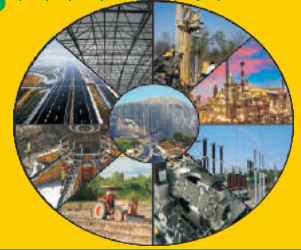


The Nigerian Society Of Engineers



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Excerpts from the Technical presentation on PAVEMENT EVALUATION by Engr. Okechukwu J. I. Ezekwesili (MNSE, MNICE, MNIEE, MNIM,) at the November, 2017 OGM of the Branch.

PAVEMENT EVALUATION

It is the Systematic monitoring of pavement performance including structural and functional assessment by using crude and modern devices so as to measure the ability of the road to carry traffic overtime, improve its performance and manage road networks efficiently within a given budget. It basically helps to measure the level of distress on road surfaces

TYPES OF STUDIES USED FOR PAVEMENT EVALUATION

There are two types of studies used for pavement evaluation are Destructive and Non-destructive testing.

I.) **Destructive Testing** is the physical removal or damage of pavement layer material to obtain a sample (Disturbed or Undisturbed). This is any test that disturbs the underlying pavement layers. Pavement materials are also broken down in order to determine its remaining life, mechanical properties, such as strength, toughness and hardness. Material samples are extracted for both in-situ and lab tests.



Destructive testing with Demolition Hammer, with shovel, diggers and hoes

EQUIPMENT USED FOR DESTRUCTIVE TESTING

- Demolition Hammer
- Shovel
- Digger
- Core machines
- Auger
- Hoes

II.) **Non-Destructive Testing** is the process of inspecting, testing, or evaluating road pavement's physical properties, remaining life, characteristics, materials and assets without destroying or damaging its serviceability. In other words, when the inspection or test is completed the pavement can still be used immediately.



Non-Destructive testing with Falling Weight Deflectometer(FWD) and Becklehem Beam (BB)

EQUIPMENT USED FOR NON- DESTRUCTIVE TESTING

- ✦ Falling Weight Deflectometer (FWD): To know the physical properties of pavement, its structural capacity, remaining life & if it is overloaded.
- ✦ Benkelman Beam (BB): To measure rebound deflection
- ✦ Bump Integrator (BI): To measure road roughness
- ✦ Ground Penetrating Radar (GPR): Subsurface condition
- ✦ PMMS Vehicle & Image Collector
- ✦ Dynamic Cone Penetration (DCP): To measure road material's in-situ resistance to penetration

Distresses are the root causes for failure of Pavements which vary based on the type of pavements.

Distress Types for Asphalt

- Fatigue cracking
- Thermal cracking
- Bleeding
- Shoving
- Potholes
- Rutting
- Raveling

Distress Types for Concrete

- Cracking
- Faulting
- Spalling
- Pumping

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HARMATTAN AND DRY SEASONS

The harmattan season occurs between November and March characterised with cold, dry and dust, carrying various germs.

The mornings are especially cold before sunrise with low humidity, hot day light temperatures, dust particles, blue cloudless sky and drought caused by absence of rainfall.

Risks associated with the Harmattan and Dry Seasons :

1. Fire Outbreaks: This is due to dryness and wind which supports combustion with the slightest ignition.

2. Poor Visibility: The harmattan haze with extreme dry dusty winds reduces visibility which affects aircraft flights and road drivers.

3. Health issues: The extreme low temperatures and dusty environment, pre-dispose very young and aged to respiratory infections like pneumonia, bronchitis with high crises rate of asthma.

- Cold and Catarrh is an infection of the upper respiratory tract of the nose. It develops alongside with coughing, sore throat, sneezing and fever.
- The Skin are usually dry with cracking of it, lips, sole of the feet's
- The eyes are exposed to the harsh climatic conditions causing eye disorders like conjunctivitis, itching etc
- Sickle cell anaemia: The environmental condition is associated with reduced blood oxygen which increases the incidence of anaemia.
- Epidemic diseases are on the increase due to high temperatures which vaccinations are the best ways to mitigate against it. e.g meningococcal meningitis.

Precautions/Remedies to take

Dressings: Wearing different clothings comes with lot of layers and are better than a single thick cloth because air is trapped in them to keep you warm. This can be removed in the afternoon when the temperatures are high. Cultural flowing attires, hats, scarves, gloves and appropriate footwear's can keep away cold during this seasons.

Proper hygiene: This keeps away the build up of disease causing organisms from entering the body by washing of all cutleries, plates before each use properly. These also applies to fruits, vegetables etc.

Balanced diets: A diet rich in all nutrients in the appropriate quantity helps the body to build immunity against diseases. These include taking of fruits, rich in vitamin C and helps prevents cold, catarrh, cough etc.

Eating hot foods & lots of water: This hots up and helps to prevents bacteria and virus build up in the stomach. Lot of water during this season helps to prevents dehydration which occurs as a result of increased osmoregulation activity of the body through sweating and urination.

Moisturizing of the Skin: This helps to prevent the skin from sunburn, repair it also from high Ultra-violet rays of the sun.

by Engr. Simon Omerigwe

GETTING MOTIVATION & ENERGY FOR THE FULFILMENT OF YOUR DREAMS

by Engr. Dipo Agboola

We hold our potentials on the balance of the future. As a people, we need to plan ahead in order to address societal needs which are assets to grow form. One thing is fundamental in achieving this: Goal setting.

Goal setting is a powerful process for thinking about your ideal future, and ordering it positively to elimtate waste of time and resources. It helps in getting motivation and energy for fulfillment of big dreams you desire. The process of setting goals helps you to be disciplined, choose where specifically you want to go in life. By knowing precisely what you want to achieve, you know where you have to concentrate your efforts.

This is why you can't afford to just be wasting your time on frivolous activities. You must sit down and chart the course of your life positively this year if you really desire progress in every area of your life. Successful business people, top level athletes and achievers in all fields all set goals to be the best in their respective field or specialty. You also must if you desire all round success throughout the year.

Goal setting gives you long-term vision and short-term motivation.

A Short term goal/motivation differs to individuals and organisations. It can be weeks, months or yearly for some people and it could take up to 2-3 years but long term goals are goals which you intend to achieve within a projection 5-10 years.

What are your Short and long term goals?

Success is the direct reward for a proper Goal setted and this requires strategies to make it a reality. Employing strategy in your responsibilities will answer the question of how.

In the military, it is believed that if your strategies of making warfare are excellent and intelligent then you have 75 percent chances of victory in battle. Strategy is therefore critical to success in your day to day activities.

The principle of Strategy involves Strategic Thinking, Planning and Execution.

To be strategic, you need to hunt for and get detailed information about the subject matter and engage in quality thinking to come up with a plan of execution. You must continue to evaluate and work on your approaches so as to eliminate whatever is not working.

Conclusively, success is certain when you must engage in strategic thinking; planning and execution of planned course of action for your career, life and all your pursuits.



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