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**WHY TO CARRY OUT AN ICAO-ACI/LAC SEMINAR ON PAVEMENT
MANAGEMENT SYSTEMS (PMS) AND A SHORT COURSE ON PCI
("Pavement Condition Index") METHOD**

PRESENTATION

The list of airfield pavement deficiencies of the CAR/SAM Regions is very large due to the non-compliance with the ICAO SARPS (Standards and Recommended Practices).

Some investigations were conducted, in both Regions, in order to find out the reasons why the ICAO SARPS are not being complied with in terms of airfield pavements. The results of these investigations have shown that, at least, seven factors can contribute for that. They are:

- 1 – Some professionals that develop Pavement Engineering activities are not prepared for this type of job;
- 2 – Lack of interest and/or knowledge of the administrators on the importance of the airport infrastructure maintenance;
- 3 – Lack of pavement maintenance, mainly, in those aspects related to the pavement surface and non-knowledge of the importance of preventive maintenance;
- 4 – Non-knowledge of the principles of Pavement Management Systems (PMS);
- 5 – Non-knowledge of simple and modern technologies for pavement evaluation that allow one to relate/indicate methods for correcting the existent deficiencies;
- 6 – Lack of interest of the administrators in creating conditions for the participation of the Pavement Engineering technicians in courses, seminars, workshops and any other types of training;

PMS/ PCI – SEMINAR ON PAVEMENT MANAGEMENT SYSTEMS AND SHORT COURSE ON THE PCI METHOD



7 – Non-priority for the application of the financial resources on the airport infrastructure maintenance once the resources are allocated to other airport areas.

The ICAO Regional Offices have been developing a great effort in order to help the airport administrators to correct/mitigate the effects that these seven items can cause to the airport infrastructure, the Civil Aviation and the Air Transport.

The most recent actions taken by ICAO in this sense are:

- Creation of the AGA/AOP Subgroup inside the GREPECAS (CAR/SAM Regional Planning and Implementation Group) and intensification of the work in this Subgroup.
- Organization of seminars, workshops, short courses, etc;
- Regarding the airfield pavement maintenance, a Seminar on Airfield Pavement Maintenance and a Short Course on the Aircraft/Pavement Interaction was held in Santa Cruz de la Sierra, Bolivia, from 22 to 27 July 2002; and,
- Creation of the ALACPA (Latino American and Caribbean Association of Airfield Pavements - “Asociación Latino Americana y Caribeña de Pavimentos Aeroportuarios”).

Nowadays, the airport administrators or enterprises that administrate airports are able to use the Pavement Management Systems (PMS) as a powerful tool for the **decision making process**.

The PMS concept was developed, simultaneously, in 1968, at the University of Texas, USA, and at the Canadian Good Roads Association, in Canada.

One of the objectives of a PMS is to emphasize the second generation of investments in pavements. In other words, it focuses the maintenance management as a first plan.

A PMS concept could be: *“The process of coordination and control of a set of activities that allow one to plan the pavement maintenance process, looking for the best use of the available resources, in order to maximize the benefits for the society”*.

This concept stresses the systemic approach of PMS, which permits one to consider the actual and future pavement conditions, as well as, the analysis of different scenarios. By doing this, one can select the pavement maintenance procedures and evaluate the pavement rehabilitation alternatives taking into consideration the economical and budget constraints.



Figure 01 schematically shows, in a very simple way, how to evaluate different alternatives for pavement investments taking into consideration a certain period of analysis.

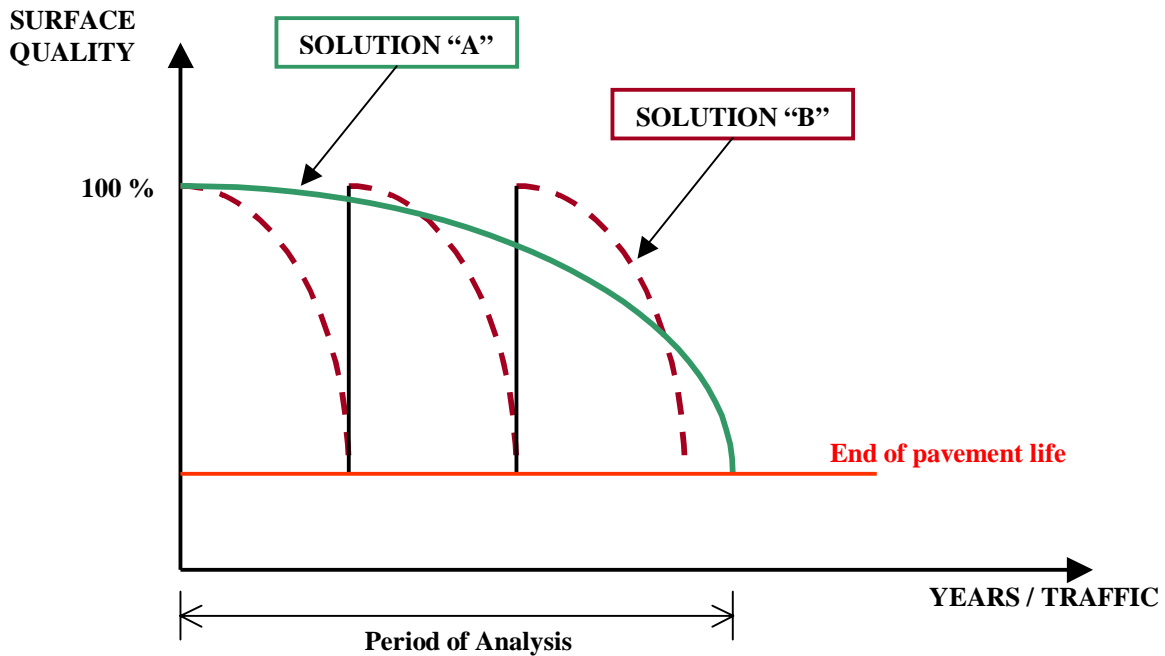


Figure 01 – Schematic and very simple PMS indication of alternatives

Considering Figure 01, is it more economic to make a small investment at the beginning of a runway construction and run several rehabilitations during the period of analysis (Solution “B”) or to make a heavier investment at the beginning and run only the routine maintenance during the period of analysis (Solution “A”)?

In other words, which solution would be more economic for the airport administrators, for the airlines (consequence of frequent traffic interruptions for pavement maintenance, for example), for the users and for the society?

A good PMS should be able to answer all of these questions by considering the “Pavement Life Cycle Cost Analysis”.

There is no doubt that many pavement deficiencies, mainly those related to the pavement surface, can be rationally corrected, with an expressive cost reduction, when an airport administrator decides to implement a PMS.

After the PMS Seminar, a short course on the PCI (Pavement Condition Index) Method will be carried out for the participants. This method is used for evaluating the pavement conditions and it is one of the bases for a PMS implementation.



The U.S. Army Construction Engineering Research Laboratory (USACERL) developed the PCI method with the U. S. Air Force support.

The PCI method is a very important procedure for visual evaluation of the pavement surface distresses. In addition, PCI is a type of information that feeds the PMS, which helps the engineers and the airport planners in their decision making process for defining the pavement maintenance needs, the viable technical alternatives and their respective cost estimates and the priorities.

Based on the PCI, the PMS can prioritize the investments among/between airports or among their features (runways, taxiways, aprons). For instance, the PCI can indicate, under budget constraints, if the investments should be done in a runway, in a taxiway or in an apron.

All the pavement features are divided into small units to be inspected. The stresses and their respective areas/lengths and severities are registered and, after the calculations, the method allows the classification of the different pavement areas and features in a **0 to 100** scale.

The seminar is addressed to engineers and technicians, as well as, for airport administrators and managers, once the SGPs are tools to be used for the **decision making process**.

For any doubt or additional information, please, contact Dr. S. H. Cardoso, AGA Regional Officer of the ICAO South American Regional Office and Seminar Coordinator (shc@lima.icao.int).

