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## PROGRESS OF ROAD MAINTENANCE IN LATIN AMERICA

Road maintenance work has gradually been increasing in Latin America. Existing contracts in Argentina, Chile, Guatemala and Uruguay – 210 overall – account for a total of 20,212 kilometers of public roadways by level of service. In Brazil, Ecuador and Peru, 26 contracts are now in the pipeline for the maintenance of 7,700 kilometres of roadway.

This issue of the FAL Bulletin presents a survey of the status of road maintenance considered at the second Seminar of the Americas of the Road Maintenance Training Programme (Provia), held in Lima, Peru from 18 to 21 October 1999 and which examined the type of financing used in road maintenance as well as contracts, institutions and interaction between the public and private sectors.

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In Latin America, as elsewhere in the world, the merits of ensuring proper road maintenance are gradually being recognized as well as the fact that inadequate road maintenance causes not only serious deterioration and the need for rehabilitation but also increased costs in terms of wear and tear on vehicles, and accidents. This growing awareness was particularly evident at the **second Provia Seminar of the Americas**, held in Lima, Peru from 18 to 21 October 1999. This meeting, attended by over 200 delegates from 15 countries in the region, covered a wide range of issues relating to public roads, including **institutions, financing, outsourcing, concessions, security, new technologies, smart transport, interaction between the public and private sectors, continental integration**. Maintenance was precisely the issue receiving most attention, since it was examined in the light of various topics under consideration. Thus, representatives of various countries set out the guidelines being adopted to ensure that due attention was paid to maintenance, in terms of improving its coverage and effectiveness.

### EXECUTION OF ROAD MAINTENANCE

Proper maintenance enhances the competitiveness of countries and regions, since it can limit the costs of operating a vehicle, avoid unnecessary increases due to poor road condition and avoid the need for reconstruction work on roads or streets. Estimates and calculations effected in various countries show that direct losses caused by poor road condition can amount to as much as 2% of

GDP per year and a similar figure is recorded for indirect losses.

During the seminar, various reports were presented on different approaches to improving maintenance. A strong trend towards outsourcing of this service was noted with **road companies** and also **small firms of workers** often being contracted, especially for routine maintenance. Although small firms may seem to be precarious in business terms, their performance in this area has been excellent and they have been effective in organizing maintenance operations in Colombia, Guatemala, Nicaragua, Peru and Uruguay.

As regards the maintenance work still being done by administration, one option mentioned for improving its effectiveness was **contract simulation**, a method practised experimentally in Scandinavian countries. The plan consists in identifying the staff units that carry out such work and, using written documentation, in treating them as contractors in various areas such as work scheduling, achieving goals, compliance with specifications and deadlines, inspection and reception of work. This would be a strong incentive to perform better and would facilitate investigations into any failures that may arise.

One traditional problem with maintenance is **quality assurance**, which generally leaves much to be desired. Maintenance work usually reflects what can, rather than what should, be achieved. Colombia's positive experience in the application of **ISO 9000** standards has already been demonstrated. Although complex to set up, this modern method is viewed as an interesting option for systematizing and improving procedures and the results of maintenance and for introducing self-regulation mechanisms for firms.

There have been many accounts of **road maintenance contracts per level of service or standard** in force in Latin America. One feature of this type of contract is the fact that the criterion for payment is the good condition of the roadways, based on objective parameters rather than the volume of work executed. Past experience suggests that this is a viable way of keeping roads in good condition. This method is clearly on the rise with over 20, 000 kilometres of roadway now serviced and with promising results in terms of road conditions, reduction in operational costs and genuine job creation. **Table 1** sets out the characteristics of current contracts, while **table 2** shows contracts that are still being prepared. One issue to be improved is supervision, since in some countries, controls are weak and do not guarantee full compliance by contractors.

## ROAD MAINTENANCE CONTRACTS BY LEVEL OF SERVICE

**Table 1. CURRENT CONTRACTS**

	<b>Number of contracts</b>	<b>Km (total)</b>	<b>Km (average)</b>	<b>Time-frame (years)</b>	<b>Type of maintenance</b>	<b>Amount mUS/km</b>
Argentina	61	11 813	194	5	I-R	11.0
Chile	2	747	374	5	I-R	3.2

Guatemala	130	4 200	32	1*	R	1.7
Uruguay (C)	6	1 486	248	4	R-P	7.0
Uruguay (M)	10	1 823	182	2*	R	3.8
Uruguay (U)	1	143	143	3*	R-P	2/m2
Total	210	20 212	200	-	-	-

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I: Initial repairs

R: Routine maintenance

P: Periodic maintenance

(C): Traditional contracts

(M): Microenterprises run by former officials

(U): Contract in urban areas

\*: renewable for a similar period

Table 2. **CONTRACTS IN THE PIPELINE**

	Number of Contracts	km (total)	km (average)	Time- frame (years)	Type of Maintenance	Amount mUS/km
Brazil federal level	13	4 447	342	5	I-R	N.A.
Brazil state level	9	2 203	235	2-5	I-R	N.A.
Ecuador (U)	1	150	150	4	I-R	N.A.
Peru	3	900	300	5	I-R	N.A.
<b>Total</b>	26	7 700	-	-	-	-

There is also serious interest in preparing contracts in Guatemala, Costa Rica, other Brazilian states and municipalities. These contracts are also being awarded in developed countries: there are a number of R- and P-type contracts covering over 1200 kilometers in Australia, in Virginia, USA and in New Zealand.

In addition:

- In Brazil, 375 kilometers were subject to a five-year I-R contract, which, however, was cancelled before term owing to budgetary constraints.
- In Colombia, two-year I-R contracts covering 545 km were in force, but were not renewed on

completion, owing to a road concession programme.

- Guatemala had 343 kilometers under R-type contracts, for one year, which were not renewed since the experience was considered unsatisfactory.

## ROAD MAINTENANCE MICROENTERPRISES IN URUGUAY

As part of the State reform process, the National Highway Authority of Uruguay has given its approval for road maintenance to be outsourced directly to companies set up by former officials who have opted for voluntary retirement. Thus, workers who used to perform maintenance tasks in an administrative capacity have formed micro-enterprises specializing in routine maintenance of roads, traffic signalling and street lighting. At present, there are 14 micro-enterprises in operation which service 20% of the national road system.

This formula, which has rallied a high level of commitment and participation from former officials, has generated very satisfactory results for all parties concerned:

- Users have better roads at their disposal than in the past, since contracts lay down strict conditions and these are being respected;
- The National Highway Authority pays less for routine maintenance than it did previously for administration, and
- The new contractors have seen a substantial increase in their personal income.

The challenge at the moment is to strengthen these micro-enterprises so that they can launch themselves in a more competitive scenario, once their existing contracts have expired.

## FINANCING ROAD MAINTENANCE

Given the importance of road maintenance and the disastrous consequences that can arise if it is neglected, it is vital that proper financing be ensured. Historically, funding has come from the public treasury, with serious constraints due to the innumerable priorities vying for their attention.

Important strides have been made in Chile and Uruguay - countries which stand out as exceptions in the region - in extending the coverage of maintenance operations financed through fiscal contributions; however, these are still insufficient. The establishment of **road maintenance funds** is considered more promising for solving this chronic problem, since they can generate secure, adequate and timely funding, a scenario in which users pay for but are assured of a road maintenance service.

This is demonstrated by the steady increase in maintenance in **Guatemala**, a country which has had an operating fund since early 1997. The clearly inadequate road system that existed prior to 1999 has benefited from rapid growth with maintenance work covering almost half of interurban roadways, including all the main routes and expected to be extended to 60% in the course of 2000.. The outcome has been a significant improvement in usability of roads, with clear benefits for users. **Costa Rica** and **Honduras** have highway funds in their initial stages of operation, while, in Nicaragua, the relevant bill is currently being debated by the National Assembly. Various other countries have considered the issue but without taking definitive decisions in this regard.

**Table 3** sets out the characteristics of the three existing road funds. Noteworthy features are the participation of direct and indirect users on boards of directors of resources and the high priority

given to maintenance. Unfortunately, in all three cases, income from these funds is considered, in legal terms, as an earmarked tax and not as a payment of a rate for a utility. When the funds are collected through the same tax circuit, there may be delays in flows for various reasons, as has already been observed on specific occasions.

**Table 3. CHARACTERISTICS OF ROAD FUNDS**

	<b>GUATEMALA</b>	<b>COSTA RICA</b>	<b>HONDURAS</b>
Purpose of funds	M-R-IC (a)	M-R-IC (b)	M-R (c)
<b>Red objeto</b>	<b>IU</b>	National <b>IU</b> (d)	<b>IU</b> (e)
Target network	Main source of income fixed rate per gallon of fuel (f)	15% of fuel price	40% of non-fuel taxes
Nature of main source of income	<b>ET</b>	<b>ET</b>	<b>ET</b>
Nature of board	Advisory	Executive	Advisory/executive
Members of board (Public-private)	3-3	4-3	5-3
Staffing system	Private	Public	Public and private
Use of outsourcing act	No	Yes	Yes
M: maintenance	R: Repair	IC: Improvement and construction	
IU: inter-urban or rural	ET: earmarked tax		
(a) 78% for maintenance	(b) Policies prioritize maintenance		(c) At least 90% is guaranteed for maintenance by law.
(d) Specifically excludes municipal roadways	(e) Roadways must be in a maintainable state (good or regular state)		(f) Q1 (approx. US\$ 0.15) per gallon

### **INSTITUTIONS**

Road maintenance is an area, which, more than any other, calls for urgent action to improve the effectiveness of institutions and the quality of management of road agencies. During the Provincial seminar, a broad perspective for development and future institutional improvement was presented. Nevertheless, institutional changes are, undoubtedly, the most complex to promote. For this reason, it is encouraging to note that in Latin America various initiatives are materializing in this area.

The Board of Directors for Highways of Iberia and Ibero-America is interested in promoting the use of **indicators of institutional performance and road conditions**. These values would make it

possible to appreciate the development of service provided by road agencies and would help authorities, the management of such agencies and the general public to assess the quality of the work carried out. Some institutions are already starting this practice.

Important developments are being experienced by National Road Departments in **Argentina** and **Uruguay**, since over 60% and 40% respectively of the road systems under their responsibility have been maintained through concessions **on the basis of performance** or **contracts that define standards**, which has led to significant improvements in management and in the condition of roads.

The National Institute of Roads of Colombia has established **road administrators** for all roads under its jurisdiction. These are small consultancy firms that assume primary management of the routes under their responsibility and whose role includes controlling contract maintenance work, supervising rights of way, making minor design changes, maintaining accident statistics, etc. Thus, each kilometre of roadway has an officer-in-charge, fully identifiable and who is known to the public.

Road agencies are, moreover, expected to develop an attitude of **service to direct and indirect users** who should be considered as genuine clients and the prime target of their work.

The establishment of **explicit road and transport policies** was proposed as a way of enhancing performance; such policies would serve as guidelines for authorities, government bodies, users, contractors, consultants and, generally, for those who play a role in the sector. Similarly, it was recommended that road agencies should formulate a **vision for future development** and a **strategic plan** for achieving it.

## INTERACTION OF THE PUBLIC AND PRIVATE SECTORS

The general view is that the two actors in road infrastructure are the public and private sectors. The first owns the roadways and acts as manager, principal and to a certain extent, as administrative agent; the second, which is increasing its participation acts contractor, consultant or concessionaire. Recently, however, **users** have become a force to be reckoned with. Users, and the public in general are no longer the passive recipients who accept with resignation what others do, but, on the contrary, have become actors who demand to be taken into account in a special way.

During the seminar, it was established that an effective road system demands the participation of users as third parties with well-defined rights and who interact harmoniously with other actors. In general terms, it is for the public sector to set policies and ensure general management of the road system and for the private sector to assume specific management, install infrastructure and provide services.

Users are the focus of such actions, but they are also those who, ultimately, finance them with their contributions. For this reason, they have the right to give their views on the extension and condition of the road system and on the quality of service provided by contractors; for this purpose, institutional mechanisms for **expressing opinions**, particularly in relation to the definition of **public interest** in roadways and to make **claims for deficiencies** that come to their attention. Moreover, it is indispensable to give them all necessary information on the development of the road system and the development of organizations responsible for it.