CHAPTER 3

THE POTENTIAL CHALLENGES IN THE RAILWAY CONCESSION TYPE RELATIONSHIP

3.1 Introduction

In this chapter the key question is what are the challenges the authorities can anticipate in the railway concession type of relationship? This chapter uses the incomplete contract approach to identify potential challenges in the railway concession relationship. The incomplete contract approach is found to be more appropriate for explaining the potential challenges discussed. The complete contract approach is, however, also studied and this will show that the fulfilment of the requirements associated with this approach is not realisable in the concessioning environment and, as a result, the incomplete contract approach is more appropriate. Before proceeding to discuss the arrangement of this chapter, further clarification of the concession concept is necessary.

The United Nations Conference on Trade and Development (UNCTAD) (1998: 10), mentions that concepts such as "Built-operate-transfer" (BOT), "Built-own-operate" (BOO) and "Built-own-operate-transfer" (BOOT) are variants of same mode of privatization and are also referred to as "concessions" by legal experts. The UNCTAD further mentions that "in a strict sense a concession is a contract by which the grantor grants the grantee the right to finance, build and operate a facility or some equipment, for public use, for a stated period of time, after which the facility or equipment will be transferred to the grantor" (1998: 10). In Chapter 1 it was mentioned that Klein (1998: 2) realised that the economics literature uses the word "franchise" instead of the word "concession". Klein further defines a concession as

> "the transfer of property rights, which government can limit in time ... these limits may either be fixed in advance (e.g. French water concessions) or

> they may be a function of economic performance of the concession (e.g. Dartford toll tunnel in the United Kingdom) or may be imposed by government discretion through termination without fault (e.g. French and British private water business) or any such rules (1998: 2)".

The definitions quoted here, as well as that provided by Domberger and Piggott (1994: 51), in principle mean the same. This is the reason why it was mentioned that the word franchise and concession would be used interchangeably in this study, in the context in which the word is preferred.

Furthermore, the definitions show that a concession involves an agreement between the parties concerned in which rights and obligations are defined for the determined period. Following this section, the requirements for a complete and perfect contract are studied. Non-fulfilment of the requirements for the complete contract brings into perspective the concept of bounded rationality that is discussed in section 3.3. Following section 3.3, an explanation of what is meant by an incomplete contract approach is discussed in section 3.4. The potential railway concessioning challenges that are identified in terms of the incomplete contract approach are investment, commitment and reneging, bargaining and renegotiation, rent (excess profit) acquisition and the need for economic regulation. In some instances, an outline of how to deal with certain challenges is discussed.

3.2 The requirement for a complete and perfect contract

A complete contract can assist in resolving the challenges that arise from the conflicting objectives of the parties that are involved in the contractual relationship. Such a contract would firstly, specify everything concerning each party's obligations; secondly, specify every conceivable and possible future situation: and thirdly, specify how the distribution of the actual realised costs and benefits would be made. In such a contract, as every possible future event would

be provided for, all parties to the contract would find it beneficial to comply with the contractual terms set down (Milgrom & Roberts, 1992: 127).

The requirements for a complete and perfect contract firstly demand that the parties to the contract must be able to foresee all the relevant future events that may emerge during the implementation period and that the parties must specify such future events in the concession agreement. The specification of all future events also involves the specification of the budgets needed for dealing with such eventualities. These eventualities will need to be described in accurate and unambiguous terms before they actually happen. The second requirement is that the parties involved in the contract must be willing and able to determine an efficient course of action for each an every possible future event, and the third requirement is that, once the parties have signed the contract, they must be happy to abide by its terms. The third requirement has two elements. The first element is that the parties must commit to not renegotiate the contract once they have signed it and the second is that the parties to the contract must be able to determine freely whether the contract terms are actually implemented and, in the case of non-compliance, each party must be able to enforce the agreed terms. In practice, the fulfilment of these requirements is not realisable (Milgrom & Roberts, 1992: 127). Put in the context of rail concessioning, it is unlikely that it will be possible to identify all future events and specify them accurately in the agreement. The following section explains the source of the inability to foresee everything that may occur in the future and to describe it unambiguously in the contract.

3.3 Bounded rationality concept

The potential challenge for actual contracting emanates from the inability to come-up with a complete and perfect contract. Milgrom & Roberts (1992: 128) mention that “limited foresight, imprecise language, the cost of writing down a plan – collectively, the bounded rationality of real people – mean that not all contingencies are fully accounted for”. In relationships such as concessions

contingencies arise and when they do, parties must find ways to adapt. Such adaptation introduces the possibility of opportunistic behaviour.

Williamson (1989: 138–139) argues that the "contracting man is distinguished from the orthodox conception of maximising man (rational utility maximiser) in two respects". The first distinguishing feature of the contracting man is the condition of bounded rationality. The second is that the contracting man is given a self-interest seeking behaviour that is deeper and more troublesome than in the case of economic man. Williamson mentions that, in terms of the second distinguishing feature of the contracting man, various economic entities are allowed to disclose the information they have at their disposal in a selective and misleading manner. This is known as opportunistic behaviour and the moral hazards of the agencies. The disclosure of information in a selective and misleading manner in the rail concession environment may impede the effectiveness of the economic regulator.

In reality, a complete and perfect contract has insurmountable challenges. Challenges arise from, among other things, the limited ability of people to foresee what will happen in the long-term future; imprecise language for adequately describing future events; the costs of calculating the solutions that might be required to resolve future events; and the costs that will be associated with writing down the appropriate plans. Bounded rationality concept therefore means it is not possible to describe all potential future challenges that may emerge from the concession relationship. The bounded rationality concept underlies the idea of incomplete contracts, especially in a public-private partnership such as a railway concession. The following section indicates the meaning of an incomplete contract.

3.4 Incompleteness of contracts

Schmitz (2001: 2) asks the question: "What are incomplete contracts?". Incomplete contracts have received considerable attention in the past years and

no clear definition of what constitutes an incomplete contract has been given. One view of an incomplete contract is that researchers classify contracts in an ad hoc way. This makes it difficult to say whether a contract is incomplete or not. As an example, if the allocation problem is given and it is assumed that the contract classification issue is non-existent, one could show that a particular contract, say contract C_1, is optimal. However, in a situation where one compares say, contract C_1 and C_2 only, one might end up with the same conclusion that contract C_1 is optimal. As the scope of contract comparison was limited to two types of contract, the researcher would not know that there is another contract, say C_3, which is superior to the others. In such a situation one would have adopted an incomplete contract approach. However, in a situation where one took a complete contract approach, in other words, where the investigation was not limited to contract C_1 and C_2 only, one might again conclude that contract C_1 is optimal. In such a situation, it does not make sense to say that contract C_1 is either complete or incomplete. The argument is that if no one can prove that other types of contract dominate either contract C_1 or C_2, then one would be back in the world of the complete contract. Such proof will need the consideration of all types of contract, given the allocation problem (Schmitz, 2001: 3).

Milgrom and Roberts (1992: 127) point out that, in an actual situation, complete and perfect contracts are filled with challenges arising from practical implementation. Klein (1998: 5) also mentions that in reality the specification of future events in the concession agreement is the most problematic, contentious and even time-consuming issue. Even given the great care taken by the drafters of the contract, they could forget aspects of the problem and in the end the loopholes could prove to be costly. Klein also gives the guideline figure for the costs involved in drafting concession agreements and mentions that they may be in the order of 3 to 5 percent of project costs in situations where concession arrangements are understood. In a situation where concessions are new, the estimates of the initial costs may be in excess of 10 percent of the project costs. This points to the high costs involved in drafting concession agreements.

Furthermore, the drafting costs may increase exponentially if all future possibilities were described and specified – possibly a futile exercise.

Transaction costs are difficult to identify in long-term contracts, however, they may include, firstly, the costs that each party may expect for the various contingencies that may occur during the term of the relationship; secondly, the costs of reaching an agreement on how to deal with the eventuality concerned; thirdly, the costs of writing the contract in a sufficiently clear and unambiguous way so that the terms of the contract can be enforced: and fourthly, the legal costs of contract enforcement. These costs are also present in short-term contracts. As a result of the presence of these transaction costs, vague and ambiguous clauses are sometimes found in contracts and such clauses are to the disadvantage of the parties involved. By way of emphasising the incompleteness of contracts, anyone who is familiar with the legal literature on contracts is aware that contractual disputes that come before the courts are concerned with the matter of the incompleteness of the relevant contract (Hart & Holmström, 1987: 132–133).

To shed more light on the incompleteness of contracts, Lyons (1996: 29) distinguishes between a contingent contract and a complete contingent contract. A contingent contract "says what to do if the state of nature/effort/investment etc turn out to be X (e.g. favourable demand, high effort by the relevant party, or appropriate investment) as opposed to Y (e.g. weak demand, low effort or low investment)". In terms of this author, a complete contingent contract covers all possible eventualities.

The inability to foresee what can actually happen in future, however, makes it impossible to describe and state how they will be resolved in terms of the contract. Another problem is that even if it were possible to specify all possible eventualities, it is difficult for a third party like the court to enforce them when such contingencies result in disputes and conflict.

Despite Schmitz's (2001) argument that there is no clear definition of what constitutes an incomplete contract, the approach used to identify the potential challenges in rail concession type relationships is the incomplete contract approach.

3.4.1 Investment challenge

Williamson (1989: 142) identifies asset specificity as the challenge. Asset specificity refers to the extent to which the assets can be put to alternative uses. In a railway environment, asset specificity relates to assets like railway stations, rail tracks etc. Asset specificity challenges arise time and again in the context of incomplete contracts.

Investment in economic terms involves the expenditure of money and such expenditure creates the potential for earning future revenue and for continuing to provide the services. The assets that are embraced by the concept of asset specificity include physical assets; human capital; and co-specialised assets. The main challenge that parties experience in contractual relationships, especially the party that has made the necessary investment, is to accept the disadvantageous terms emanating from the loopholes in the agreement. These loopholes may result from a different interpretation of the terms that are used in the contract and may put the investor in a situation where he might not recover the cost of investment. The challenge here is that such investment may be devalued by the actions of the other party because of being insufficiently protected in terms of the agreement. The challenge of devaluing investment is known as the hold-up problem and this is an example of post-contractual opportunism (Milgrom & Roberts, 1992: 134–137).

The challenge of investment arising from post-contractual opportunism (hold-up problem) was among others investigated by Pittman (1991: 565), particularly with regard to the railroad side-track agreements. As an example of a hold-up problem, Pittman mentions that shippers that contracted to maintain side-tracks

later refused to do so; shippers whose agreements stated that the railroad could remove the side-track at its discretion complained later that such contract terms were illegal; and shippers whose agreements stated that they would be liable for damages from fire or accidents on the side-tracks also complained later that such contract terms were illegal. These complaints were only made after the relevant rail undertakings had made investments in the rail side-tracks. According to Pittman, such post-contractual opportunistic behaviour was not only experienced on the side of shippers, but was also found on the part of the railroads. As an illustration of post-contractual opportunism on the part of railroads, Pittman mentions that "railroads rent seeking may be found in the frequent efforts of the railroads to raise line-haul charges through litigation" (1991: 578-580). The agreements of the railroads concerned did not allow increases above what was agreed upon.

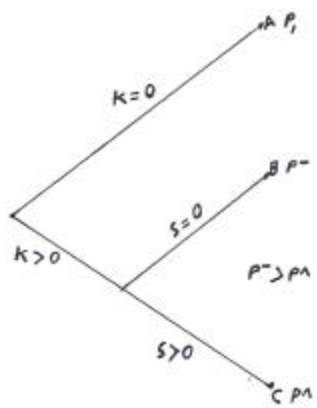
Perry (1987: 213) mentions that the complexity and uncertainty presumably arising out of incomplete contracts make the cost of negotiating and enforcing the contract prohibitive. According to Perry, in bilateral relationships it is possible to fail to define performance and this could result in post-contractual opportunistic behaviour by one party. Such a party would in most cases try to extract rents resulting from the relationship. Furthermore, the opportunistic behaviour may involve costs and may result in the failure of both parties to maximise the benefits associated with the provision of service.

Che and Haush (1999: 126–143) discuss cooperative investment resulting from the agreement. A distinction is made between "pure cooperative investment" and "hybrid investment". In terms of these authors, pure cooperative investment offers no direct benefits to the investor, and hybrid investment offers direct benefits to both parties involved in the agreement. Cooperative investment, according to these authors, has received very little attention in the literature even when this type of investment is common in practice. An important example of where cooperative investments are realised is in the case of the principal-agent approach, although the literature does not specifically mention it. In terms of the

principal-agent approach, the effort of the agent directly benefits the principal. According to Che and Haush (1999), cooperative and specific investments face the same post-contractual hold-up problem. They conclude that in the case of cooperative investment the importance of contracting varies depending on whether the parties to the contract can or cannot commit to renegotiate. Where the commitment not to renegotiate can be obtained, efficiency can be achieved through this arrangement. In a situation where the parties have difficulty in committing not to renegotiate the contract, efficient outcome may not be achievable and the parties may not do better than limiting themselves to ex-post negotiation.

The question that arises in connection with the investment challenge is what needs to be done to limit the fear of post-contractual opportunism like the hold-up problem? The diagram below sheds more light on this question.

Figure 3.1 Simple contracting schema



Source: Williamson (1989: 146)

In terms of Figure 3.1, it is assumed that the services can be provided by two alternative technologies. One is the existing (old) technology and the other is the special (advanced) technology. It is furthermore assumed that the advanced technology requires investment in new assets and it is more efficient for

providing the required services. It is also assumed that k measures the costs of investment. In a case where existing technology will be used to provide the services, there will be no investment as a result, k is zero. This is represented by k=0 in Figure 3.1. Where new technology will be used, investment in assets will be required and, as a result, costs of investment are greater than zero as represented by the down sloping leg in Figure 3.1. In the case of new technology, the provision of such technology will not be possible if the contractual relationship was to end early before the investor recovers his costs. To prevent the early termination of contracts, the parties to the contract have an incentive to devise some safeguards that will protect the party that invests to earn a return on the investment. The safeguard is represented by s in the above diagram. Figure 3.1 consequently displays three contract possibilities under the assumptions that are made. Each contract possibility has a node which is associated with price as shown in Figure 3.1 (Williamson, 1989: 145).

The three contracting possibilities that Figure 3.1 displays are firstly, that node A, as mentioned, will be associated with old technology and investment is zero (k=0) and the break-even price P_1 is projected. Secondly, the node B contract provides investment in advanced technology as k > 0, however, the safeguard is zero (s=0) and the price for the node B contract is P^-. Thirdly, node C contract also involves investment as k > 0, however, the safeguard for the investor is greater than zero (s > 0) and the break-even price is $P^\wedge$. The break-even price $P^\wedge$ for the node C contract, is less than the node B contract price P^- ($P^- > P^\wedge$) as shown in the above diagram. According to Williamson, the safeguards usually take one or more of different forms such as the realigning of incentives, which can involve severance payments or penalties for premature termination; the replacement of court ordering by private ordering, which, in this situation, makes allowance for contractual incompleteness and a different forum for dispute resolution can be provided in the contract; and the contract may be embedded in a complex network, according to which, as Williamson puts it, it is to better ensure continuity of purpose and facilitate adaptations (negotiations) (1989: 147.)

The contracting possibilities depicted by Figure 3.1 apply to a wide variety of contracts. The figure depicts that the investment costs (k), the contractual safeguards (s) and the price (p) are interactive and are determined at the same time. In summary, nodes A, B and C contracts as depicted in Figure 3.1 have the properties that firstly, contractual relationships that depict the node A contract have zero investment cost (k=0) because existing technology will be used and in the long term the price involved will be very high. Secondly, contractual relationships that involve significant investment, k > 0, are the ones in which the parties are effectively engaged in bilateral relationships and contractual relationships that locate in node B contract, investment enjoys no safeguards (s = 0) as a result the projected break-even price ($P^{-} > P^{\wedge}$) and the resulting contractual relationships are susceptible to instability and experience conflict between the parties. Contracts of node B can therefore easily revert to node A, in which case, the expected investment in advanced technology would not materialise as k = 0, or node B contracts may be reallocated to node C by introducing the necessary safeguards that would encourage investment in new technology, Thirdly, contracts of node C incorporate sufficient investment safeguards (s > 0) and are, as a result, protected against expropriation hazards or the hold-up problem. Fourthly, parties to the contract should not expect to have their cake (i.e. have a high number of safeguards) and eat it (i.e. have high prices as well). It is therefore important to study the contract in its entirety, including the ex ante terms and the manner in which the contract terms are thereafter actually executed. This may vary with the investment characteristics and the associated governance structure that is in place (Williamson, 1989: 147).

Where investment in terms of the concession agreement is required, it needs to be aligned with the duration of the contract. By so doing a trade-off is introduced between the short-term and the long-term concession. The long-term concession gives the concessionaire the incentive to invest and to recover the costs of investment throughout the concession term. A long-term concession, however, has its own problems. Firstly, it increases the opportunity of the incumbent monopolist to benefit from the information and sunk cost advantages obtained

that reduce competition at the renewal stage of the concession. Secondly, long-term concessions lack the threat of renewal, which is a characteristic of the short-term concession. Thirdly, a long-term concession will be subjected to renegotiation throughout the concession period. The advantages of a short-term concession are, firstly, that it overcomes the inflexibility of the long-term concession. Secondly, it acts to impose the necessary discipline on the concessionaire and, lastly, it leads to better performance and greater cooperation with the authority. The major disadvantage of short-term concessions, however, is that they do not give the concessionaire an incentive to invest and to maintain the assets adequately (Shires et al., 1994: 22–23). This shows that a trade-off needs to be made between short-term and long-term concessions, especially in situations where investment is required.

The discussion shows that investment cannot be easily attained in the concession-type relationship without reconciling the size of the investment required with the necessary safeguards for investment like the concession period. This may be particularly relevant in the railway industry, which has high fixed costs and growth prospects in terms of demand are not encouraging.

3.4.2 Commitment and reneging

Contracts can be seen as instruments that bind relationships and make commitments on which the parties concerned can depend. In a situation where the contract is incomplete, however, the contract can only have a limited effectiveness for inducing the required commitment (Milgrom & Roberts, 1992: 133).

A lack of commitment and the repeated bargaining that results is thought of having two perversive effects. The first is the fear that the firm will not be adequately compensated for its investment, which could actually result in the firm being reluctant to invest. This was discussed in the previous section and is

the hold-up problem. The second is that the firm will be concerned with what is called the ratchet effect. The ratchet effect is described by the fact that

> … if the two parties can commit to a long-term contract at the beginning of their relationship, the regulator optimally commits to use each period the optimal static contract (period here refers to the price review period). That is, optimal for the regulator to commit not to exploit the information acquired from observing the firm's performance. Commitment is crucial for this outcome because the regulator would want to fully extract the firm's rent from the second period on after the firm reveals its efficiency in the past (Laffont & Tirole,1993: 366).

According to Laffont & Tirole (1993), the price regulation of service providers is in practice mostly done by a series of short-term contract commitments for two reasons. The first is that most countries legally prohibit long-term contracts because of the view that the current government can only bind a future government for a limited period of time. The second is that the motivation for non-commitment arises as future technology and possible future events cannot be perfectly described at a time when the contract is drafted, that is, at the pre-implementation phase (1993: 367). This is the challenge of incomplete contracts.

A lack of commitment can be interpreted as the inability of parties to the contract to carry out the terms that are agreed upon. A lack of commitment on the part of the concessionaire carries the risk of not delivering the services or even the investment that is promised. Non-commitment on the part of the authority can be interpreted by the concessionaire as the risk that it will have to take and this might result in his not being compensated. To achieve commitment, the authority should be able to convince the potential concessionaire that the contract will not be renegotiated, and that the concessionaire's payment will be equivalent to the valuation that the authorities attach to the provision of services. If such commitment is achieved, it will mean that in a situation where the concessionaire ends up with rents (excessive profits) from the provision of the relevant services,

the authority will not complain about such gains. Similarly, commitment will mean that the authority will not subsidise losses experienced by the concessionaire ex post that were not agreed upon ex ante. In the absence of commitment, the concessionaire will know that the value of the services that it provides will not form the basis for the appropriate compensation schedule. As a result, the required outcome will not be assured (Sappington & Stiglitz, 1987: 574).

Furthermore, the lack to commitment not to renegotiate the agreement can show up in two ways. The first and the most obvious is that one party to the contract may renege on the agreement, possibly because the costs of completing what was agreed upon are much higher than was initially anticipated. Reneging is mainly problematic with incomplete contracts, as what is to be done under various future events may not be sufficiently described in the agreement. If future events actually happen the agreement may therefore be open to a different interpretation. As an example, if future events actually happen one party could claim that what was carried out to resolve the problem was what was agreed upon in terms of the agreement, and that it is not reneging on the agreed terms. As a result of the inadequacy of the description of eventualities in the agreement, the reneging challenge may be further aggravated as it will be hard for the outsiders, like the courts, to establish which party is reneging and which actual behaviour is appropriate in as far as the agreement terms are concerned (Milgrom & Roberts, 1992: 133).

The second problem of commitment is more subtle. As an example it may be advantageous for both parties to the agreement to renegotiate the contract terms ex post, because what was agreed upon ex ante may no longer be efficient once further information is revealed during the implementation phase of the agreement. The party that is on the favourable side of the agreement at that time may insist on continuing under the original agreement terms, even though the outcome will be inefficient (Milgrom & Roberts, 1992: 134).

The question that arises is how the commitment challenge can be overcome. The following addresses this.

3.4.2.1 Towards achieving commitment

Holmström and Tirole (1989: 77) mention that "reputation is an intangible asset that is beneficial for transacting in environments where one frequently encounters unforeseen contingencies (incomplete contracts)". The question here is, how can the parties concerned develop a reputation if they have never been involved in a contractual relationship before? This question needs to be understood in the context of railway concessioning in South Africa where the authorities have never before concessioned the provision of rail services to private operators. If the parties have trust in their ability and the willingness to overcome loopholes emerging from incomplete contracts, it will help to establish and enhance the development of a good reputation, which is of strategic significance. The reputation is, however, affected by the allocation of decision rights in the contractual relationship and only a party that has decision rights can develop a reputation. This means that the other party to the contract, which does not have decision rights, would simply follow the prescribed conditions in the contract. This does not, however, explain how the party that has the residual decision rights will behave in future (Holmström & Tirole 1989: 77). Such a party could easily abuse its rights.

Reputation is an effective check on post contractual opportunism. It can overcome the challenge of reneging as well as that of renegotiation. Furthermore, reputation can achieve the same result as actual commitment. If the party to the contract does not fulfil its obligation, it establishes a reputation for being untrustworthy. Reputation has long been one of the important qualities for ensuring that contracts are honoured. To develop a reputation parties need to trust each other in the concession relationship (Milgrom & Roberts, 1992: 259).

Table 3.1 shows how trust between parties can be developed. The table depicts the concessioning environment where an agreement is entered into at the end of each concession period. Both parties shown in the table have two strategies. To distinguish between the parties concerned, it is assumed that one party is the decision-maker (authority) and the other is the offeror (bidder). The first figures in each cell of Table 3.1 describe the offeror's pay-offs and the second, the decision-maker's benefits.

Table 3.1: Offering trust

	Decision-maker	
Offeror	Honour trust	Do not trust
Offer trust	V, V	-L, V + G
Do not offer	0, 0	0, 0

Source: Milgrom & Roberts (1992: 261)

The two strategies of the decision-maker are either to honour trust or not when such trust is offered. The offeror's strategies are likewise, either to offer trust or not at each round of, say, the concession. Furthermore, it is assumed that the pay-offs represented by V, G and L are positive. If the offeror in the first round of the concession offers his trust to the decision-maker, the decision-maker can either honour such trust or not honour it. If the decision-maker honours such trust, both parties receive a pay-off of V. In a situation where the decision-maker decides not to honour such trust, he receives an extra pay-off of G and the offeror suffers a loss of -L as reflected in Table 3.1.The decision-maker is therefore tempted not to honour trust when it is given by the offeror. In a situation where trust is not honoured by the decision-maker, it would have been better for the offeror if he had not offered his trust because he would have ended up with a pay-off of zero, which is less than the loss of -L that he suffers if his trust is not honoured by the decision-maker. If the development of trust is viewed in terms of the above table, it would be easy to foresee that the offeror would not offer his trust to the decision-maker and the decision-maker would always use the strategy of dishonouring trust when it is offered. A self-interested decision-maker will

certainly prefer to earn a pay-off of V + G by dishonouring trust as shown in the table. The offeror who recognises that he is dealing with a self-interested decision-maker will not offer his trust and in the end will lose L. As a result, the offeror would not offer his trust and would be better off receiving no pay-off. The result is that no concessioning will take place and both parties will receive zero pay-offs (Milgom & Roberts, 1992: 262). This will be the result because the offeror will adopt a strategy of offering no trust and the decision-maker a strategy of dishonouring trust when it is offered, as shown in Table 3.1.

This argument, however, applies in the situation where a once-off concession is planned. In a situation of repeated concessioning, Milgrom and Roberts mention that a decision-maker might say to the offeror

> "I would like you to trust me once to test my honour, and you would be wise to do that. After the test, base your expectations about me not on some arbitrary, pessimistic theory about how a stranger might play this game, but on how I prove myself in action. If you do offer trust, I promise always to honour it. We both know that if I should ever fail to honour your trust you would never trust me again (1992: 262)".

According to Milgrom and Roberts, this would be difficult for the offeror to believe.

Assume now that every time the parties meet in future they have the potential to generate the pay-off of X which depends on the number (N) of times the parties expect to meet in future. In this situation, according to Milgrom and Roberts, if the offeror believes the decision-maker, the offeror would offer his trust. If the decision-maker does not fulfil his promise, the decision-maker would immediately gain extra G by dishonouring trust, but he will never be trusted again by the offeror. However, if the decision-maker fulfils his promise by honouring such trust each time they meet in future, the parties earn a pay-off of NV = X which is greater than G. In such a situation, both parties can expect the

other to conduct itself as agreed as neither would do better by breaching the agreement. In terms of concessioning this means that it is important for both parties to play their roles as required in terms of the concession agreement because it will not help if one party deviates from the agreement. The offeror can expect a pay-off of V per period by offering trust, compared to zero pay-off per period if he does not offer trust. As already mentioned, this applies to the decision-maker as well. In terms of Milgrom and Roberts, such behaviour is called the Nash equilibrium and this means that no party can gain by unilaterally deviating from the contract (1992: 263). In other words, joint decision-making will be appropriate.

The Nash equilibrium requires, firstly, that all parties to the contract have the same expectations, secondly, the expectations should be correct and, thirdly, the parties should act in their individual best interests given their expectations. The main difficulty of using the Nash equilibrium in predicting behaviour in a concessioning environment is that there may be more than one equilibrium. A second Nash equilibrium is for the offeror never to offer trust and the decision-maker not to honour trust. In such a situation, as was discussed, concessioning would not occur. A third Nash equilibrium is for the decision-maker to dishonour trust every second time trust is offered and for the offeror to offer trust every round as long as the decision-maker has not dishonoured trust in two successive rounds. In building reputations, therefore, parties to the contract honour their obligations in order to encourage the continuation of future relationships (1992: 263).

3.4.3 Bargaining and renegotiation

Bargaining involves parties who must reach an agreement in order to realise the pay-offs from the transaction. The standard example pertaining to the bargaining process is the problem of sharing a pie. The main principle here is that no party can have a portion of a pie until they agree on how they will divide it between them. Negotiations on how to share the pie are costly and in the end the pie may

go bad if the negotiations proceed for a long period without finding an acceptable solution (Fudenberg & Tirole, 1993: 397). Negotiation and renegotiation are costly to both parties in terms of the time and money that will have to be devoted to such processes.

The challenge of bargaining does arise in long-term contracts, especially under the incomplete approach where the parties need to renegotiate some aspects of the contract, especially if new information becomes available. As discussed earlier in this chapter, the underlying factor for the need to renegotiate is the inability of the parties concerned to commit not to renegotiate the contract (Fudenberg & Tirole, 1993: 419). Laffont and Tirole (1993: 376) also identify the challenge of non-commitment and mention that this results in repeated renegotiations which have some perverse effects especially under the incomplete contract paradigm. In terms of Fudenberg and Tirole (1993), "[t]he theory of bargaining under incomplete information is currently more a series of examples than a coherent set of results. This is unfortunate because bargaining derives much of its interest from incomplete information (1993: 399)". This points to the fact that it is not easy to say in advance when the bargaining process will be completed or in whose favour.

According to Milgrom and Roberts (1992: 140), bargaining is very complex and an indescribable challenge and features such as strength, credibility, guile and strategic insights often combine to determine the results. At times bargaining may result in agreement not being reached because of information asymmetries and strategic misrepresentation of information. The following example illustrates this.

Table 3.2: Efficient outcome with different possible valuations

Buyer's value	Seller's value	
	R0 (probability=0.8)	R2 (probability=0.2)
R1(probability=0.2)	Trade	No trade
R3(probability=0.8)	Trade	Trade

Source: Milgrom & Roberts (1992: 141)

In Table 3.2 above it is assumed that the buyer (concessionaire) on one hand believes that the seller (authority) values the production of the services concerned at say R2 or that the production of the services concerned would have no value to the seller. The valuation of the buyer is reflected in Table 3.2 in the first row under the seller. On the other hand, the seller thinks that the buyer values the production of the services at say R1 or R3. This is shown in the column under the buyer's value. Furthermore, the buyer assigns the probability of 0.2 to the seller valuing the production of the services at R2 and 0.8 if the services are worthless to the seller, while the seller assigns the probability of 0.2 and 0.8 to the buyer valuing the production of the services concerned at R1 and R3 respectively. In terms of Milgrom and Roberts (1992), the seller actually knows what the services are worth to him and the buyer likewise. Assume that the actual valuation of the buyer is R1 and that of the seller is R2. In such a situation, as shown in Table 3.2, there would be no agreement (Milgrom & Roberts, 1992: 140). Bös (1997: 45) mentions that if an authority considers offering a contract to the concessionaire, the relevant authority should consider the operator's participation constraint. The concessionaire will not sign any agreement unless his expected profit is positive or at least equal to zero. In the context of rail concession renegotiation, this means that agreement on, say, the issue brought up for discussion may not be reached between the authorities and the concessionaire as the authorities expect the concessionaire to compromise more than his participation constraint might allow and vice versa. This is represented in Table 3.2 by no trade cell if the actual valuation of the seller is R2 and that of the buyer is R1.

Now assume that the actual valuation of the buyer (concessionaire) is R3. Milgrom and Roberts (1992) point out that this value is not known by the seller. Because the actual valuation of the buyer is unknown to the seller, the buyer may try to misrepresent his actual value during the renegotiation process and insist that his actual valuation is R1. In such a situation, if the buyer can convince the seller that his valuation is correct. If the bargaining process or renegotiation is concluded in this way, the buyer might get away with it and ultimately end up with excess profits, provided agreement is reached. By the same token, if it is assumed that the seller's actual valuation is R0, he may as well insist that his actual valuation is R2. If the bargaining or renegotiation process is concluded, the seller gets away with greater benefits than he would have with his actual valuation. Milgrom and Roberts (1992) point out that such misrepresentation puts the negotiations at risk of not being concluded because the parties try to convince each other that their actual valuations are R1 for the buyer and R2 for the seller. To prevent misrepresentation of valuations and the risk of agreement not being reached, it is better for each party to reveal their information honestly, whether it be in bargaining or in the renegotiation of the agreement. Agreements resulting from the negotiation process are voluntarily concluded and no party can be coerced into making an agreement if it is disadvantageous to do so. This condition constrains what is feasible by requiring each party to at least get a minimum amount of surplus from the renegotiated agreement. The surplus is called informational rent and is received as a result of the individual party's private information (1992: 141).

Two issues have therefore emerged from the discussion on Table 3.2. The first is that both parties to the agreement can try to misrepresent their information during the bargaining or renegotiation process, in which case agreement on the issue discussed may not be reached. Secondly, to prevent misrepresentation of information the parties should reveal the information they have honestly to make sure that an agreement is reached. At a bidding level, the private information model is found to be applicable. Parties will have private information concerning the value of the concession. If it is assumed that bidders are risk neutral, the

winner's bid increases with the number of bidders but this decreases as the variance of the value distribution increases. The other model is known as the common value model and it assumes that firms bid for a concession with a common but uncertain value. In terms of this model, if it is assumed that bidders are risk neutral, the winning bid decreases as the number of bidders increases. The situation then develops, however, whereby the winning bidder overestimates the value of the concession, results in a "winner's curse" situation. The private information model is most appropriate for explaining bidding behaviour in rail concessions. Differing bidders will have different valuations of the concession depending on their perception of cost reduction and revenue growth. As the industry restructures, bidders will have more or less the same valuations of a concession and thus move towards the common valuation model (Preston, Whelan, Nash & Wardman, 2000: 104–105). This shows that private information plays a role not only during bargaining or the renegotiation of an agreement, but also at the bidding stage.

3.4.4 Rent acquisition

Sappington and Stiglitz (1987: 570) mention that even if the authority can choose the lowest cost producer during the bidding process, such a provider will earn rents. The rents arise from aversion to risks, limited competition for the market and the information that the authority has and which is not shared with the potential providers.

In considering aversion to risks as one factor that can result in providers acquiring rents from the authorities, Sappington and Stiglitz mention that under an ideal situation, providers are assumed to be risk neutral. The assumption of risk neutrality ensures that the authority will not pay any risk premium to the providers even if the government has a poor knowledge about the production technology of the services concerned that need to be produced. If the providers are averse to risk, and have better information about the production technology to be used than the authorities, a need for a trade-off is introduced. By assigning

production to, say, the provider who has better information will be advantageous. The authority, however, will have to bear the risk premium to compensate the provider for the risk taken. Sappington and Stiglitz argue that

> … "to the extent that the government absorbs risks for private producers, more rents can be captured for the government. However, risk absorption by the government reduces the incentives for efficient performance by the producers. To the extent that the government forces private producers to absorb the risks, production may be undertaken not by the producer with least expected costs, but by the producer with the least aversion to risk (1987: 571)".

Furthermore, in a situation where the authority is more tolerant of risks than the private producers, it may be desirable to leave the production of relevant services to the authority as the additional rents that would be paid to the private providers may in the long run outweigh the government cost disadvantage. In practice, private providers are not so risk-neutral and this may result in them acquiring rents for the services they provide on behalf of the authorities.

According to Sappington and Stiglitz, the second factor that can result in the acquisition of rents by the private providers is the limited competition that may be experienced at the bidding stage (1987: 572). If there is limited competition and each of the bidders has a different assessment of the costs likely to be realised in the provision of services, the winner will generally receive rents. To limit the rents it may be necessary to induce some inefficient production ex post (say by requiring an increase in the output). Such distortions render what was bid for more similar to various bidders and fosters competitive bidding. Another way of creating distortions is for the authorities to provide the services required where the authority costs are expected to be less than the most efficient provider. The problem with production by the authority is that there will be no natural benchmarks against which to compare the cost of production. Consequently, with no ex ante or ex post competition, the challenge of regulation and rent extraction

where it is decided that services will be produced by the private providers becomes a difficult one. Where it is decided that services are to be provided by government, production also faces the same challenge, as it would be difficult to ascertain whether government production is efficient (1987: 572). Shires et al. (1994: 20) mention that competition among bidders for rail concessions at the bidding stage is important. For competition to take place at the bidding stage requires a large number of bidders, and that such bidders should be dispersed to prevent collusion between them. In a situation where collusion between bidders is possible, it can be expected that the lowest bidder's price would be higher than where collusion is not possible. A lack of competition at the bidding stage may result in the winning bidder accruing rents. Shires et al. mention that the nature of rail business excludes a large number of bidders and if the number of bidders is small and such bidders constantly bid against each other at the renewal stage of the concession, the danger of collusion increases. This will require the regulator to guard against this type of situation and to specify the concession exactly. The exact specification in the incomplete contract approach is, however, a challenge as has already been identified.

According to Sappington and Stiglitz, the third factor that can contribute to the selected provider acquiring rents is if the authority has information that is not adequately shared with the potential providers. In an ideal situation, the providers (agent) are assumed to have better information than the authorities (principals). In a situation where the authorities have better information about the difficulties that will be experienced in the production of the services, Sappington and Stiglitz mention that the incentive scheme designed by the authority may signal some private information that has been withheld from the potential providers. If the authority does not reveal this information by pointing out for example that large investments would be necessary to be efficient, it may result in a different distribution of rents (1987: 573).

3.4.5 The need for economic regulation

Shires et al. (1994: 25) mention that franchising has been tried in many industries that are classified as natural monopolies. Furthermore, Shires et al. quote Fisher (1907) on the franchise contract, who says 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 proper form, and nothing further would be necessary". This highlights the need for monitoring the implementation of economic regulation in the concession-type relationship.

The main reasons for establishing an economic regulatory agency in the concession-type relationship are, firstly, the need to monitor compliance with the contractual obligations of the concessionaires; secondly, the need to protect the users from private monopolies; and thirdly, that private concessionaires also need to be protected from the government who may still be tempted to interfere with the private concessionaires, management (Crampes & Estache, 1997: 19–20).

Sappington and Stiglitz point out that the need for an economic regulator stems from the need to provide ongoing monitoring of a firm's performance. The role of the regulator, therefore, concerns the gathering of information that can be used to inform policy decisions and limit the rents acquired by private concessionaires. By actually performing this function, the regulator can develop the necessary expertise in the best interests of his country. Furthermore, the major issue concerning a regulatory body is that it lowers the transaction costs of intervention by government. The regulator can also provide the necessary commitment that has been identified as one of the challenges in the concession-type relationship. The regulatory agency can also facilitate risk sharing between the authority and the concessionaire in a manner that does not destroy incentives for efficient performance by penalising the provider for poor performance that may be attributed to the provider and can also ensure that users share their

burden in situations where, say, price increases arise that are beyond the control of the firm (1987: 580).

The role of information is crucial in concession-type relationships. A regulator is, therefore, essential for, firstly, comparing the outcome to expectations; secondly, assessing the adverse effects that may require the renegotiation of the regulatory regime; thirdly, assessing whether the lowest costs actually experienced were expected in the provision of services, and were the result of better performance or reduction in the output; and fourthly, evaluating the asset base and the charges for the use of such assets.

3.5 Conclusion

This chapter began by investigating the requirements for a complete contract. The requirements for a complete contract include the need to describe clearly in the agreement every possible future event. The language used to describe such possible future events must be unambiguous so that a third party, such as the courts, will be in a position to interpret and enforce it. As a further requirement, the parties to the contract must be able to commit to not renegotiating the contract. In practice, this is a difficult, if not impossible, task. The difficulty of specifying every possible future event in the contract arises from the idea of bounded rationality. People are limited in their ability to foresee everything that may occur in the long-term future. As a result, a long-term concession may be classified under the incomplete contract approach.

The classification and proper definition of an incomplete contract are, not straight forward exercises. It is important to remember that the incompleteness of a contract is based on the bounded rationality concept. The costs that may be involved in trying to specify every possible future event, as well as the costs that may be associated with the description of their solutions are, indeed, prohibitive. Under the incomplete contract approach, therefore, one may say that not all the eventualities will be accounted for. Some authors emphasise that in reality the

majority of disputes that come before the courts in contractual relationships involve a matter of contract incompleteness. This accentuates the incomplete contract approach in a real situation.

The incomplete contract approach shows that the major potential challenge in the railway concession is the investment. An investment challenge arises because the investing party may be afraid that after sinking the cost of investment, the actions of the other party (the regulator) might result in him being unable to earn a return on investment. The inability to earn a return on investment because of the action of the other party is known in the economics literature as the hold-up problem. Apart from asset specificity, which in most cases creates the hold-up problem, there are other ways of looking at investment. These include the pure cooperative and the hybrid investments. To limit the fear of investing and the associated post-contractual hold-up, it is essential to provide the investor with sufficient protection to allow him to earn a return on investment. Consequently, a trade-off needs to be made with the purpose of striking a balance between a long-term and a short-term concession. Seen from the authority perspective, this will require, among other things, an understanding of the level of investment that will need to be made by, say, the concessionaire, the level of demand, and the potential revenue, and to work out the concession period based on some of these factors. In the absence of a properly determined amortisation period, the duration of the concession will be based on guestimates.

Commitment is also identified in this chapter as a challenge. A lack of commitment, especially in the long-term concession environment, may stem mainly from the view that most countries adopt the position that the current government can only bind a future government for a limited period. The other source of lack of commitment is that future information may change significantly and, as a result, it may be inappropriate to commit to not renegotiating the contract. A lack of commitment may result in reneging on the terms of the contract. Lack of commitment also raises the challenge to renegotiate the contract.

To resolve the challenge of commitment, both parties to the concession need to trust each other. This requires the willingness of both parties to overcome challenges that might arise from the loopholes in the contract. In the concession environment, it will not be advantageous for one party to dishonour what was agreed upon because this will result in the party concerned developing a poor reputation which may affect its future dealings not only with the party concerned but also with other potential parties.

The further potential challenge identified in terms of the incomplete contract approach in concession relationships is bargaining and renegotiation. The challenge emerges as new information is revealed during the term of the contract. Such new information may involve the level of efficiency that is achieved, the distribution of the benefits arising from the agreement and so on. The major challenge of renegotiation is that parties might try to misrepresent their information with a view to getting better benefits for themselves. In contract renegotiation, however, it is important to remember that where surplus is concerned, each party expects to get a share of such pay-offs. To achieve a reasonable share of benefits, it is important for the parties to negotiate in good faith, that is, to reveal the information they have at their disposal.

In the concession-type relationship, the service provider can end up earning excessive profits. Such rents can be seen as the distribution of resources from the users to the providers and may result in social discontent. There are various factors that could lead to the providers ending up earning excessive profits. Such factors include a lack of sufficient competition at the bidding stage, and collusion and risk aversion by the providers. It is especially significant to state here that, because of the nature of the rail industry, it does not attract a large number of bidders at the bidding stage. In the long run this could result in collusion between bidders. A regulator is therefore needed to guard against unintended results and to advise on appropriate policy directions.

To enable the regulatory body to perform its functions effectively it will need information on the activities of the concessionaires. The role of information is therefore important and it will, among other things, enable the regulator to assess, firstly, whether users are not being charged exorbitant prices; secondly, whether concessionaires are striving for efficiency; and thirdly, whether the quality of services provided are improving or deteriorating and can also, as mentioned, advise on the appropriate policy direction to be taken. In a situation where the performance of the concessionaires does not comply with the regulatory regime, the regulatory body can take appropriate steps.