

Trimming *the*

Pennies



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...from 7PA's Desk...

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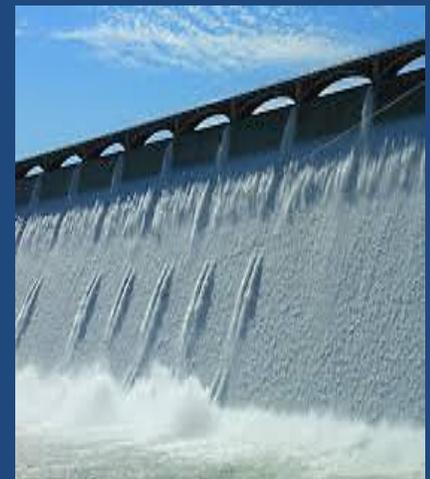


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Whenever you watch Hollywood 1970's movies, you would notice big cars of the time like *Buick*, *Chevrolet* and *Ford*, to name a few. They were gas-guzzlers then, prior to the oil embargo by the Organisation of Petroleum Exporting Countries (OPEC) in 1973. The industrial countries learned the lesson by producing smaller, more efficient engines and more aerodynamic shaped cars that burn less fuel. It was probably the turning point for the world to appreciate **SAVINGS**. Boeing Company introduced the 777 series in 1995, succeeding the Super Jumbo 747. The Extended Range, like 777-200ER (@MH370) could fly longer distance with lower fuel consumption per kilometre. Now, on all fronts, every nation, company, institution and individuals are well aware the virtue of energy savings. The far-east countries like Japan and Taiwan have practically need to import all type of fossil fuels; coal, gas and oil. Probably, their very survival depends very much on energy matters than any other factors.



Malaysia is blessed with bountiful natural resources. The Shell Company has been drilling oil in Miri, Sarawak for more than 100 years. Even PETRONAS which was only incorporated in 1974, has grown by leaps and bounces to be one of the top Fortune 500 companies in the world. Our tropical country with plenty of rainfall and suitable catchment areas make electricity generation by water turbine feasible. Some examples of hydroelectric-power plants are Temenggor, Pergau, Chendroh, Batang Ai and Bakun. The Kapar power station in Klang is run on imported coal. However, the world price for this commodity keeps on escalating (RM290 per tonne in the first quarter of 2014). With the increase in population, the need for utilities like electricity and water will stretch our "not-unlimited" resources. Moreover, the changing lifestyle of modern living demands even more resources than ever before. Imagine if unscheduled power and water supply disruptions happen in your area. Chaos! A report by United Nation (UN) suggests that 768 million people do not have access to reliable source of water and 1.3 billion are deprived of electricity. Should our crop fail due to water shortage, we are really heading towards disaster. That is why, some say, the next world war could be due to over-water.



In our country, electricity supply and distribution are handled by Tenaga Nasional Berhad (TNB). Some Independent Power Producers (IPPs) like Malakoff, Genting Sanyen and YTL Power, still feed into TNB grid for transmission and distribution. As for water, it comes under the jurisdiction of the state government. For example, Syarikat Air Darul Aman (SADA) will take care of the water needs for the whole of Kedah. In the case of telecommunication, the government has licensed Telecom Malaysia Berhad (TM) to handle fixed-line connection. The top three companies that are given right to operate cellular lines are Celcom (019), Maxis (012) and Digi (016).

Cutting Putrajaya's B11

<p>1 Entertainment allowances of Ministers, Deputy Ministers cut by 10%, those of Jusa C and above reduced by 5%-10%.</p> <p>2 Government ministries, agencies and premises to cut electricity bills by 5%.</p> <p>3 Toll payment allowances for senior Government officers to be reduced by 30%, or between RM50-RM100.</p> <p>4 Cut in use of event management companies and door gifts at any public</p>	<p>sector-organised functions involving civil servants;</p> <p>1 All new applications for renovations of Government premises frozen;</p> <p>2 The process of appointing consultants for projects - including Feasibility studies - to be tightened. All applications to appoint the consultants must be submitted to National Development Planning Committee chaired by the Chief Secretary to the Government for approval</p> <p>3 Amendments to eligibility for domestic and international flights. For example the domestic flight eligibility of Jusa C and below is economy class</p>	<p>5 Optimising the use of space in Government ministries, agencies and premises to cut rental bills</p> <p>6 Reduction of food and drinks at conferences, events and other official Government functions</p> <p>7 Fewer bunting and banners to promote events</p> <p>8 Use of Blue Ocean strategy to optimise use of Malaysia Training Centre and facilities at state-owned institutions for training courses, seminars and workshops</p>
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Our government system is divided into 28 ministries; like Education, Health, Defence etc. Under the Ministry of Education, we have universities, polytechnics, colleges and schools. Each of these entities receives yearly grants for both development and operation. The operation may include bills for some utilities like electricity, water, internet, telephone and fax. The Prime Minister has called upon all government departments (PTJ), among other directives, to save 5% on utilities in 2014. The formal Circular Letter, 2/2014 was issued dated 27 January 2014 through the Prime Minister Department signed by the Government Chief Secretary (KSN), Tan Sri Dr Ali Hamsa. Our headquarters, JPP through its Service Management Division further furnished extra guideline on the saving drawn by Higher Education Sector, Ministry of Education dated 11 March 2014. In this installment, we will discuss the recommended steps provided with some of our own idea to make the initiative a success. The table shows POLIMAS expenditure on utilities for the past three years:

	YEAR	UTILITY BILL (RM)	AVERAGE PER MONTH (RM)	AVERAGE PER DAY (RM)	SAVING PER YEAR (RM)	SAVING (%)
1.	2013	1,853,968.98	154,497.42	5,079.37	10,134.34	0.54
2.	2012	1,864,103.32	155,341.94	5,107.13	134,873.90	6.75
3.	2011	1,998,977.22	166,581.44	5,476.65	-	-

Source : POLIMAS Annual Report

First of all, let's look at some definitions. The government **Building and Premises** refer to spaces like administrative offices, officers' room, meeting rooms, lobby, corridors, etc. The term **Energy Efficiency** refers to the reduction in the power used to run air-conditioning and lighting WITHOUT jeopardising the function and staff comfort. Consider the lighting and air-conditioning needs of our institution:



a) Do you often notice how lights in the store room, lavatories and pantries remain **ON**? Sometimes, even over the weekend. Since these places are not often used, the standard practice should be light is **ON** as and only when necessary. Equally it goes for light along the corridors and lobbies with the exception for security reasons. In case lighting is controlled by timers, make sure the ON/OFF works as scheduled because the timer is known to malfunction at times. In Peninsular Malaysia, it is reasonable to switch on security lighting between 7.15 pm and 7.15 am the next morning. An improvement is of course to install the kind of system that detects the intensity of daylight and automatically switch the light ON/OFF.

b) Since we are not paying the electricity bills ourselves, we are callous of the wastage. It is wise to put up small stickers beside the switch to remind users of the responsibility to save electricity. The sticker should preferably be in red. Sometimes the switch to power the fan extractor in the washroom is connected together with the lighting. When we switch OFF the light, the fan extractor will simultaneously be turned OFF. However, sensitive equipment such as server-farm and network-switches need to be under certain temperature at all times. In special cases such as these, we are left with no option.

c) The management should carry out the campaign to save electricity. Apart from the directives in the form of memo together with the guideline, a verbal reminder during assembly and meetings are equally effective. Perhaps, we could also explain the reason why we need to cut down the consumption i.e. we are going for 0% wastage which everyone will see that is equivalent of burning our own money as we are all taxpayers.

d) The next time you go to your office, look at the position of your table. If you believe in 'Feng Shui', you should also believe in saving our nature through saving electricity. Is it possible to place your table next to the window? Is it possible to adjust your vertical/horizontal blind such that the morning sun shines into your room? The doctor says the morning sunlight is great for Vitamin D which your body needs. With the natural light, you probably need less room lights turned ON if not at all. The collective effort by many should result in a lot of savings.

e) In the office we may also have other electrical appliances like freezer, microwave oven, TV, toaster, kettle, photocopy-machine, shredder and VCD player. When we first bought them, we should have asked for energy-efficient models with energy-saving features, like the sleep-mode. Of course the best step is to OFF the main switch that supply the current and pull off the plug. According to a research in the USA, we could save a few million dollars per year if everyone pulls off the plug as current still flow in small quantity even after we switch off the appliance switches. But, we may not have to go that far unless we are going for a long holiday.

f) One of the heaviest consumption of electricity is the air-conditioning. The two types of air-conditioning units are Centralised and Split-Unit. The first type will require generated chilled water that will go through **Air Handling Unit (AHU)** before being distributed through piping to all the rooms, thus you will see as cold-mist coming out from the air-ducts. Normally, the Maintenance Unit will determine the duration the system will operate. Should you have a function during weekends, you need to inform them. The split-unit is simpler. You have absolute control as and when you want to switch ON/OFF or set the temperature as you wish. Consider the following:

- You should turn OFF your room air-con if you will be away for more than an hour;
- You should turn OFF the air-con (LCD, PA System) in the meeting room after a meeting;
- During dry season in Kedah/Perlis in the early year, the temperature outside may reach up to 35 to 37 degree celsius. It is very warm indeed. However, the guideline suggests the air-con to be set at between 24 to 25 degrees. The lower the temperature we set the more power we consume;
- The normal office hour is from 8.00 am to 5.00 pm. Try to finish your work within the time limit unless you have some urgent needs. By all means, conduct your extra night classes as that is considered our core business; and
- Get the Maintenance Unit to inspect your room. Any missing or cracked window pane will cause the hot outside air to dissipate into your room. Putting on protective plastic on the glass could also cut down the amount of heat into your room.

g) To make sure the saving is on schedule, we have to record the utility bills at the end of every month. It is suggested that we display the figures in our War Room where the management can monitor very closely. At the end of every quarter (March, June, September, December), we should be able to correct the action plan or say for certain that we are on the right track to achieve the objectives. The simple table in the War Room is as follows:

UTILITY	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	Cumulative Total (RM)	Average / Month (RM)
Electricity	115,887.30	145,695.45	125,690.90										387,273.65	129,091.21
Water	33,821.20	45,437.70	40,376.20										119,635.10	39,878.37
Telecommunication	5,421.41	5,587.60	5,753.18										16,762.19	5,587.40
Total	155,129.91	196,912.75	171,820.28										523,670.94	174,556.98

Now, let's see whether we could do away with the old habits and adopt new ones, and search for new resources:

a) How many times have you seen the front door or the windows ajar with the air-con blasting? If you keep on observing, how long does it take for someone to close them? (Be warned: if you are too sensitive with such instances, you may go crazy). The solution? A cheap option is to paste a sticker note reminding everyone to close the door in at least 7 languages. The more expensive way is to use infra-red detector that automatically open/close the door. The old revolving-door could also do the trick. However, all these solutions lack security features.





b) If you mix around, you would meet a lot of *holier-than-thou* individuals preaching this-and-that. In reality, they are insensitive to be leaving light or fan working when there is no soul around. Have you ever seen someone volunteering regularly to go around our academic block every evening or on Thursday afternoon to check if there is any light or fan left running overnight or during weekends? Call it by any name, that is equivalent to doing **Corporate Social Responsibility (CSR)**, minus all the glamour.

c) Some nature lovers say we should plant more trees around our campus even though we already have a lot of them. Probably, the tree shade will provide conducive environment for the students to study, without the use of any fan; hence saving electricity. There is some logic with this line of thinking. However, a friend suggested that too many trees will block the wind blow, thus stagnating the air. To be fair, probably there is an optimum to all these matters. We should consult our friends in the Civil Engineering Department for some learned answers.

d) Our country is blessed with a lot of sunlight, the whole year around. However, it seems that we do not put much effort to harness the solar power for some every day uses. Look around your neighbourhood. How many solar panels are installed on the roof? Hardly any. Would you be happy if the washroom light at our office is run on battery charged by solar? It could be small saving but if accumulated, it will be a massive amount. Every semester our final semester students come up with various projects. Could we not ask 30% of the projects to be related to energy saving through solar harnessing?

e) In Kedah, we harvest rice twice a year. With modern mechanisation, the combined-harvester would do the job with ease as compared with the manual-harvesting days. The water is channeled through rivers and irrigation canals from lakes in Pedu/Sik; Muda, Ahning and Beris. Kedah is one of the states in Malaysia having adequate reservoir for both drinking and agricultural water. It is the state government priority to keep the forest in the catchment areas. However, the dry spell is usually quite bad during the early part of the year. Sometimes, it would last till the end of March. The tress in villages, orchards, along the highways and the grass in the field would turn brownish. There will not be much water in the rivers. The question is how do we go about rain-harvesting during its season? The challenge is probably in the storage. If we could do it on a large scale, we would save some money on water bills.





f) In one polytechnic, a group of students invented an electronic-device to control lighting in the washroom. As you enter, a sensor will detect and set a timer. From their studies, they found that on average a user will spend 8 minutes in the washroom. So, should you stay more than the limit, the light will be switched off. However, if there is another user coming in, the timer is reset for another 8 minutes. All in all, the light may be left unused for 4 minutes assuming the last user spends only half of the designated time. However, should we all become wise users, we do not need such a gadget. Just switch off the light as you leave the room. Period. There was a fictitious story about the different approach by the Americans and Soviets during their race to reach the moon. Their concern was about how to take notes on the moon as there is no gravity force as we experience on earth. The ink would not flow down. The Americans came up with a very sophisticated writing device that pumped the ink using precision-technology powered by state-of-the-art battery. It worked wonders. However, it was very much later that the American learnt the simplicity of the Soviets' solution. They just brought along pencil

and sharpeners. The morale of the story is; sometimes we tend to overkill in finding solutions to some simple problems.

g) In the early years we used to have light bulb where the filament was made of tungsten. The power ratings were at 40, 60 or 100 watt. It consumed more power and dissipates much heat. Alternatively, we had fluorescent light which is brighter and produces 'cooler light' where the tube contains low pressure mercury-vapor. There are some attempts to change the lightings to the newer type which has proved real savings. The ingenuity of the human race will see that more and more efficient electrical/electronic devices are introduced.

h) The next time you go to Putrajaya, drop by the so-called '*Iron Mosque*' which is within walking distance of our headquarters; JPP. One of the design features of the building is to include a few ponds surrounding the prayer area. Due to evaporation process, the air will be more moist as it contains higher component of water; hence giving cooler effect. This simple technology is not new. It has been applied for thousands of years around the world. Similarly, if you make a stop at Gurun R&R along the North-South highway, the washroom is designed with an open-concept. That means any unpleasant odour will not be trapped in the building. They do not need electrically operated air extractor too. Again, a simple solution to a simple problem.

i) Some of our institutions are located by the sea where the wind blows consistently. We should tap the wind power by constructing wind-mills. If you ever go to Holland, you would see a lot of wind-mills dotted around the country. It not only produces clean energy but it has become the symbol of the country. We can always start small with one wind-mill and added later as we gain more experience in the design, plus more fund and support. Once, I came across two stories which sound far-fetched but who knows they will become a reality one day. The first is the idea of the so-called Perfect Machine; one that uses say 1000 kWatt to run but in turn produces 1500 kWatt in return. The 1000 out of 1500 kWatt generated would be put back to the machine to keep it running. Imagine if we could produce this, the energy issue will no longer be a factor to mankind. The second idea is to capture the lightning during thunder-storm. It is calculated; if we could store the current, then it will be enough to support electricity needs of an average city dwellers for a month. Keep on dreaming...

Footnote:

a) On 8 March 2014, it was reported that a Malaysia Airlines flight MH370 bound for Beijing disappeared with 239 passengers and crews. The last location was a place called Igari where the control was supposed to be under Vietnam. For three weeks, the world was baffled as to where the plane headed to, whether it crashed or landed secretly somewhere remote. Many theories were suggested, all the technical jargon were dissected, the experts were called in to share their knowledge and expertise. A total of 26 nations gather their minds, assets and resources together to find the ill-fated plane. Never in the history of our country that an issue being headlined in both the print and electronic media for nearly a month. Everywhere you go, people would talk about it. Even my village folks are using terms like primary and secondary radar, the function of transponder, the northern and southern corridors or aware that the so-called black box is actually orange in colour. On 24 March 2014, the Prime Minister confirmed that the flight ended in the vast Indian Ocean at about 2500 km from Perth, Australia. Now it is the race against time to locate the black box as the signal would only last for 30 days. Even though none of those onboard is my relative but my prayers go to their next-of-kin. The one common catch-phrase everywhere is **#Pray For MH370**. My concluding statement on this subject is that I have the experience flying on Boeing 777, in 2007 from Kuala Lumpur International Airport (KLIA) to Frankfurt Airport (FRA), Germany. It is a huge plane and as sturdy as a bungalow. The one thing I remember most was to fly on Business Class. My seat was at the centre of three middle ones on the front row, which is the closest to the door that lead to the cockpit.



b) On 17 March 2014, POLIMAS inked another Letter of Intention (LOI) with ISI Control Sdn Bhd which was represented by Wang Gee Kiang with two colleagues. As usual, POLIMAS always welcomes any relevant company to partner or collaborate with us for mutual benefits. One, with the input from the industry, we can further improve our curriculum, as to reflect new reality in the discipline. Our students would have the chance to be more industry-ready, more confident and better exposed when they graduate later. On top of the LOI, the programme was followed by a Career Talk on Instrumentation and Process Control. The talk itself will contribute towards our PolyPMO 2014, the fifth KPI, i.e. PPI or visiting lecturer from industries. Our target for 2014 will be a minimum of 40 hours for each of the 16 diploma programmes. I was honoured to sign on behalf of POLIMAS as our director was away on official duty.



c) The third **Joint Working Group (JWG)** meeting between Thailand and Malaysia was held on 13 November 2013 at the Ministry of Education, Putra Jaya. The meeting was co-chaired by both countries' Secretary Generals. Our side is represented by Dato' Ir Dr Zaini Ujang (KSU II). The Thai group was represented by a 10-man team from Bangkok and South Thailand. The other local representatives were from universities, college community and polytechnic which were represented by our Director General; Datuk Mohlis Jaafar together with Deputy Director General (Policy), Shabudin Man; Director of Policy Development, Dr Mohd Rashahidi Mohammood. Dr Abdul Rahman Huraissen Masri, Asmah Othman (Head of CISEC, POLIMAS) and I were invited to attend the meeting as observers. The original plan was a collaboration between 19 colleges from Thailand southern parts with our 5 polytechnics in the north. Recently, a group of 42 College Directors all over Thailand made their journey to Songkhla before proceeding to POLIMAS. The trip this time was to Politeknik Merlimau Melaka (PMM) and our headquarters, Department of Polytechnic Education (JPP) in Putra Jaya. The details will be covered in the next installment.

