

Road Asset Management Assessment

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Abstract

Albanian Road Authority (ARA) under the administration of the Ministry of Energy and Infrastructure. It is responsible agency for the process of construction and maintenance of national and regional roads. Albanian Development Fund (ADF) is the agency for construction of rural and regional road infrastructure, also training for maintenance and management of municipalities responsible for maintenance of the urban and rural roads. ARA and ADF are using public funds for the construction of road infrastructure network, so due to restriction budgetary in road maintenance they the need to develop a strategy for the management and financial of maintenance, based on current accounting principles and efficiency of public funds in order to ensure safety and cost saving users. This includes the use of a balance of investments made to launch a database for years and the development of basic documents for the planning and control of public spending in these activities. The question that arises and requires an analysis is: a generally accepted value will be calculated for the infrastructure during its useful life, using the principles of sound accounting and valuation of real estate activities internationally applied. The results show that the existing accounting standards are suitable for use in infrastructure management, allowing a better control of public spending on infrastructure, while the principles of technical assessment of public infrastructure assets require the creation of a database and inventory for all road classification.

Keywords: Infrastructure, asset management, payment life cycle, road condition

Introduction

Network infrastructure is based on the ground transportation system, and represents the largest investment of capital, taken several generations and be organized by public and private sector. ARA public body under the Ministry of Transport and Infrastructure and the ADF non-public agency that manages public funds are required to provide different categories of investment for road infrastructure in Albania. In these programs, the two organizations as the main activity is the provision of road infrastructure in optimal condition associated with maintenance, repair and renovation or reconstruction. ADF as the public agency that manages public funds and is subject to special rules donors to increase accountability in the management of funds. With international controls are recommended disclosure and the Introduction of a financial system based on accrual accounting and should lead to:

1. Improve the effectiveness of budget appropriations

- a. Insurance profit for the costs of the life cycle, on the basis of policy decisions,

b. Allow a more efficient process for making investments.

2. Improve the budget allocation process.

In line with these expectations, the government stresses the need to employ the best management skills, processes and practices available, to ensure that the road infrastructure services are delivered within budget, based on the specification and on time. A part of this recommendation is an exploration of the application of asset management methods and techniques in the situation in Albania.

The valuation of public assets at market values is an aspect of asset management that is analyzed in this scientific article.

It would be possible to calculate a generally accepted value for the infrastructure over its useful life, using sound accounting principles applied internationally Purpose is to

- a) highlight the importance of assessing the activities and direction in relation to the needs of users and providers, as ARA and ADF.
- b) the identification of the benefits of evaluation as a tool for asset management
- c) proposals for technical evaluation of road infrastructure management.

In this article is based the respective documentation, verification of results and alsod on interviews with key personnel in the civil works management for road infrastructure construction and maintenance. Concepts such as asset management, valuation and amortization of them are highlighted in this article.

2. Asset Management and Evaluation

2.1 - Scope and definition

In Albania public sector reforms in financial accounting result with the reporting requirements as financial expand investment in road infrastructure, which has led to new rules for the evaluation and depreciation of assets. These initiatives have led to widespread interest in asset management and planning, although the situation in Albania is very different from the Western country, they have created a property management office.

The definition according to the OECD (Organization for Economic Cooperation and Development), adopted by the World Road for asset management is:

"A systematic process for the efficient maintenance, and improved well by combining engineering principles with sound business practices and economic rationalization, providing tools to facilitate a more organized and flexible approach in making decisions to meet the expectations of the public".

This broad definition of road asset management means managing a road network (roads, bridges, road signs, etc.) to meet the business needs and the users of the road, with the lowest cost possible for a long time. The main asset management stages are:

Identification of the need for such activities, the Community reference requirements;

Providing activities, including ongoing maintenance to meet the needs of constant users;

The best function of the road;

Prioritization of the investment when the road is in good condition or is not appropriate for the activity to be preserved.

Infrastructure investments in Albania have been implemented by ADF, ARA and request administrative systems in order to improve transparency and efficiency for the fund spending. The valuation of the assets under their jurisdiction is one of the major needs as a key element of their management. Asset evaluation requires:

- a. A management structure;
- b. accounting and approval methodology for evaluating the real goods based;
- c. performance indicators and amortization functions or performance models to calculate the future value of assets;
- d. information systems for reporting on the state of the network and the value of assets.

ARA and ADF are involved at better management of the activities to allow systematic maintenance and evaluation. They have an important role to ensure proper management of information in order to optimize the total cost of the Albanian road network life cycle.

2. Rating

Studies have shown that the evaluation plays an important role in creating the possibility to report the physical condition of the road network in monetary terms. In addition, the evaluation helps operators to inform the owners (Ministry of Energy and Infrastructure, Local Government Unit) the effects of current levels of funding and management strategies.

A part of the asset management framework is shown in Figure 1. Asset Management Austroads sources, 2002.



Figure 1. The role of evaluation in asset management

Metodologjia e ROMAPS

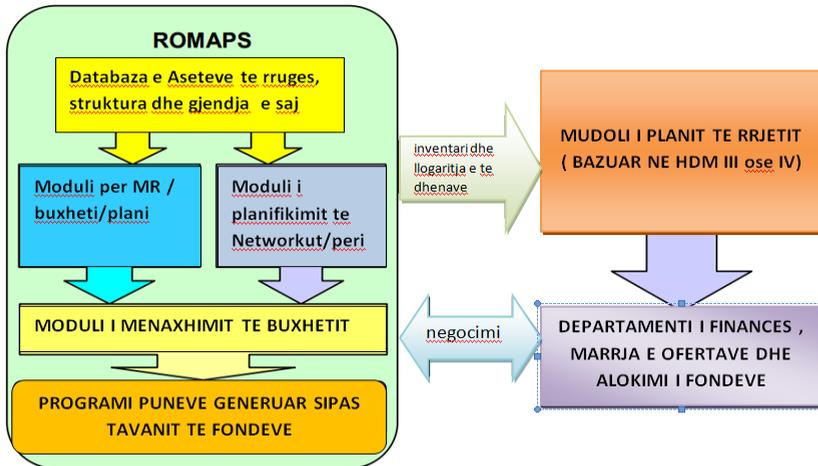


Figure 2. Asset management plan of road infrastructure. (Author)

This figure refers to a study carried out for the construction of road asset condition inventory on the basis of their inspections and the creation of an electronic database, in accordance with international material accepted SGEM 14 Conference 2014 in Bulgaria, "Low Cost video logging and geo referencing or a component of the road system Management"¹.

Two bodies ADF ARA and use these rules are based on national and international accounting standards. The evaluation process has been identified as a tool for efficient management of the property. Budgeting strategy maintenance and the options may differ from the elimination of all defects do nothing. Based on the terms of their assets and inventory, which currently is not finished, but we have developed a simple way to collect electronic data and its installation in a database investments made after 2005, and evaluation of such activities, it can be through the use of replacement cost, based on international standards, laws and relevant decisions.

Legislative requirements (laws, acts, decisions) determine the value and depreciation of public facilities. In Albania for the management and maintenance of public assets, with the exception ARA allegedly receive funds from the Ministry of Energy and Infrastructure for their management of Infrastructure and has to administer this, in terms of expenditure and income-based investments in order to promote the interests of the present and future of the community. Evaluation and depreciation of assets should be undertaken in accordance with

¹14th International Multidisciplinary Scientific GeoConference and EXPO S G E M 2 0 1 4 Low Cost Videlogging and Georeferencing as a Component of the Road Management System (Paper publishing)
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appropriate Financial Reporting Standards, International Accounting Standards mostly 16 - Property, (IASB, 2014).

The purpose of the evaluation is to describe the property, on the basis of the financial statements with regard to the definition of clear information regarding investments in street activities. The main problems are the recognition of the assets, the content in the elements, the determination of the carrying value, the determination of their level of depreciation.

3. Certain approaches to evaluation

"A local authority has to manage income, expenses, investments and attention and, in order to promote the interests of the present and future of the global financial community relations". The assessment approaches for the determination of the market value (the estimated amount for which a property should change) include:

The rating for sales comparison;

This approach considers the sales of similar or substitute properties and related data and provides an estimate of the value of the asset by the comparison process.

Profit Method

This approach considers the revenue and data outputs related to the evaluation of the value of the property through the capitalization process or discounted cash flows.

Cost method.

This comparative approach considers the possibility of a replacement for the purchase of a certain property, can build another property that is a copy or the original or one that can provide the same benefits.

It is noted that the cost evaluation method is usually suitable for the activities of road infrastructure.. The cost is based on the reproduction cost of the asset as a fair assessment of its value. The reason for this is that in this activity:

may be reproduced;

provides the benefit or service that is expected of him;

its use is highest and best;

Therefore, potential buyers will pay a price that covers the cost, which is equal to the reproduce the cost of the asset.

4. Amortization method

In practice, the cost evaluation method includes an evaluation of the investment taken depreciation into account and the technical factors. Replacement cost Amortization is an application of the cost criterion was used for the evaluation of specialized activities for accounting purposes, where direct market evidence is limited or unavailable. Infrastructure is classified, as non-current asset is tangible, because the infrastructure is used much longer than a period (e.g one year). Since most of the infrastructure assets will be specialized nature, it will be evaluated with an approach depreciated replacement cost. Infrastructure consists of several components with different services. These components are critical to asset

impairment accounting and valuation and its determination. Expert judgment will be needed to decide how the various components of the infrastructure components elements count.

In terms of the accounting, the amortization of property rights is proportional with the consumption of this good to use over a period calculated in the project. Infrastructure is considered as an asset that has a useful life of over one year. Accumulated depreciation is the original cost of the property, which is treated as an expense in the income statement row. The sinking fund is also a measure of the potential loss of a service to be good, provided that it needed to be reinvested.

The purpose of depreciation is to know the net cost of an asset over time. The basis for depreciation varies from country to country, because even within a country, there are differences. Some assets are depreciated in their conditions, by a greater use of them and do not carry out the service within the life cycle for which they were designed, others will be used in the course of their age provided, why not use or a low number of vehicles movement.

Depreciation curve is a straight line in some cases (for the traffic signs) or parabolic for (bridges) on the economic life of the building as:

<i>Roads</i>	<i>Bridges</i>	<i>Traffic Signage Bridges Sustainable Structures</i>	<i>Bridges Sustainable Structures</i>
<i>Basic conditions, given four categories of roads. Management system of paved roads for the calculation of depreciation as a cost value that asphalt layer replacing almost new condition, in a year.</i>	<i>For types of bridges Wooden bridge 20 Years. Girder bridge of reinforced concrete in a 50 year old T-shape. Historic bridge 200 Years. Stone Bridge 40 years</i>	<i>Traffic signs, pedestrians and other components are considered for life 3-10 years.</i>	<i>Concrete walls with a lifetime 11-20 years stone walls cut with longevity 10-15 years Ducts with a length of less than 10 m for a 10-15 year life</i>

Tab 1. Method of depreciation in the use of property (Austroads 2010).

According to international standards "specifies that depreciation entities responsible ARA and LGUs for projects managed by the ADF should:

assess the depreciation of assets in a systematic way throughout life

the apply the depreciation method that reflects the pattern of future economic benefits from that activity.

Evaluate the asset lifecycle amortization through utilization of consumables, aging, and restrictions of activities and through the legal use or otherwise.

Review and rate of depreciation methods at least once a year.

In fact, the depreciation of infrastructure to create a sustainable and comprehensive strategy is realized through the visual way by inspection. The depreciation of fixed assets should be applied only in those parts of the infrastructure that are the subject of consumption.

Accumulated depreciation is an indicator of the replacement cost in the future for the activities of the road network into account the current situation they are in new condition. The depreciation accumulation is a reliable tool for the management of these activities, a possible

depreciation model is essential. Some activities (arc) can be rebuilt in new conditions through a physical treatment, but it is not the economic reconstruction for all activities. For example, asphalt is generally a non-linear model of depreciation due to traffic loads, age and quality construction elements asphalt. Engineer must be able to determine the model of the depreciation.

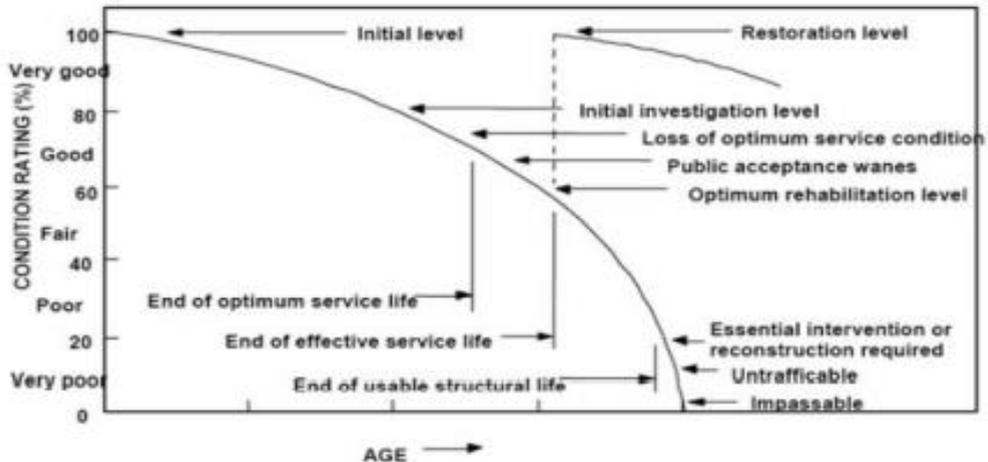


Fig. 3 Pavement deterioration curve, source (Austroads, 2010)

The possibility of assessment in Albania.

The international literature for calculating the value of infrastructure asset management maintenance is sometimes possible for the IAS financial accounting reporting 16. With reference also takes their danger or you can through the method of depreciation replacement cost, depreciation calculations while they may be based on various methods that meet the international standards.

For pilot projects in their assessment, we are working and we will show the continuing adoption of this method in terms of road network in Albania. The research has focused on key personnel questionnaires, infrastructures management of the road, the finance staff, as well as the evaluation of the investments, the practices and policies followed. Indicators show that you need to use the standards. In Albania, there is no general agreement on how to set the time period in regard to assessment of infrastructure lifespan. International literature shows that economic life "standard" for each activity is not recommended, as long as the economic life of each path is the maintenance product in the past and in the future, the strategies, the climate, the topography, the construction standards, as well as traffic. The recommended strategy is that the economic infrastructure should be analyzed in respect of their life cycle design of assets and amortization respectively loaded, be able to explain the changes, long load times and show how economic life cycle has changed. The changes in the economic life must continue to be revised for road activities are a great financial responsibility for providers of infrastructure services as ARA is.

Albania has created a base on asset evaluation, which reflect large construction program after 2005, at which time started and dumping the database according ROMAPS road constituent

elements. Applications for funding in the future can grow in the next 10 years. In areas where there is a greater percentage of the road network, the usage method for the evaluation of the activity must be to depreciation that calculates the remaining life of the assets, taking into account such as climate change, traffic conditions and the level of maintenance. Some factors that should be considered are:

The new concept of capitalization and financial reporting in infrastructure. Taking into account the management and financial reporting according to international standards, which is in the transition phase.

ARRSH not yet adequate resources and skills to realize the asset management activities, the need to ensure proper inventory and relevant assessments. Information on the activities thus are least likely to still fragmented and difficult to access.

Asset management and public relations service potential consumption by road activity was often a low priority. The only valid information he is perceived as necessary for a minimum of compliance guidelines.

4. Discussion and conclusion.

The question was "whether it is possible to calculate" a generally accepted "value for infrastructure activities during his life according to the principles of financial and technical calculation?"

As a result of the research literature and experts interview the results can lead to asset management, including their evaluation in Albania:

There is a fundamental experience of asset management and evaluation in some countries, like Italy, Croatia, which can be used as a reference to the situation in Albania.

A management that is based on the principles of complete financial calculation, it is a requirement for the successful implementation of asset management, in particular in the road network.

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In order to achieve effective financial management and use of the evaluation with the replacement of the amortized cost method, should ensure the establishment of procedures and the application of international standards by both organizations and LGUs ARA (ADF).

The number of pilot projects for the study of effectiveness of road maintenance management are initiated, but none of them led well financial estimates

In Albania implemented agencies ARA and ADF have not enough experienced, because they are in transition, in order to make possible application of techniques for the assessment on a regular basis.

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