CHAPTER 6

STRATEGY FOR THE CONCESSIONING OF A COMMUTER RAIL SUBSYSTEM IN SOUTH AFRICA

6.1 Introduction

The case studies contained in this study have shown that strategies were devised to address the problems experienced in the railway systems concerned and that such strategies were ultimately implemented.

In South Africa, the challenges experienced, specifically in the commuter rail system – which prompted the policy for concessioning – have been outlined in the introductory chapter of this study (subsection 1.1.3). It must be mentioned here that the challenges experienced in South Africa are generally not dissimilar to the challenges that were experienced in the case studies described. The fundamental question that emerges is, given the current challenges of the commuter rail system, what are the objectives that must be pursued for commuter rail strategy under a concession regime. Section 6.2 therefore addresses the commuter rail strategy objectives from an economics perspective. This chapter argues that commuter rail restructuring will be necessary to implement the concession regime. The structural option argued for the commuter rail strategy is therefore provided in section 6.3. Section 6.3 also explores an alternative commuter rail structure and reasons are provided for arguing against the alternative option. Section 6.4 addresses the strategy for the concession agreement and areas of the strategy covered are the fundamental principle and the roles of the parties to the agreement, the strategy for risk-sharing arrangements, the size of the concession and the duration of the concession agreement. Section 6.5 addresses the strategy for economic regulation and specific areas covered by the strategy include the approach to be used to establish the rail economic regulatory body, the desirable qualities of a rail economic regulator and the possible economic regulatory institution. The restructuring of

the commuter rail system will affect the workforce and section 6.6 pays attention to the impact of labour regulations on commuter rail strategy. Section 6.7 provides the strategy for assessing the effectiveness of the commuter rail concession regime. Conclusions to this chapter are provided in section 6.8.

6.2 The objectives of commuter rail strategy

In Chapter 1 of this study it is mentioned that the adoption of a commuter rail concession regime signals a strategic shift in the provision of rail services from the system currently in use. The policy intent to change the way in which commuter rail services are provided in South Africa is supported by operational statistics that show patronage falling from a level of 681 million in 1980/81 to 491 million in the 1999/2000 financial year. The commuter rail market share in public passenger transport was 17 percent in the year 2000 while the government subsidy for commuter rail increased in nominal terms from R1 180 million in 1992/93 to R1 594 million in the 1999/2000 financial year (see Annexure 2). Furthermore, a lack of adequate funding from the authorities as a result of other more pressing social needs like education and health provide a challenge to undertake the capital reinvestment necessary especially for the rolling stock and the commuter rail infrastructure (SARCC, 2001: 10).

The question that emerges is, given the challenges of falling commuter rail demand, decreasing commuter rail subsidy in real terms and the need for recapitalising the commuter rail system in South Africa, what are the objectives that the commuter rail strategy should pursue. At a macro transport policy level various goals are identified such as, supporting the Reconstruction and Development Programme, the satisfaction of customers' needs, and the improvement of safety, security, reliability and quality of transport (Dept of Transport, 1996: 3–6). At a micro transport level, the policy formulation process articulated commuter rail concessioning objectives as the cost reduction in the provision of commuter rail services, operational efficiency, improvement in

resource allocation, achievement of social equity and market development (Dept of Transport & SARCC, 1996: 18).

Viewed from an economics perspective, experience shows that the development and implementation of rail strategy, particularly under a concession regime such as in the study case of Argentina and the UK, attain the objectives reflected in the table below.

Scenario	Fiscal	Internal	External	Equity	Dynamic	Risk	Capacity
	objective	efficiency	efficiency		efficiency	minimisation	allocation
Competitive							
access and							
concession	\checkmark	\checkmark	\checkmark	\checkmark	unclear	unclear	×
regime							
Vertical							
separation							
and	\checkmark	\checkmark	\checkmark	\checkmark	unclear	unclear	×
concession							
regime							

Table 6.1: Different rail regulatory scenarios and their objectives

Adapted from Campos & Cantos, (2000: 191)

The above table only considers scenarios under concession regime. Other scenarios as provided by Campos and Cantos range from vertical integration and governmental department to vertical separation and private company. The scenarios are grouped in increasing order of private participation. This study is limited to the concession regime and therefore other scenarios are left out.

In terms of Table 6.1, there are seven objectives that, from an economics perspective can be achieved in terms of the commuter rail strategy under a concessioning regime. The relevant objectives are fiscal, the internal efficiency, external efficiency, equity, dynamic efficiency, risk minimisation, and the capacity allocation objective. The scenario column in Table 6.1 is mainly

concerned with the industry structural option, which is discussed in section 6.3 below.

Table 6.1 shows that concessioning has the advantage of achieving efficiency and the reduction of state financial burden. Further concessions reduce the negative effects that can result fom the private company actions. By setting maximum prices and minimum service levels under concession regime, the impact on equity objective can be reduced. Under the concession regime, many routes that are unprofitable can from social point of view continue to be served.

Campos and Cantos (2000: 192) mention that in as far as dynamic efficiency is concerned the first results regarding investments in restructured bodies are ambiguous. In the case of Argentina investment levels of operators is below those that were stated in their concession contracts. The aggregate level of investment has however, improved. Something similar with regard to investment has occurred in UK. In the case of Japan privatisation did not slow the technological development of the railway industry.

In as far as operational risk minimisation is concerned Campos and Cantos point out that the concession regime allows risk inherent to the actions of the private enterprise to be reduced.

At the end, the problem associated with managing capacity (rail track) is easy to manage under vertically integrated entities than is the case under competitive access or separation. Under the scenario of separation the problem is increased where there are high traffic densities and conflicting capacity demands (Campos & Cantos, 2000: 192).

6.3 Strategy for restructuring commuter rail

In terms of the current arrangement, the South African Rail Commuter Corporation Ltd (SARCC) falls under the Minister of Transport, while Metrorail falls under the Minister of Public Enterprises. This implies that the restructuring of commuter rail in South Africa will require cooperation between these ministries. In Chapter 1 of this study it was mentioned that there are currently initiatives underway to integrate SARCC and Metrorail. Furthermore it was mentioned that commuter rail services are provided in the major urban areas of Johannesburg, Pretoria, Durban, Cape Town, Port Elizabeth and East London under what is known as a "negotiated concession between SARCC and Metrorail". The rail network on which commuter rail services are provided in these areas is depicted in annexure 3 to this study. It must be pointed out that the rail network in Port Elizabeth, East London, and some sections in areas such as Durban, Johannesburg and Cape Town, are the assets of Spoornet, the rail freight division of Transnet. This was as a result of the division of assets between SARCC and Transnet on the basis of who was the main user of the rail network. That is, 50 percent or more of rail activity, such as freight and long distance passenger rail services, as against commuter rail services (Dept of Transport & SARCC, 1996: 6). This therefore necessitated the introduction of what is called a "mutual hire agreement" between SARCC and Transnet in terms of which SARCC compensates Transnet for the use of its rail network and vice versa. The fee is based on the train kilometres or rail activity of the tenant rail operator. To restructure commuter rail will therefore require cooperation between the Ministries of Transport and Public Enterprises and the relevant agencies.

In this section it is assumed that the restructuring of the commuter rail industry will be necessary as part of the process to develop commuter rail strategy in South Africa. Consequently, the first area to be addressed in the strategy is what structural arrangement for the commuter rail industry would be under a concession regime. Before investigating this question, however, the concept of restructuring requires clarification.

Restructuring can be defined as "an inclusive term that refers to (the) recombination of enterprise building blocks in ways that enhance the economic value of the enterprise" (Kopicki & Thompson, 1995: 19). Such building blocks

include among others the structural options available to the rail system and workforce restructuring. In as far as the structural option is concerned restructuring addresses the various functions of the railway industry. The decisions concerning the eventual structural option to be used for the rail industry under a concession regime can only be made by policy decision-makers, especially in South Africa where the major rail system is state owned. This study maintains that the workforce will be affected under a concession regime; as a result the impact of labour legislation on commuter rail strategy is discussed in section 6.7.

6.3.1 The vertically integrated railway option

Under the vertically integrated railway option, all the railway functions are the responsibility of the concessionaire. In other words, the rail concessionaire is given full responsibility for the provision of rail services (operations), the maintenance of rail assets and the renewal of such assets. A concession agreement under the vertically integrated railway option therefore takes the form of "Built-own-operate-transfer" and other concepts mentioned in section 3.1 of this study. The Argentinean case study provided an example of a vertically integrated railway option (SADC Railways, 1997: 3).

This section argues for a vertically integrated railway option, under a concession regime. The argument for the strategy that adopts this option is based on the advantages arising from vertically integrated railways which are the economies of scope achievable under this option (see section 2.5); the ease with which coordinated planning of the operation and infrastructure functions are achievable. In other words the difficulties associated with rail track capacity management are avoided under vertically integrated option; and the reduction of transaction costs is attainable. In this study, it is mentioned that transaction costs are not easy to quantify, but include, among other things, the costs of writing the concession agreement in clearer terms so that it is sufficiently enforceable (see section 3.4). It must be mentioned that transaction costs will also be reduced as the

concessionaire will not be required to enter into other agreements regarding the use of, say, rail network with the rail network owner as would be the case under the vertically separated railway option. It must be pointed out, however, that under the integrated railway option, the concessionaire must be required to make access to its rail network available where it is necessary to do so (Campos & Cantos, 2000: 186).

A situation however, where a concessionaire is required to allow access to its rail network, and as a result finds himself competing against another concessionaire on the route, must be differentiated from a situation where the concessionaires will not be competing as a result of another gaining access to its rail network. A fictitious example is used to clarify the situation where concessionaires may find themselves competing against each other on the route. Assume that the Pretoria commuter rail network up to Olifantsfontein is assigned to concessionaire A and that of Johannesburg up to Olifantsfontein is assigned to concessionaire B (see annexure 3 to this study) under a concession regime of the vertically integrated railway option. Furthermore, assume that the majority of commuters originating in Pretoria have Johannesburg as their destination and those from Johannesburg have Pretoria as their main destination. According to these assumptions there are two possibilities. The first is to allow commuters to change over at Olifantsfontein from the services of one concessionaire to the services of another. This possibility will require, say, monthly or weekly tickets to be available between the services provided by these concessionaires. The inconvenience for passengers, as they will need to switch over at Olifantsfontein, may weigh against this possibility and it is therefore left out of the strategy. The second possibility is to allow concessionaire A and B to have access to each other's rail network between Pretoria and Johannesburg. Under the second possibility, concessionaire A and B will effectively be competing against each other between Pretoria and Johannesburg. In a concession regime this possibility is referred to in Table 6.1 as competitive access. In a situation where the strategy does not require access rules for the second possibility, there is no way that there will be voluntary access to the rail network of A and B under the integrated railway option. The reason given

is that the concessionaires will be competing against each other on these rail networks and the rail network assigned constitutes an input to the commuter rail services provided by each concessionaire. To facilitate the implementation of the second possibility under the vertically integrated option, the strategy must assign the regulation of access rules to the concessioning authority so that the access of deserving cases to the rail network can be facilitated. The efficient component pricing rule was investigated in section 5.4.2 of this study and it provides the best strategy for formulating access prices.

A situation in which the concessionaire will not be competing after giving another concessionaire access to its rail network is currently seen in the arrangement between SARCC and Transnet in terms of which SARCC use Spoornet's rail network in areas such East London and Port Elizabeth. It was pointed out in section 5.4.2 of this study that where a commuter rail concessionaire is seeking access to a rail network belonging to a freight operator, access fees can be agreed upon in a bilateral settlement as happened between SARCC and Transnet, since the relevant operators will not be in competition with each other. This does not, however, pre-empt the role that the economic regulato r can, for instance, play in facilitating such agreements. The strategy can therefore still assign such access regulation to the economic regulator. Moreover, it was pointed out under the very same section (section 5.4.2) of this study that such agreed prices are not necessarily in the interests of society as a whole. This therefore implies that under the vertically integrated railway option in South Africa it must be acknowledged that in the long term a cost-based method will be necessary for determining access prices to a rail network in a situation where rail services are not in competition with each other.

This subsection therefore argued for the strategy that adopts the vertically integrated railway option on the basis of the advantages associated with this option and it has pointed out how problematical areas arising from the vertically integrated railway option can be dealt with, especially where there would be a need for access to a concessionaire's rail network and the strategy for formulating access prices.

6.3.2 The vertically separated railway option

The vertically separated railway option is generally an alternative to the vertically integrated railway option. As mentioned in this study (see subsection 4.3.3), the UK provides a practical example of the vertically separated railway option. The discussion in this chapter however, argues against the strategy that would adopt the vertically separated railway option.

Under the vertically separated railway industry option, various railway functions such as operations, track provision and maintenance are separated (SADC Railways, 1997: 3). To shed more light on the explanation given, the vertically separated railway option is sometimes known as the infrastructure separation alternative and means "that the operators of transport services work at arm's length from the providers of the fixed facilities. In railways, separation can begin with merely keeping the accounts for infrastructure and operation separate but can extend to having different entities to own, provide, and control the infrastructure, and entirely independent set of operators" (Thompson, 1997: unspecified). In this study it is maintained, however, that the view that separation can occur merely at the accounting level of infrastructure and operations is confusing. It is therefore taken that such separation of accounts can be achieved in the vertically integrated railway and that is not what this study means by the vertically separated railway option. In terms of this subsection the organisational separation of railway infrastructure and operation functions is what is conveyed in terms of the vertically separated railway option.

In Chapter 5 of this study (see subsection 5.4) it is mentioned that where rail infrastructure and the operation functions are separated, the basic principle is the promotion of on-route competition as is the case in the UK. It must be pointed out here that even in the case of UK as is deduced from paragraph 4.4.2 of this

study, open access competition has not been fully implemented under the franchising regime. This may point to the challenges of subjecting the passenger rail operators to two levels of competition which are the bidding and the operational level. In South Africa, on-route competition in terms of transport policy is not a preferred direction, especially where government financial support in terms of subsidies is involved in the provision of transport services. The avoidance of on-route competition under the concession regime means therefore that competition would only be experienced at the bidding stage and not during the operation.

An explanation for the argument against the strategy that adopts the vertically separated railway option under the concession regime is to be found in the disadvantages associated with this option. These are, firstly, the loss of economies of scope resulting from the joint provision of infrastructure and rail services. The emphasis on the loss of economies of scope is that the relationship between rail services and the rolling stock used, as well as the quality, quantity and technical characteristics of infrastructure, are so close that they need to be planned together. Secondly, the rail system has a high risk of becoming less attractive to the users who are used to an integrated rail system. Thirdly, vertical separation requires a complex rail institutional arrangement that ultimately increases transaction costs and fourthly, it reduces the investment incentive (Campos & Cantos, 2000: 188).

Sánchez (2001: 77–83) undertook an empirical study to investigate the loss of economies of scope resulting from the separation of infrastructure and the rail operation function. Sánchez points out that rail restructuring affects the cost of the railway operation. As a result, it is advisable to maintain the vertically integrated railway in a situation where the industry is restructured. Assuming, however, that the maintenance of the integrated rail is not desirable, the strategy must consider the problems that will result from coordination and the inefficiencies derived from the choice of a vertically separated railway option. The problems of coordination and the inefficiencies resulting from the choice of

the vertically separated railway option must be outweighed by the advantages that will be obtained from the vertically separated railway option. In the case of rail freight, Sánchez found that the proportional variation of infrastructure negatively affects freight operational cost elasticity. Negative cost elasticity means that it is not easy to separate infrastructure from the rail freight operation function and it is important to keep rail freight operations and infrastructure functions together when the rail freight industry is restructured.

In the case of passenger rail, Sánchez found cost elasticity to be positive for infrastructure and operations. Positive cost elasticity is attributed to passenger traffic that is transported over a large number of routes with very unequal passenger volumes. As a result, an increase in infrastructure in terms of investment increases the marginal cost of rail per person. The increase in marginal cost is however, smaller than the cost magnitude needed to provide for such passenger traffic. Sánchez's overall conclusion is that there is a vertical relationship between rail infrastructure and operations. Consequently, where rail is restructured and such restructuring affects infrastructure in terms of reassignment of functions, the rail operating cost will be notably affected as well. The risks of inefficiencies and loss of coordination effects regarding the separation of infrastructure and operation functions will be extremely high under the vertically separated railway option (Sánchez, 2001: 82–83).

It is therefore deduced from the explanation given that, firstly, the problems of co-ordination will be great under the vertically separated railway option. Secondly, the risk of inefficiencies that the concession regime will be attempting to address will be high. As a result, this study argues against the strategy that would adopt the vertically separated railway option.

6.4 Strategy for the concession agreement

The challenges identified in the railway concession relationship (Chapter 3 of this study) are found to emerge from the concession agreement when it is

implemented in practice. Despite the bounded rationality concept, which puts a limit to what can be accurately foreseen when drawing up concession agreements, it is necessary to outline the strategy for drawing up such an agreement. This strategy must aim to minimise the challenges that will arise for the parties concerned during the implementation of a concession regime. It must be borne in mind that the concession agreement is an important tool, which will ultimately regulate the relationship between the commuter rail concessionaires and the regulating authority.

The main principle derived from this study is that the concession agreement must be clear and comprehensive to reduce the probability of conflict between the concessionaire and the regulating authority (Klein, 1998:3). The non-compliance of the concession agreement with the clarity and comprehensiveness principle means that there will be loopholes that will result in high costs for the rail concessionaires and the regulating authority. The explanation for these high costs is that a lack of adequate specifications restricts competition during the competitive bidding stage thereby resulting in the authority choosing an expensive rail concessionaire in terms of, say, subsidies to be provided. On the other hand, compliance with the clarity and comprehensiveness principles of a concession agreement will assist in reducing the cost of potential bidders as they will have sufficient information when preparing their bids and thereby increase the intensity of competition during the bidding process (Van de Velde & Sleuwaegen, 1997: 66).

Related to the principle that the concession agreement must be clear and comprehensive, Monami (2000: 95-103) identifies dimensions that affect franchised European Passenger Railways that are, firstly, the domain of contractual assignment and, secondly, the discretion of management. In as far as the contractual assignment is concerned, its role is to specify the obligation of each party to the agreement. In the case of franchised European Passenger Railways, Monami found that contractual assignment was a source of heterogeneous application among different franchised railways. This means that

in spelling out the obligation of each party, the strategy for the concession agreement must require that each party's specific situation in respect of competencies, access to market information and other constraints is taken into account.

The discretion of management is concerned with the latitude that will be left to the rail concessionaire under the agreement. For instance, if the role of, say, the rail economic regulatory institution is not properly defined it may result in the economic regulator interfering with the operational decisions of the rail concessionaire and in such a situation the concessionaire will be left with no decisions to make. The domain of contractual assignment and the discretion of management are therefore complementary and must be clearly outlined so that the principle of clarity and comprehensiveness in the concession agreement can be satisfied.

The clarity and comprehensiveness of the concession agreement therefore requires that the roles of the parties concerned be properly allocated. The following table adapted from Campos & Cantos (2000) shows the typical allocation of roles between the rail concessionaire and the rail economic regulator. The table helps to clarify the strategy for the concession agreement in terms of allocation of roles. The symbols in the various columns indicate whether the role is allocated to the economic regulator or the concessionaire.

Role	Regulator	Operator
1. Design of adequate service	\checkmark	×
level standards		
2. Monitoring achievement of	\checkmark	×
service level standard		
3. Punishment, fines and	\checkmark	×
sanctions		
4. Information to passengers	\checkmark	\checkmark
about service level standards		

Table 6.2: Role assignment in railway concessioning

5. Variables to be determined and monitored e.g. fares	\checkmark	×
6. Inspection and reporting procedures	\checkmark	√
7. Responsibility for achieving service level standards	×	\checkmark
8. Risk sharing of service levels fluctuations	\checkmark	\checkmark
9. Dynamic quality	\checkmark	\checkmark

Adapted from: Campos & Cantos, (2000: 217)

In the contracts drawn up in the bus industry in South Africa, the various roles, except for dynamic quality, are more or less already allocated as reflected in Table 6.2. Dynamic quality (investment) is currently the responsibility of the operator, especially when considering the bus fleet. From this viewpoint it can be said that responsibility for dynamic quality is not shared between the operator and the authorities. However, when the provision of, say, intermodal facilities for bus and minibus taxi are taken into consideration, authorities do play a role. A similar allocation of roles must be made with respect to concession agreements in commuter rail, whereby the concessionaires must be required to make investments in, say, the rolling stock, while the economic regulator must be required to make provision for the fixed assets, such as the extension of the existing rail network, required by the authorities.

6.4.1 Strategy for risk-sharing arrangements

The allocation of various roles as outlined in Table 6.2 in practice depends on the party's risk-sharing arrangements. In South Africa, one of the requirements in as far as the concession agreement is concerned is that it must transfer appropriate risks to the concessionaire (SA Dept of State Expenditure, s. 16.4.2 (c)). The concession agreement that does not give effect to the transfer of appropriate risks will otherwise be treated as the equivalent of borrowing (Dept of Finance, 2000: 31).

Subsection 3.4.4 of this study mentions various areas in which the concessionaire can earn rents. One of the areas mentioned is aversion to risks. In other words concessionaires do not like to carry certain risks in practice and attach great value to such risks in their bids when allocated them in terms of the concession agreement. The risk management approach is therefore fundamental when considering the strategy for risk sharing arrangements. This means that risks associated with the various roles will need to be identified, where possible evaluated and allocated to the party most suited to carry such risks in terms of the agreement. The aim of the strategy in terms of risk must therefore be to achieve the optimum allocation of risks rather than the maximisation of risk transfer. The figure below shows the theoretical value for money obtained from the concession by achieving the optimum transfer of risks to the concessionaire.

Figure 6.1: Risk transfer and optimal value for money



Source: HM, Treasury Taskforce (1997-2000: 11)

According to Figure 6.1, where the risks are not sufficiently transferred in terms of the agreement, as in the case of conventional project value for money (VFM), there is still scope for the transfer of risks. As a result, the best value for money will not be realised from the agreement. In a situation where excessive risks are transferred (this can be thought of as the concessionaire carrying unnecessary risks) in terms of the concession agreement, the best value for money will also not be realised. It must also be pointed out, firstly, that the party that is allocated the risks must have the freedom to choose how to handle and minimise such risks. Secondly, it must also be pointed out that the cost of quantifying the risks

involved will be considerable and outweigh the benefits of the theoretically more efficient allocation of risks as shown in Figure 6.1 (HM, Treasury Taskforce: 1997-2000: 10-12).

The various risks that will be involved are categorised firstly as production risks. This category includes risks associated with the cost of capital, labour efficiency, management efficiency, the performance of transferred assets, passenger demand, employees and public safety, and compliance with other legal requirements. The strategy must be to transfer, as far as is possible, production risks to the concessionaire. Table 6.2 shows that the dynamic (investment) quality role is shared in a rail concession agreement. It is, therefore, essential to mention here that the cost of capital must be shared between the regulator and the concessionaires in terms of which cost of capital for, say, rolling stock must be allocated to the concessionaires. Where sunk costs are involved, like in the extension of the rail network, such costs must be allocated to the regulator. Therefore, the allocation of the entire cost of capital (rolling stock and the extension of the rail network) to the operator will have the effect that value for money will not be realised in terms of Figure 6.2, as unnecessary risks will have been allocated to the concessionaires. The second category of risks is the commercial risks, which include responsibility for earnings and costs. Because of fluctuation in demand and equity objectives, it will not be possible to pass on all such risks to the concessionaire and as a result the strategy must make provision for the sharing of such risks between the concessionaire and the regulating authority. The third category is public policy risks, which have important implications for the concessionaire. Because such risks are better controlled by the regulating authority, the strategy must be to allocate such risks to the regulating authority. The last category is the legislative risks and the strategy must be to pass such risks on to the concessionaire. As regards legislative risks, it must be pointed out that every business is subject to legislative risks and therefore the concessionaire is no different in this respect (Department for International Development, final draft 2000: 79–82).

6.4.2 Size of the concession

The vertically integrated railway option in terms of this strategy impacts on the size of the concession. The reason for this impact is found in the explanation already given that all the rail functions, such as the operations and infrastructure, must be the responsibility of the concessionaire. In the case of a vertically integrated railway option, railway engineers and other railway related disciplines refer to a "thick concession", emphasising the size of a concession in terms of operations and infrastructure functions being integrated and a "thin concession" where operations and infrastructure are separated.

Apart from the railway industry structural option having an impact on the size of the concession, the concession is also affected by the railway operational area in which the commuter services will be provided. As this strategy has already argued for the vertically integrated railway option, the question that emerges with regard to the current commuter rail operational area is whether the services should be concessioned, as they are currently provided in each area, or whether they should be structured differently (SA NLTTA, sec. 25 (1) (f)). To clarify this question, take the commuter rail operational area of Johannesburg as an example. The question therefore is whether commuter rail services provided in this area should be allocated to a single concessionaire or be divided among two or more concessionaires.

In addressing the size of the concession in terms of the operational area, it must be remembered that smaller packages of concessions offer the following advantages: Firstly, it is possible to diversify the risks associated with rail concession start-ups; secondly, more competition for a concession can be generated in both the initial period and the subsequent rounds of rail concessioning than does the winner-takes-all approach, and thirdly, smaller firms in the domestic economy will have an opportunity to participate in the competitive tendering process (Kopicki & Thompson, 1995: 22). These advantages will also enhance the participation of previously disadvantaged enterprises and the furtherance of black economic empowerment policy objectives in the commuter rail industry with the implementation of a concession regime. Smaller packages, however, will have an impact on the costs of the regulating authority in terms of an increase in the monitoring costs (Van de Velde & Sleuwaegen, 1997: 66). In determining the size of the concession in terms of operational area, countries such as Argentina, Brazil, Colombia, Mexico

terms of operational area, countries such as Argentina, Brazil, Colombia, Mexico and Chile have used economic criteria and such criteria accounted for the profitability (Campos & Cantos, 2000: 193). In the case of South Africa, this implies that there must be a business case derived from a feasibility study for the operational area to be divided between different concessionaires. Such a business case would take into account, for instance, the passenger flows (demand) of the areas to be divided, the total cost of providing commuter services and the total revenue (subsidies and fares).

To throw more light on the size, in the European passenger railways, the most efficient railways in terms of ratios of productivity ratios were found to be medium sized (Bouf & Péguy, 2001: 219). In section 2.5 of this study it was pointed out that a firm is subject to increasing returns to scale when economies of scale are greater than 1. If economies of scale are less than 1 the firm is experiencing a decreasing (diminishing) return to scale and a constant return to scale when economies of scale are 1. In the Western European railways, small railways were found to be showing increasing returns to scale, medium-sized railways showed constant returns and large railways exhibited diminishing returns to scale. Railway operations were found to show increasing density with the exception of the densely utilised railways of Netherlands and Switzerland. The rail network economies were found to be exhausted at the minimum level and as the rail organisation grows, diseconomies emerge as a result of transaction costs and X-inefficiencies. Annexure 3 to this study shows the return to density and return to scale of the Western European railways concerned. According to the author, in order to minimise operating costs, the optimum size of railways investigated is a 4000 km rail network and such an optimum railway will need to operate 120 million train kilometres per annum (Preston, 1996: 9–10).

In South Africa the length of the commuter rail network is around 2220 km and train kilometres per annum is around 28.7 million (Dept of Transport & SARCC, 1996: 8). A comparison of the size of the South African commuter rail network with that of its European counterparts shows that of South Africa to be small. This does not, however, necessarily mean that the entire commuter rail system in South Africa is exhibiting increasing returns to scale. To come to a definite answer with regard to the ideal overall number of commuter rail concessions that must be provided in South Africa, a total factor productivity study will provide valuable input into commuter rail strategy. In the absence of such a study, however, the strategy must be to rely on whether there will be a business case derived from the feasibility study for the commuter rail operational area to be divided between different concessionaires.

6.4.3 Duration of the concession

A strategy in terms of the duration of the commuter rail concession is essential. It is pointed out in subsection 3.4.1 that the dynamic efficiency (investment in new technology) objective presupposes a long-term agreement, otherwise the concessionaire will be concerned about the hold-up problem. In South Africa there is a great need for the injection of private capital into the commuter rail system because of insufficient funds from the authorities. The strategy for the duration of a concession must therefore be to adapt the concession period to the economic life of the investment (Campos & Cantos, 2000: 197).

The adaptation of the concession to the economic life of investment calls for the determination of capital requirements in terms of the rolling stock and fixed assets of the commuter rail system in the form of capital programme. Where the determination of capital requirements is undertaken for the entire commuter rail system, it can later be adjusted in terms of the concessions that will be offered. Based on the capital requirements, the duration of the concession will then have to be determined. It therefore follows that where the capital requirements are greatest within the commuter rail system, a longer-term concession agreement

will need to be entered into between the concessionaire and the authority than where capital requirement is lowest. The underlying strategy therefore will be to base the duration of the concession on the capital requirements to allow concessionaires sufficient pay-back period on investment. This strategy will in the end have the effect of coming up with different concession durations for the different operational areas that have been identified as presenting a business case to be partitioned for a concession regime.

The case studies mentioned in this study have shown that each country determined its concession duration in terms of its own requirements. There is therefore no concession duration that is suitable for all the rail systems. The general observation, however, is that the concession agreement tended to be longer in a situation where capital requirements were greater. As an example, in the UK 25 rail passenger franchises were awarded for a period ranging from 5 to 15 years with a median of 7.25 years. In a situation where franchises were awarded for the upper end of this range, investment in rolling stock was included as a condition for such a franchise (Preston et al., 2000: 103). However, the UK currently promotes long-term and negotiable franchises in passenger rail through the Strategic Rail Authority. The aim is to attract the required investment in rail. This implies that in the UK it was actually realised that the initial passenger rail franchises did not provide sufficient time for the franchisees to recover their investment costs, which is why the current trend is to move towards longer term rail franchises (Bouf & Péguy, 2000: 220).

In Argentina, the six rail freight concessions have 30 years duration with the option of increasing the term by another 10 years. The duration of rail concessions in Argentina was decided on after having taken into account the poor state of the rail infrastructure and the huge investment that was required (Campos & Cantos, 2000: 198). The duration of the commuter rail and the Buenos Aires underground rail concessions were set at 10 and 20 years respectively (see subsection 4.5.2.1 (ii) of this study).

The examples provided show that the strategy must be to base the duration of the concession on the economic life of the investment that will be made. Furthermore, it is deduced from this strategy that the greater the capital requirement in the rail syste m, the longer the duration of the concession.

6.5 Strategy for economic regulation

Chapter 5 of this study has investigated the rail transport economic regulatory environment and various mechanisms used to regulate rail concessionaires under a concession regime. The various mechanisms to be used will not be repeated here but rather consideration will be given to the questions of how to bring the relevant body into being and who should regulate commuter rail concessionaires.

Shires et al. (1994: 25) mention that "regulation does not end with the formulation and adoption of a satisfactory contract, in itself a considerable task. If this were all, a few wise and honest men might, once in a generation supervise the framing of a franchise in a proper form, and nothing further would be necessary". The quotation emphasises that there is no perfect concession agreement; as a result the challenges identified in Chapter 3 of this study may arise in the relationship. Provision must therefore be made under the strategy to manage the relationship between the authorities and the commuter rail concessionaires.

The strategy consists therefore of the approach to be used to bring the economic regulatory institution into being, the desirable qualities of such an institution and an indication of who in South Africa is best positioned within the rail industry to carry out the commuter rail economic regulatory function.

6.5.1 Approach to be used

There are three approaches that can be used to make the commuter rail economic regulatory institution a reality. The first is the industry-specific approach. In

terms of the industry-specific approach, a separate institution is established such as that for the commuter rail industry, electricity, road transport and so on.

The second approach is the sector-specific regulatory institution. In terms of this approach, related industries such as electricity and gas or the economic regulatory institutions for rail, roads and ports are established. This means that where rail freight is concessioned in South Africa the commuter rail economic regulator's functions must be extended to include this sub-sector.

The third is the multi-sectoral regulatory approach. In terms of this approach, a single regulatory institution for all or most of the infrastructure sector is created. The multi-sectoral approach will offer the advantages that, firstly, regulatory resources will be shared among the various sectors, secondly, the industry regulatory capture will be resisted, thirdly, minimum political interference in the decisions of the economic regulator will be achieved, and fourthly, maintenance of consistency across the various sectors will be obtained as interest groups will have an opportunity to control each other.

In practice, however, when consideration is given to the approach that must be used in making the economic regulatory institution a reality, it makes sense when the restructuring of government entities in the country is completed. The restructuring of government entities in practice does not take place at the same pace and as a result certain regulatory institutions are set up sooner than the others (Estache & de Rus, 2000: 45).

In the case of South Africa, the adoption of a multi-sectoral approach, despite its advantages, is likely to present difficulties. The reason is that the entities involved in the infrastructure sector like electricity, telecommunication and transport fall under different ministries and the adoption of such an approach requires public service restructuring that is outside the scope of this study. Furthermore, restructuring within the transport sector in South Africa does not take place at the same time. As a result, the multi-sectoral approach is currently not suitable for South Africa.

The approach must therefore be to use the industry-specific approach. Concerns may, however, arise on the grounds that the use of an industry-specific approach will lead to the proliferation of economic regulatory institutions in rail when the restructuring of public enterprises is complete. In the long term, however, when the restructuring of public entities is complete, especially when the rail freight subsystem is concessioned as well, the sector-specific approach must replace the industry-specific approach.

6.5.2 Desirable qualities of the economic regulator

The desirable qualities of an economic regulatory body are that it be independent with a reasonable amount of discretionary powers, that it be autonomous and have the necessary expertise, and that it be allowed to function at arm's length from the Ministry concerned as well as the rail concessionaires. Such qualities must ultimately be part of the legislation that establishes the economic regulatory institution.

The independence of the economic regulatory institution means that it must be granted a certain degree of discretion by the establishing legislation. In granting the rail economic regulatory institution discretionary powers, it must be borne in mind that such discretionary powers can in practice result in the regulator favouring concessionaires to the disadvantage of users. It may also result in the regulator favouring users more which in the end will create the perception of public policy risks which concessionaires will take into account in their bids if such risks are not properly allocated (Estache & de Rus, 2000: 46–47). It was mentioned in subsection 6.4.1 that public policy risks are better controlled by the regulatory authority and must therefore be allocated to such an authority.

The second desirable quality of the rail economic regulatory institution is autonomy. Autonomy includes funding sources, the recruitment of staff and the monitoring of the rail concessionaires' compliance with their obligations in terms of the concession agreement. At an international level, experience reveals that when the economic regulator relies on a budget transfer from the ministry concerned, it poses a threat to its autonomy. In an ideal situation, a levy should be charged on the rail concessionaires or users, which is used to finance the activities of the regulatory institution. Such a levy can be viewed as the fee paid for the management of the services provided by the regulatory institution. Where autonomy is granted to the economic regulator, the authorities must determine such levies annually depending on the budget proposals submitted by the regulator. In as far as autonomy in recruitment of staff is concerned, the economic regulator will be empowered if it is allowed to appoint staff with the expertise needed for the demands of the work to be performed. This in practice means that the staff of the rail economic regulatory institution must be exempt from civil service rules (Estache & de Rus, 2000: 47).

The third desirable quality of the rail economic regulatory institution is that it should function at arm's length from the ministry concerned. Functioning at arm's length means that it must be made accountable for the decisions it takes. In other words, the decisions of the economic regulator must, firstly, be based on clear procedural rules, secondly, have deadlines for when such a decision will be available, thirdly, have detailed justification for taking relevant decisions, fourthly, provide an opportunity for all the stakeholders to be heard through say public hearings, and fifthly, provide avenues for appeal and the provisions for permitting the removal of the regulator's governing body (Estache & de Rus, 2000: 47–48).

6.5.3 Role of the rail economic regulator

Most of the roles to be undertaken by the rail economic regulator in terms of this strategy are shown in Table 6.2 of this chapter. There is, however, an additional

role that must be specifically mentioned in this subsection, that of commuter rail subsidies. The subsidy flows to the rail concessionaires in terms of this strategy must be through the office of the rail economic regulator. In terms of Table 6.2, the regulator will monitor the overall performance of the concessionaires. As a result the economic regulator will be better positioned to provide the necessary incentives (carrot) where performance targets are exceeded and to impose non-performance sanctions (stick).

In addition, the economic regulator must be entrusted with the role of advising the authorities with regard to the implementation of a commuter rail concession regime. Any change in policy resulting from the advice given by the economic regulator will therefore have to be approved by the authorities.

6.5.4 Possible economic regulatory institution

It is pointed out in subsection 1.1.3 of this study that Metrorail is a commuter rail operator and provides commuter rail services on behalf of SARCC in terms of contractual arrangements between SARCC and Transnet. It was also pointed out under section 1.1.3 that there are currently initiatives underway to integrate Metrorail and SARCC. With the need to establish the rail economic regulatory body identified, especially under a concession regime, this study argues that under the strategy for economic regulation, SARCC already has the potential to satisfy the industry-specific approach for the establishment of an economic regulator and qualities relevant to such a regulator. As a result, the integration between SARCC and Metrorail will be contradictory unless the policy intention of concession commuter rail falls away. This chapter therefore proposes that SARCC should be allowed to occupy the position of the economic regulator in the event of commuter rail concession.

6.6 The impact of labour legislation on the commuter rail strategy

In section 4.5.3 of this study, the question was asked in the case study of

Argentina whether labour reductions could have been achieved by a government rail enterprise like Ferrocarriles Argentinos (FA). In response it was mentioned that even when labour reduction was possible under FA, the reductions would not have been sustained because political pressure on rail management would have eventually resulted in the absorption of more labour by the government rail enterprise. This implies that where government rail enterprise restructuring results in labour reduction in a scenario where the participation of the private sector is not anticipated, the efforts undertaken by management to improve labour productivity are ultimately nullified by political pressure. Consequently, it is not easy to improve labour productivity in a state-owned railway enterprise. In the case of a change in regime in the provision of rail services, labour will therefore be affected in terms of a reduction in the number of employees.

In terms of this strategy t was mentioned that production risks, which include labour efficiency, must as far as possible be transferred to the concessionaire and that the concessionaire must have control over how to positively influence the relevant costs.

In South Africa the issue of labour is likely to be a major bone of contention between the authorities and the labour unions. The reason for this arises from the high unemployment level in South Africa, which is estimated at 29.5 percent (South Africa Reserve Bank, 2002: 16).

The impact of labour legislation on commuter rail strategy in a situation where labour is expected to be affected is that a social plan must be put in place through negotiations between labour, management and the authorities. The objectives of a social plan must be firstly, to avoid job losses and employment decline wherever possible, secondly, to assist in the reintegration of retrenched workers into other areas of economic activity, and thirdly, to reduce the consequences of employment decline and to manage the process of job downscaling (South Africa, Notice 1590 of 1999, s. 2 & 4).

6.7 Strategy to assess the effectiveness of a commuter rail concession regime

A commuter rail strategy is incomplete without the provision for assessing its effectiveness during the implementation stage. It is mentioned in subsection 6.5.3 that the economic regulator must be entrusted with the role of advising the authorities with regard to the implementation of the commuter rail concession regime. The strategy provided here will therefore assist the economic regulatory institution in discharging its advisory role.

This strategy is derived from the rail case studies provided in this study (subsection 4.5.3) and consists of the assessment of the impact of rail restructuring on staff productivity, the impact of the concession regime on users and the impact on the authorities in terms of the financial support (subsidy) provided to commuter rail.

The strategy to assess the effectiveness of a concession regime will have the advantage of responding to many questions related to the strategy objectives stated in Table 6.1 of this chapter, such as, for instance, the fiscal, internal, external, dynamic and equity objectives. In terms of the strategy provided, the economic regulatory institution will be empowered to advise the authorities on all matters affecting the implementation of a commuter rail concession regime.

6.8 Conclusion

There are a number of objectives that, from an economics perspective, are attainable with the implementation of commuter rail strategy, particularly under a concession regime. These objectives include fiscal, internal efficiency of the rail service operator, the external efficiency and the social equity objective. In as far as dynamic efficiency is concerned, this chapter argued that the realisation of such an objective is contingent on the period of the concession agreement. This chapter also argued that restructuring of commuter rail would be necessary to implement a concession regime. Two railway industry structural options were investigated: the vertically integrated railway and the vertically separated railway. The vertically integrated railway is argued for as an organisational strategy to restructure commuter rail under a concession regime. Potential problematical areas that may arise under the vertically integrated strategy were pointed out and the strategy for dealing with such problematical areas was provided. The vertically separated railway is argued against and various reasons are provided to explain why it is not suitable in the case of South Africa.

The challenges in the concession relationship will arise from the different interpretations of the concession agreement by the parties involved. The main principle underlying this agreement is that it must be clear and comprehensive. The roles of the regulator and the rail concessionaires must therefore be properly spelt out. The strategy is provided in terms of how the roles between the regulator and rail concessionaires must be allocated. In practice, the allocation of roles is associated with the risks involved and various risks associated with such roles are broadly identified and the strategy provided for dealing with such risks.

The size of the concession is affected not only by the organisational strategy but also the operational area to be served under a concession regime. In the case of South Africa, because of the lack of basic productivity studies, the strategy must be to rely on a business case derived from a feasibility study determining the overall number of concessions to be offered for commuter rail.

In as far as the duration of the concession agreement is concerned, the strategy must be to base the duration of the agreement on the economic life of the investment. This requires the determination of capital requirements within commuter rail. In the case of different capital requirements the concession agreements will naturally have different duration times contingent on the payback period.

Under a concession regime a rail economic regulator will be required. The strategy in terms of how to bring the regulatory institution into being is provided and consists of the introduction of an industry-specific regulator. In the long term, however, there is a possibility that a sector-specific regulator will be necessary. This strategy also proposed that the SARCC is best positioned to fulfil the role of economic regulator under a concession regime.

As a result of assigning production risks to the concessionaire in terms of a risksharing arrangement it is expected that the workforce will be affected. The impact of labour legislation on the strategy must therefore be borne in mind.

The rail case studies of Argentina and Japan showed that the implementation of railway strategy in these countries was evaluated in terms of its effects on the users of the railways, its effects on the employees of the railways concerned, its effects on financial support from the authorities and its effects on the investors (rail concessionaires). The adoption of a similar strategy in South Africa must assist in providing answers to the questions that will be raised from different perspectives, that is, fiscal, microeconomics, social and macroeconomics.