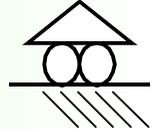


Engineering Newsletter 08

MOMENTS

January 2005



Private Distribution – NOT FOR SALE



Civil Engineers
Ministry of Public Infrastructure and Land Transport

From the Desk...

Kiran Bhujun

New Year celebrations came and are now behind us, leaving all of us— hopefully— ready for another year of hard work, when infrastructural works across the island are again expected to be numerous and equally important and urgent.

January saw the award of many important projects for the Civil Engineering section, with the main one being the Maintenance Contract. The reasons behind this contract, as well as its benefits and its functioning will be discussed in this month's LOCAL NEWS series. We here thank the Acting Chief Engineer who found time to explain out this project to us.

December 2004 ended on a sad note for the international community with the 26 December Tsunami. The Team is proposing, in a combined ASPECTS and CONCEPTS series, a write up on this Tsunami and general observations about this destructive trait of nature. This article will deal about the origin, characteristics and impact of tsunamis on human life and dwelling.

On the HOT SPOT front, a current and general interest topic: P-R-O-M-O-T-I-O-N and the ways to obtain this promotion... Of course, HOT SPOT has remained true to its original principle of publishing facts, even if they may be disturbing or not to everyone's likings... truth is sometimes a bitter fruit... Hopefully, it will be as well read and commented as the previous ones.

Happy Reading...

Opportunities are usually disguised as hard work, so most people don't recognize them.

Ann Landers

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Civil Engineering Section Maintenance Contract

January 2005 has seen the award of the Civil Engineering Section Maintenance Contract. What is this Maintenance Contract? Something to do with the Maintenance Section? The Team went to interview the Ag. Chief Engineer for details.

THE DEFINITION

The Maintenance Contract is a two-year contract which has been awarded to five different Contractors, one for each of our grouping of Districts—*Port Louis; Pamplemousses & Riviere du Rempart; Moka & Flacq; Grand Port & Savanne and Plaines Wilhems & Black River*. The particularity of this Contract is that all major maintenance / rehabilitation / renovation / upgrading works within a particular grouping, provided that the cost estimate does not exceed Rs 1.5 millions have been “pre-awarded” to the selected Contractor. The Ministry has reserved the right to go for open tender and not to directly award to them works estimated at above that value.

WHY A MAINTENANCE CONTRACT?

The Maintenance Contract is expected to help the Civil Engineering Section respond faster to requests from other Ministries / Department.

The aim of this Contract is also to reduce repetitive workload on the Planning Engineers and use their time and competence more efficiently. This will be clear when comparing the procedure for award of works based on the current and on the new way.

THE PROCEDURES

The time frame of the current procedure and those of the Maintenance Contract have been depicted in tables on page 4.

ADVANTAGES / DISADVANTAGES

The biggest advantage of the Maintenance Contract remains the speed it enables work to start on site. The tables on page 4 show that with this method, works actually start on site **3 months BEFORE** they would have started using typical tendering procedure. Since a typical contract period for maintenance (& others) works is about 3 months, this could mean that works could end here before they would have started with traditional tendering procedure!

And the disadvantages then? Not many from what we could gather, except that there might be an *impression* of collusion between the Engineer and the Contractor, since it is the same Engineer who will attend to the request, survey the site, prepare the scope of works, issue the works order and supervise the works.

Should we then use “**Value for Money**” or “**Time is Money**” principle?

CONTRACT MANAGEMENT

This Contract will be handled on the same principles as the ones in the current setup. Any request which is not of *basic maintenance due to wear & tear* will be directed to the specific section dealing with the Ministry issuing the request. Planning Engineers will then follow the new procedure to issue the Works Order and undertake the supervision works. Also, as usual, in case of overload in the Planning Section, District Engineers will be requested to give a helping hand in the issue of Works Order and the subsequent supervision works, apart from their other supervision and routine works.

► continued on page 4.

LOCAL NEWS

Civil Engineering Section Maintenance Contract—continued

Description	Typical Duration of Task (calendar days)	Start Date (assumed)	Completion Date (calculated)
Receipt of Request		01Jan05	
Survey of Site + Survey Report	21	03Jan05	24Jan05
Preparation of Scope of Works	3	24Jan05	27Jan05
Preparation of Draft BOQ	4	27Jan05	31Jan05
Preparation of Cost Estimate	4	31Jan05	04Feb05
Request for Funds	1	04Feb05	05Feb05
Reply from parent Ministry	28	05Feb05	05Mar05
Preparation of Tender Doc	21	05Mar05	26Mar05
Vetting of Tender by SE/PE	5	26Mar05	31Mar05
Vetting of Tender by DTC or CTB, through HO	21	31Mar05	21Apr05
Floating of Tenders	28	21Apr05	19May05
Receipt of Tenders and Evaluation	10	19May05	29May05
Approval of Evaluation report by DTC or CTB, through HO	20	29May05	18Jun05

Typical time schedule for works undertaken by open tendering, following requests from other Ministries / Departments.

(calendar days)

Abbrev. Used:

- DTC:** Departmental tender Committee
- CTB:** Central tender Board
- HO:** Head Office
- Doc:** Document
- BoQ:** Bill of Quantities
- CE:** Chief Engineer
- PE:** Principal Engineer
- SE:** Senior Engineer

Description	Typical Duration of Task (calendar days)	Start Date (assumed)	Completion Date (calculated)
Receipt of Request		01Jan05	
Survey of Site + Survey Report	21	03Jan05	24Jan05
Preparation of Scope of Works	3	24Jan05	27Jan05
Preparation of Draft BOQ	4	27Jan05	31Jan05
Preparation of Cost Estimate	4	31Jan05	04Feb05
Request for Funds	1	04Feb05	05Feb05
Reply from parent Ministry	28	05Feb05	05Mar05
Preparation of Works Order	2	05Mar05	07Mar05
Vetting of Works Order by SE/PE/CE	5	07Mar05	12Mar05
Issue of Works Order	1	12Mar05	13Mar05
Works start on Site	14	13Mar05	27Mar05

Typical time schedule for works undertaken using the Maintenance Contract, following requests from other Ministries / Departments.

(calendar days)

ASPECTS

By Norbert SEEVATHEAN

TSU-NA-MI Murderous Waves



BEFORE



AFTER

00h58 (GMT). Sunday 26 December 2004. An earthquake of 8.9 intensity on the Richter scale was measured off the West Coast of Northern Sumatra. The epicenter of the earthquake was situated at some 40 kilometers from Sumatra. The consequence of this earthquake was a tsunami over a distance of thousand kilometers creating huge waves some 30m high. These had dramatic consequence on neighbouring countries and led to a widespread flooding particularly in Sri Lanka, India, Maldives, Indonesia and Thailand. This tragedy counts, to date, some 250,000 death casualties in Asia.

Tsunamis are among the most terrifying natural hazards known to man and have been responsible for numerous loss of life and property throughout history. The majority of these tsunamis occur in the Pacific Ocean where historical record shows tremendous destruction. Japan is very vulnerable to the tsunami hazards which have previously destroyed entire coastal populations there.

What causes Tsunamis?

The word "Tsunami" is a Japanese word for "Harbor Wave". How it is formed?

Shallow undersea earthquakes are mostly responsible for tsunamis though at time landslides triggered by smaller seismic events can generate potentially lethal waves. Strong earthquakes cause a displacement of the earth's crust. When they occur underwater, this sliding movement disturb a large volume of water, like a huge paddle, and as a result, ripples spread out in all directions at speed of 600- 800 km/hr.

The 26 December 2004 tsunami was caused by an earthquake due to the collision between the Indian and Burmese tectonic plates. Waves, caused by such collisions traveled unnoticed in the open ocean but once they reach shallow water, they slow down, with a drastic increase in the amplitude of the waves. These huge waves are known as "Tsunamis". They are scientifically described as a series of very long wavelength ocean waves caused by the sudden displacement of water triggered by earthquake of magnitude greater than 7.5 on Richter Scale.

► continued on page 6

ASPECTS

TSU-NA-MI Murderous Waves - continued

The strike

The first signs of a tsunami are a very sudden receding water level caused by the trough of the wave. In some instances though, a small rise in the water level just before the recession has been observed. Then came the huge destructive waves which strike the shore and flood the low-lying coastal areas resulting in mass destruction and in many instances loss of life.

Can the arrival of the waves be predicted?

When a tsunami is generated offshore, the wave will behave as a shallow water wave. Knowing that the average ocean depth is roughly three miles, oceanographers can determine the speed of the tsunami and therefore calculate the time of travel of the waves between any two points.

Forecasting the tsunami

To forecast tsunamis and determine their degree of destructive power is very difficult and all the parameters of the tsunami source mechanism must be evaluated in real time. Forecasting the potential destructive power of a tsunami at a distant shore will depend greatly on determining the seismic parameters of the source location such as the magnitude of the earthquake, its depth, its orientation, the size of the crustal displacements and the depth of the water. The tsunami run-up, which is the vertical distance between the maximum heights reached by the water on shore and the mean-sea-level surface, can unfortunately not be forecast with an appreciable degree of accuracy.

The Tsunami Warning System

Following the tsunami of 1946 in Hawaiian

Islands, a rudimentary warning system was set-up. An international Tsunami Warning System was then established in 1964. This system still exists to-date, and makes use of 24 seismic stations, 53 tide stations and 101 dissemination points scattered throughout the Pacific Ocean Basin. The functioning of the system begins with the detection of an earthquake of magnitude greater than 7.5 on the Richter Scale. The seismic data is collected and the location and magnitude of the earthquake are computed. When reports from tide stations show that a tsunami has been generated, which poses a threat to the population, a warning is transmitted to the dissemination agencies for the relay to the public. The evacuation of the people from the endangered areas can then be organized.

Planning

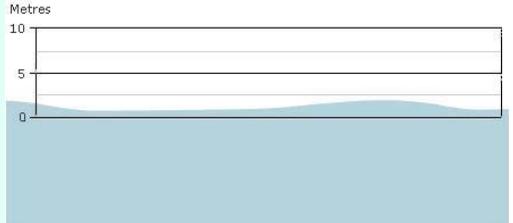
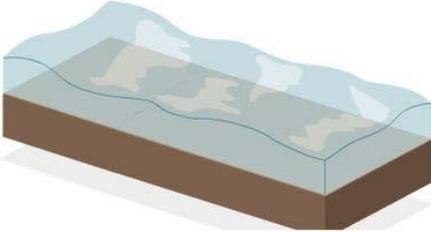
There is very little that can be done to prevent such occurrences of natural hazards but their results, such as loss of life and property, can be reduced by proper planning. Land-use regulations for a given coastal area with high tsunami risk potential should be formulated. In Japan where tsunamis are more likely to occur, the government has already started to plan against this phenomenon. It is strictly advised and forbidden to construct within one mile from the coastal areas.

Should we, here in Mauritius, start thinking of possible tsunami threat and how we should plan to avoid such damage and loss of life? Should we specify the floor height of houses and bungalows in relation to their distance from the shore? When can we expect the next tsunami and is our island likely to be affected by it? All these questions remain.

ASPECTS

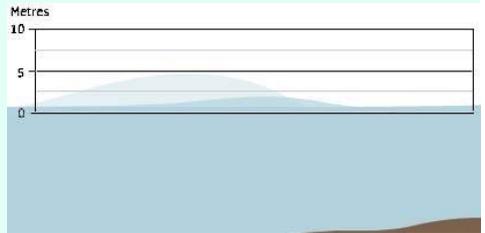
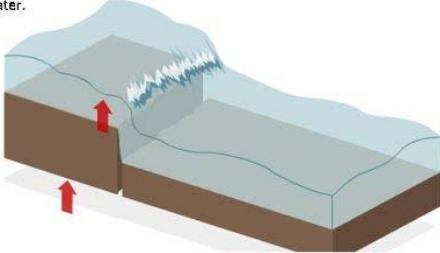
TSU-NA-MI Murderous Waves (Continued)

The tsunami formed when energy from the earthquake vertically jolted the seabed by several metres, displacing hundreds of cubic kilometres of water.



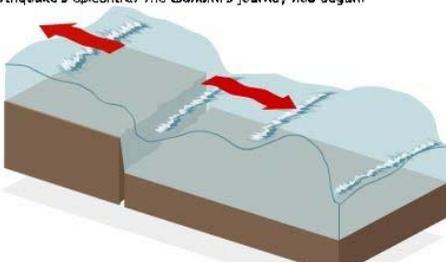
Waves in open sea

The tsunami formed when energy from the earthquake vertically jolted the seabed by several metres, displacing hundreds of cubic kilometres of water.

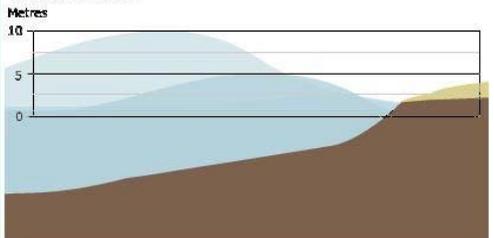


Waves approaching shore

Large waves began moving through the ocean, away from the earthquake's epicentre. The tsunami's journey had begun.



In deep water the tsunami moved at up to 800km/h (500mph). When it reached shallow water near coastal areas, the tsunami slowed but increased in height.



(Adapted from the BBC News web-page)

TSUNAMI !!!!!!!!!!!

Glimpses of the event... (Satellite photos)

NORMAL TIME



Kalutara Beach,
Sri Lanka

JUST BEFORE THE KILLER WAVES



The sea suddenly
receded... leaving
behind even
fish!

TSUNAMI !!!!!!!!!!!

Glimpses of the event... (Satellite photos)

DURING THE TSUNAMI



**Huge waves,
15-20 m high
came crashing on
the shore, wiping
out everything on
the way!**

Kalutara Beach, Sri Lanka



**Banda Aceh Shore,
Indonesia**

Left: before the tsunami
Bottom: after the tsunami



(Photos—Courtesy: BBC World /
T. Demark of Digital Globe)

Please email kbhujun@mail.gov.mu and request for full size photos

MILESTONE

Congratulations !!

The Team expresses its heartiest congratulations to

Mr. Telkraj (Ajeet) Parbhunath for his promotion to the post of Principal Engineer.

Mr. T. Parbhunath joined this Ministry in 1983 as Trainee Engineer, then left on completion of his registration to work in the private sector. He joined the Ministry again in 1986 and was posted in the Quantity Surveying Section, where he served as officer-in-charge of the Quantity Surveying Section from 1989 to 1993.

He also worked as a District Engineer, in

charge of the districts of Plaines Wilhems, Black River and Savanne. From 1996 to 1998, Mr. T. Parbhunath worked at the Traffic Management Unit.

He was promoted Senior Engineer in 1998 and was subsequently posted in the Building Section.

From the Team: **Congrats** again !



CRPE News

Congratulations to our colleague

Mr. Kiran Bhujun

for having been appointed as the new Registrar of the *Council of Registered Professional Engineers of Mauritius* as from January 2005.

Best of luck in this new challenge !

Warm thoughts for **Mr. Reshad Jewon**, the outgoing Registrar, who brilliantly kept the show on for so many years. Mr. R. Jewon has been, as from this year, nominated to be a Board member of the CRPE.



What is CRPE?

The Council of Registered Professional Engineers of Mauritius (CRPE) is an independent and sole Engineering licensing body of Mauritius; it is regulated by an Act of Parliament. For recall, no person may practice Engineering in Mauritius, by law, without prior registration with the CRPE.

The Council operates with a Board of 6

members, two of whom are representative of the Institution of Engineers of Mauritius, two are from the Public Sector, one is from the Central Electricity Board and the remaining one from the Sugar Industry.

More news on its forth-coming web-page.

MOMENTS will keep you all informed.



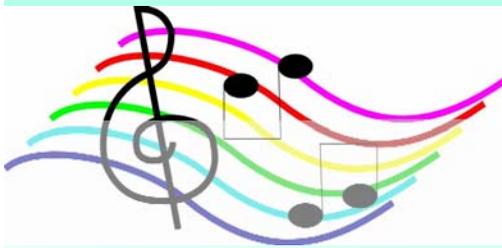
Reza Baareek

**** Challenging Experience !! ****

The MOMENTS TEAM is currently looking for someone to join in and help in the monthly articles writing / collecting and issuing of this Newsletter.

Engineer preferred. Contact any of the current TEAM members.

Office Tips: Soothing the Beasts



Music can soothe the wild and savage beasts and if studies are true, it seems playing upbeat music helps lift employee spirits as well ! It does not matter if the employee is of the reckless, tense, flippant, niggling, supercilious or introvert type, music does magic to all of them.

If our working spirit and morale are to improve and employees are to become more productive, let's try changing the mood by introducing a happy music culture. Let's try to compile and share tunes that will keep people smiling and whistling while they work. We could all play our own music, on a LOW tone, for our ears only, while

working... Groovy to think of working on a Tender evaluation in tune with, say, UB40 playing in the background... Cool....

Another popular option (in the private sector) is to pick a day of the week (usually Friday) in which employees can bring their favorite music in to showcase for the day, on the network... Of course, the music should be acceptable as music to all ears involved.

Studies show that once upbeat music is introduced to the office, an increase in productivity will be noticeable almost immediately, along with a decrease in stress and useless office politics.

Musical MPI
Civil Engineering
Section ?

(Sources: Various)

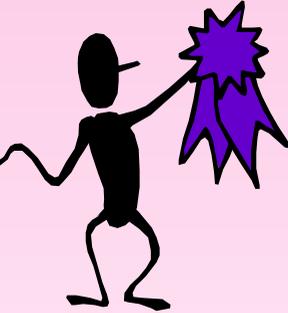


Promotion—Seniority or Selection? The Heat is ON !

A recent promotion started a fresh underground battle, with its surge of passion, anger, political backing threats followed by the unavoidable and traditional petition letter. The perfect idea for another HOT SPOT Issue...

WHAT IS A PROMOTION?

According to the Civil Service Personnel Management Manual, **'promotion'** means the conferment upon a person in the public service of a public office to which is attached a higher salary or salary scale than that attached to the public office to which he was last



substantively appointed or promoted.

There are currently two board type of promotions, class-to-class promotion and grade-to-grade promotion. Their definitions are as follows:

'class-to-class promotion' means promotion to a rank which entails greater responsibilities of a different nature to those previously undertaken and performed.

Eg EC to SAS (hopefully by next PRB)

'grade-to-grade promotion' means promotion to a higher grade in the same hierarchy which entails greater responsibilities of the same nature to those previously undertaken and performed., eg SE to PE

Two other important terms in this article:

Seniority: the relative position of someone in the organisation, as compared with someone else, based on the year/month/day of joining duty. The full definition and way to find out seniority is quite complex and has been spelled out in the Public Service Commission (PSC) Regulations.

Selection: the process by which someone is found better than someone else, usually, as in our case, as a result of a personal or technical interview. This said interview is carried out only for those who accept to submit themselves to it.

Promotion in a grade-to-grade case can then be either by seniority or by selection. This means that someone can get promoted either

by virtue of his years of service in the organization, or by virtue of his aptitude, performance and merit, as concluded through continuous assessment and confirmed in an interview at the PSC level.

SENIORITY +ve / -ve ASPECT

+ve: A promotion based on seniority implies that the organization is continually being headed by the same people who joined earlier than others; as a consequence, the procedures and rules will be well set in their mind, and their experience in the organization would, in general, be an asset in their higher responsibility role.



-ve: Seniority Promotion also implies that, in case of incompetent or unproductive people, they will also be given the opportunity to climb higher in the decision making ladder. However, if from their everyday track record, they are known to either repeatedly run away from active work or dump it on someone else or even fail to take prompt decisions, would they then

deserve a promotion? Any promotion to such people will only bring frustration to junior and more competent Employees and a general "look-down upon" attitude on the organization from outsiders.



The key factor when climbing up should be COMPETENCE, COHERENCE and VISIBILITY.

SELECTION +ve / -ve ASPECT

+ve: The plus points of selection exercise are plenty, with the main one being the recognition of competence and merit. A consequence of a promotion by selection is that the organization usually has a fresh—and very often youthful and modern—approach to traditional problems. New approach, new psychology, new drive... problem solved !

EC:Engineer Civil

SAS: Senior Assistant Secretary

SE/PE: Senior / Principal Engineer

► continued on page 13

HOT SPOT

Promotion—Seniority or Selection? The Heat is ON ! (continued)

-ve: (I can see many sticks waving in my direction already... so let's discuss the minus points of selective promotions) We will look at three of them. The first one is an obvious feeling of frustration from the people who did not get selected, even though they might be ahead on the seniority list... growl... leading to non-cooperation with the new "boss".



Then, of course, how can a panel assess the competence of somebody in a 15 minutes interview? With the current Confidential Report system looking more like a farce year in year out, it is felt that a REAL performance appraisal method is overdue in the public sector, else interviews will always be the opportunity for "baratineurs" to get their way through.

The last one—*shamefully*—but because this country is what it is— is the impression that a promotion by selection is never solely a merit business, but also one where it is appropriate to meet and seek all kind of political and communal and other equally "convincing backing", just as a sure measure that one's "merit" will not be forgotten... This feeling could be the biggest deterrent to the success of selective promotion.



Why? Because there are still many people around who are sincere enough to want to go ahead only with their own competence and with what they can perform with their two hands. And for those, it is still better to climb slowly, in a known seniority list, than risk never to climb to higher position because of experts shoe-polishers suddenly barging in.

WHAT ABOUT THE CIVIL ENGINEERING SECTION?

Both ways of promotion exists at the Civil Engineering Section. Promotion from the post of Engineer to Senior Engineers, and from Principal Engineers to Chief Engineer, through Deputy Chief Engineer is by Seniority, whereas promotion from Senior Engineer to Principal Engineers is by selection.

This is generally in line with PRB recommendations which states: "where a selection exercise has been made for one of the levels of a cadre, appointment to the next grade could be made

on the basis of seniority, i.e. in a cadre of four levels or more, selection could be made for the first and third level or for the second and fourth levels; e.g. if an Assistant has been chosen through selection, the Deputy could be appointed on the basis of seniority and merit etc. This should not preclude selection at two successive levels where the need is felt."

In his 2003 report, the Director of the Pay Research Bureau (PRB) had mentioned that: "Both promotion procedures, namely, through seniority on the basis of a recommendation from the Responsible Officer and through a selection exercise carried out by the Public Service Commission, have their own merits and demerits and a complete standardisation on one or the other would not be in the interest of the Public Service. We hold the view that each case would have to be examined on its own merit depending upon a series of factors ranging from the level at which the promotion is being made, the job specifications and profile, the availability of persons, the establishment size etc.. We also hold the view that, to enable organisations to prepare and choose the right candidate for a promotional position, Performance Management should be introduced as early as possible"

On the other hand, the PSC Regulations states that : "**promotion should be based on qualifications, experience and merit before seniority in the Public Service.**"

PRB also mentions that "**Management submitted (views) that merit should be the main criterion for promotion and the Staff Side argued that in the absence of a proper system to determine merit, promotion should be based on seniority.**"



However, for jobs at the middle level, where some decision-making ability, leadership qualities and skills on the job are required, the PRB has recommended that "**seniority alone cannot be depended upon** for the filling up of the posts. **In such cases, along with seniority, merit must also receive due attention.**"

So... seniority or selection ?

LEGAL CORNER

This is one of a series of interactive articles, as experienced by one or some of us at the Civil Engineering Section. We invite readers to participate with their comments and analysis to widen the debate. Note that all dates are for discussion purposes only. *The Conditions of Contract used is FIDIC 4th Edition.*

(Possible) Answers to CASE #2:

The Team received a number of answers to Case #2. Below is a summary of the most common answers received.

No, the Engineer cannot with-hold payment on grounds that the works have not been approved. It is the Engineer's duty to attend to site and approve the works within 48 hours of the notifications for approvals. Non-attendance to site implies implicit approval of the works !

Moreover, as an intermediate measure, the situation warrants the calling of an urgent meeting between the Engineer and the Client to express concern about the free access to the site of works.

Another answer received was that the Contractor should have been instructed to suspend the works till the matter was resolved... however, this has the disadvantage of penalising the Contractor for no fault of his, while also not being able to explain how and whether the works already carried out should be paid.

Another answer received still is that the Engineer should have informed the Client of the access issue as soon as the second such event had taken place, and the Client should have then been requested to take responsibility for the works.

You can still submit *your* views ... What is your opinion?

CASE #3: Additional Works

Works were nearing completion on site.

The Taking Over Certificate was subsequently issued to the Contractor, and all financial implication thereof were settled.

Mid-way during the Defects Liability Period, the Client realised that either some money was left unspent under the contract or that he required some more work. The Client subsequently made a request for additional works to be carried out under the same contract and on the same site.

DISCUSSIONS:

Should the Contractor be requested to carry out these additional works?

If yes, what are the conditions which could be acceptable from the Contractor and which are those which should be imposed to the Contractor?

And if no, why?

*Send your comments / possible
Answers / opinions to*

kbhujun@mail.gov.mu or

nseevathean@mail.gov.mu

HUMOUR



BRAINY :-)

Scientists have finally figured out what is wrong with women.

The problem lies in the two halves of their brains - the left and the right.

The left half has nothing right in it. And the right half has nothing left in it!

... 😊 ... Sorry Girls...

The wife stood in front of the mirror and said "Look at me, all fat and slack and ugly", then turning to her husband, "I really could do with a compliment now to boost me up" And the guy "Well, darling, you still have a very good eye-sight"

LITTLE BOY

A lady lost her handbag in the bustle of holiday shopping.

It was found by an honest little boy and returned to her.

Looking in her purse, she commented, "Hmmm.... That's funny. When I lost my bag there was a \$20 note in it. Now there are twenty \$1 notes."

The boy quickly replied, "That's right, lady. The last time I found a purse, the owner didn't have any change for a reward."

MOMENTS is now on the web and can be downloaded from our Ministry's web-page web : <http://publicinfrastructure.gov.mu/news.html>

Please use this visit to check out the Civil Engineering Section web-page too...

The Team invites all those interested in submitting articles to **MOMENTS** to do so as soon as possible after the publication of each issue. Please contact any of the Team members for any additional information.

Disclaimer: *Opinions expressed are those of the respective authors, and are not, IN ANY CASE, to be taken as those of the Ministry of Public Infrastructure, or of the Government of Mauritius.*



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Articles and any suggestions towards improving the quality of this newsletter are most welcome.

Please direct your comments / letters to

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