The Tao Of Loudspeakers

By Steve Mowry

To the typical American, Asia is cloaked in a shroud of mystery and misunderstanding. However, Asia is actually a very diverse continent with several robust and/or developing economies. The focus of this discussion is on Southeast Asia (*Fig. 1*).

A brief overview of the history and economics in Southeast Asia is important for understanding the socioeconomic elements that exist today. The following information on China, Malaysia, and Singapore is from the CIA fact-book. For more information visit www.cia.gov/cia/publications/factbook/—this is a great website, one of my top ten along with http://www.s-m-audio/ and www.audioxpress.com/.

CHINA

For centuries China has stood as a leading civilization, outpacing the rest of the world in the arts and sciences, but in the 19th and early 20th centuries, the country was beset by civil unrest, major famines, military defeats, and foreign occupation. After World War II, the Communists under Mao Tse-tung established an autocratic socialist system that, while ensuring China's sovereignty, imposed strict controls over everyday life and cost the lives of tens of millions of people.

After 1978, his successor Deng Xiaoping and other leaders focused on market-oriented economic development, and by 2000 output had quadrupled. For much of the population, living standards have improved dramatically, and the room for personal choice has expanded, yet political controls remain tight.

In late 1978 the Chinese leadership began moving the economy from a sluggish, inefficient, Soviet-style centrally planned economy to a more market-oriented system. Whereas the system operates within a political framework of strict Communist control, the economic influence of non-state organizations and individual citizens has been steadily increasing.

The authorities switched to a system of household and village responsibility in agriculture in place of the old collectivization, increased the authority of local officials and plant managers in industry, permitted a wide variety of small-scale enterprises in services and light manufacturing, and opened the economy to increased foreign trade and investment. The result has been a quadrupling of GDP since 1978. Measured on a purchasing power parity (PPP) basis, China in 2004 stood as the second-largest economy in the world after the US, although in per capita terms the country is still poor.

Agriculture and industry have posted major gains, especially in coastal areas near Hong Kong and opposite Taiwan and in Shanghai, where foreign investment has helped spur output of both domestic and export goods. The leadership, however, often has experienced—as a result of its hybrid system—the worst results of socialism (bureaucracy and lassitude) and of capitalism (growing income disparities and rising unemployment). China thus has periodically backtracked, retightening central controls at intervals.

The government has struggled to sustain adequate job growth for tens of millions of workers laid off from state-owned enterprises, migrants, and new entrants to the work force. The government must also contend with reducing corruption and other economic crimes, and keeping afloat the large state-owned enterprises, many of which had been shielded from

competition by subsidies and had been losing the ability to pay full wages and pensions.

From 100 to 150 million surplus rural workers are adrift between the villages and the cities, many subsisting through part-time, low-paying jobs. Popular resistance, changes in central policy, and loss of authority by rural cadres have weakened China's population control program, which is essential to maintaining long-term growth in living standards. At the same time, one demographic consequence of the "one child" policy is that China is now one of the most rapidly aging countries in the world.

Another long-term threat to growth is the deterioration in the environment—notably air pollution, soil erosion, and the steady fall of the water table, especially in the north. China continues to lose arable land because of erosion and economic development. As part of its effort to gradually slow the rapid economic growth seen in 2004, Beijing says it will reduce somewhat its spending on infrastructure in 2005, while continuing to focus on poverty relief and through rural tax reform. Accession to the World Trade Organization helps strengthen its ability to maintain strong growth rates, but at the same time puts additional pressure on the hybrid system of strong political controls and growing market influences.

China has benefited from a huge expansion in Internet use, with 94 million users at the end of 2004. Foreign investment remains a strong element in China's remarkable economic growth. Shortages of electric power and raw materials affected industrial output in 2005. More power-generating capacity is scheduled to come on-line in 2006.

In its rivalry with India as an economic power, China leads in the absorption of technology, the rising prominence in world trade, and the alleviation of poverty. India has one important advantage in its

relative mastery of the English language, but the number of competent Chinese English-speakers is growing rapidly.

MALAYSIA

During the late 18th and 19th centuries, Great Britain established colonies and protectorates in the area of current Malaysia—these were occupied by Japan from 1942 to 1945. In 1948, the British-ruled territories on the Malay Peninsula formed the Federation of Malaya, which became independent in 1957. Malaysia was formed in 1963 when the former British colonies of Singapore and the East Malaysian states of Sabah and Sarawak on the northern coast of Borneo joined the Federation. The first several years of the country's history were marred by Indonesian efforts to control Malaysia, Philippine claims to Sabah, and Singapore's secession from the Federation in 1965.

Malaysia, a middle-income country, transformed itself from 1971 through the late 1990s from a producer of raw materials into an emerging multi-sector economy. Growth was almost exclusively driven by exports, particularly electronics. As a result, Malaysia was hard hit by the global economic downturn and the slump in the information technology (IT) sector in 2001 and 2002. GDP (gross domestic product) in 2001 grew only 0.5% due to an estimated 11% contraction in exports, but a substantial fiscal stimulus package equal to US $1.9 billion mitigated the worst of the recession; and the economy rebounded in 2002 with a 4.1% increase.

The economy grew 4.9% in 2003, notwithstanding a difficult first half, when external pressures from Secure Acute Respiratory Syndrome (SARS) and the war in Iraq led to caution in the business community. Growth topped 7% in 2004. Healthy foreign exchange reserves, low inflation, and a small external debt are all strengths that make it unlikely that

Malaysia will experience a financial crisis similar to the one in 1997. The economy remains dependent on continued growth in the US, China, and Japan—top export destinations and key sources of foreign investment.

SINGAPORE

Singapore was founded as a British trading colony in 1819. It joined the Malaysian Federation in 1963 but separated two years later and became independent. It subsequently became one of the world's most prosperous countries with strong international trading links (its port is one of the world's busiest in terms of tonnage handled).

Singapore, a highly developed and successful free market economy, enjoys a remarkably open and corruption-free environment, stable prices, and a per capita GDP equal to that of the Big 4 West European countries. The economy depends heavily on exports, particularly in electronics and manufacturing. It was hard hit in 2001-03 by the global recession, by the slump in the technology sector, and by an outbreak of SARS in 2003, which curbed tourism and consumer spending.

The government hopes to establish a new growth path that will be less vulnerable to the external business cycle and will continue efforts to establish Singapore as Southeast Asia's financial and high-tech hub. Fiscal stimulus, low interest rates, a surge in exports, and internal flexibility led to vigorous growth in 2004, with real GDP rising by 8%—by far the economy's best performance since 2000.

THE WAY

Regardless of the CIA's overview of SE Asia, one thing is clear: There is an acute shortage of qualified loudspeaker engineers within China's consumer electronics industry and throughout SE Asia. However, due to cultural and socioeconomic norms within China, it is very difficult for

independent consultants to find work in China. To quote a well-known colleague from the US with whom my experiences are consistent with the statement he made in an e-mail message dated March 10, 2004, "China is the big market and manufacturing center, but they do not hire consultants. They build up expertise from inside with sheer numbers and diligence. Whether this changes or not is hard to tell." What is so amazing is that this scientist's wife is also a scientist from Hong Kong; she speaks Chinese and has family in Hong Kong!

What, then, is "The Way"? The Way of technology transfer and training of engineers for China's loudspeaker industry is through Malaysia and Singapore. In making a case for this premise, I list the following circumstances:

1. Approximately 30% of the population of Malaysia and 75% of the population of Singapore are of Chinese descent.
2. Many of these Chinese Malaysians and Singaporeans speak fluent English and Chinese.
3. The education systems within Southeast Asia rank Singapore at number one and Malaysia at number two.
4. The Chinese descendents in the predominantly Buddhist countries of Thailand, Myanmar, Kampuchea, Vietnam, and Laos have intermarried and no longer speak Chinese. However, in Malaysia and Singapore, the Chinese typically have not intermarried with the Muslim Malays or the Hindu/Christian Indians.

The Malaysian government's dedication to education and training is clearly evident with the 2005 budget, announcing that 25% of expenditure will be allocated to the education and training sector. This amounts to MYR 21.5 billion (US $5.6 billion) in total, with an allocation of MYR 16.3 billion (US $4.3 billion) towards higher

education and MYR 5.2 billion (US $1.4 billion) towards primary and secondary school education. A breakdown of other areas for expenditure is shown in *Table 1*.

MYR 670 million (US $176 million) for new infrastructure.

MYR 248 million (US $65 million) for upgrading of current infrastructure.

MYR 190 million (US $50 million) for facilities to increase skills training for secondary school drop-outs.

MYR 205 million (US $54 million) for a Tuition Voucher Scheme for children from low-income families.

The government also plans to provide 1.6 million places in higher education and to ensure that 75% of lecturers at HE institutions obtain a PhD level of study by 2010. The latter translates to approximately 20,000 lecturers who will need to upgrade their qualifications.

The government continues to emphasise the need for an educated and skilled workforce that will be the engine of growth for Malaysia's economy toward achieving the country's vision for 2020. The government is encouraging more students to take up programs related to science and technology, setting a target ratio of 3:2 for future graduates at public universities enrolled in science and arts, respectively.

The Ministry of Education is aiming to have 50% graduate teachers in primary schools by 2010 and 100% graduate teachers in secondary schools by 2005. Therefore, the Ministry's plan is to train about 10,000 graduate school heads and 20,000 deputy heads of school in administration and leadership skills, ensuring effective and efficient school management.

The private tertiary education sector in Malaysia remains very substantial. There are currently 16 private universities and university colleges, four foreign university branch campuses, and around 500 private colleges/institutions of non-university status. The regulatory bodies overseeing this sector are LAN (the National Accreditation Board) and the Private Education Department of the Ministry of Higher Education.

Private colleges offer a wide variety of subject and qualification choices to students. There is a wide range of "twinning" and collaboration arrangements with international institutions that allow students to study for international qualification (US, Europe, Australia, and so on), either partly or wholly in Malaysia.

Australian universities, prompted by cuts in government funding and a growing demand for English-language education services in Malaysia, have produced a new generation of "borderless" colleges with twin campuses in Southeast Asia. The US has also been working with the Malaysian government to improve ties, as has New Zealand and Canada, which are keeping a steady pace. Russia and Ireland have clearly positioned themselves as medical destinations, while countries such as Germany, Japan, South Korea, and France are increasing their student numbers by focusing on those looking for entry into engineering programs. Japan and South Korea are part of Malaysia's "Look East Policy," which was designed to emulate the ways of the developed countries in the East in areas such as science and technology; this was brought about by the previous but controversial Prime Minister Tun Dato Dr. Mahathir.

Characterized by a high degree of economic and social inter-dependence, Singapore serves as a realistic model for Malaysia's educational and socioeconomic goals. The Malaysian government is

serious about becoming a “developed nation” by 2010–2020. Singapore’s robust economy is strongly dependent on technology and innovation. Education and research at local universities are essential to the health and continued growth of Singapore’s economy. Isn’t that always the way?

English has become so popular in Singapore that some of these people have lost the ability to speak their native language. The Singaporean government is actively encouraging the people of Chinese origin to learn both English and Chinese.

Back in Malaysia, Penang is widely known as the Pearl of the Orient. It is one of Asia’s most famous islands, and, despite being a small state, is home to 1.3 million people. The population is multi-racial and almost equally distributed between male and female. The racial breakdown is as follows: 59% Chinese, 32% Malay, 7% Indian, and 2% others. Although Malay is the national language, English is widely spoken, particularly in business and the tourism industry.

Penang is a thriving place that offers an amalgam of the old and the new, a bustling port (Butterworth), a heritage city (George Town), and an industrial base (Sungai Petani). The economy is multifaceted, diverse, vibrant, and growing. Not depending on any one sector for its growth, Penang’s economy continues to thrive even during economic slowdowns. This can be attributed in part to the excellent infrastructure and transportation facilities.

With an international airport, an excellent port for ships, access to the North-South highway and the railroad, the greater Penang area including parts of Kedah is an ideal location for the manufacturing sector. Many multinational corporations have their bases here and provide employment opportunities to locals, precipitating the growth of new townships in the suburban areas outside of the state capital.

The northern regions of peninsular Malaysia include the states of Perak, Penang, Kedah, and Perlis. With four fully fledged universities, four university branch campuses, five polytechnics, and more than 60 private colleges, the northern region is the second most important education region in Malaysia, after its capital, Kuala Lumpur, which lies midway along the west coast of peninsular Malaysia.

Situated in the Federal Territory, Kuala Lumpur represents the heartbeat of Malaysia, serving as its cultural, commercial, and transportation center. With a population of over 1.4 million, Kuala Lumpur is by far the largest city in Malaysia. The main races include Malays, Chinese, and Indians, among others, in this multicultural backdrop with their ratios close to the national average, ~30% Chinese. As the capital city, it is the central hub of the Malaysian government, industries, embassies, consulates, high commissions, and important government and professional associations.

The Federal Territory and Selangor have the largest number of public schools, private and international schools, private colleges, university colleges, and public and private universities. Many of the private colleges run twinning as well as other overseas programs, mainly from the US, UK, and Australia.

Education and training remain important to the Malaysian government, and continued development in these fields will be instrumental in the country achieving its vision for 2020. The 9th Malaysia Plan (2006 to 2010) has education and training as a priority sector with a budget allocation estimated around US $12 billion!

THE TAO

My plan is to personally conduct seminars and teach courses in transducer and loudspeaker design within the public sector (government funded) and private sector (industry funded). I have written to several colleagues to encourage them to market their products to the technical universities in Malaysia and/or loan products that would be integrated into my seminars/courses. Additionally, I am using this article as a platform to encourage technically trained colleagues in the US, Europe, and Australia to join me in conducting seminars and/or courses in Malaysia.

With students proficient in English, Internet-based seminars and courses are also a feasible option. Furthermore, there are a significant number of loudspeaker companies currently doing business in the greater Penang and greater Kuala Lumpur areas. Many of these companies have sister companies within mainland China. Conducting training while getting hands-on experience concurrently is a proven effective approach to meaningful and useful technical skill enhancement.

Once a reasonable number of loudspeaker engineers have developed their skills in Malaysia and/or Singapore by training and subsequent cross-training and assuming that these engineers are Chinese, the demand for their services in China will increase wages, technology, innovation, and productivity within the loudspeaker industry in SE Asia through and by the free market forces. Perhaps then the barriers based on misunderstanding that currently exist will fall.

Why is this so important? It is too costly to implement new technologies, processes, materials, and so on in the US or Europe and therefore not feasible. Thus it becomes difficult to obtain funding for

my continued R&D. However, there are many potential opportunities in SE Asia partly due to the same reasons that manufacturing has migrated to this region of world—low costs. By educating and training people within SE Asia, the demand for innovation through competition will surely manifest itself and thus increase the demand for engineering services and R&D.

The loudspeaker industry will best be served if, and only if, we all work together. Isn’t that always the way?

FIGURE 1: Southeast Asia, Burma is now Myanmar and Cambodia is now Kampuchea.

http://www.lib.utexas.edu/maps/middle_east_and_asia/se_asia_ref802645_1999.jpg.