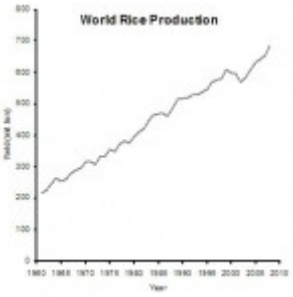
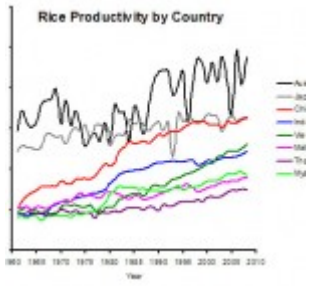
Will Malaysia achieve 100% self-sufficiency in rice by 2015?

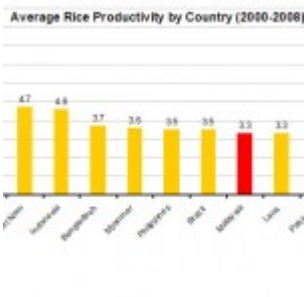
Update (22 Jun 2011):
Online news portal, Free Malaysia Today, used the information from this blog entry in their article "Tambatuon dam is unnecessary" (published Jun 14, 2011). Journalist, Stephanie Sta Maria, also conducted an interview with me regarding my views on rice production in Malaysia.



World rice production

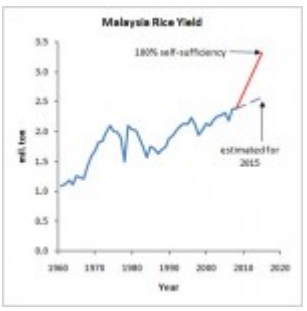


Rice productivity by country



Average rice productivity by country

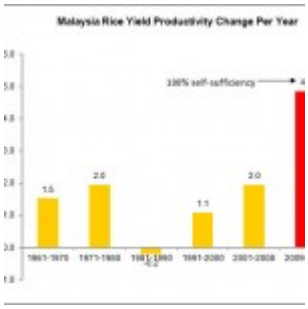
Malaysia's rice land area



Malaysia's rice production

Malaysia's rice productivity

Malaysia's rice per capita



Malaysia's average change in rice productivity

After having read Asian Geographic's excellent rice edition (No. 74, Issue 5, 2010), I decided to download and analyze the freely available data on rice from FAO's website. I was particularly curious to see the latest rice statistics for Malaysia, and how Malaysia's rice production stands against that from some countries as well as against the world as a whole.

I was also curious to see how far Malaysia has to increase its rice production to meet the government's target for full self-sufficiency in rice by 2015. The government's decision to achieve 100% self-sufficiency in rice is probably due to the height of the world food crisis in June 2008, where Malaysia suddenly found itself unable to guarantee sufficient rice for the nation in the following three months in mid 2008. Rice-exporting countries like Thailand, Viet Nam, and India either banned or limited their rice exports during the food crisis, so Malaysia unexpectedly found no one from whom to buy rice. In other words, the food crisis exposed Malaysia's persistent and increasing food insecurity problem.

Recently, the Deputy Minister of Agriculture and Agro-Based Industry of Malaysia, Datuk Wira Mohd Johari Baharum, remarked that Malaysia could achieve 100% self-sufficiency in rice if Malaysia's two major rice areas (MADA and KADA) increase their rice yields by between 5 to 10%. It is uncertain whether the Deputy Minister meant 5 to 10% increase in rice yields per year or over the five years. If the latter, then 5 to 10% increase over the five years appears much too low, considering that Malaysia is currently only 72% self-sufficient in rice and has until 2015 (*i.e.*, five years away) to achieve 100% self-sufficiency.

With these questions in mind, I decided to be detective. In 2008, the world's total production of rice stood at 685.0 million tonnes, increasing at a rate of 9.5 million

tonnes per year.

Countries in the league of top ten largest producers of rice are as follows: **1.** China (194.3 million tonnes), **2.** India (148.3), **3.** Indonesia (60.3), **4.** Bangladesh (46.9), **5.** Viet Nam (38.7), **6.** Myanmar (30.5), **7.** Thailand (30.5), **8.** Philippines (16.8), **9.** Brazil (12.1), and **10.** Japan (11.0). Lying in the 25-th place is Malaysia with a total rice production of 2.4 million tonnes. Both China and India are, by far, the two largest producers of rice, producing half of the world's rice.

What about rice productivity? Most people would probably not know that Australia is the world's most efficient producer of rice, producing an average of 8.7 tonnes of rice per hectare per year from 2000-08, followed by Japan (6.4) and China (6.3). Malaysia's mean rice productivity, though increasing each year, is only 3.3 ton/ha per year. Malaysia's productivity is lower than that for Viet Nam (4.7), Indonesia (4.6) and Philippines (3.5), but higher than that for India (3.1) and Thailand (2.8). Even though, Australia is the most efficient rice producer in the world, its productivity fluctuates widely year-on-year. This is probably due to the frequent water shortages (*i.e.*, droughts) in Australia. Japan also sees a large annual variation in its rice productivity but this variation is much less than that for Australia. China's rice productivity, however, is a rapid and steady increase throughout the years, from a low 2.1 ton/ha in 1961 to 6.6 ton/ha in 2008.

Malaysia's land area for rice remained fairly constant at no more than 0.7 million hectares since the1980s. Even though the land area for rice has remained rather constant, Malaysia's rice productivity increases every year from 2.1 ton/ha in 1961 to 3.6 ton/ha in 2008. Thus, Malaysia's total rice production would also increase each year. Since 1985, Malaysia sees an average increase in total rice production of about 28,000 tonnes per year.

Now, the bad news. Although Malaysia's rice production and productivity increase each year, Malaysia's rice yield per capita (per person) declines each year. From a high of 174.6 kg of rice per capita in 1974, rice yield per capita has since fallen steadily, falling to 86.0 kg of rice per capita in 2008.

If Malaysia is to be 100% self-sufficient in rice by 2015, I estimate that the rice yield per capita must increase to at least 106 kg of rice per capita by 2015. I got this value by taking into account past trends in rice production, rice productivity, and self-sufficiency levels, as well as Malaysia's expected population, eating

habits, and prosperity level by 2015.

So, assuming no change in land area for rice (which essentially has not changed since the 1980s), Malaysia must achieve the following rice yields to reach **106 kg of rice per capita** by 2015; thus, becoming 100% self-sufficient in rice:

- Total rice production by 2015: 3.3 mil. ton (40% increase from 2.4 mil. ton in 2008)
- Rice productivity by 2015: 5.0 ton/ha (40% increase from 3.6 ton/ha in 2008)

To obtain this target of 3.3 mil. ton of rice (and the corresponding 5.0 ton/ha of rice) by 2015, Malaysia's rice productivity must increase by at least **4.9% per year**. So, Deputy Minister Datuk Wira Mohd Johari Baharum is correct if he meant that MADA and KADA (I like to include all rice producing areas in Malaysia) must increase their rice yields by 5 to 10% *per year* (and not 5-10% increase over five years).

Currently, Malaysia's rice productivity increases only by an average of 2.0% per year, not the required 4.9% per year. At this current level, Malaysia will only hit 2.6 million tonnes of rice in 2015, a rice productivity of 3.8 ton/ha, and a rice yield per capita of 82.3 kg per capita. All this translates to an expected self-sufficiency level of only 78% in 2015. Conclusion: objective not achieved.

However, even at 2.0% increase in rice productivity per year, it is still possible to achieve 100% self-sufficiency in rice, provided that the land area for rice in 2008 increases by more than 70% to reach 1.14 mil. ha in 2015. In other words, more than 436,000 ha of new land area must be found for rice fields. In 2008, the Malaysian government mentioned about plans to open 100,000 ha of new land area for rice fields, but this figure is only one-fifth of what is required. Again, objective not achieved.

I am not sure why the Malaysian government put 2015 as the year to achieve 100% self-sufficiency. It is way too early, considering current trends. Moreover, rice production is heavily subsidized by the government, and with the government now trying to reduce their subsidies, it is difficult to see more rice fields opening up in Malaysia.

So, unless there is a major concentration of investment, research, and effort in

next five years by the government, it is very unlikely that Malaysia would be 100% self-sufficient in rice by 2015 or thereabouts.

Rice plant (photo from emum55.blogspot.com/2008/08/ong-seng-choo-holdings-sdn-bhd.html)

Rice edition of Asian Geographic

The latest issue of Asian Geographic (Issue 5, no. 74, 2010) caught my eye recently. This issue was dedicated solely on rice, and one of the main feature articles was on the work by IRRI (International Rice Research Institute), located Los Banos, Philippines. IRRI is of course very well known among agriculturists as one of the main rice research institutions in the world. IRRI was also actively involved in spreading the Green Revolution in Asia in the late 1960s, so it is rather ironic that IRRI is located in the Philippines, a country, once the second largest exporter of rice, is now the largest importer of rice in the world.

Asian Geographic (Issue 5, no. 74, 2010)

IRRI is actively involved in the work to create a C4 rice plant which, due to C4's more efficient photosynthesis pathway, would produce higher yields and require less water to do so.

Also discussed briefly is the genetically-engineered Golden Rice. This rice is yellow because it is rich in beta carotene, a precursor to vitamin A. The rationale for Golden Rice is to overcome the common vitamin A deficiency among children in many underdeveloped countries. However, I believe the exotic Golden Rice is unneeded because so much money and effort are spent on developing the rice when they could have been spent on promoting "natural" and cheaper food alternatives rich in vitamin A such as carrot, pumpkin, mango, and jack fruit. Besides, poor people (or children) who are suffering from vitamin A deficiency are often suffering from other deficiencies too.

Golden rice (right) and normal rice (left) (photo from Golden Rice Humanitarian

Board)

Nevertheless, Golden Rice is currently being developed so that it is additionally fortified with iron and zinc, two common mineral deficiencies in poor countries as well. It is also promising that Golden Rice would eventually belong to the public domain and not owned by some big corporations (like Monsanto or Syngenta) where if it did, Golden Rice would be patented and its seeds costing an arm and a leg to poor farmers. If successful, this multiple-fortified and cheap Golden Rice might just be finally acceptable to GM (genetically modified) opponents (at least to some, anyway).

Other articles in Asian Geographic that piqued my interest were on: 1) rice-fish culture (particularly in Thailand, China, Viet Nam, and Philippines); 2) the types of "friendly and unfriendly" birds in rice fields (friendly birds like eagles and warblers that eat rice pests such as rats, mice, and insects, and unfriendly birds such as munias and finches that eat ripening rice grains); and 3) rice being planted, albeit in a limited land area, in Siberia (!) by the Soyot people.

Even the short article on riceballs caught my interest! I had my first riceballs in Melaka, and I thought cooking the rice and rolling it into ping pong-sized balls was merely a gimmick! Well, it appears rolling the cooked rice into several balls has a purpose. Riceballs help to preserve their warmth inside so that workers, bringing their lunches to work, could still enjoy eating the warm rice. Okay, but wouldn't rolling the rice into several balls increase the total surface area of the rice; thus, increase the cooling rate? Hmm….I wonder.

Riceballs! (photo from virtualmalaysia.com)

In conclusion, this issue of Asian Geographic is very well done, covering a diverse of topics on rice. However, my two complains are: 1) some articles are rather brief and lack depth in science (due to Asian Geographic's target audience with little background in science?), and 2) some of the countries' rice statistics are either wrong, based on old data, or missing (such as the missing data on Brazil's rice production and the ranking of some countries as rice producers were mixed up).

Asian Geographic's Editor, Lunita Mendoza, said this issue was the one of the best issues he had put together for Asian Geographic. I cannot comment on that as this is my first issue of the magazine I have read. Nevertheless, based on what I have read, this is my conclusion: *Well done, Asian Geographic!*

Malaysia's reading habit

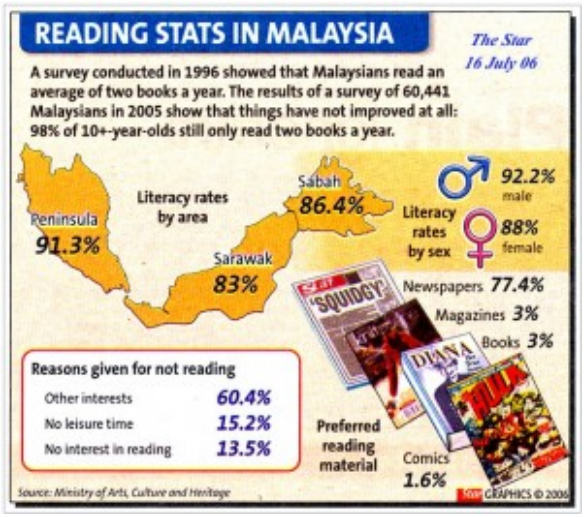
Update (30 Oct. 2013). Added two photos, updated some information, and slightly reformatted the article.

It is well known, even among Malaysians, that Malaysians hardly ever read. So, imagine my surprise when the Information, Communication and Culture Minister of Malaysia, Datuk Seri Rais Yatim, recently said that "Reading has become an enveloping habit for Malaysians with most reading an average of eight to twelve books per year."

How many books do Malaysians read per year? (photo from thestar.com.my)

In 1982, the National Literacy Survey carried out by the National Library reported that Malaysians only read an average of one to two *pages* a year. Fortunately, the reading habit among Malaysians improved to two books per year when the National Literacy Survey was repeated in 1996. Nonetheless, the last National Literacy Survey carried out in 2005 reported that Malaysians still read an average of two books a year. In short, there had been no improvement.

The last survey also reported that Malaysians read increasingly less as they grew older. By the age of 50, for example, only 20% of Malaysians would still continue to read books, a drop from 40% (a figure which is already pathetic) from those in the mid-twenties to thirties age group.



Reading rates in 2005 among Malaysians have not improved since 1996 (photo from thestar.com.my)

What about the reading rates from other countries? Surprisingly, finding that kind of information from the Internet makes quite a hard work. What I managed to procure was the following:

- Mexico: 0.5 books per year
- Chile: 1 book per year
- Thailand: 2 books per year
- Philippines: 3 books per year (interestingly, the Bible accounted two-thirds of the type of materials read)
- USA: 5 books per year (1 in 4 Americans never read a book, but for those who do read, the average number of books they read per year is 7, an average of 5 for males and 9 for females)
- Japan: 10 books per year
- France: 10 books per year
- Canada: 17 books per year

The worst record I got was that in the U.A.E. countries, where their citizens only spent an average of *six minutes* a year on reading books! The normal reading rate is 200 to 250 words per minute, and let's further take the average number of words in a book as 100,000, with 250 words per page. This would make an average U.A.E. person covering only 1500 words (about six pages) per year or nearly 0.02 books a year!

Now, if Datuk Seri Rais Yatim is correct that we, Malaysians, read an average of eight to twelve books a year, this would make us one of the most well read people in the world! Could this wonderful news be true?

As they say: *if it sounds too good to be true, it probably is.*

So how did our Minister of Information, Communication and Culture get that figure of eight to twelve books per year? Was there a recent (but done in secret) National Literacy Survey carried out? Unfortunately, our minister did not quote the reference or explained how that figure was derived.

Anyway, it doesn't matter. This "latest" figure of eight to twelve books per year clearly contradicts what we know of ourselves and those we know. Ask ourselves, ask our colleagues, ask our friends. Do we like to read?

Evidence of Australians' reading habit. Compare theirs with ours below (photo from cimeecomel.blogspot.com)

Why read when you can, err, stare into space? Typical non-reading scene in a Malaysian commuter train (photo from cimeecomel.blogspot.com)

Perhaps we could believe in a marginal improvement in the reading rate among Malaysians, but an improvement by as much as four to six times? If this improvement is true, it would be blindingly evident around us. You would see people reading on your left, right, and centre. Look around you… see any Malaysians reading? Perhaps reading while they wait for the bus, plane, or train?

If you find one, he or she probably has an exam coming up. As a university lecturer, I can confidently tell you that there is hardly a university student whom I have met who willingly reads books (in any language).

Prof. Ambigapathy Pandian from Universiti Sains Malaysia (USM) has perhaps studied the most on the reading habits of Malaysians. In an interesting paper by him in 2000, he surveyed that 80.1% of university students are "reluctant" readers in English-language materials. In other words, 80.1% university students read because they have to. Interestingly, Malay and Indian students have a higher tendency to seek English-language reading materials than the Chinese.

Based on his survey, Prof. Pandian also outlined a profile of a habitual reader in English. People who read often in English are likely to:

- live in an urban than in a rural area
- belong to a family with a high socio-economic standing
- come from a home where there is a greater variety and amount of materials in English, with more influence and reading models at home
- attend a school with a greater variety and amount of materials in English, with more teachers who encourage students to read and more friends who read English.
- be exposed more to English
- have a more positive attitude towards reading in English.

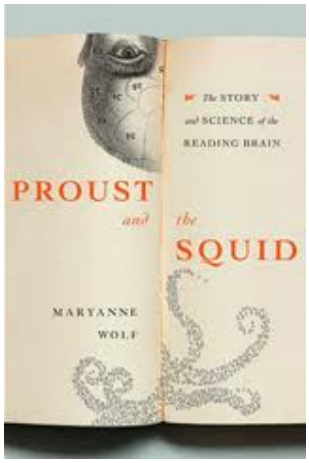
The Malaysian education system is in dire straits. With the education system reverting back to Malay language as the medium of instruction in schools and the government desperately plugging all holes in a sinking boat, I strongly believe the key to improving our education is the inculcation of a strong reading habit among all Malaysians. Although the government has launched several reading campaigns (the recent one is the *Mari Membaca 1Malaysia*, launched in March 2010) to increase the reading habit among Malaysians throughout the years, obviously these campaigns aren't quite working as desired.

A reading habit is an essential life skill. Reading not only increases our knowledge, but it also builds maturity and character, sharpens our thinking, and widens our awareness in social, economic, political, and environmental issues. What most of us don't know that, unlike speech, reading is a learned skill; our brains aren't hard-wired to read. Although a baby can pick up speech from

listening to others talking, reading requires learning. In other words, reading takes effort. It is hard work. But it builds our brain muscles. The effort to inculcate a reading habit pays off handsomely, either directly or indirectly, in our lives.

I like to end this topic by quoting from Proust and the Squid by Maryanne Wolf, a book given to me by my wife, Jennifer, on my birthday:

Reading is one of the single most remarkable inventions in history; the ability to record history is one of its consequences. Our ancestors' invention could come about only because of the human brain's extraordinary ability to make new connections among its existing structures, a process made possible by the brain's ability to be shaped by experience. This plasticity at the heart of the brain's design forms the basis for much of who we are and who we might become.
…
Reading can be learned only because of the brain's plastic design, and when reading takes place, that individual brain is forever changed, both physiologically and intellectually.



Proust and the Squid

Maryanne Wolf

Sources

Pandian, A. (2000). A study on readership behaviour among multi-ethnic, multi-lingual Malaysian students. A paper presented at the seventh International Literacy and Education Research Network (LERN) Conference on Learning, RMIT University, Melbourne, 5-9 July 2000.

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