**INTRODUCTION**

**Purpose**

The paper charts the progress of road sector restructuring in Romania. The approach adopted provides a simple framework that has potential for application throughout Central and Eastern Europe and, perhaps, more widely. The paper focuses on the organizational issues associated with reform, restructuring and commercialization.

**Background**

Romania has embarked on the path of developing a market-oriented economy, and is aligning its institutional arrangements, technical standards and infrastructure in preparation for eventual accession to the European Union. By the official launch of its accession application in June 1995, Romania had accepted fully the economic and political criteria established by the European Union. However, the Government's determination to restructure and develop a market-oriented economy predates its official accession application. Under Government Ordinance 15 of August 1993, all state-owned corporations were required to restructure their activities to allow commercial/private management of those assets that do not belong to the public asset domain. At this time, the National Administration of Roads (NAR) was formed as an organization that was functionally-separate (a *regie autonome*) from the newly-created Ministry of Transportation. The restructuring process within the road sector has continued since that time. Despite some problems in implementing wider reforms in Romania, restructuring in the road sector has been generally well-planned and implemented.

**The road network in Romania**

Romania is the second largest country in Central and Eastern Europe, having a total land area of 237,500km$^2$ and a population of 23 million. The climate is continental, with temperatures ranging between -30ºC and +40ºC. The relief consists of approximately one third each of mountains, hills and plains. Administratively, Romania is divided into 41 counties.

Romania is crossed by two Pan-European terrestrial transport corridors (Corridors IV and IX) and the Danube water corridor (Corridor VII). The total length of public road network is 198,589km, consisting of:

- 14,810km of national roads including
- 113km of motorways
- 4,680km of European roads
- 36,010km of county roads
- 27,781km of communal roads
- 119,988km of urban streets

The number of cars is approximately 170 per 1000 inhabitants. In 2001, the average annual daily traffic on the national road network was 4,540 vehicles per day, out of which 1,038 were heavy vehicles. The admissible axle load on national roads is:

- 11.5 tonne/axle on rehabilitated national roads
- 8–10 tonne/axle on the remainder of the network
The maximum admissible speed limit is:

- 120km/h on motorways
- 90km/h on interurban roads
- 50km/h in residential areas

The road network is shown in Figure 1.

**Management of the Road Network in Romania under the Communist Regime**

During the last 20 years of the communist regime, Government transportation policy was not supportive of the road sector:

- Railway transportation was given the leading role
- Water transportation was also promoted on Romania’s rivers, including the Danube
- Road transportation was considered of secondary importance within the national economy
- An exaggerated centralized system was promoted and enforced in all areas
- No strategy was developed for road infrastructure; investment and maintenance programs were inconsistent and lacked adequate technical and material support
- Investments were determined by the Ministry of Transportation and were usually carried out by state enterprises, without a legal or competitive framework for awarding the contracts
- Design criteria were not well defined, and were based on state decisions; political criteria prevailed over economic and technical criteria
- The road manager’s tasks were not clearly defined; action plans did not have a technical foundation, but were undertaken on the basis of a Ministry order

Road network administration was performed in the following manner:

- The Ministry of Transportation was responsible for administrating the public road network through an under-staffed and under-equipped Road Directorate
- From an administrative view point, the Road Directorate was structured in two levels
  - headquarters, located within the Ministry of Transportation
  - seven Regional Directorates (DRDPs) at territorial level throughout Romania
- The DRDPs were responsible for carrying out the routine and periodic maintenance, special works and development activities on the road network in several counties; they planned, programmed, designed, performed the work, supervised and monitored their own activities
- Each DRDP had the following structure
  - road sections (SDN) located in each of the 42 counties, responsible for carrying out routine maintenance works
  - equipment sections (SUT), responsible for carrying out periodic maintenance and repairs of the equipment fleet, located at the same locations as the DRDP
  - design office responsible for carrying out the design for road maintenance and repair
  - regional road laboratory
- Each SDN had the following structure:
  - road districts (279 in all) which were responsible for carrying out the periodic maintenance works on variable lengths of road (usually between 30 and 60km), depending on the function and importance of the road
  - equipment shops responsible for carrying out routine maintenance for equipment and vehicles
  - specialized teams responsible for preparing asphalt mixes and carrying out asphalt overlays for periodic maintenance and special projects, including the operation of precasting units, quarries, crushing plants, etc.
The county and commune roads were administered by the county councils, and the streets by local municipal, city or communal councils. They used the same operational principles as the national Road Directorate.

During the period 1976-1990, the road sector was subject to severe financial constraints, which resulted in accelerated degradation of the road infrastructure. By 1990, many sectors in Romania were on the verge of collapse, including the road sector. This had severe consequences for the social and economic development of the country.

**IMPACT ON THE ROAD NETWORK**

A number of negative consequences resulted from these policies, including (*I*):

- In most cases, the quality of the works was substandard
- By 1990, 70% of the road network was deteriorated and needed rehabilitation
- The resulting road network had become one of the poorest in Europe, with
  - only 113 km of major highway existing
  - a national road network density of only 0.06 km/km², carrying 60 per cent of the total traffic
  - a national roads density of only 0.64 km per 1,000 inhabitants
- Low traffic speeds, and a lack of comfort and safety
- Significant economic losses for road users, assessed to about US$1.6 billion per year¹
- International isolation with respect to tourism and economic relations

**RESTRUCTURING OPTIONS**

The program for accession into the European Union required Romania to make the transition from a centralized to a market-based approach in all areas of the national economy. This transition included road transportation development. The aim was to develop the network to enable it to operate under efficient and safe conditions, and to promote, at the same time, the adoption of market principles in road management and maintenance. The newly-formed National Administration of Roads (NAR) was entrusted with drawing up the new strategy, taking into consideration:

- The Government’s new directives on transportation, which stipulated
  - Romania’s adhesion to the European transportation liberalization policy
  - the rehabilitation of road transportation as a priority of the Government to support wider economic reforms
- Recommendations, in 1992, by the international financing institutions (particularly by the World Bank and the European Bank for Reconstruction and Development) that the following measures should be adopted
  - increase in the level of road-related taxes to provide sufficient financial resources to NAR’s annual budget to fund at least maintenance works on the national network
  - gradual development of a contractual framework for road maintenance works based on commercialization and privatization of specific units of the DRDPs, and encouraging competition for maintenance works
  - introduction of modern road management techniques, such as PMS and BMS, to optimize the solutions for road rehabilitation and maintenance

¹ Road user costs estimated by Search Corporation (*I*) from traffic and network conditions determined during national pavement survey
- development of a program by NAR for phased rehabilitation, based on appropriate technical solutions
- improvement of road safety through the adoption of a long-term program
- compliance by all projects to international environmental protection requirements
- construction supervision and management to be carried out through specialized consulting firms, with responsibility for the quality and overall monitoring of the projects
- improvements to border crossing points for international traffic by modernizing of facilities and implementing measures to make their operations more efficient

Based on the above, NAR developed a two-fold strategy in 1993 that was ratified by the Government. The *Strategy for improvement, upgrading and development of national roads* was produced for a period of 15 years. This strategy aimed to:

- Set up a *Special Fund for Public Roads* as the principle source of income for road rehabilitation and maintenance
- Rehabilitate, upgrade, modernize and develop the national road network in successive phases, including developing European-standard motorways
- Restructure road administrations, including NAR, and adopt systems for maintenance and repair based on market principles; this would involve the separation of ‘supplier’ from ‘client’ functions, with the gradual divestiture of functions wherever these could be awarded on a competitive contractual basis

Two strategic options were considered for sector restructuring. The first was to implement a ‘shock’ approach that would separate and privatize functions immediately. However, there was concern that to do this would have created disorder because of the lack of technical, material and financial capability, and the absence of a competitive environment for works execution in Romania. It was recognized that the separation and divestiture of organizations was a major undertaking. There was a risk that newly-privatized companies would not survive and go bankrupt, and that this would then deprive NAR of the ability to execute its roads program. Given that the road network was on the verge of collapse, it was considered that the risks of adopting this approach were too high, both for the newly-created companies and for NAR. As a result, it was decided to adopt a more gradual approach, starting in 1994.

**ROAD FINANCING**

It was recognized that, whatever institutional structures were put in place, they would only be effective if there was adequate and predictable finance available. The *Special Fund for Public Roads* that was introduced was based on the type of road fund that has been found, in many countries, to be a useful mechanism for putting financing on a sustainable basis (2). In 1991, many transition countries, including Romania, financed roads through a tax levied on local industries related to the size of their turnover. Revenue from this tax was only loosely related to road use, and is now generally considered a poor basis for financing roads. A better tax structure was needed to reflect the fixed and variable (distance-related and vehicle weight-related) costs of road use, since this would enable cost-recovery from all vehicles using the road network. This was achieved through a tax structure based on:

- Fuel tax (to recover distance-related road use costs)
- Annual vehicle licenses (structured to reflect fixed and weight-related road use costs)
- Other fees and taxes, such as transit fees (to recover the road use costs of international traffic), abnormal load permits and overloading fines (to recover the extra costs of road damage)
The road fund was established by law in 1996. It has subsequently been updated and amended by a series of Government decisions and ordinances. The road fund revenues are derived from a 25% surcharge on the wholesale price of vehicle fuels, together with vehicle purchase tax and annual vehicle licenses. The tax is collected by the Ministry of Transportation, and the funds are allocated 65% to national roads, and 35% to county and communal roads. Non-users of roads (for example, agriculture, rail, defense, aviation, shipping) are entitled to a rebate from the Ministry, if they so request. The road fund can be used for road management and physical works on the network. Within NAR, approximately two-thirds of the funds are used for road maintenance. This is a first step in putting the financing of roads on a sustainable basis.

A key factor in the success of Romania’s road fund is that revenues are collected by the Ministry of Transportation, rather than the Ministry of Finance. This provides an incentive structure for collection, since transportation is the beneficiary. Steps are currently being taken to introduce a National Roads Consultative Council to advise on the operation of the fund. This Council will have majority representation from the private sector. Since road users will be represented, they will have a direct say in how funds should be spent.

In 2002, the Government introduced a ‘vignette’ to raise funds for the modernization of major road network. This was in the form of a windshield-sticker purchased periodically.

**Restructuring alternative adopted**

**General approach**

The institutional restructuring plan adopted was based on certain key principles (3). The first is that, to improve the effectiveness and efficiency of operations, there is a need to increase the organizational focus of operations by identifying the core functions of each business unit, and to avoid them being side-tracked by unproductive non-core tasks. This increase in specificity requires that key business functions are identified and then separated organizationally. The second is to subject business units to competition wherever a competitive market exists. In Romania, the restructuring plan classified those functions within NAR as being either of a ‘client’ or ‘supplier’ nature. The client functions were those related to the administration of the network on behalf of the Romanian State – the ‘owner’ of the road network. The intention was that client functions would remain within NAR, and that all supplier functions would eventually be divested. This was a recognition that NAR’s client functions were a natural monopoly and, given the public ownership of the road network, could not be privatized in a manner that would ensure competition. By contrast, the supplier functions, consisting principally of works execution, could be subject more easily to competition, and the restructuring plan set out how this could be done in a risk-averse manner.

The restructuring plan recognized that some supplier functions were easier to divest than others. For example, periodic maintenance can be carried out using conventional civil engineering measurement contracts, and the work is relatively easy to define and supervise. By contrast, routine and winter maintenance are harder to specify, and measurement of completed work is more difficult. This suggested that the periodic maintenance works function should be divested before the functions of routine and winter maintenance. This is reflected in Table 1.

Consideration of these issues led to the development of a restructuring plan for national roads based on the following principles and concepts:

- Increase specificity of operations by separating functions into well-defined business units
- Identify those business units that were a natural monopoly and should remain within NAR
- Setting up the remaining business units, in the short term, as government-owned companies to enable them to develop commercial skills in a partially-protected environment
• Privatize these companies when commercial skills have been developed and when a competitive market exists
• Divesting and privatization would be undertaken in the following order: (i) periodic maintenance; (ii) equipment; and then (iii) routine and winter maintenance – recognizing that some functions are easier to privatize than others

**First steps – periodic maintenance works**

Up to 1996, the execution of periodic maintenance was carried out by a distinct organization – *Antrepriza de Reparati si Lucrarit* (ARL) – within the DRDP. Each year, a contract was negotiated between the DRDP and its ARL that included a list of works planned for the year. A schedule of rates was also agreed, with prices controlled by the DRDP. A simple contract was then placed for each work activity, consisting of general and special conditions, schedule of work, bill of quantities and drawings. Prices for externally-procured items were itemized in the bill of quantities and adjusted through the year to reflect inflation. Accounting practices based on commercial principles were being used increasingly in the ARLs.

Different approaches to restructuring were considered, including divestiture of parts of the existing organization as functioning entities, and alternatively seeking joint venture arrangements with consultants or contractors. A number of joint ventures had also been set up between NAR and private sector foreign contractors. These enabled NAR to have access to capital and equipment, and to bring international management practices and skills into some of its operations. It was decided to follow a three-step approach, as summarized in Table 2, with the aim ultimately of privatizing appropriate entities.

A phased approach to divestiture was adopted so that the new organizations would receive declining support over time from NAR in terms of the value of work that was guaranteed. This approach was to reduce risk, both to NAR and to the ARLs. The approach provided protection to NAR in the medium term to ensure that there was capability to carry out its maintenance program. It also gave protection to the works organizations by allowing time to develop business skills before privatization. Further protection was given to NAR because privatization would not need to take place until the market was sufficiently strong to avoid the problem of cartels being formed by a small number of qualified contractors. This situation could be reviewed over time to determine when privatization would be appropriate. Thus, the approach envisaged, in the short term, that one ARL responsible for the execution of periodic road maintenance activities would be separated functionally from its DRDP to become a *regie autonome* under the Ministry of Transportation. In the medium term, a further five ARLs would be divested, with the remaining ARL being divested in the longer term. This would lead to the divestiture of almost half of NAR’s activities and work force. Constraints to further divestiture included a shortage of qualified and experienced supervision in the DRDPs and inadequate equipment in the ARLs.

NAR recognized that it lacked the experience necessary to manage the commercialization process proposed. It therefore sought assistance from the European Bank for Reconstruction and Development in developing its strategy for this, including the preparation of an outline organizational design, the development of an action plan, and the drafting of business plans for the organizations affected. This was supported by the provision of consultancy support for change management, funded through the European Union ‘Phare’ Program. This consultancy support was provided in two phases:

• *Phase 1* – evaluation of the options for the divestiture, definition of the framework and procedures to be followed for each option, and implementation of the divestiture of a pilot region
• *Phase 2* – roll-out of the pilot divestiture program to the other regions, based on the experience gained from the pilot phase results
The restructuring plan was flexible. Short-term actions were defined in more detail than medium and longer-term objectives. This allowed modification following each stage in the process to enable actual experience and difficulties encountered to be reflected in the approach.

**IMPLEMENTATION**

**Pilot organization**

It was decided that the first ARL would be set up as a pilot at the DRDP in Cluj (4). This region was selected because progress towards commercialization had already started, and because senior staff had prior experience of contract works overseas. The ARL did not have a legal status but, for the purposes of the pilot, it operated in a manner that simulated such status. The ARL organizational structure was based on the use of territorial sub-units – ‘lots’ (one in each county) and ‘departments’. The lots operated as contracting companies under the direct supervision of ARL management. In addition to these lots, a mechanical division (SUT) was also in operation, performing specialized maintenance and repair services for ARL’s machinery, equipment and vehicles. This division carried out its activity in territorial workshops.

The first steps involved the following:

- Mobilize a team that included Romanian and foreign experts to provide assistance with change management
- Information gathering in Romania
- Study trips abroad by the managers involved to observe commercialized road administrations
- Organization of management strategy workshops
- Prepare business plans
- Organize workshops on transition management

**Corporate policy and business planning**

A comprehensive study of the existing market was undertaken, plus an analysis of the opportunities available and potential markets. The existing and potential competition was also investigated. Possible future clients of the ARL were identified as the DRDP, local councils, municipalities, commercial and industrial enterprises, etc. Two business scenarios were identified that took into consideration the likely future financing available from the NAR, the possible contracts to be awarded by the DRDP, and the potential markets that could be won from other customers:

- Optimistic scenario – ARL would be able to win at least 80% of the existing DRDP works and the balance of 20% from other sources
- Pessimistic scenario – ARL would win 50% of existing DRDP work, but only 15% equivalent from the available market, thus not being able to operate at full capacity

The following business areas were identified:

- In the near future, ARL would focus on
  - periodic maintenance works on national roads, and those required in the event of natural disasters
  - periodic maintenance works on local roads
  - general civil works
- In the long term, ARL would actively promote its market diversification, including working for counties and areas outside the pilot-region, when realistic opportunities arose
A draft business plan for the pilot ARL was drawn up as a basis for the workshops held early in 1997, with the participation of the management of NAR headquarters and of the pilot DRDP. The business plan reviewed the current status of the organization and identified the steps required for commercialization to maximize the chances for success. The document made a preliminary assessment of future business opportunities and put forward a strategy for addressing these. The business plan covered a five-year period (1997-2001) and provided a business framework for commercializing the periodic maintenance activities and other special works in phases. The business plan had three important functions:

- An instrument of change, stressing the importance of a well-organized business-oriented management approach
- A guide for ARL managers to set objectives and help allocate resources
- Providing financial and business performance indicators for managers

During the workshops, it was agreed that ARL should update its business plan yearly, depending on the market changes and the company’s situation.

**Organizational changes**

The international consultant did not suggest major changes to its existing structure. It was recommended that some changes in by-laws should be made progressively, and not by a re-engineering of the organizational structure. Proposed changes included the setting up of new profit centers and the introduction of cost controls. The need for the ARL continuously to improve its marketing knowledge was identified, so an independent department for this was created. At the same time, a legal department was set up to deal with the new contractual arrangements. The SUT operation was incorporated into the ARL. In addition, the new relationship between the ARL and the DRDP, and its need to operate in a new business environment, meant that the role of some departments had to change. New tasks identified were:

- Marketing
- Participation in public tenders to win contracts
- Provision of services at a competitive prices
- Achieve the quality required

**Capital investment plan**

Another element of the business plan was the *Capital investment plan and assets re-evaluation*. Although the pilot DRDP continued to keep a comprehensive record of the assets, including plant, furniture, equipment, workshop and office supplies, the ARL needed to review its assets and investment needs. The required investments for the new company were examined, and proposals were made for the acquisition of new assets (machinery, transport vehicles, equipment, IT), as well as a re-assessment of the fixed assets based on a depreciated value. This required a different approach to traditional Government accounting practices.

**Human resources and training**

The company had to develop an organizational and management structure to increase efficiency and improve labor productivity, whilst rendering quality services. The labor force and human resources were of great importance for the new company. Priority was given to the training and skill
improvement of the employees to provide them with the competence required within a market economy.

A training plan was prepared. This identified the need for the development of managerial skills and for a change in the organization’s culture. Short-term and long-term training programs were developed that were suitable for a commercial environment.

All these aspects were analyzed and developed by the international consultants.

Legal aspects

The changing status of the Cluj and other ARLs required some legislative changes. Divestiture legislation had to be drafted to make provision for the transformation of the ARL into a ‘state-owned joint stock company’ within the Ministry of Transportation. Provision was made for the special arrangements necessary to protect the interests of both the DRDP and the ARL during the transition period to full privatization. This allowed for a reduced financial threshold over time below which the Regional Directorate would guarantee work to the ARL. The setting up of these companies as ‘joint stock companies’ was approved by a Government Resolution passed in 1997. This stipulated that, during 1997 and 1998, works should be performed based on contracts negotiated directly with the DRDPs; starting from 1999, contracts would be awarded following public tenders in compliance with the Romanian legislation.

Timetable

The timetable for Phase 1 of the divestiture in the Cluj Region was as follows:

- **June 1996** – Identification of requirements for regulations, mission/objectives, assets, equipment management, materials testing, quarries and asphalt plants, winter maintenance, organization and management structures, staff requirements and management information systems
- **September-October 1996** – completion of draft divestiture legislation, business plans for DRDP and ARL, training plan, study tour, draft legislation and regulations, new DRDP and ARL organizational structures
- **January 1997** – achievement of supervisory capacity, changes in staff numbers in DRDP and ARL, recommendations for stakeholder representation in management, and creation of ARL as a joint stock company within the Ministry

The short time scale for Phase 1 meant that some activities that, ideally, should have been undertaken were postponed until Phase 2. In particular, this applied to the introduction or improvement of management information systems (for finance and accounts, road and bridge management, personnel management) to support the new commercialized activities in the organizations. The transition period for the reduction in guaranteed support would take place during Phase 2 in parallel with the divestiture in other regions. Thus, the timetable envisaged that divestiture as a joint stock company would be completed in Cluj by mid-1997.

The plan also envisaged a timetable for completing divestiture in other regions as follows:

- **January 1998** Brasov and Constanta
- **January 1999** Bucharest, Craiova and Timisoara
- **January 2000** Iasi
This reflected differences in the institutional situation in the different regions. In fact, all regions were divested well ahead of the target timetable.

**NEXT STEPS**

In December 2001, the Ministry of Transportation and NAR agreed to further restructuring measures:

- Privatization of all ARLs against an agreed timetable
- Divestiture by NAR of its equipment organizations as joint stock companies
- Divestiture of routine and winter maintenance works units as joint stock companies against a timetable
- Divestiture of NAR’s shareholding in all joint venture companies to avoid potential conflicts of interest

A timetable for other management improvement measures was also agreed, including:

- Publication of a roads sector policy document
- Establishment of the National Roads Consultative Council, with a majority representation from the private sector
- Publication of a framework document by the Ministry of Transportation and NAR, setting down their respective responsibilities and performance indicators for NAR
- Preparation of a corporate plan by NAR
- Preparation of a strategy for public-private partnerships for road construction and network management

**THE RESTRUCTURING MODEL**

Talvitie, of the World Bank (5), has noted that road administrations generally have evolved over time, and has identified the following five steps in the evolutionary process

*Stage 1: Traditional construction and maintenance (works) organization*

The road organization is centralized and the ministry (of works) manages budgets and projects at a detailed level. The road administration concentrates on technical issues, such as standards and specifications, and works execution. Construction of new roads has priority over maintenance.

*Stage 2: Identification of client and supplier functions*

The road organization identifies functions of administration and planning (client) and construction and maintenance works (supplier). Traffic safety and axle load control are perceived as problems. The ministry of transportation, or equivalent, emerges as a competitor to participate in policy guidance.

*Stage 3: Separation of client and supplier functions*

The ministry begins to concentrate on policy, and the road administration takes on those client functions that are not assumed by the ministry. There is functional separation, with client functions remaining in the road administration, and the supplier organization reporting either directly to the ministry of transportation or to the central management of the road administration. The ministry defines only the mission of the administration, its broad goals, and fixes the budget and pricing rules. A roads board is likely to appear.

*Stage 4: Corporatization of the supplier organization*
In this stage the supplier organization is divested and, possibly, privatized. A road fund is established to provide for partial autonomy of the road administration. The ministry exercises periodic oversight of the road administration, normally through a board. The road administration is small and manages using modern technology and management systems, and also adopts performance standards.

**Stage 5: Corporatization of the client organization**

The road administration is corporatized and acquires delegated powers of legal ownership of roads on behalf of government. The administration operates as a private company, subject to oversight from the ministry. Its income source is the road fund paid from road user charges. Management methods treat the road network as a capital asset for which a return on investment must be produced.

The details and nature of these steps will differ from country to country depending on the particular socio-political background and the existing situation.

It is interesting to compare this view of organizational evolution with the earlier comments on the requirements for achieving organizational effectiveness and efficiency. It will be seen that, as organizations evolve, there is a tendency to have greater specificity (focus on core functions) and to make more use of competition in the way that organizations operate; organizations increasingly commercialize.

This has been reflected in the restructuring activities in Romania:

- **Stage 1: Traditional construction and maintenance organization** – the road sub-sector in Romania was managed originally by a monolithic government ministry
  - little specificity or competition
- **Stage 2: Formation of a separate road administration** – in 1993, the road administration was separated functionally from the government ministry and given more autonomy
  - increased specificity for administration of the road sector as a result of functional separation
- **Stage 3: Separation of client and supplier functions** – in 1996, the different management functions with NAR were separated into those of a client and a supplier nature
  - increased specificity of (i) management, and of (ii) service delivery/works execution
- **Stage 4: Corporatization of the supplier organization** – in 1997, periodic works execution activities were divested from NAR; in 2001, commitment was made to privatize periodic works and to divest remaining works functions as joint stock companies
  - introduction of competition for undertaking the supplier functions
- **Stage 5: Corporatization of the client organization** – the stage of introducing competition for undertaking some of the client functions has not yet been achieved in Romania.

**RESULTS OF REFORMS**

Nine years after the launch of road sector restructuring in Romania, the results can be considered under the following headings:

- What has been gained?
- What has been lost?
- What should come next?
Gains

Financing

- The source of road finance has changed from being solely dependent of subventions from the national budget to having a significant component guaranteed through the *Special Fund for Public Roads* – this has improved both the reliability and predictability of road finance
- Road finance is now based on use-related taxes that aim to recover the cost of road use from vehicle owners and operators according to the costs they impose on the road network
- Long-term relationships have been established with the international financial institutions, which have secured finance for road rehabilitation
- The level of finance has increased significantly, so that now it is sufficient to cover operation and maintenance of the national road network, debt service for international finance, and makes a significant contribution towards the rehabilitation needs of the network

Management

- Restructuring has developed the roads market in Romania from one with very little private sector participation to one where all periodic maintenance works, and design and construction supervision, are procured competitively from the private sector; competition has improved both quality and efficiency
- There has been significant transfer of staff by divestiture of periodic works units, with resulting improvements to salaries for staff involved
- There is now a strong and competent road contracting and consulting sector, including local and foreign companies and joint ventures, making use of modern technology; local firms are now competing for work in other countries
- There has been increased use of internationally-accepted forms of contract, including FIDIC; this has improved transparency of procurement and quality control, with benefits to take-over and acceptance of civil works
- Formal corporate and business planning have been introduced within NAR
- Computerized accounting systems have been introduced into NAR, who have also adopted international accounting standards; it is now possible to determine the actual cost of activities and operations
- Simple road management information systems have been introduced, storing basic information about the road network
- Resource allocation is now based on a published road plan, rather than on day-to-day political judgement

Regulatory and institutional development

- Legislation has been introduced for competitive procurement, concessions, environment and road sector financing – both the Special Fund and a vignette
- A formal roads policy has been drafted
- Public consultation now takes place for major road schemes, and a Roads Consultative Council is being formed to advise on sector financing and management
- Road management and works execution have been decentralized with the formation of NAR and the divestiture of works activities
- Network conditions are now improving – since 1992, 2000km of main roads have been rehabilitated
Losses

There have been remarkably few losses. The growth in the size of the market, facilitated by increased levels of sector financing, has meant that divestiture has not resulted in job losses, except through natural attrition. On the contrary, jobs have been created.

The main problems have been in the area of the local road network, which has not made the same progress with restructuring. In this area, financial resources are still insufficient and inconsistent. There have been few management or institutional changes, and the sector remains ineffective and inefficient. The approach to rehabilitation and maintenance has been patchy, and the technical condition of roads is still deteriorating.

Future strategy

Despite nine years of progress, there is still much to do. The financial situation, although much improved, is still insufficient to meet the rehabilitation needs of the main road network and the more general financing needs of minor roads. The scope for private finance is being investigated, and the market is being tested for this. However, the availability of finance is dependent ultimately on the ability of the national economy to grow and to create the wealth needed to plow back into the road sector.

Despite the functional separation of NAR from its parent ministry, there is still political interference in some day-to-day matters. In the short term, attempts are being made to introduce a formal framework agreement between the Ministry of Transportation and NAR to set out roles and responsibilities more clearly and in a quasi-contractual form.

The next phase of restructuring is considering the role of routine and winter maintenance. Currently, a heterogeneous approach is taken to these activities on different parts of the network. The activities are mainly undertaken by in-house units, often using outdated and inappropriate equipment. There is little formal planning or site control of works. The difficulty of predicting and defining needs and of measuring outputs in these areas makes them more difficult to undertake by contract than, say, periodic maintenance. NAR also recognize that some activities, such as winter maintenance, road markings and signs, etc, are of a strategic nature and this poses special problems. The approach being taken to increasing effectiveness and efficiency is to trial an area-based contract that will manage all maintenance activities on a sub-network of national roads using performance standards (end-product specifications). A set of standards has already been developed by NAR as a first step towards this.

DISCUSSION

The restructuring process undertaken in Romania mirrors the process described in Box 2. Examination of the restructuring process undertaken in New Zealand (6), Sweden (7) and the United Kingdom (8) indicates that a similar ‘framework’ has been followed. This suggests that an approach involving increasing ‘specificity-competition’ could be used as the basis for restructuring road administrations in other transition countries. A number of issues are highlighted with respect to applying the specificity-competition framework.

The first is the relatively long time needed for the transition process. In Romania, the first steps were taken in 1993 yet, nearly ten years later, there is clearly some way still to go. This is consistent with other experience (9), where it is noted that major policy reform takes 10-15 years to complete, and should be seen as a long-term process.

The need for a planned approach is also emphasized (4). There may be a need to change legislation, and this needs to be planned well in advance if it is not to provide a constraint to progress. The need to
protect both client and newly-divested supplier organizations from early commercial failure requires that a transition period is needed, with declining support in terms of a guaranteed workload. There is a need to ensure that a market exists before privatization to obtain real benefits from competition and to reduce the opportunity for cartels to form.

Key players within affected organizations need to make a commitment to change. Obtaining wider commitment from staff requires a proactive approach. There is a need for good communication of plans throughout organizations, where a culture for this has perhaps not existed in the past. Workshops and study tours can help to engender understanding of the transition process, and there is a need for involvement and ownership by individuals at all levels. It is helpful to have a ‘champion’ for the process.

The specificity-competition approach, essentially adopted in Romania, provides a simple framework for transition in the road sub-sector. However, the details of restructuring plans will need to differ between organizations and countries, and will depend on existing levels of transition. The framework has potential for application throughout Central and Eastern Europe, and perhaps more widely, to improve the effectiveness and efficiency of managing the substantial road network assets that exist.

**ACKNOWLEDGEMENTS**

Successive General Directors of NAR have supported the restructuring process, including Mr Petru Cegus, Mr Danila Bucsa, Mr Aurel Balut and Mr Aurel Petrescu. From the European Bank for Reconstruction and Development (EBRD), Mariana Gheorghe, Philip Cornwell and Mihail Scvortov advised on and supported the restructuring process. WS Atkins International were the consultants who assisted with the divestiture implementation, working through European Union (EU) Phare funding. However, this paper does not necessarily reflect the views of the Romanian Government, NAR, EBRD nor the EU.

**REFERENCES**

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Figure 1 The road network in Romania

Table 1 Potential for competitive procurement of different functions and activities

Table 2 Steps to privatization of periodic maintenance

Figure 1 The road network in Romania showing NAR regions and Pan-European road corridors
Table 1 Potential for competitive procurement of different functions and activities

<table>
<thead>
<tr>
<th>Functions and activities&lt;sup&gt;(1)&lt;/sup&gt;</th>
<th>Location and responsibility</th>
<th>Potential for competitive procurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Planning (policy)</td>
<td>Central government (Ministry of Transportation)</td>
<td>No</td>
</tr>
<tr>
<td>Planning (network)</td>
<td>Headquarters of NAR</td>
<td>No&lt;sup&gt;(2)&lt;/sup&gt;</td>
</tr>
<tr>
<td>Programming (including budgeting)</td>
<td>Headquarters of NAR</td>
<td>No&lt;sup&gt;(2)&lt;/sup&gt;</td>
</tr>
<tr>
<td>Preparation (including design):</td>
<td>DRDPs (Regional directorates of NAR)</td>
<td>Yes (long term)&lt;sup&gt;(3)&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Routine</td>
<td></td>
<td>Yes (medium term)&lt;sup&gt;(3)&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Periodic</td>
<td></td>
<td>Yes (long term)&lt;sup&gt;(3)&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Special</td>
<td></td>
<td>Yes (short term)&lt;sup&gt;(3)&lt;/sup&gt;</td>
</tr>
<tr>
<td>• Development</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operations (routine maintenance):</td>
<td>DRDPs</td>
<td>Yes (long term)</td>
</tr>
<tr>
<td>• Supervision (including testing)</td>
<td></td>
<td>Yes (medium term)</td>
</tr>
<tr>
<td>• Works execution</td>
<td></td>
<td>Yes (medium term)</td>
</tr>
<tr>
<td>• Equipment management</td>
<td></td>
<td>Yes (medium term)</td>
</tr>
<tr>
<td>• Technical audit</td>
<td></td>
<td>Yes (medium term)</td>
</tr>
<tr>
<td>Operations (periodic maintenance):</td>
<td>DRDPs</td>
<td>Yes (medium term)</td>
</tr>
<tr>
<td>• Supervision (including testing)</td>
<td></td>
<td>Yes (medium term)</td>
</tr>
<tr>
<td>• Works execution</td>
<td></td>
<td>Yes (medium term)</td>
</tr>
<tr>
<td>• Equipment management</td>
<td></td>
<td>Yes (medium term)</td>
</tr>
<tr>
<td>• Technical audit</td>
<td></td>
<td>Yes (medium term)</td>
</tr>
<tr>
<td>Operations (emergency and winter maintenance works):</td>
<td>DRDPs</td>
<td>Yes (long term)</td>
</tr>
<tr>
<td>• Supervision (including testing)</td>
<td></td>
<td>Yes (long term)</td>
</tr>
<tr>
<td>• Works execution</td>
<td></td>
<td>Yes (long term)</td>
</tr>
<tr>
<td>• Equipment management</td>
<td></td>
<td>Yes (long term)</td>
</tr>
<tr>
<td>• Technical audit</td>
<td></td>
<td>Yes (long term)</td>
</tr>
<tr>
<td>Other functions and activities:</td>
<td>NAR Headquarters</td>
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</tr>
<tr>
<td>• Research</td>
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<td>Yes (short term)</td>
</tr>
<tr>
<td>• Training</td>
<td>All organizations</td>
<td>n/a</td>
</tr>
<tr>
<td>• Administration, finance and personnel</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Notes:
(1) Works interventions have been grouped under the headings of:
- *Routine maintenance* – works of a regular or cyclic nature carried out every year
- *Periodic maintenance* – major works carried out at intervals of several years
- *Special* – emergency works responding to unplanned events (e.g. accident or snow removal)
- *Development* – new construction and major realignments
(1) Data collection and management information systems used in connection with these functions and activities have potential for being procured competitively
(2) The time scales in the table imply the following:
- Short term implies 1-3 years
- Medium term implies 3-5 years
- Long term implies 5-10 years
Table 2 Steps to privatization of periodic maintenance

<table>
<thead>
<tr>
<th>Steps</th>
<th>Corporatization option</th>
<th>Joint venture option</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong></td>
<td>Functional separation</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Separation of regional organizations into ‘client’ and ‘supplier’ functions, and other</td>
<td>Establishment of joint ventures between parts of the organization responsible for</td>
</tr>
<tr>
<td></td>
<td>internal measures to improve effectiveness and efficiency, such as identification of</td>
<td>periodic maintenance and private firms, normally with government having a minority</td>
</tr>
<tr>
<td></td>
<td>customers, definition of mission and objectives, introduction of commercial management</td>
<td>ownership</td>
</tr>
<tr>
<td></td>
<td>practices</td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong></td>
<td>Divestiture</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Corporatization of parts of the organization responsible for periodic maintenance by</td>
<td>Establishment of joint ventures between parts of the organization responsible for</td>
</tr>
<tr>
<td></td>
<td>transformation into joint stock companies, with government retaining majority or total</td>
<td>periodic maintenance and private firms, normally with government having a minority</td>
</tr>
<tr>
<td></td>
<td>ownership</td>
<td>ownership</td>
</tr>
<tr>
<td><strong>Step 3</strong></td>
<td>Privatization</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Selling the government stake in companies, once a competitive market has developed</td>
<td></td>
</tr>
</tbody>
</table>