European Commission

# Regional Balkans Infrastructure Study - Transport

Appendix 12 - Final Report

BOT

July 2003

REBIS transport
Joint Venture

European Commission

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BOT

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# 1 Background

## 1.1 Study aims

The primary aims of this study on build-operate-transfer (BOT) toll roads are firstly, to attempt a general assessment of toll road affordability in the REBIS countries and secondly, to develop suggested guidelines for the region's governments with respect to BOT implementation in the road sector. The present study has broadened the original scope in the TOR to include the latter.

It should be noted from the outset that this study is not intended to be a survey on BOT toll roads, although it will cover most of the relevant issues. The coverage will be specifically from a government's standpoint regarding toll road implementation. Nor is it intended to be a discourse on different forms of private sector participation, although a BOT toll road is such an example, since the conventional BOT financing model these days is often predicated on some form of private-public partnership in which the government is expected to bear a portion of the market risk.

To address the affordability issue, a simplified toll road financial model is used to derive the tolls that would be necessary to yield a target rate of return on equity to the BOT investor. The plausibility of the underlying assumptions is clearly critical and affects the generality of the results from the model. The assumptions will be examined more closely later on, with particular reference to the REBIS countries.

The difficulty lies in choosing a model that is simple enough and yet allows sensible statements to be made on affordability that are pertinent to the REBIS countries. Without utilising such a model, it is difficult to say anything beyond generalities.

## 1.2 Study basis

The study relies on previous studies. In particular, the author finds 'Developing Best Practices for Promoting Private Sector Investments in Infrastructure (ADB, 2000), 'Financing of Infrastructure Investments: Case Study of Toll Motorways in Hungary' (European Commission, Nov 1997) and 'Guidelines for Successful Public-Private Partnerships' (European Commission, Sept 2002) useful.

Discussions were also held with the EIB and the EBRD. The EBRD is especially relevant, as it was the most active IFI in Central and Eastern Europe in the 1990s in funding BOT toll roads. The Hungarian experience in toll motorways development illustrates many of the problems commonly associated with BOT implementation in the road sector. Valuable lessons are drawn from this early experience of toll motorways in Central and Eastern Europe, as will be seen.

The study is also based on the author's experience in the private sector as a developer of BOT projects (toll roads and power stations) in Asia, and as a consultant to the EBRD and various governments on various BOT projects in the road sector. The government guidelines on BOT implementation are based partly on first hand experience of dealing with government implementation agencies.

## 1.3 General characteristics of a BOT project

A BOT project is usually undertaken by a consortium of firms, one of them as the lead sponsor. This could be a major contractor such as Bouygues or Strabag. A special purpose company is often established to execute the project. The shareholdings of this company are held by members of the consortium and are dependent on the amount of equity contribution.

A concession, awarded to the consortium by the government, defines whether a toll road is or is not a BOT, since toll roads can be operated without a concession. In Croatia, for example, toll motorways are operated by Croatian Motorways (HAC) on behalf of the government without a concession.

For toll roads a long time horizon is often the case, usually 25 to 30 years (for power projects, the time horizon is about 10 years). At the end of the concession period, the toll road is handed over to the government. The concession contract would contain specifications regarding the toll road, including the handover conditions, and on other activities related to the toll road e.g. operations. The BOT company is contractually bound to adhere to the specifications.

A toll road is a 'lumpy' investment, i.e. irregular infusions of capital during the construction period, which could be anything between 3 to 5 years.

Developing a BOT involves high front-end costs, as the developer has to pay for the development costs such as legal and financial advice and a feasibility study. These costs are eventually recouped by the BOT investor when the project is implemented.

Where IFI funding is involved, the study must include a technical, financial and economic feasibility evaluation, as well as an environmental impact assessment. Because of these costs and the stamina required to negotiate a BOT deal, there is much that the government can do to facilitate the entire process, which normally requires the government to be more prepared. There is an

understandable tendency for government to rush into implementing a BOT project without having done the necessary groundwork, since it sees BOT financing as a way of building an infrastructure off-budget, i.e. without the use of state money. The nature of government preparation is addressed in Part 3 on implementation guidelines.

As Table 2.1 shows, a BOT toll road is highly geared, with debt generally constituting between 70 to 85% of the total project cost. The balance is covered by the equity contributions of the shareholders of the special purpose company.

Project financing is the usual method of funding a BOT toll road, and is now commonly provided on a limited recourse basis. In earlier days, project financing was provided on a non-recourse basis (the classic BOT model), but lenders have since learnt that this is no longer a viable financing model. Non-recourse financing means that the lenders look only to the toll revenue as the source of loan repayments. Project financing on BOT projects these days ensures that, in the case of revenue shortfalls, one of the stakeholders (usually the government) will provide a financial guarantee to enable the borrower to fulfil its debt service obligations. Nowadays, BOT financing usually requires a complicated security package, i.e. a system of credit enhancements and security protection agreeable to the major stakeholders of the project. This is essentially to protect the lenders, i.e. to minimise the credit risks and to ensure that lenders are not inadvertently exposed to any equity risks. BOT projects that are forecast to be economically and commercially viable and failed to obtain project financing are usually deemed to be not bankable, i.e. no satisfactory security package had been negotiated.

## 1.4 Toll roads in the REBIS countries

Table 1.1 shows the existing toll roads in the REBIS region. There are no toll roads in Albania and Bosnia and Herzegovina. Although there are toll roads in FYRO Macedonia and Serbia and Montenegro, none of them are operated on a BOT basis.

In Croatia, there are more toll roads, but only 2 are BOT operated. One of these is the semi-motorway in Istria operated by Bina Istra, which is majority-owned by the French construction company, Bouygues. The other concession toll motorway, from Rijeka to Zagreb, is owned by ARZ Motorway. Unlike Bina Istra, ARZ Motorway is wholly state-owned. The remaining toll motorways are operated by HAC, who also gets an income from a fuel levy.

*Table 1.1 Toll roads in the REBIS countries.*

| Country | Toll road | BOT | Pan-European Corridor | Car toll EUR/km |
|---|---|---|---|---|
| Croatia | Zagreb - Zupanja | No | X | 0.05 |
| | Zagreb - Bregana | No | X | 0.05 |
| | Zagreb - Krapina | No | Xa | 0.03 |
| | ARZ (Rijeka - Zagreb) | Yes | Vb | 0.05 |
| | Zagreb – Breznicki Hum | No | Vb | 0.04 |
| | Varazdin – Gorican | No | Vb | 0.04 |
| | Istrian Ypsilon | Yes | No | Involves shadow toll |
| Albania | None | None | | |
| Bosnia and Herzegovina | None | None | | |
| FYRO Macedonia | Kumanovo - Gradsko | No | X | 0.03 |
| | Tetovo - Gostivar | No | VIII | 0.02 |
| Serbia and Montenegro | Belgrade – Sid | No | X | Foreign 0.075<br>Domestic 0.006 |
| | Belgrade – Nis | No | X | Foreign 0.06<br>Domestic 0.004 |
| | Nis – Doljevac | No | X | Foreign 0.06<br>Domestic 0.01 |
| | Belgrade – Stara Pazova – Sirig | No | Xb | Foreign 0.07<br>Domestic 0.01 |

## 1.5 BOT toll roads: The Hungarian experience

In the early 1990s, the Hungarian government conceived an ambitious motorway construction programme, consisting of motorways in the Pan-European corridors: the M1-M15 (Corridor 4), the M5 (Corridor 4), the M3-M30 (Corridor 5) and the M7 (Corridor 5). A special act on concessions, covering the transport, water, energy and telecommunications sectors, was passed in 1991 to implement the programme.

The Ministry of Transport, via the Bureau for Motorway Development and Concessions (BMDC), was the implementation agency. All the concessions were awarded on the basis of an open international tender. In the event, the M1-M15, M5 and M3-M30 were constructed. The M7 did not attract any private interest, as traffic on the corridor was considered too low and was subsequently abandoned. The M1-M15 and M5 were private investments, the first led by Transroute, a motorway operator, and the other by Bouygues. The M3-M30 was constructed by a wholly state-owned company under a concession, since the private sector judged corridor traffic to be too low for the project to be commercially viable.

The M1-M15 (55 km long), linking Budapest to western Europe and to Bratislava, was the first to be implemented. There was no financial guarantee from the state, which was one of the conditions in the tender document, although there was a best endeavour clause, never implemented, in the concession contract that the government would impose traffic restrictions on an alternative route in order to enhance traffic on the M1-M15. In effect, all the traffic risk was borne by the BOT investor. Financial closure was achieved in record time – in December 1993 after the concession signing in April 1993. The project was eventually restructured (and bought by the government with a sovereign loan) because the toll revenue was insufficient for ELMKA, the BOT operator, to meet their debt obligations. Actual traffic was 50% less than forecast. There were errors in the traffic forecasts, which unfortunately were discovered only after financial close had been achieved. This implied that the project's debt service capability assessment was much too optimistic for the debt that had been agreed. As there was no state guarantee to mitigate its weak financial situation, the project was subsequently refinanced and restructured. In the meantime, the situation was exacerbated by three lawsuits against ELMKA on the grounds that the tolls were too high. The legal actions delayed completion of the M15. For a period, they also froze the restructuring process, which could only be achieved after the legal risks were resolved.

Apart from the lack of a state guarantee, another interesting feature of the M1-M15 is the toll revision mechanism. Tolls can be adjusted without government approval, and the adjustments could be made on the basis of the relative changes in the consumer price indices in Hungary and for a group of relevant European countries. Tolls could also be revised based on changes in the value of the currencies in which the loans were denominated relative to the Hungarian florint. Thus, the currency risk was mitigated with the use of this toll revision mechanism.

The M5 concession was significantly different from the M1-M15 in that a state guarantee was part of the deal (after pressure from the eventual lenders). A limited period (from 1998 to 2004) minimum revenue guarantee was conceded to AKA Rt, the BOT operator, to fulfill its debt service obligations in the event of a traffic shortfall. It would appear that traffic build-up on the M5 has been slower than anticipated and that there are fears that the project will encounter financial problems once the minimum revenue guarantee expires.

The main lessons from the Hungarian experience are in BOT procurement, risk allocation and deal structuring, and their relevance are discussed further in Part 3.

## 1.6 The right environment for BOTs

BOT projects are a means to attracting foreign direct investments (FDI). A country with a more investor-friendly environment tends to attract more FDI. A measure of the friendliness of the environment is the country (or political) risk rating. Government has the ability to determine such an environment and to try to improve its country risk rating. Clearly, membership of the Stability Pact

would tend to reduce political risk in the longer term, as certain agreed measures are implemented by the countries concerned.

The following are some of the significant factors determining the level of country risk:

- stable government
- rule of law prevails
- good governance
- a history of honouring commitments
- absence of political violence targeted at foreign-owned investments
- freely convertible currency
- reasonable macro-economic policy
- degree of transparency
- clearly defined regulatory framework

There is no unique definition of an investor-friendly environment. Most, if not all, the donor agencies produce a country risk rating for the countries they deal with. Private agencies such as Standard and Poor's and Moody's Investor Services provide a rating service, their primary business, on behalf of their clients. However, the organizations concerned do not necessarily use the same set of criteria to assess country risk, but generally there is a great deal of overlap.

As the world capital markets become more global, the political risk tolerance tends to be thinner. FDI can easily flow elsewhere to countries, where investors perceive their money would be at lesser risk, other things being equal. Thus, governments should never discount the importance of political risks and their role in creating the right sort of investment environment.

While some progress has been made with respect to many of the above factors in the REBIS region, considerable effort is still required to build up investor confidence. Perhaps, pre-eminent in the REBIS countries is the need to create greater political stability and a more robust macro-economic framework where good governance and the rule of law are more likely to flourish. Recently, Lehman Brothers and Eurasia Group rated Hungary and Poland as two of the world's most politically and economically stable emerging economies (The Economist, November 9, 2002). It is no coincidence that these happen to be EU Accession countries.

China is a glaring exception. There is a lack of transparency i.e. corruption is a significant factor. The Chinese currency, the Renmimbi, is not yet freely convertible. The rule of law does not exist according to Western standards. However, the combination of these factors does not appear to have impeded China's ability to attract a large share of global FDI. One explanation for this is the size of the potential market in the country, and the fact that overseas investors are prepared to disregard such political risks because of it.

In the REBIS countries, the significant factors determining the level of country risk could be:

- Stable government and good governance. All five REBIS countries are progressing within these fields, however, the democracies are very young and it will take time to build investor confidence.

- A history of honouring payment commitments. From an investment point of view, the countries - as they are young - do not yet have a history of honouring payment. The former Yugoslavia has a history of not honouring payments on international loans; however, agreements have been reached with all major funding organisations.

- Absence of political violence targeting foreign-owned investments. This is not a problem in the REBIS countries.

- A freely convertible currency and reasonable macro-economic policy. The countries are making progress in these areas. However, the economies in the region are still relatively weak.

- Rule of law prevails and there is a high degree of transparency. As the EBRD states in the '25/11-02 Presentation of Transition', there are definite signs that these countries are progressing within these aspects. However, the perception of the international business community, as represented by Transparency International, is that corruption is widespread and that transparency with regard to awarding public contracts is still well below the normal standards of the member states of the European Union.

- A clearly defined regulatory framework. So far, only Croatia has experience of establishing a regulatory framework for BOT toll roads.

# 2 Level of toll road affordability in the REBIS region

## 2.1 Introduction

A simplified toll road financial model is used to assess affordability in each country. Using the financial model, the (implicit) tolls for the first year of operation are derived for the 'reference' case for each REBIS country. In all cases, the 'reference' case looks at a toll road that costs EUR 250 million and has 12,000 vehicles per day (vpd) in the first year of operation, the figure usually quoted being the minimum traffic flow required before a toll road should be contemplated.

Obviously, the input assumptions underlying the 'reference' case for each country determine the degree of pertinence for each of the REBIS countries. These are evaluated subsequently.

For our purpose it is not necessary to specify the length of a toll road. Clearly, the cost per kilometre is likely to be higher in Bosnia and Herzegovina than in a country with a relatively flat terrain.

The assessment of affordability is based on a comparison of the implicit tolls generated by the model for the 'reference' case to the general willingness to pay (WTP) for the REBIS countries. Generally, the WTP exceeds the ability to pay. If the general WTP is below the implicit tolls, then the proposed toll road is judged unaffordable.

In extreme cases, the average income might be so low that the ability to pay is called into question. In other words, the toll road and choosing to use it will fall outside the average person's choice set. In this extreme situation, a toll road is clearly not affordable.

In countries where there are no toll roads, the assessment of the WTP factor is more problematic. The WTP largely depends on the user's wealth/income, the value they assign to time savings and other benefits (such as comfort and safety) from using the toll road and the cost and quality of competitive alternative roads. Stated preference techniques could be used to assess the WTP factor with respect to a proposed toll road, which is not proposed here since it is

inappropriate (because a stated preference survey is best used to test the potential market for a proposed toll road).

## 2.2 Rate of return on a BOT roll road

For the purpose of the analysis, an expected rate of return on equity (ROE) of 22% to the BOT investor is assumed. It is further assumed that the toll road would be operated on commercial lines to achieve this target return on investment. There are toll roads under concession which are wholly state-owned and not strictly operated as a commercial enterprise. Judging by the financial accounts, it would appear that the ARZ Motorway in Croatia falls into this category. In contrast, Bina Istra, the concessionaire for the semi-motorway in Istria, has a target investment return.

An expected ROE of 22% is not unreasonable in today's economic climate, particularly if the BOT project sponsor is a construction company. To secure the engineering, procurement and construction contract, the project sponsor is likely to accept a return lower than the 25% ROE that appeared to be prevalent in the 1990s. A 25% ROE was the general corporate target when the author was developing toll roads in China, although 22% was sometimes used for certain projects where there were extenuating circumstances.

## 2.3 The reference case and input assumptions

All the 'reference' cases have the same assumptions, except for traffic growth, which varies from country to country in the REBIS region. The assumptions on traffic growth are consistent with those used elsewhere for the REBIS project.

Apart from the assumed investment cost (EUR 250 million), the opening year's traffic on the toll road (12,000 vpd) and the 22% expected ROE, the other assumptions which define the 'reference' case are as follows:

a) 80% of daily traffic is assumed to be cars, the rest being more or less equally distributed between light (LGV), medium (MGV) and heavy (HGV) goods vehicles. This distribution is based on toll motorway traffic in Croatia. These motorways are part of the Pan-European corridors X and Vb.

b) Toll rates for the goods vehicle categories are fairly standard multiples of the toll for cars. The relativities are, as follow: car (1): LGV (2): MGV (3): HGV (5). HGV are goods vehicles with more than three axles, and are charged more to reflect the damage they inflict on the toll road.

c) A capacity constraint is assumed at 26,000, although a motorway is likely to cope with more traffic than this.

d) Traffic growth is based on the same assumptions for each country used for road traffic forecasts on the REBIS project. For each REBIS country,

different growth rates are assumed. Over time, the share of car traffic is forecast to fall as truck traffic grows at a faster pace.

e) Operating and maintenance costs are assumed at 18% of annual toll revenue. This estimate is a judgement based on the Croatian experience, i.e. Bina Istra and ARZ Motorway. The estimate makes an allowance for the fact that ARZ Motorway is a wholly state-owned company, whereas Bina Istra is a private enterprise.

f) Major repairs, i.e. non-routine maintenance, are assumed at 3% of annual toll revenue and this is paid into a major repairs reserve fund. This assumption yields reserve funds of EUR 14 million in the case of Croatia, an estimated 5.6% of total project cost for funding major repairs in the 10th year.

g) No income tax is assumed. The point here is to assess the level of tolls in a best case scenario for the BOT investor.

h) No toll revision is assumed, as the 'reference' cases all assume constant prices.

i) A debt-equity ratio of 80:20 is assumed. This is generally in line with many toll roads, as shown in Table 2.1.

j) An average 3-year construction period is assumed, with an expenditure spread of 25%, 65% and 10% for the first, second and third year respectively.

k) Interest on debt is at 5% per year. This corresponds quite closely to the EIB loans at a fixed interest rate. EIB currently charges 3.5% plus margin, where the margin lies in the range 200 to 400 basis for loans with a floating interest rate. EIB provides the most favourable loans in terms of the interest rate charged, the grace period and the maturity. In this sense, it assumes a best case scenario.

l) A 5-year grace period is assumed.

m) To simplify the financial model, capital repayment begins upon expiry of the grace period. The amount repaid is not fixed over a pre-defined period, contrary to the usual arrangement.

*Table 2.1 Debt-equity ratio on BOT projects.*

| Project | Country | Debt-equity ratios |
|---|---|---|
| M5 toll motorway | Hungary | 80 : 20 |
| M1 - M15 toll motorway | Hungary | 80 : 20 |
| Skytrain | Thailand | 80 : 20 |
| North – South expressway | Malaysia | 75 : 25 |
| Hub River power | Pakistan | 85 : 15 |
| Eurotunnel | France / UK | 75 : 25 |
| South access to Concepcion | Chile | 60 : 40 |

## 2.4 Reference case results

The 'reference' case results for each of the REBIS countries are shown in Table 2.2. The printout of the financial model showing the Croatian case is found in Annex I. The tolls shown are for the opening year and subsequent years, since the model assumes constant prices.

*Table 2.2 Reference case results.*

| Toll (EUR) | Albania | Bosnia and Herzegovina | Croatia | FYRO Macedonia | FR Yugoslavia |
|---|---|---|---|---|---|
| Car | 4.8 | 5.4 | 5.8 | 5.4 | 5.3 |
| LGV | 9.6 | 10.8 | 11.6 | 10.8 | 10.6 |
| MGV | 14.4 | 16.2 | 17.4 | 16.2 | 15.9 |
| HGV | 24.0 | 27.0 | 29.0 | 27.0 | 26.5 |

The implicit tolls are a function of the assumed traffic growth, highest in the case of Albania and lowest in the case of Croatia. If the opening year's traffic is increased, then the tolls will fall. In the case of Croatia, the car toll falls from EUR 5.8 to EUR 5.1, nearly 12% if the opening year's traffic is increased to 14,000 vehicles per day, other things being equal.

Assuming that a EUR 250 million investment yields a 50-km toll road, the car toll per kilometre is estimated to be about EUR 0.12. A per kilometre cost of EUR 5 million is not unreasonable for a toll road if it is built at grade.

Tests show that a lower expected ROE, i.e. 20%, reduces the implicit tolls. Under this assumption, the toll for cars ranges between EUR 4.8 to EUR 5.3 in the REBIS region. For Albania, the car toll drops to EUR 4.4 (from EUR 4.8). The results suggest that a EUR 5 car toll for most of the REBIS countries is not far off the mark, even if the expected ROE is 2% less than what is assumed in the reference case.

## 2.5 Affordability assessment

Table 2.3 shows per capita GDP and average household income for the REBIS countries. Croatia is by far the wealthiest among the REBIS countries according to the table. It is likely that the true figure in many cases would be higher because of the presence of a black economy in the countries concerned.

*Table 2.3 Per capita GDP and household income.*

| Country | Per capita GDP (USD) for 2000 | Average monthly household income (EUR) |
|---|---|---|
| Albania | 976 | 123 ( for 1998) |
| Bosnia and Herzegovina | 1235 | 288 (for 1999) |
| Croatia | 4850 | 727 (for 2000) |
| FYRO Macedonia | 1819 | Data unavailable |
| Serbia and Montenegro | 1635 | 267 (for 2001) |

The focus on the car toll is deliberate. Firstly, car traffic is significantly higher than truck traffic on a toll road. In Croatia, car traffic amounts to app. 80% of total traffic on the toll motorways on Corridors X and Vb. Secondly, car traffic is more demand elastic than truck traffic and hence, the willingness to pay is more volatile. Lastly, the reaction of car users to the car toll could pose a political risk, as it did in Hungary in the case of the M1-M15 toll motorway, when three law suits were instituted against ELMKA (the BOT operator) because the tolls were perceived as too high.

Assuming an average trip length of 30 km, using a toll motorway would save, on average, 10 minutes. The question is whether the average car owner in the REBIS countries would pay about EUR 3 (this is calculated for a 50-km toll motorway with a EUR 5 car toll in our example) to save 10 minutes? Using Croatia, the wealthiest country in the REBIS region, as an example, it is highly unlikely for two reasons. Firstly, the average income is probably not high enough (EUR 727 is the household figure). Secondly, the value of time is also too low. Using EUR 700 per month net after income tax (this is regarded as well above average earnings) as an example implies an hourly wage rate of about EUR 4, assuming 22 working days at 8 hours per day. For a work trip, it is doubtful if a car owner would pay EUR 3 to save 10 minutes on a 30-km journey when his wage rate is EUR 4 per hour. Assuming further that the leisure value of time in Croatia is 25% of the wage rate i.e. EUR 1, it is unlikely that the average car owner would pay EUR 3 to use a toll road to save 10 minutes on a leisure trip.

In October 2002, the proposed car toll (120 kunas or EUR 16) for Zagreb to Split (when the Split motorway is completed) generated much opposition, even though on a per kilometre (EUR 0.04) basis it is comparable to what is being charged currently (see Table 1.1). The public reaction to the proposed charge suggests that the average WTP has a low threshold even in Croatia.

In all probability, the average WTP for the rest of the REBIS countries would be much lower, since the values of time (work and leisure) in these countries are likely to be lower than that in Croatia. Moreover, given the low level of average income, the ability to pay is called into question for the 2 poorest countries, Albania and Bosnia and Herzegovina.

The general conclusion is that a concession toll road, operated on a strictly commercial (i.e. BOT) basis without any support from the government in the REBIS countries, is not affordable because the general level of income and the average WTP are too low at present. The implicit tolls, especially for cars and with respect to the domestic market, are too high to generate the traffic flows forecast in each of the reference cases. Actual traffic would very probably be much lower than the 12,000 VPD needed. This is assuming, of course, that there exists a corridor in the REBIS countries that has significantly more than 12,000 vpd, as the 12,000 is the *diverted* traffic to the toll road.

# 3 The Government's role and BOT implementation

## 3.1 Introduction

Suggested guidelines on BOT implementation are developed for the government. Some are based on emerging best practices, while others are based on first hand experience of negotiation with governments. Mainly, the guidelines deal with how a government might proceed and what actions they should adopt on a number of BOT issues, with special reference to toll roads.

The main issues are as follows:

a) the BOT approval process
b) BOT procurement
c) risk allocation
d) deal structuring
e) regulatory framework
f) legal framework
g) financing

As there are many stakeholders (government, BOT investor/sponsor, IFIs and commercial lenders) in a BOT project, the focus is on the relationship between the government and the BOT sponsor.

From the author's experience, many emerging countries still tend to rush into a BOT project without having done the necessary groundwork. Consequently, the government (or more precisely, its implementation agency) finds itself at a disadvantage, especially at the negotiation stage. The results could be costly. For example, the deal struck with the private sector might be less favourable to the government than it ought to be. Sound preparation on the government's part, on the other hand, could lead to lower transaction costs for the project sponsor and the government.

## 3.2 BOT approval process

The need for sound preparation cannot be over emphasized. For the government, this applies at the project as well as at the strategic level. Firstly, a BOT toll road project should only be implemented if the economic case for it is

justified. Secondly, the project with the strongest economic case should be implemented first. Both require the government to carry out studies on economic feasibility.

There are exceptions to the second criterion. The choice between economically feasible projects need not be justified solely on cost-benefit grounds. Other considerations, quite often political, might intrude, usually at a later stage.

At a strategic level, it is a prerequisite that the government has gone through a process of identifying, evaluating and selecting a number of potential new road projects, including toll roads, in a national transport context. The process enables the government to build up an inventory of projects, including those for BOT implementation, and to rank them in order of priority according to economic and non-economic criteria.

The economic case for a project is often assessed on the basis of a social cost-benefit analysis (SCBA). The word ‘social’ is used because the analysis assesses the impact on the benefits to society. If the net present value (NPV) of benefits and costs is positive, then a project is deemed economically feasible. An alternative measure of economic feasibility requires that the economic internal rate of return (EIRR) is greater than the social discount rate. The social discount rate is normally provided by the finance ministry and could be construed as the government's hurdle rate for capital projects.

A SCBA tries to expand the boundaries of the 'accounting' from the corporation to the whole community or society. The same techniques, i.e. the NPV and internal rate of return (IRR), are applied as when a corporation does a financial evaluation to assess whether a project is financially viable. The fundamental differences relate to the boundary expansion referred to above:

- the payment and receipt of money between members of the community counts as neither cost nor benefit (this is an internal transfer -like taxes and other forms of transfer payment)

- only real impacts involving the consumption of resources and the generation of utility are included in the social cost-benefit calculus. For a road project, the social benefits would include time savings, savings on accident costs and vehicle operating costs, and savings on maintenance costs on the proposed toll road and the rest of the road network

An SCBA is done either internally by the government or by consultants on its behalf. Often, the bureaucracy in emerging countries lacks the skills and capacity to undertake an SCBA according to internationally acceptable standards. In the case of a BOT toll road, it is the project sponsor who would be required to pay for an SCBA as one of the due diligence requirements for IFI funding (other requirements relate to a financial evaluation, technical feasibility and an environmental impact assessment). Cooperation between the government and the project sponsor on the SCBA could reduce the transaction costs of a BOT project and speed up progress.

An SCBA not only helps the government form a view on the social desirability of a BOT toll road project relative to other transport projects. It also enables the government to assess the nature and level of financial support it might be prepared to give to the concessionaire on a particular project that it deems socially desirable. A BOT toll road project (certainly in the REBIS countries, as it would appear) would need a financial inducement to make it financially attractive to the BOT sponsor.

Given this scenario, the government needs to assess the type, amount and the costs of providing a financial inducement. The NPV from the SCBA is a measure of the social surplus from the project. Should the government provide a financial inducement that exceeds the NPV in order to get the project implemented as a BOT? It needs to ensure value for money. It needs to assess the fiscal implications and distributional impact (the inducement would benefit users of the toll road relative to other social groups). Not least, it needs to assess the macroeconomic implications if its economy is being restructured with IMF financial support. Would the inducement conflict with IMF conditionalities?

## 3.3 BOT procurement

BOT procurement refers to the awarding of concessions. There should be transparency in the whole procedure for at least three important reasons. The first is to avoid accusations by the public if a government sells out to foreign investors. Secondly, there have been instances where donor institutions have refused to fund potential BOT projects, on the grounds that the concession has been awarded in an 'irregular' manner. Lastly, transparency would demonstrate to the private companies that their bids would be assessed in a fair manner according to clearly prescribed criteria. The procurement on the M1-M15 and M5 suggests that it was conducted in a manner satisfactory to the IFIs.

Best practices have now been established for BOT procurement. An international open tender is the norm. The following government actions would lead to much greater transparency:

a) bid terms are produced, which might contain the following specifications that bidders must follow:
   - minimum design parameters
   - performance standards
   - economic parameters, e.g. inflation and foreign exchange rates
   - maximum period of project construction
   - length of concession period
   - base year toll charges
   - escalation formula for toll charges
   - form of government support

b) a pre-qualification, bids and awards committee (PBAC) is established

c) a set of bid documents is produced to include:

- the project's objectives and description
- a draft contract, including terms and conditions
- a pre-qualification (PQ) criteria and procedures
- the instructions to bidders, including bid form
- the bid evaluation criteria

d) the BOT project are gazetted and internationally advertised

e) a pre-qualification of prospective bidders

f) bids submission by pre-qualified candidates should include:

- feasibility study (marketability, technical soundness, economic feasibility, financial viability, operational feasibility and environmental standards)
- proposed toll structure
- bid bond

g) selection of a preferred bidder

## 3.4 Risk allocation

Emerging best practices indicate that risk allocation should adhere to two basic principles. These are applicable not only to BOT projects but also to other forms of private sector participation. Firstly, a risk should be allocated to the party best able to manage it. Secondly, it should be allocated to the party or parties best able to bear it. There are numerous examples of BOT toll road failures (e.g. leading to restructuring and refinancing) where these principles were not applied.

Table 3.1 identifies the major risks associated with a BOT toll road project and indicates the parties usually responsible for them and their management. The risk allocation between the government (concession grantor) and the concessionaire follows generally accepted practice.

Specific mention should be made of the traffic risk. This risk is conventionally shared between the government and the BOT investor. BOT promoters are unwilling to rely solely on traffic forecasts in their decision to invest in a costly project. For this reason, they seek to partially mitigate the market risk by pressing for a minimum revenue guarantee at the negotiation table. Failing this, they would insist on a contractual commitment from the government to impose traffic restrictions on competing routes to enhance traffic on their investments.

Often the demand for sharing traffic risk would be supported by the lenders, because without it, the project would be rendered non-bankable in their opinion. On the M1-M15, there was no financial guarantee of any kind. With hindsight, this is the major weakness in the deal structure. Because there was no contractual commitment on the part of the government to implement traffic

restrictions, ELMKA (the BOT investor) was completely exposed to the traffic risk. Traffic restrictions, as a best endeavour undertaking, were never implemented by the Hungarian government.

Part of the market risk relates to toll setting and revision. This is discussed in a later section on regulatory framework.

*Table 3.1 Major risks on a BOT toll road.*

| Risk | | Risk Allocation | | |
|---|---|---|---|---|
| **Item** | **Description / Comments** | **Government** | **Concessionaire** | **Shared** |
| Land acquisition and right of way | Title and possession - responsibility for ensuring ownership rights and giving possession for land required for highway | ✔ | | |
| Availability & transferability | Currency and profit repatriation | ✔ | | |
| Health and safety | Compliance with health and safety standards and law | | ✔ | |
| Environmental | Risk of environmental impact and associated costs of mitigation | | ✔ | |
| Inflation | Operation costs | | ✔ | |
| Interest Rate | Debt servicing | | ✔ | |
| Exchange Rate | Debt servicing | | ✔ | |
| Market | Cash flow risk (demand and pricing) | | | ✔ |
| Design standards | Responsibility for setting standards | ✔ | | |
| Specification | Responsibility for setting specification criteria | ✔ | | |
| Design data | Responsibility for accuracy of design data | | ✔ | |
| Design | Responsibility for design | | ✔ | |
| Procurement & construction | Responsibility for construction | | ✔ | |
| Cost | Cost over-run risk for design and construction | | ✔ | |
| Programme | Programme risk and responsibility for delivering on time or delay | | ✔ | |
| Operations | Responsibility for operations | | ✔ | |
| Maintenance | Responsibility for maintenance | | ✔ | |
| Transfer | Compliance with transfer requirements i.e. 'return' of toll road to government | | ✔ | |
| Force Majeure | Termination due to terrorism, riots, war, natural catastrophes (earthquake, flooding etc.) | ✔ | | |

The availability and transferability risks refer to currency convertibility and repatriation of profits. These are essentially political risks and are generally recognized to be the responsibility of the government.

Land acquisition and the provision of the right of way are accepted as the government's responsibility. This is the case in Croatia. For the Guangzhou Super Highway, the concessionaire insisted on being responsible for the land acquisition, which added considerably to the final cost of the project.

Force majeure risks, e.g. termination due to terrorism and natural catastrophes, are usually assumed by the government.

The other risks are usually borne by the concessionaire, the most important being the construction risk. It is now standard practice to shift this risk, usually in the form of a fixed-price, lump-sum turnkey contract, to the construction company on the grounds that it is the best party to understand and manage this risk. This was the case on the M1-M15 toll motorway, in which Strabag was liable for cost overruns, the effects of foreign exchange fluctuations at the construction stage and delays (in the event of delays, liquidated damages would kick in).

## 3.5 Deal structuring

Government financial support is very likely a negotiation issue. What form this should take and how much should be determined by the government in a rational manner. As argued, the government's project SCBA, together with a financial analysis, should form the basis for negotiations with the prospective concessionaire. In the author's experience, some governments have gone into negotiations without conducting such prior studies.

Government financial support is not limited to a minimum revenue or traffic guarantee. There are other incentives at the government's disposal, such as a government grants, usually one-off, a tax honeymoon period and a low-cost loan in the form of a subordinated loan. However, any financial incentive provided to the prospective concessionaire should be economically costed and assessed.

Unlike the three other incentives, a minimum revenue guarantee is a contingent liability that may or may not be drawn upon. Table 3.2 shows numerous examples of BOT projects where a minimum traffic or a revenue guarantee was part of the deal structure. The point to stress here is that such a feature is now regarded as conventional on a BOT toll road, and is often a requirement insisted upon by the lenders to maximize the financial sustainability of the project during the debt service and repayment period.

There is an obverse to a minimum revenue guarantee. While it exposes the government to part of the traffic risk, there is no reason to suppose the government should not negotiate for some form of profit sharing in return. In other words, if the government were to be exposed to the downside, then it should be able to reap part of the benefits on the upside. The exact nature of the profit sharing mechanism would clearly be another negotiation issue.

*Table 3.2 International toll road comparisons.*

| Country | Toll road | Function | Economic and political context | Project responsibility | Government financial participation |
|---|---|---|---|---|---|
| Columbia | Buga-Tulua Highway | Inter-City Artery | High country risk | Typical BOT model | Minimum traffic guarantee |
| Mexico | Mexico City – Toluca Toll Road | Inter-City Artery | High country risk | Typical BOT model | Minimum traffic guarantee-compensation in the form of A concession extension |
| China | Guangzhou-Shenzen Superhighway | Inter-City Artery | Medium country risk | Significant public ector involvement In Financing | Government cash flow deficiency guarantee |
| Hungary | M5 Motorway | Inter-City Artery | High country risk | Typical BOT model | MTCWM[1] has agreed a subsidy and will receive profit share and fees reimbursement |
| Hungary | M1/M15 Motorway | Inter-City Artery | High country risk | Typical BOT model | None – so the EBRD's support was crucial |

## 3.6 Regulatory framework

On most BOT toll roads the regulatory authority is also the implementation agency. This is because of the concession contract, which is designed to cover all specifications regarding construction and operations, as well as other matters.

BOT projects are invariably financed and operated on the basis of a granted monopoly. As long as this principle is understood, the project sponsor appreciates that its operations would be subjected to some form of regulation. The critical issue of toll determination and adjustments is usually settled as part of the deal structure and incorporated in the concession contract and related agreements, e.g. the loan agreement. Because of this fact, regulations on BOT toll roads are reduced in scope and are less contentious.

On the M1-M15 and M5 toll motorways in Hungary, toll revisions did not require government approval. This was stipulated in the concession contract. In China, however, BOT operators need approval from the Provincial Price Bureau before tolls can be increased. The Provincial Price Bureaux regulate prices and are essentially a political organization established before BOT projects were first implemented in China. Clearly, a separate regulatory body (with independent powers) to the concession grantor adds an extra dimension to the market risk for the BOT investor.

Governments should avoid making general changes to investment conditions that effectively alter the investor's rate of return for implemented BOT projects.

[1] MTCWM = Ministry of Transport, Communications and Water Management.

Without some form of compensation, this could harm investor confidence, as was the case when China sought to cap the return on energy projects in the 1990s, with a consequent adverse impact on future FDI.

## 3.7 Legal framework

As a preparatory action, the government should establish the legal framework necessary for BOT implementation. Is a general law on concessions preferable, as it would cover other forms of private sector participation? Would a BOT law suffice? If so, should the BOT law be specific to the road sector?

International experience suggests that a general law on concessions is probably not necessary. The focus here is on the need for a BOT law. There are more countries that have implemented BOT projects without a BOT law than countries with such a law. Britain, China and Pakistan, for example, have relied on a piecemeal approach. However, there are cases where a BOT law is unavoidable because of the country's constitution - countries with a written constitution are more likely to need a BOT law before a BOT project can be implemented.

This is because a BOT project involves ownership of a utility, land acquisition, government financial guarantees and financing, issues that have a significant legal dimension. Take the case of the Philippines. It has a written constitution with provisions on corporate ownership, especially of utilities, and land ownership. By their very nature, most BOT projects are majority-owned by foreigners. Under the Philippines Constitution, foreigners are prohibited to acquire land. A BOT law was necessary to ‘repeal’ this provision where BOT projects are concerned.

There are other legal reasons why a country might find it necessary to have a BOT law. Existing financial regulations might not be sufficiently flexible. For example, companies that are majority-owned by foreigners might be denied access to domestic financing under an existing Banking Code. The regulation might originally have been passed to protect local-owned companies and their access to domestic capital, the so-called "crowding-out" effect when foreign-owned companies compete for relatively scarce domestic capital. The fact that the M1-M15 was able to raise part of the project financing on the Hungarian capital markets meant that the BOT investor could mitigate part of the currency risk, since this portion of debt was denominated in Hungarian florints.

Another reason why a BOT law might be necessary is the issue of guarantees. The government might be prevented from making guaranteed payments to foreign-owned companies under an existing financial law. On a study on road maintenance privatization in Slovenia, one of the legal issues identified was the possibility that constitutionally the government may not have the right to make guaranteed payments.

In conclusion, it is clear that the appropriate legal framework for BOT projects should be established before the implementation stage to minimise delays and speed up progress.

## 3.8 Project financing

Project financing is the sole responsibility of the BOT sponsor. However, there are certain actions which, when taken by the government, would make it easier to raise the finance. Some of these have been discussed earlier e.g. permission to raise financing on the domestic capital markets. Others could include allowing the BOT company to issue corporate bonds and shares at discounted prices, to enable venture capitalists to earn higher rates of return proportionate to the risks involved.

In conclusion, the guidelines to the government vis-à-vis BOT implementation are:

- It is essential for an economic and financial analysis to be made for proposed road projects.
- BOT procurement must be transparent and carried out on the basis of an international open tender.
- The government should be prepared to negotiate a financial guarantee with the BOT sponsor in a private-public partnership spirit.
- For a BOT project, it is probably more efficient for the regulatory authority to be the implementation agency.
- Price regulations should be addressed in the concession contract and government should avoid making ex-post (to the contract) changes without appropriate compensation (in order not to harm investor confidence).
- The government should establish the appropriate legal framework *before* BOT implementation.
- To help with currency risk mitigation, the government should consider allowing the BOT investor to raise part of the project finance within the country where the project is located.

# 4 Concluding remarks

Establishing the right environment for overseas investors of BOT projects is a critical step. Political and economic reforms must be such as to bolster investor confidence. In the case of the countries in the REBIS study, particular attention should be paid to increasing political stability and good governance -the rule of law and greater transparency must prevail. A clearly defined regulatory framework is also required.

Regarding affordability, a concession toll road operated on a strictly commercial basis without any support from the government is unrealistic in the region in the short to medium term, because the general level of income for car owners is too low.

A good deal of preparatory work by the government is advisable before any BOT toll road is implemented. This would save time and reduce transaction costs for the government and the prospective investors. More importantly to the government, it would prevent costly financial mistakes that would be difficult to rectify after the concession contract has been signed.

# Annex 12.1 Reference case, Croatia

## SIMPLIFIED TOLL ROAD MODEL [€ '000 ]

**Reference Case: Croatia**

| ***Year*** | | **Note** | ***2006*** **Base Yr** | ***2006*** **4** | ***2007*** **5** | ***2008*** **6** | ***2009*** **7** | ***2010*** **8** | ***2015*** **13** | ***2020*** **18** | ***2025*** **23** | ***2030*** **28** | ***2032*** **30** |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Daily Traffic (vpd) | | | 12.000 | 12.000 | 12.514 | 13.049 | 13.608 | 14.191 | 17.506 | 23.818 | 26.958 | 26.958 | 26.958 |
| Annual Traffic (yearly increase @ | | | | | 4,3% | 4,3% | 4,3% | 4,3% | 4,3% | 6,4% | 0,0% | 0,0% | 0,0% |
| Max. Traffic (vpd) capped at around | 26.000 | | | | | | | | | | | | |
| Average Toll Increase | | | | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% | 0% |
| **Revenue** | | | | 38.106 | 39.828 | 41.629 | 43.513 | 45.482 | 56.764 | 79.780 | 91.502 | 91.502 | 91.502 |
| O&M Cost (% of Revenue) | *18%* | | | (6.859) | (7.169) | (7.493) | (7.832) | (8.187) | (10.218) | (14.360) | (16.470) | (16.470) | (16.470) |
| Major Repair Reserve Fund @ | *3%* | *per year* | | (1.143) | (1.195) | (1.249) | (1.305) | (1.364) | (1.703) | (2.393) | (2.745) | (2.745) | (2.745) |
| (% of Revenue) | | | | | | | | | | | | | |
| **Op. Profit b4 Income Tax** | | | | 30.104 | 31.464 | 32.887 | 34.375 | 35.931 | 44.844 | 63.026 | 72.287 | 72.287 | 72.287 |
| Interest Payment | *starts in yr* | ***4*** | | (10.470) | (10.470) | (10.470) | (9.349) | (8.098) | 0 | 0 | 0 | 0 | 0 |
| | | *ends* | | | | | | | | | | | |
| Income Tax | 0,0% | 8 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0,0% | 13 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| | 0,0% | 18 | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| **PROFIT AFTER TAX & INTEREST** | | | | 19.633 | 20.994 | 22.417 | 25.026 | 27.833 | 44.844 | 63.026 | 72.287 | 72.287 | 72.287 |
| Capital Repayment | *starts in yr* | *6* | | 0 | 0 | (22.417) | (25.026) | (27.833) | 0 | 0 | 0 | 0 | 0 |
| **CASHFLOW** | | | | 19.633 | 20.994 | 0 | 0 | 0 | 44.844 | 63.026 | 72.287 | 72.287 | 72.287 |
| **Total Project Cost ('000 €)** | | | 250.000 | | | | | | | | | | |
| ***Equity*** | *20%* | | 50.000 | | | | | | | | | | |
| ***Debt*** | *80%* | | 200.000 | | | | | | | | | | |
| **Construction Schedule Over** | *3* | *yrs* | | | | | | | | | | | |
| Construction Cost ('000 €) | | | | | | | | | | | | | |
| Interest Cost @ | *5%* | | | | | | | | | | | | |
| Grace Period | *5* | *yrs* | | | | | | | | | | | |
| Loan = Opening Balance | | | | 209.406 | 209.406 | 209.406 | 186.989 | 161.964 | 0 | 0 | 0 | 0 | 0 |
| Interest During Construction | | | | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 |
| Capital Repayment | | | | 0 | 0 | (22.417) | (25.026) | (27.833) | 0 | 0 | 0 | 0 | 0 |
| Loan = Closing Balance | | | | 209.406 | 209.406 | 186.989 | 161.964 | 134.131 | 0 | 0 | 0 | 0 | 0 |
| **Total Interest During Construction** | | | 9.406 | | | | | | | | | | |
| **RETURN ON EQUITY (ROE)** | 21,9% | | | 19.633 | 20.994 | 0 | 0 | 0 | 44.844 | 63.026 | 72.287 | 72.287 | 72.287 |
| **TARGET ROE** | 22,0% | | | | | | | | | | | | |

| **Toll at First Year of Operations:** | € |
|---|---|
| Car | 5,8 |
| Light goods vehicle (van, pickup) | 11,6 |
| Medium goods vehicle (2 0r 3-axle) | 17,4 |

**Reference Case: Croatia**

| *Year* | | *Capacity* | *Total Traf* | *2006* | *2007* | *2008* | *2009* | *2010* | *2015* | *2020* | *2025* | *2030* | *2032* |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | *Percentage* | *Constraint* | *VPD* | **4** | **5** | **6** | **7** | **8** | **13** | **18** | **23** | **28** | **30** |
| ***Category*** | ***Traffic*** | ***26000*** | ***12000*** | | | | | | | | | | |
| Car | *80%* | | | 9600 | 9994 | 10403 | 10830 | 11274 | 13782 | 18271 | 20452 | 20452 | 20452 |
| Light goods vehicle | *6%* | | | 720 | 756 | 794 | 833 | 875 | 1117 | 1664 | 1952 | 1952 | 1952 |
| Medium goods vehicle | *6%* | | | 720 | 756 | 794 | 833 | 875 | 1117 | 1664 | 1952 | 1952 | 1952 |
| Heavy goods vehicle | *8%* | | | 960 | 1008 | 1058 | 1111 | 1167 | 1489 | 2219 | 2602 | 2602 | 2602 |
| Total | | | | 12000 | 12514 | 13049 | 13608 | 14191 | 17506 | 23818 | 26958 | 26958 | 26958 |
| | | | | | | | | | | | | | |
| ***% Traffic Growth*** | | | | | | | | | | | | | |
| Car | | | | | *4%* | *4%* | *4%* | *4%* | *4%* | *6%* | *6%* | *6%* | *6%* |
| Light goods vehicle | | | | | *5%* | *5%* | *5%* | *5%* | *5%* | *8%* | *8%* | *8%* | *8%* |
| Medium goods vehicle | | | | | *5%* | *5%* | *5%* | *5%* | *5%* | *8%* | *8%* | *8%* | *8%* |
| Heavy goods vehicle | | | | | *5%* | *5%* | *5%* | *5%* | *5%* | *8%* | *8%* | *8%* | *8%* |
| | | | | | | | | | | | | | |
| ***Toll in €*** | ***Relativity*** | *Car toll in €* | | | | | | | | | | | |
| Car | *1* | 5,8 | | 5,8 | 5,8 | 5,8 | 5,8 | 5,8 | 5,8 | 5,8 | 5,8 | 5,8 | 5,8 |
| Light goods vehicle | *2* | | | 11,6 | 11,6 | 11,6 | 11,6 | 11,6 | 11,6 | 11,6 | 11,6 | 11,6 | 11,6 |
| Medium goods vehicle | *3* | | | 17,4 | 17,4 | 17,4 | 17,4 | 17,4 | 17,4 | 17,4 | 17,4 | 17,4 | 17,4 |
| Heavy goods vehicle | *5* | | | 29 | 29,0 | 29,0 | 29,0 | 29,0 | 29,0 | 29,0 | 29,0 | 29,0 | 29,0 |
| | | | | | | | | | | | | | |
| ***Toll Revision*** | *0%* | | | *0%* | *0%* | *0%* | *0%* | *0%* | *0%* | *0%* | *0%* | *0%* | *0%* |
| | | | | | | | | | | | | | |
| ***Toll Revenue in '000 €*** | | | | | | | | | | | | | |
| Car | | | | 20323,2 | 21156,5 | 22023,9 | 22926,8 | 23866,8 | 29177,5 | 38679,2 | 43296,1 | 43296,1 | 43296,1 |
| Light goods vehicle | | | | 3048,5 | 3200,9 | 3360,9 | 3529,0 | 3705,4 | 4729,2 | 7045,8 | 8263,9 | 8263,9 | 8263,9 |
| Medium goods vehicle | | | | 4572,7 | 4801,4 | 5041,4 | 5293,5 | 5558,2 | 7093,8 | 10568,7 | 12395,9 | 12395,9 | 12395,9 |
| Heavy goods vehicle | | | | 10161,6 | 10669,7 | 11203,2 | 11763,3 | 12351,5 | 15764,0 | 23485,9 | 27546,4 | 27546,4 | 27546,4 |
| Total | | | | 38106,0 | 39828,4 | 41629,4 | 43512,7 | 45481,9 | 56764,5 | 79779,6 | 91502,3 | 91502,3 | 91502,3 |