quantify this benefit in monetary terms.

The Pakistan Railways is one railway organization which has plans to invest in new high efficiency wagons to replace older wagons of inferior design. The potential impact of these investments in terms of reducing fuel consumption costs, as well as avoiding costlier investments in additional locomotives and less efficient wagons, is demonstrated in *Box XIII*.

Figure 7-2 Effect of reduced wagon G/N ratio on fuel consumption



[16] As an example, the State Railway of Thailand (SRT) in 1987 adopted a new container wagon design with a G/N ratio of 1.28:1 (tare 13.3 tonnes, payload 46.7 tonnes), replacing 1977/78-build wagons with a G/N ratio of 1.43:1 (tare 12 tonnes, payload 30 tonnes).

Box XIII Financial benefits of efficient wagon design – the case of Pakistan

In order to realize new opportunities for the haulage of furnace oil from Karachi to electricity generating stations in the hinterland, the Pakistan Railways will be investing in new high capacity oil tanker wagons. These new wagons have a payload capacity of 56 tonnes and a tare weight of 24 tonnes, giving them a G/N ratio of 1.43:1. They will replace wagons with a similar tare weight (25 tonnes), but with a payload capacity of only 40 tonnes, and therefore with a G/N ratio of 1.63:1.

The railway intends to deploy new build wagons in the haulage of 750,000 tonnes per annum of furnace oil a distance of 912 km from a new terminal at Marshalling Yard Pipri (50 km from Karachi) to a new power station at Lalpir (near Multan). It is possible that these wagons will be supplied by the customer who may conclude a track access agreement with the railway, but whether customer or railway supplied, they will provide significant financial benefits as compared with the low payload wagons in existing use.

From information supplied by Pakistan Railways, it was estimated that deployment of new build wagons rather than existing wagons in the Marshalling Yard Pipri to Lalpir oil traffic *would reduce fuel consumption costs by 17.7%, locomotive capital costs by 41.9 % , and wagon capital costs by 16.0%.* Although it was not possible to estimate the effect on the remaining significant cost item, the *cost of locomotive and wagon maintenance*, it might be assumed that this cost would reduce by more than one third, in line with the reduced requirement of wagons and locomotives. The data on which the estimates are based are as follows:

Wagon G/N ratio	***1.625:1***	***1.429:1***
Wagon gross weight (tonnes)	*65*	*80*
Wagon net weight (tonnes)	*40*	*56*
Wagons per train (number)	*59*	*42*
Train gross load-forward (tonnes)	*3835*	*3360*
Train payload- forward (tonnes)	*2352*	*2352*
Thousand GTK, per return trip	*4843*	*3984*
Thousand NTK, per loaded trip	*2145*	*2145*
Thousand NTK, per annum	*684000*	*684000*
Wagon requirement (no)	*273*	*195*
Loco. requirement - 4000 HP (no)	*5*	*5*
Loco. Requirement - 2000 HP (no)	*5*	*-*
Fuel cost (4.5 lit./'000 GTK), Rs./'000 NTK	***66.70***	***54.87***

Amortized wagon capital cost. Rs./'000 NTK	***114.76****	***96.44***
Amortized loco.capital cost, Rs./'000 NTK***	***114.46***	***66.55***
Total fuel and capital cost, Rs./'000 NTK	***295.93***	***217.86***

* Assumes: unit purchase cost of Rs.2.18 million; 15 year wagon life; 10% residual value; 12% interest
** Assumes: unit purchase cost of Rs.2.56 million; 15 year wagon life; 10% residual value; 12% interest
*** Assumes: unit purchase cost, 4000 HP, of Rs.80 million, and 2000 HP, of Rs.57.6 million; 20 year loco.life; 15% residual value; 12% interest

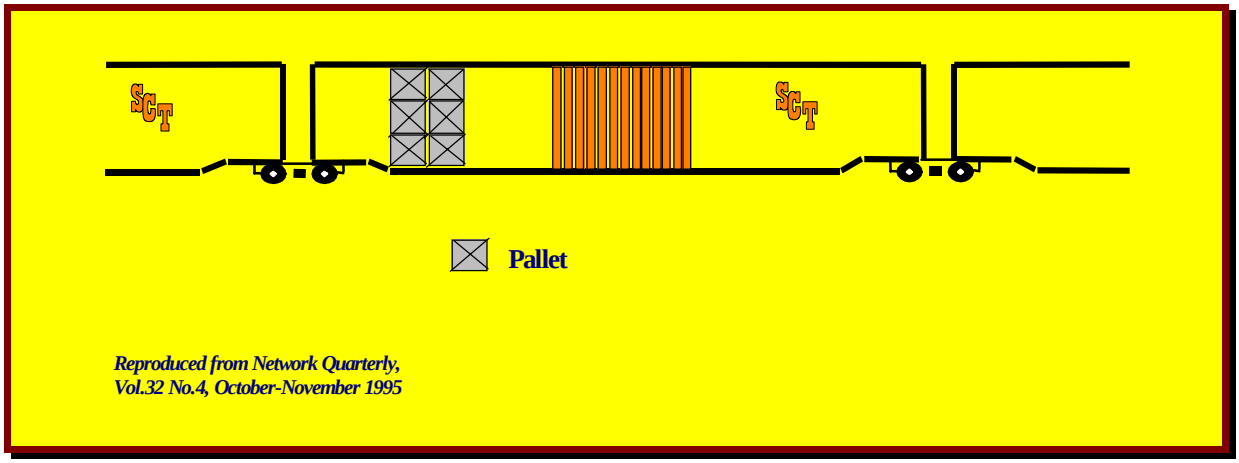
Source: ESCAP mission to Pakistan, October 1996.

This example indicates savings from the introduction of more efficient wagons which can be passed on to customers in the form of reduced tariffs. However, there can be a further pay-off for the railway in terms of fostering an improved relationship with its customers. A recent case in Australia provides a good example of how cooperation between a railway and its customers in matters of wagon design could result in increased business for the railway. In this case, a major freight forwarding company involved in transcontinental movement of general freight loaded in covered wagons, or boxcars, recently cooperated with the Australian National Railway in the design of a revolutionary new van for rail palletized cargo traffic (see Figure 7-3). The design is aimed at high volume, low mass operation with 3 tier pallet stacking with forklifts operating from both sides of the wagon at ground level. The underframe of the wagon will be just 25 centimetres above the rail and the wagons will be curtain-sided to allow forklift access for their entire length. The gap between the wagons which share a common bogie will be very narrow and the railway plans to investigate the possibility of using a concertina link between the wagons and of stacking goods across the bogie assembly.[17]

Since effective logistics management will involve close contact with customers, it may be considered desirable to include this function among the duties of the sales force. If this approach is adopted, then the organization of the sales force along market segment lines will be essential to allow sales personnel to develop the necessary specialized materials handling knowledge.

[17] As reported in *Network Quarterly* Magazine, Vol 32, No 4, October-November 1995.

Figure 7-3 Australian design for an articulated, high cube boxcar



7.4 The Advertising and Promotion Function

Advertising and Promotion includes: print media (newspaper, trade journal) advertising; electronic media (radio, television and, these days, *internet*) advertising; point-of-sale displays (e.g. displays at tourism, travel agent offices); advertising by handout brochure; advertising by way of corporate image, logos and colour schemes; and sponsorship of sporting and community events. In addition, promotion of railway organizations and their services often takes place by way of their *public relations* or *corporate relations* activities, which could range from participating in radio or television broadcasts to visiting schools.

The different forms of advertising will differ markedly in terms of their cost and effectiveness in different situations. In an economy in which consumerism predominates, the electronic media is likely to be most effective in getting the message across. However, in mostly centrally planned economies in which railways have a vital community service role, as in China and presumably up until now in Central Asia, a highly visible public relations programme is likely to have a greater influence on customer perceptions of the railway.

The importance of corporate imaging as an effective vehicle for promoting railways should not be underestimated. Within the region, corporate imaging and in particular the colour coding of premium services has recently been very effectively employed by the Indonesian Railway (PERUMKA) in promoting its *Argogede* business train between Jakarta and Bandung. In this case, the rollingstock and locomotives have a dedicated colour scheme (see figure 7-4)

and the on-train staff have special uniforms uniquely identified with the service.

Whatever the form of advertising chosen by the railway to publicize its services, it is essential that control of the advertizing, promotion and (preferably) the public relations functions be centralized within the Marketing unit, where they can be effectively co-ordinated with other commercial activities (e.g. sales), and where promotional programmes may be tailored to the practical ability of the railway to deliver a quality and level of service which is acceptable to customers.

It is important that the effectiveness of advertizing and promotion programmmes be monitored on an on-going basis. Because it is the main point of contact between the railway and its customers, the Marketing unit will also be in a good position to gauge the impact or reach of these programmes in relation to the target audience.