



**SKALA**

Pavement Expert

# Pavement Expert

## Specialist Profile

### **Brief:**

Dr. H. Sebaaly has over 19 years of hands-on experience and reputed expertise in Project Management, execution of roads and airfield pavement engineering projects (i.e. design, construction, testing, and maintenance), and development of manuals and guidelines for State Authorities. Possess solid knowledge in conducting forensic investigations of pavement failures for airports and highways. Well-versed in mechanistic analyses of airport and highway pavements, mechanistic-empirical pavement design (i.e. AASHTO M-E), materials engineering pertaining to pavement design and construction, geotechnical engineering, and computer applications in civil engineering. Equipped to analyze pavement non-destructive testing such as HWD, FWD, LCMS, IRI, and GPR. Proven ability in ensuring all corrective maintenance tasks are attended to as per the stipulated project KPIs through ongoing supervision and performance monitoring. Furthermore, Dr. H. Sebaaly is a result-oriented and solution-driven individual with a remarkable record of facilitating, documenting, and overseeing project compliance with plans, quality management, specifications, and contract provisions, as well as state and local regulations.

### **Overall Experience:**

- Executed multiple projects in which various activities were conducted such as pavement design, value engineering, pavement management, and development of maintenance plans and schedules to ensure that the road network remains safe and operational, and airfield remains safe and operational without disrupting flight operations.
- Conducted structural evaluation of existing pavement using FWD/HWD for calculating ACR/PCR, backcalculating the pavement layers moduli, determining the pavement remaining life, and required overlay thickness.
- Analyzed pavement distress data for the determination of Pavement Condition Index (PCI), skid resistance, and road roughness for functional evaluation.
- Establishment of Road Research Center for Ethiopian Road Authority
- Prepare technical specifications, cost estimate, and tender documents including evaluation criteria in accordance with the World Bank guidelines
- Prepare communication protocols and responsibility matrix
- Review and evaluate bids in accordance with the set evaluation criteria
- Supervise and approve project commissioning and hand over

# Pavement Expert

Specialist selected project

## Airports Experience – Selected Projects and Activities:

### Qatar

- Pavement evaluation and profile surveys at Dukhan airport (Tamim Airbase)
- Technical services for the Major Project Department of Hamad International Airport (HIA)

### Italy

- Pavement evaluation and failure investigation at Treviso International Airport
- Pavement evaluation and failure investigation at Milano-Malpensa International Airport
- Pavement evaluation and failure investigation at Milano-Linate International Airport

## Expressways, Highways & Local Roads Experience

### Ethiopia

- Establishment of the Road Research Center for the Ethiopian Road Authority

### Qatar

- Pavement evaluation at Industrial and Mubaireek Interchanges Project
- Pavement evaluation at Al Muntazah expressway project (airport bridge)
- Pavement evaluation at New Interchange IC3 at Ras Bufontas Free Zone Project
- Pavement evaluation at Al-Khor Expressway Project
- Pavement evaluation at Duhail intersection, Gharrafa St. (P007-C7-P1) Waab St. Interim Improvement (EDS1511) Project
- Pavement evaluation at Al Kharaitiyat and Izghawa Ph. 1 Project
- Pavement evaluation at Central Doha & Cornish Beautification Project
- Pavement evaluation at Improvement of Al Dafna Street Zone-61 Project
- Pavement evaluation at various local roads failures

# Pavement Expert

## Specialist employed experience

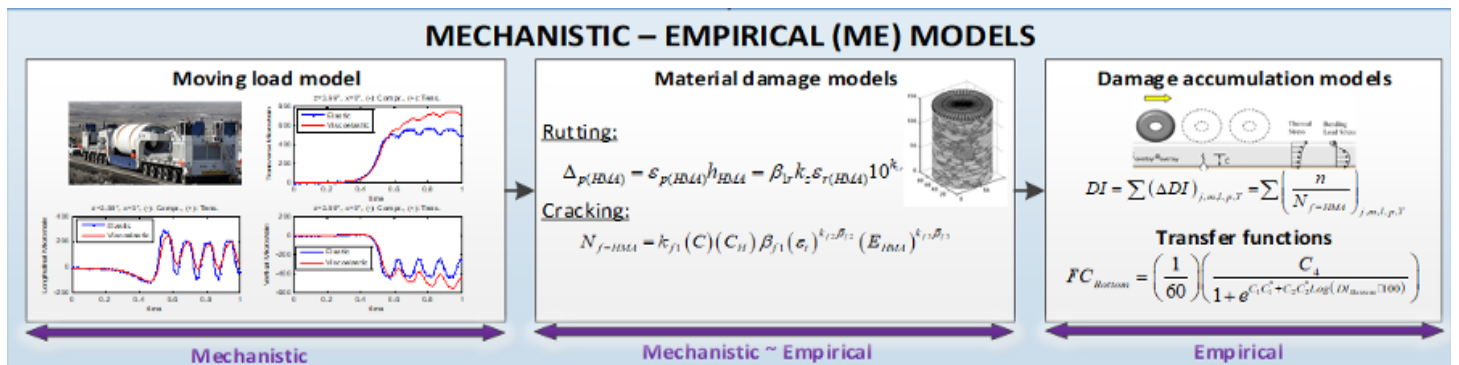
- Generated and developed the Pavement Audit Manual, Standard Operating Procedures, and Mechanistic-Empirical Pavement Design Guide for Qatar
- Generated and developed the Roads Recycling Manual and multiple specifications related to roadworks in the State of Qatar such as Polymer Modified Bitumen specs, Crumb Rubber Modified Bitumen specs, etc.
- Strategized and executed the project focused on delivering QA/QC Pavement Consultancy Service for the Public Works Authority (PWA) Ashghal. Led the project auditing teams of the supervision consultants, construction contractors, and independent materials testing laboratories for the main highways' projects in the state of Qatar
- Nominated and participated in the team that was delegated by the Qatari Public Works Authority to carry out a gap analysis on Kuwait's road construction methods, protocols, and implementation
- Established and developed an independent material testing laboratory (i.e, International Technical Laboratory) in the State of Qatar passing through all development stages:
  - Feasibility study
  - Staff recruitment and trainings,
  - Obtaining all licenses, certificates, and ISO 17025 accreditation
  - Developing and implementing QHSE policy and procedures
  - Business development
- Managed the Western Regional Superpave Center in Nevada, USA.

# Pavement Expert

## Range of services

### Pavement Design and Evaluation

we utilize advanced techniques (i.e. empirical and mechanistic methods) and software to develop efficient and durable pavement designs that can withstand heavy truck loads for the pavement design of highways, heavy aircraft loads for the design of airfield pavements, and environmental conditions. In addition, we conduct planning and design of pavement rehabilitation (including overlays, innovative technologies, reinforcements).



### Mechanistic – Empirical (ME) models

### Design of Paving Materials

our pavement experts provide comprehensive solutions for asphalt producers pertaining to materials selection, mix designs, production of asphalt mixes using innovative materials such as crumb rubber, plastics, polymers, and coloured asphalt. Furthermore, we have extensive experience in the implementation of recycled materials into asphalt mixes to enhance the performance of the mixes and increase the benefit to cost ratio. Moreover, we establish and monitor Quality Control programs including establishment of plant testing laboratory to ensure optimization of the asphalt production and construction.



Discarded Tires



Tires Shredding and Grinding

## Materials Testing

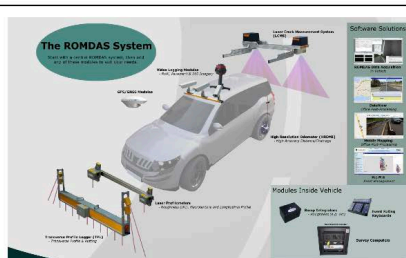
we collaborate with regional and international materials testing entities to conduct comprehensive testing to evaluate the properties of paving materials, ensuring compliance with industry standards and enhancing performance.



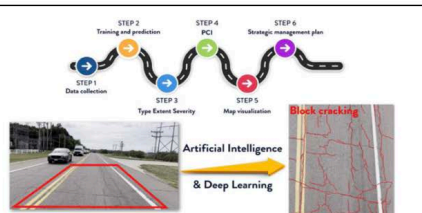
## Superpave Mix Design

## Pavement Condition Assessment

our team conducts thorough inspections and assessments of existing pavements using the state-of-the-art non-destructive testing equipment to identify existing distresses or potential issues.



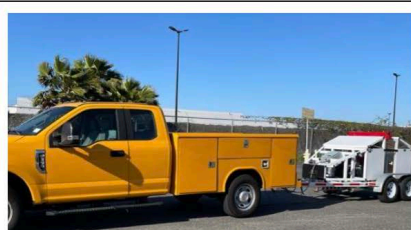
Pavement Condition Survey using Road Measurement Data Acquisition System



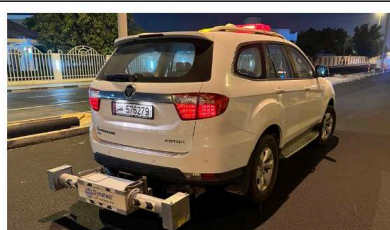
Pavement Condition Survey using AI/Machine Learning



Visualization Dashboard



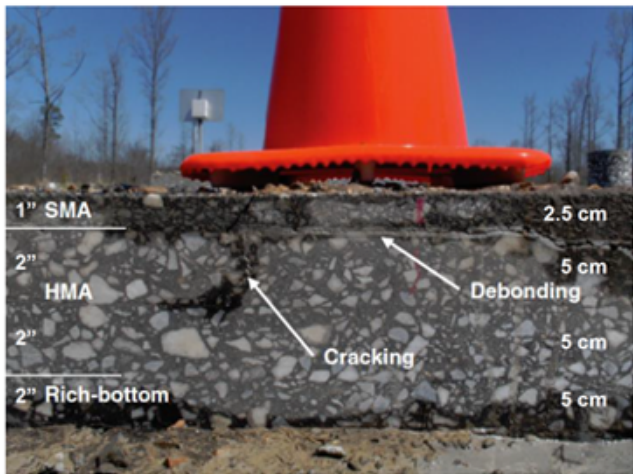
Pavement Layer Stiffness using Heavy/Falling Weight Deflectometer



Pavement Roughness using Road Surface Profiler

## Pavement Failure Investigations

our pavement experts have extensive experience in pavement forensic investigations and providing the appropriate remedy.



*Pavement Cracking and Debonding*



*Delamination in Airfield Pavement*

## Pavement Rehabilitation and Maintenance

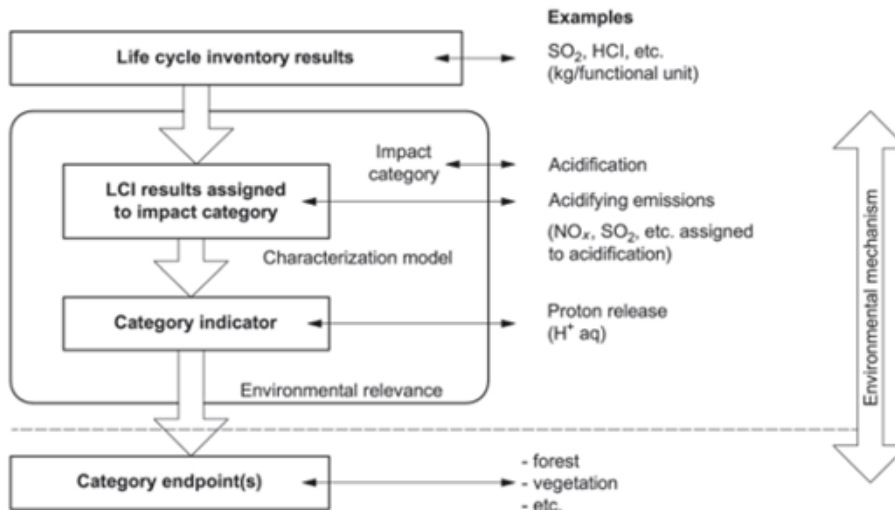
we offer cost-effective strategies for pavement rehabilitation and maintenance, extending the lifespan of the pavements and provide detailed reports and recommendations for timely maintenance or rehabilitation measures.



*Pavement Preservation Techniques*

## Sustainability and Value Engineering

we develop tailored Life Cycle Analysis (LCA) models and tools, implement Life Cycle Cost Analysis (LCCA) protocols, and apply green construction philosophy.



### *Life Cycle Impact Assessment (LCIA)*

## Trainings and Workshops

we provide knowledge transfer with respect to the below topics:

- Pavement design and evaluation
- Performance based testing and selection of paving materials
- Design of asphalt mixes (Superpave, Marshall, Hveem, Balanced Mix Design)
- Design of concrete mixtures
- Pavement Management Systems (PMS)
- Pavement rehabilitation techniques





# Specialist Profile



# Services

QATAR ROMANIA KUWAIT LEBANON KSA UAE IVORY COAST KYRGYZSTAN

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