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To the Penang State Government

The 2004 Budget: A Positioning for Penang

Inside this issue:

The growth strategy

"It is going to be an election budget", most Malaysians were anticipating. Past prior-to-election budgets have often been accompanied by reductions in import-duties or tax relief and various exemptions. This time round there should be an added bonus, granted as a parting gift by the Prime Minister who is also the Finance Minister. As it turned out, there was little of the bribing-its-way-into-election that many had imagined. Instead, the budget continues to emphasise a public-private partnership towards development that attempted to spell out, as it should, identified national priorities and balancing these with the opportunity costs to achieve them.

We can thus see lots of consolidation of many facets of Malaysia's economy in the fiscal year 2004 budget. In fact many of the incentives covered in the budget speech have previously been announced and were immediately effective under the Economic Stimulus Package released on May 21, 2003. For the forthcoming months, an important tone in the budget was that the targeted balanced budget by 2005 has been delayed, most likely by one year. This gives some breathing room by way of the disciplining that the economy would otherwise have to face in the present period in order to achieve this target. Instead, the private sector has more time, albeit limited, for momentum to be gained and then become the engine for growth.

Many economists would say that this is hogwash, arguing that fiscal spending cannot effectively replace private sector investments in boosting economic growth because both private and public sectors compete from the same pool of funds and therefore the deficit would hold back, not drive, the momentum in the private sector. Government spending would therefore diminish, not boost, private investments. This argument is not completely correct because of market failure in a variety of products and services. In a country without such goods what they say would be true. But every society faces difficult social choice issues and come out with its list of market failure or public goods such as public schooling, public health, infrastructure, domestic security and so on, that only the government can successfully supply. Properly identified, these goods would have the shadow price of public investments figures at less than unity.

In other words, the budget is a policy statement that signals how economic production is best divided up between the private and public sectors. Tuning in to this signal, the private sector would then configure itself to play the role it has been assigned. For this to work, each budget must remain consistent with the previous and attend itself to fine-tuning as an incremental response to progress made from past investment patterns. It is not the private and public sectors competing to invest, as the monetarists argue, but they sharing their roles as partners in the provision of goods and services for society.

The strategy for driving economic growth in 2004 is to use monetary policy to, on the one hand, push for more investments in the domestic private sector within which the services sector plays an increasingly important role while, on the other hand, continue to stimulate private consumption in tandem. The idea is achieve a better balance between local and foreign sources of investments so as to wean the nation from her traditional dependence on FDIs. However, this does not suggest an attempt to drive growth from within because it remains an ambition for Malaysia to truly become a trading nation. Trade has been the mainstay behind the nation's economic success evidenced by the fact that increasing liberalisation through multilateral arrangements such as AFTA has led to expanding trade volumes. The reality that comes with an open economy is loss of protection to domestic business, which means that the ability to compete in the global market place becomes an essential feature. But ultimately, for growth to become meaningful, it must translate into better quality living for the citizenry and thus strengthening the social agenda is also a requisite ingredient within the overall strategy. To sum it up we have a three-pronged strategy: a viable domestic economy in terms of investment and consumption, sharpening skills to face the external market and a wholesome social fabric that make up the Malaysian people.

The growth components and Penang's positioning

Penang is not on the list of promoted areas that presently covers Kelantan, Trengganu, Pahang and Mersing District in Johore, as well as Sabah and Sarawak. Manufacturing, agriculture and tourism companies in the promoted areas currently enjoy either pioneer status (tax exemption of 85% of statutory income for five years) or investment tax allowance (80% of capital expenditure for five years that can be used to set off against 85% of statutory income). The 2004 budget proposes to extend the tax exemption to 100% of statutory income for five years for pioneer status companies and for investment tax allowance companies, 100% of capital expenditure that can offset 100% of statutory income). Only tourism companies in Labuan will enjoy these benefits.

Even though Penang is not extended promotion privileges the bulk of the budget configuration has an important bearing on Penang as described below.

Tourist related services:

Hotels and tourism project operators currently enjoy a once-off incentive by way of 70% exemption on statutory income as pioneer status companies or as investment tax allowance companies, 60% of capital expenditure allowance that can offset 70% of statutory income. With the 2004 budget, companies which have received these benefits would enjoy another round if they make further investments that will allow them to upgrade the facilities they can offer to the tourism industry. Hotels and tour operators with more than ten employees currently pay a 0.5% levy of the monthly wage to the human resource development fund or HRDF. However, firms registered with Pembangunan Sumber Manusia Bhd. in this industry have been exempted from this levy for six months from June 2003. Exemptions from charging the 5% service tax are also given to restaurants and hotels for the same six-month period. To further help boost local tourism, double deduction for tax purposes is allowed for company expenses for leave passage to domestic destinations between June 2003 and May 2004.

Tourism is an important sector in Penang and with a couple of months of travel restrictions caused by the SARS outbreak outside Malaysia, tour operators were hard-hit. The budget strategy provides some relief but also emphasizes the need to build up capacity if the industry is to grow when travel restrictions are no longer a constraint.

Private education institution operators

There has been a lot of investment into private institutions of higher education in Penang as well as in some other parts of the country. The total number in Malaysia has gone in excess of 500. Unfortunately the majority has not been able to complete the measures required by the National Accreditation Board because of the costly and tedious procedures for accreditation. The 2004 budget curiously makes it tax free for fees earned by experts for accreditation service which will in no way bring about more accreditation among institutions unless savings in tax by service providers are passed on to education institutions seeking accreditation in the form of lower fees. The question remains as to whether institutions seeking accreditation services can negotiate substantially lower fees knowing of the tax benefits to experts.

Small scale industries and enterprises

Locally owned companies are, for tax purposes, defined as small scaled if their paid up capital does not exceed RM2.5 million. Malaysian small-scale businesses, like in Japan, South Korea, Taiwan and China make up more than nine-tenths of total establishments, but only account for about a third of total employment, which is only half the rate compared to these other countries. They therefore have scope to expand their role in the local economy and be weaned off the over-dependence on multinationals and FDIs. Instead of the 28% corporate tax rate, small and medium companies pay only a rate of 20% which was previously capped at the first RM100,000 before reverting to the higher rate. The 2004 budget extends the cap limit to RM500,000. This means that a company with gross income of RM500,000 now saves RM40,000 in taxes. The revenue impact to the government is some RM330 million. The hoped for reduction of the 28% corporate rate was not granted partly because it appears that each 1% reduction spells some RM1 billion revenue loss. To qualify, the companies must export at least 50% of their products or the product must substitute for an imported product in which case this local substitute must contain at least 50% of local component inputs.

Substantial savings to small and medium companies should foster reinvestments or other means of capacity building. To build up capacity, the government has et up the Franchise Development Programme, the Global Supplier Programme and Skills Upgrading Programme so that skills may be upgraded especially to be able to meet international standards that will help gain market share.

Own Brand Name

After three decades of industrialization experience in Penang, it is widely believed that companies evolve through a lifecycle. In the beginning, multinational brand names found local sourcing with suppler companies that do not make anything. These companies are more like trading companies that bulk-import things the front-end brand name company wanted. Eventually they began making such things locally and became subcontractors to the brand name company. The real breakthrough is when companies become original equipment manufacturers or OEMs that supply components to brand companies. The difference between OEMs and subcons is that subcons produce things based on designs and specifications of the brand company while OEMs do their own in-house designs and specs of things that brand companies are likely to need and then manufacture in large volumes to bring unit price down. Thus the link between brand companies and subcons and between brand companies and OEMs distinguishes the business model of the car industry from the computer industry. Car prices go up while computer prices fall. Competition among OEMs drives R&D and product improvement at the components level rather than the final product level and volume output causes component prices to fall. Newer cars are now increasingly made like computers and become better but cheaper based on open standards. Indeed, we might begin to see cars of different brands using the same components. Fast growing companies like Solectron and Cisco do not ever see themselves as own brand name companies because their core-competence is very specific and they can only make components, not whole products.

Promoting the Malaysian brand name company has for many years been a national aspiration – like that of South Korea's Hyundai. However, most of the trade links between Malaysian companies with business counterparts abroad, particularly within ASEAN when AFTA becomes fully implemented, will be in intermediate products or components, because this is where core-competence will lie and where Malaysian companies will possess some degree of competitive edge. Therefore the Malaysian OBN when it comes about will be a status symbol of national pride and joy that reflects the *Malaysia Boleh* exuberance. But by and large most of the successful manufacturing concerns will never become OBNs. Instead there will be many still of the successful Malaysian companies, similar to the Eng Technologies and LKT that hailed from Penang, which have truly become respected names of merit even though their products will continue to be shrouded by the brand of the front-end companies that put the different components together as a final product.

Properties Sector

There are a lot of construction projects underway and planned in Penang especially in Seberang Perai. To help boost the market, tax relief on interest payments (RM5000, RM 3000 and RM2000 for year of assessment 2003, 2004 and 2005) are given for properties in the RM100,000 to RM180,000 range for Sales and Purchase agreements effected with housing developers between June 2003 to May 2004 but restricted to the first house purchased and not rented out. This does not cover purchases of existing properties from private owners. The effect of this limited window should help clear part of the property glut that falls in this market segment. For those outside this market segment, property developers now charge a 0.25% levy paid to the Construction Industry Development Board are exempted the levy for low and medium cost housing projects and the levy reduced to 0.125% for other projects effective from May 2003.

The capital goods industry

Manufacturing industries aimed at the exports market form the bulk of businesses in Penang. The fixed exchange rate of RM3.8 to the U.S. dollar is relatively weak and hence it helps in the comparative pricing of Malaysian exports. However, when production equipment runs down and becomes obsolete, machinery imports will become expensive. Thus although the need for a machinery production sector has long been recognized, previous incentives to the manufacturing sector has been bias in favour of export-oriented companies resulting in the neglect of an domestic-market-oriented industrial base as a critical complement to manufactured exports.

Recent legislations help rectify the imbalance. Heavy machinery and equipment machinery manufacturers currently enjoy either pioneer status or investment tax allowance incentives for five years, involving exemptions of 70% of their statutory incomes, which in the 2004 budget is extended to cover 70% of the increased statutory income. This enables the original 70% cap to be bridged provided that overall net effect beyond 70% is caused by increased income. The list of equipment provided for in the 2002 budget covered machine tools, plastic injectors, material handlers, robotics and factory automation, machine parts and components. In the 2003 budget the list was extended to cover specialized equipment for specific industries, packaging machinery, plastic-extrusion machines. The 2004 budget now adds cranes, quarry machinery, batching plant, port handling equipment, hand tools, power tools, industrial seals and materials and fire fighting equipment.

Extending beyond this list is the supply of cold chain facilities and services for perishable agricultural products for which existing pioneer status or investment tax allowance have been granted. The 2004 budget allows for the usual 70% cap of statutory income to be bridged provided that this arises from either additional income or from additional investments for pioneer status and investment tax allowance companies accordingly.

Capital Market

In our September 2002 issue of *Briefings* we discussed the role of the Securities Commission in developing, through the Capital Markets Master Plan that was launched in February 2001, a variety of instruments that will help domestic businesses obtain funds and expand instead of relying on public listings as had popularly been the case. The 2004 budget has included tax provisions not previously available for the issuance of asset backed securities or ABS, such as a bond issue. This provision will help diversify the source of investment finance by private companies while helping to build up and diversify the capital market in the country. Small and medium manufacturing companies such as those found in Penang tend to be less familiar with alternative financing and it would be worth their while to investigate this further either by contacting a rating agency or the Securities Commission for advice. They might find that going into corporate debt via ABS issues is more advantageous than share issues, especially if they are not configured to fulfil all the requirements of public listing, which have become more stringent during the past two years. Tax provisions as well as deductions are also given for the issuance of Islamic securities in the 2004 budget proposals.

Venture Capital

Venture capital is the other form of alternative financing that small and medium-sized companies can access, as discussed in our October 2001 issue of *Briefings.* Currently, venture capital companies enjoy 10 years of tax exemption where at least 70% of its funds are invested as seed capital, start-ups or early stage financing and where the venture capital exits via an initial public offering or IPO on the stock exchange. With the 2004 budget, there is more relaxation of the contents of the 70%, which used to be the total gross funds but now limited only to the value of the funds invested. Furthermore, as part of the more diversified capital market policy, the exiting mechanism is no longer limited to an IPO but includes as well other financial instruments approved by the Securities Commission.

Remittances from abroad

Currently unless you are a non-resident or a resident business, money remitted from abroad is deemed income from abroad and hence subjected to tax under Schedule 6-28(1) of the 1967 Income Tax Act. To boost domestic investment as well as national savings the 2004 budget proposes to extent the tax exemption to private individuals residing in Malaysia from 2004 onwards. However, the source of the remittance must be legitimate income but not necessarily earned after 2004. Funds channelled from dubious sources, such as the attempt to launder money, would be subjected to other laws.

Overseas headquarters (OHQ), regional distribution centres (RDC) and international procurement centres (IPC)

Approved OHQs, RDCs and IPCs enjoy ten year income tax exemptions for the qualifying services provided to its related companies outside Malaysia. Qualifying OHQs have to be a companies with a minimum paid up capital of RM0.5 million, with business spending of at least RM1.5 million a year, rendering at least three qualifying activities and serving at least three related companies outside Malaysia. Currently, incomes received from local sales in Malaysia in RDC and IPC are exempted from tax provided that this does not exceed 20% of its annual sales. OHQs do not presently qualify for tax exemption on services rendered to its related companies located in Malaysia. The 2004 budget proposes to extend to the OHQs the benefits available previously to the RDCs and IPCs, with the same condition of 20% limit on local sales.

The zero tax for ten years is an existing incentive that might help pull such operations to locations like Penang. In comparison, under current regulations, such operations in Thailand face a 10% tax rate but for an unlimited time. In Singapore, the tax rate is even higher at 15% and only for three years. However, there are other special benefits given to such activities in Singapore.

Factory buses

The 50% discount on road tax for factory buses would further help reduce business cost, especially in Penang where organized commute by bus to the work-place has been the a prominent feature for three decades.

Appointing unemployed graduates

It is curious that while many of the 2004 budget proposals have either retrospective or immediate date of coming into force, the government is limiting the two-year double deduction on the salaries of unemployed graduates hired to come into effect only on January 1, 2004. The savings is substantial especially if labour costs form the bulk of company expenses. But the delay till 2004 means that many companies might tend to keep positions vacant given that there are only three months to go in 2003 and anyone hired before the date will not qualify, unless of course all graduates on the payroll can be terminated of their services and then re-hired on January 1, 2004 – provided that the tax-man can be convinced that any graduate served a pink-slip (i.e. fired) is deemed unemployed. The other wrinkle to this scheme is that some companies might fire non-graduates and then, in 2004, fill the vacancies with graduates but for positions not normally filled by graduates, as has widely been the case during the past few years. The scheme would serve the graduate unemployment problem but it would merely shift the problem elsewhere.

R&D incentives

It is often argued that the existing double deduction allowed for R&D expenditures is not an added incentive as many companies already enjoy tax incentives as pioneer status companies regardless of their R&D spending. To stimulate expenditure on R&D, the 2004 budget proposed to allow companies to accumulate their R&D expenditures during their pioneer years and claim on these as an adjustment on income during the first year of coming out of pioneer status, as a single deduction. On a case-by-case basis, overseas R&D activities, including training of Malaysian staff, will be allowed double deductions. Unfortunately the budget proposal does not respond to the other argument concerning the need for pre-approvals, which are also often made by industrial firms with regards to R&D. Many innovations that result in patents do not arise out of formal R&D projects for which applications could be made to seek approvals. Instead they arise from learning-by-doing such that even though there are tangible R&D outputs, many firms claim they missed out a lot from the tax savings offered by available R&D incentives.

However, research scientists, provided that they come out with commercially viable research based on verification by the Ministry of Science, can enjoy an exemption of 50% on their royalties for five years.

Agriculture

Agriculture is not an important sector in Penang even though it has been given greater priority since the introduction of the New Agricultural Policy. The New Economic Policy introduced in 1971 should have involved the modernization of the agricultural sector rather than the modernization of the rural sector that has instead moved critical investments, both in terms of capital and human resources, out of agriculture during the past three decades. The trend is rightly reversing. The 2004 budget proposals made explicit provisions for agriculture, but other than the very limited possibilities of the processed food industry where there were some incentives given last year and the manufacturing of particle board and fibre board, plywood, and pulp and paper that are specific to oil palm biomass the 2004 incentives will have no impact on Penang.

Entertainment allowance

In the past, companies used to enjoy liberal offset of their incomes by way of entertainment allowance as provided for under Section 39 of the 1967 Income Tax Act. This was rescinded in the 1989 budget. Many people might think that the 2004 budget is bringing back this benefit given that tax of 100% deduction will be allowed for entertainment related to sales and 50% reduction of other business entertainment. The issue concerning entertainment expense in the mind of the tax-man is that any deduction is only allowed if the expense is necessarily incurred in order to derive the income, or what is called the Section 33(1) test. In other words, restaurant receipts obtained after taking the family out to dinner will not be allowed, as this was often a common form of abuse before 1989. Therefore, it would be expected that even though entertainment provisions have been reintroduced, it is unlikely that the tax-man will be liberal this time. In a strict sense, wooing potential clients at a private dinner might not be allowed because this may not be deemed as necessary expenditure. Instead, providing refreshments at a formal or organized trade show may be the type of expense that are more likely to be allowed.

Conclusion

The budget announced this September consolidates many of the strategies already put in place by the Economic Stimulus Package introduced in May. Much of the strategy is directed at reducing the cost of doing business and aimed at small and medium businesses that make up more than nine-tenths of Malaysian enterprises, even though they have yet much scope in expanding their role as an employer. Although Penang is seen as a base for multinationals in Malaysia due to its free trade zone beginnings as a manufacturing hub, these have - over three decades - spawn many small and medium local manufacturing concerns that provide critical backward linkages. The budget strategy gives these concerns a centre-stage role to play in the economic development of the nation.

There is therefore little surprise that has not been anticipated other than the few other items on the wish list considering that this is a so-called election budget - particularly the reduction in the corporate tax rate, that did not come to pass. The important factor is that through the budget, the government's strategy is made clear so that private sector investments occur where they are meant to, so that following decades of traditions in Malaysia's development experience, the public-private partnership towards growth continues to be achieved.
§ Chan Huan Chiang.

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1 Shadow price of public investment is the opportunity cost of the net present value of each dollar diverted from private sector investment.

Is there money in waste? Recycling as a vibrant economic activity in Penang

Overview

Each day, an estimated 10,000 tonnes of garbage (also known as Municipal waste) is produced and sent for disposal nationwide. The prevailing practice is still disposal in landfills while processing of solid waste before disposal is rarely performed in Malaysia. However, due to land scarcity, landfills are increasingly becoming an obsolete option and the government is looking at incineration as an alternative instead. If the wastes are processed or recycled, it can be taken out from the waste stream, which means less waste will end up in dumpsites or landfills. This translates not only to financial savings from waste disposal costs but also profits for those engaged in processing of the waste, in particular recycling activities.

Indeed, there are vast potentials in waste. This may come in the form of direct economic benefits, for instance, in sales receipts and profits for establishments engaged in the recycling business, wages paid to workers in these establishments and other "ripple effects" such as companies and people involved in collection, sorting and transportation of recyclables. According to a study in the US, recycling creates ten times more jobs than landfills! Indirect monetary benefits, meaning money saved from the costs of disposal and treatment of higher volumes of waste if recycling is not practised, can also be substantial. More often than not, the environmental and health benefits of recycling far outweigh the burdens of collection, processing and transportation of recycled materials. Both landfills and incinerators make for poor neighbours as they can potentially emit toxic chemicals known to cause health problems. Recycling, moreover, substantially reduces green house gases that cause global warming as well as preserves natural resources such as trees, energy and water.

It was the above considerations that spurred this investigation into the recycling industry in Penang. The purpose of this article is to conduct a preliminary investigation on the economic activities generated by Penang's recycling and reuse industry and explore how its benefits can be maximised. As there is no secondary data available, the research is carried out through a rapid survey that involves the gathering of primary data from direct interviews and field visits. The findings of the rapid survey only provides a partial picture because the majority of the establishments are involved in the early stages of the recycling loop, i.e. collection and processing. The manufacturers that use these recovered materials to produce finished products are mostly located outside of Penang, which is beyond the coverage of this article.

The survey revealed that recycling could be a potentially viable business and income generator. The bigger players include regional agents who are acting on behalf of the producers of recyclable products. They may also act as traders who perform the middle-person role in marketing and logistics functions.

There are also small time operators who are functioning as backyard industries: buy back centres, wholesalers, collectors to the waste pickers, sorters and cleaners. In terms of location, they are scattered all over the state, with significant concentration in the Batu Maung area, industrial areas in Seberang Perai and in enclaves the inner city of George Town, such as in Armenian Street and Victoria Street.

Besides the strictly commercial undertakings, the economic dimensions of recycling are also manifested in numerous charitable causes. Penang is witness to various community organizations that are using recycling as a means to raise funds for their activities, such as providing jobs for the disabled or giving free medical treatment to the needy. This, of course, is feasible only because labour cost can be taken out from the calculations when recycling for charity is carried out through volunteers. This article will, however, limit itself to discussing the potential economic benefits from recycling as a business concern.

Box 1

Recycling saves lives: The recycling practices of Buddhist Tzu Chi Merit Society

Recycling saving lives? How could this happen? The Buddhist Tzu Chi Merit Society shows exactly how it can be done. Tzu Chi, a Buddhist movement founded by Master Cheng Yen of Taiwan, has been giving free dialysis treatment to over 45 patients a month in Penang and sponsoring poor patients for treatment elsewhere, just from takings from recycling alone! To Tzu Chi, recycling is a charitable effort based on the principle of `respect for the value of things, the environment and lifespan of things'.

The movement started in Penang in 1993 and has since expanded to 18 centres in Malaysia. The collection activity relies solely on volunteers and contributions from the general public. The methods used are curbside collection (house-to house) and setting up of drop-off centres. The recyclables are sold to recycling agents and buyers and all proceeds go to Tzu Chi's charity fund.

Every weekend, hundreds of volunteers, divided to small groups, would go to housing estates and knock on doors to collect recyclables. On average, each housing estate would be visited by the volunteers once a month. They are well received by the public, especially the Chinese community who adhere to the religious belief that donating to the poor is a means of accumulating merit, which in turn will bring them blessings. This is a strong motivation behind the movement. Parallel to its practice of providing dialysis treatment without ethnic or religious discrimination, Tzu Chi has received support from many non-Buddhists as well. This proves that saving lives should go beyond creed and religion.

The only solid waste composition survey available for Penang, which was carried out by JICA in 1995, showed that organic waste is the highest component of our waste stream with 44% being paper and cardboard (21%), followed by plastic and rubber (17%), glass & stone (6%), textile (4%), wood (4%), and metal (2.8%). Although the study is no longer very up to date, it gives us an idea of how much resources we could potentially recovered if we process these wastes.

The discussion in this article is based on the above categorization. However, we would like to highlight another emerging waste category - `e-waste', which is increasingly becoming significant in our modern daily living.

Paper

Paper waste is the most heavily collected item in the waste stream. There are various types of waste paper collected, including double liner craft, pure white, old newspapers, old corrugated carton, mixed colour, paper cores, etc. Prices of the different types of paper vary according to their quality. For instance, pure white paper fetches RM0.60 - RM0.70 per kg, while mixed coloured paper is priced at RM0.15 to RM0.18 per kg. These are just indications of prices paid for waste paper delivered to the premise of the agent.

Waste paper is collected by scavengers, small agents, charity groups or municipal workers. They are then sold to an agent, who would process the waste paper before shipment. In Penang, there are only a handful of big agents. Usually, these agents have storage facilities and employ workers to do sorting and shredding in their plant. From our observations, the workers consist mostly of foreign nationals. Local elderly women are also taken on as part time sorters. One of the paper agents in Penang places open trucks in strategic locations, e.g. charity organization, hotels, factories and schools. When the trucks are full, the load will be transported back to the plant. To attract the corporate sector, the agent also provides shredding machines for external use free of charge.

The wastepaper is packed into 500kg or 1-tonne bails. Once packed, they are delivered to paper mills for the pulping process whereby waste paper is mixed with water and agitated in a pulping vat to make a lush. Impurities like staples and binding materials are removed by screens. The recycled paper, rolled into jumbo reels are then delivered to consumers. The only paper manufacturer in Penang is Muda Paper Mills. The biggest paper mill that uses waste paper is Malaysian Newsprint Industries (MNI), located in Temerloh. Both are major paper manufacturers in Malaysia and invest heavily in R & D of recycling technologies. It takes 1.2 tonnes of waste paper to make 1.0 tonne of new paper. Most paper manufacturers face problems of low supply, i.e. there is simply not enough waste paper to recycle; so much so that waste paper has to be imported.

Unlike other paper mills, Muda Paper, which operates a 50-acre plant in Simpang Empat, is able to get 100% of its raw recyclable paper locally, as it has established a long history of networking with the local suppliers. It employs more than 420 workers and has a production capacity of 300,000 tonnes of recycled paper per year. According to Muda Paper, in terms of price, the recycled paper is quite competitive compared with paper produced from raw materials.

Besides paper mills, which are the key consumer of waste paper, there are also agents who deal with `refurbishment' of waste boards. One of them is located at Batu Muang. Carton boxes and paperboards are reconverted to new products in customized sizes. Sources of the material come from used corrugated cartons boxes from supermarkets or factories. The agent would customize new carton boxes from the old boards, employing simple manual processes such as cutting, stapling, printing of new logos and packing. They are then sold locally to food/textile/stationery/electronic outlets.

Plastic

The general perception has been that plastics are the least recyclable products. After conducting visits to several recycling plants in Penang, our perceptions have somewhat changed. In fact, most plastics can be recycled in one way or another, though their prices are not comparable to that of paper and aluminum cans. Post consumer plastics include plastic bags, mineral water and soft drink bottles, polystyrene packaging and cups, plastic cutlery and plates, containers, shampoo and detergent bottles.

Presently, it is estimated that there are only 11-12 plastics recyclers in Penang. Plastic products are collected either from scavengers or through contractual waste collection from factory outlets. Plastics are either processed locally or bailed for export. The factories recycle an assortment of plastics, ranging from ABS plastics, Nylon, polyamide, PC, PE, PP, Poly(polypropylene oxide), PS, Styrene-acrylonitrile plastic and other plastics made from mixing different resins and other materials. These plastic recyclers are mainly located in Seberang Perai, with some larger operations in the Kulim Industrial area, which also obtain their post consumer plastics stock from Penang. A few other companies melt down the plastics such as PE and PP, and remanufacture them into lower grade plastic resins which are sent to China.

Box 2
Types of plastics resins and products

PLASTIC RESINS	COMMON PRODUCTS	RECYCLED PRODUCTS
Polyethylene Terephthalate (PET or PETE)	Plastic soft drink and water bottles, beer bottles, mouthwash bottles, peanut butter and salad dressing containers, ovenable film, ovenable preprepared food trays.	Fiber, tote bags, bottles, clothing, furniture, carpet.
High Density Polyethylene (HDPE)	Milk, water, juice, cosmetic, shampoo, dish and laundry detergent bottles; yogurt and margarine tubs; cereal box liners; grocery, trash and	Liquid laundry detergent containers, drainage pipe, oil bottles, recycling bins, benches, pens, doghouses, vitamin bot-
Low Density Polyethylene (LDPE)	Dry cleaning, bread and frozen food bags, squeezable bottles, e.g. honey, mustard. Flexible lids and bottles and it is widely used in wire and cable applications for its properties and processing characteristics.	Shipping envelopes, garbage can liners, floor tile, furniture, film and sheet, compost bins, paneling, trash cans, landscape timber, lumber.
Vinyl (Polyvinyl Chloride or PVC)	Clear food packaging, shampoo bottles, medical tubing, wire and cable insulation	Packaging, binders, decking, paneling, roadway gutters, mud flaps, film and sheet, flooring, cables, speed bumps,
Polypropylene (PP)	Ketchup bottles, yogurt containers and margarine tubs, medicine bottles.	Auto battery cases, signal lights, battery cables, brooms and brushes, ice scrapers, oil funnels, landscape borders, bicycle racks, rakes, bins, pallets, sheeting trays.
Polystyrene (PS)	Compact disc jackets, food service applications, grocery store meat trays, egg cartons, aspirin bottles, cups, plates protective packaging, containers, lids, cups, and trays.	Thermometers, light switch plates, thermal insulation, egg cartons, vents, desk trays, rulers, license plate frames, foam packing, carryout containers.
Others (made of more than one resin)	Three and five gallon reusable water bottles, some citrus juice and ketchup bottles.	Custom products, plastic lumber

Source: Adapted from American Plastics Council Resin ID Codes

One particular company that operates in the Kulim area obtains its plastic scraps, especially LDPE, from scavengers in the municipal dumps. The owners, however, complain of not having enough feedstock for melting and are currently operating at only 50-60% capacity. They complain also of low quality and highly contaminated plastics from local sources. To supplement the inadequate local supply, they have been importing higher quality and less contaminated stock from Europe (odds and ends of supermarket bags). However, this practice was stopped when the Department of Environment (DOE) recently reclassified such feedstock as Scheduled Waste.

Ironically, while some plastics manufacturers have to import recyclable plastics, local plastic waste is shipped to foreign markets. One recycling plant in Batu Maung, for instance, which is supposedly the `biggest player' and dealing with all kinds of plastics, has been exporting plastics to overseas markets. The volume processed per month ranges from 20 to 25 tonnes. The processes involved in this plant include sorting, removal of stickers, crushing, and bailing, before transportation to the harbour and shipping to Thailand and Indonesia.

Glass bottles

Generally, glass is 100% recyclable. However, there are various types of glass products, the most common ones being glass bottles and flat glass. There is a low volume of glass material in the municipal waste stream because the glass is usually collected by waste pickers before the waste reaches the dumpsite. However, there are also recycling agents who contract with hotels, sport clubs, and supermarkets to collect glass bottles from them periodically. Even though physically glass bottles are 100% recyclable, some recyclers in Penang feel that it is not feasible as it incurs high costs in transportation and space for storage. These glass bottles need to be stored until a certain volume is reached before being returned to the producers, which are often located outside Penang. The key manufacturer that uses recyclable glass is KL Glass located in central Peninsular Malaysia.

There are also small traditional `botol' shops, which have existed as small backyard industries in Penang for decades. They operate in junkyards and buy from scavengers or small time collectors. These operations involve sorting, washing, scraping off the labels, drying and packing in gunnysacks before the bottles are collected by agents for factories such as Carlsberg and Guinness Stout. Prices vary according to types of bottles and whether they are processed. For instance, for beer bottles, the buying price is RM0.05 per bottle; and selling price is RM0.15 after washing and pack. For sauce bottles, the buying price is RM0.15 and they are sold at RM0.40 after cleaning.

Metals, aluminium cans, tin containers, etc

Together with waste paper, aluminum products are one of the highest priced recyclables. The price paid to a collector can be as high as RM2.50 per kg. Although cans are 100% recyclable, the recycling technologies are only available overseas, where bauxite is available and where there is economy of scale. Hence the recyclables are being exported overseas. In turn, can manufacturers in Malaysia use imported aluminum coils as raw material.

Recycling of aluminum cans in Penang and Malaysia generally, are limited to collection, processing and export. The major players involved in this exercise include waste pickers, dumpsite collectors, small dealers, and overseas buyers. Post consumer aluminum waste may come from a network of collectors, dealers and traders. They usually get their supply from organized sourcing or from small time collectors.

There are also smaller collectors, concentrated in Victoria and Armenian Street, who depend on junkyard activities to source their materials. They buy aluminum cans, scrap metals, iron, copper, tap heads, pipes from individuals or scavengers. These metals are then sorted into various categories and sold to bigger agents, who will then sell to Malayawata. Other items such as biscuit tins and Milo tins are kept and sold to walk-in customers during festivals. Apart from metal and aluminum, these junkyard operators also deal with all sorts of other recyclable items, such as gunnysacks, wood, old clocks, small machine equipments, etc. Some of the products can even be customized according to specifications. These include wood planks, old doors, glass louvers and zinc roof, which are salvaged from house demolition/renovation. They are systematically displayed according to types.

E-waste

E-waste encompasses a broad and growing range of electronic devices ranging from large household appliances such as refrigerators, air conditioners, hand-held cellular phones, personal stereos, and consumer electronics to computers. E-waste has become a problem of crisis proportions because of two primary characteristics: it is hazardous; it is generated at alarming rates due to obsolescence as technology progresses.

Discarded computers, televisions and other electronic devices are becoming a significant disposal problem in Penang. E-waste contains over 1,000 different substances, many of which are toxic, and create serious pollution upon disposal. With the advance in information and communication technology, electronic product life spans become increasingly shorter. New models of some electronic products are being produced every 3 months. There is a trend towards shorter useful lives of electronic equipment, particularly PCs and cell phones.

The main sources of e-waste found in Penang are OEMs, individuals, businesses, institutions, government and community. Presently, e-waste is mainly discarded as garbage and collected by the Municipal Councils. Large corporations and manufacturers of new equipment tend to have a much higher rate of electronic waste recycling than individuals and small businesses whereby most of the e-waste from the latter concerns would end up in the Pulau Burong landfill as there is presently no mechanism for recycling or safe disposal for community-generated e-waste. Existing collection/disposal systems are inappropriate and inadequate to handle these materials. Many facilities are unable to handle electronic waste due to constraints in space and handling problems.

At present, there are a number of firms, both on Penang Island and Seberang Perai, which are collecting and recycling e-waste. Smaller operations along Armenian Street and Victoria Street buy directly from customers for a minimal price and sell them to people who are looking for spare parts for repair work or to operations that refurbish computers for reuse. These are often collected in small quantities from individuals who either give them free of charge or for a token sum to the buyers. Such small operations are often not well organized and do not really dismantle or process e-waste for proper recycling.

Larger operations also exist on both the Island and Seberang Perai. They are better organized as they receive the e-waste stocks from factories. Many of these set-ups are also vendors of manufacturing firms in the Bayan Lepas Free Trade Zones. They are usually assured of a stable volume and quantity from OEMs, who either sell them their defective products or scraps from the manufacturing process. Vendors are engaged as contractors to scrap such items and not selling them as second-hand products. Such operations also accept electronic waste from other countries. These are then dismantled and separated into various parts and components, packed for resale locally or exported to other countries such as China and Indonesia. Operations are mainly manual with the aid of some machines.

There also exist well-organized vendors that collect computers from the community and even suppliers from overseas for refurbishment and resale. One particular example is Dell, which has started a voluntary "PC Recycling Programme" to collect e-waste. Under this programme, the public can call up Dell representatives to collect from households and offices upon request at zero costs. The PCs are then handed over to a company, which will dismantle and distribute the parts to other companies for reuse. Besides Dell, a few more companies have also voiced interest in collecting e-waste.

Perhaps it is time for Penang to emulate the example of the European Union, which is looking into passing a directive on Waste from Electrical and Electronic Equipment (WEEE), based on principle of "extended producers responsibilities", which demands take back of electronic equipment at the end of its life and bans the use of toxic heavy metals in its production.

Box 3

Resources that can be recovered from E-Waste

- **Glass:** from monitors
- **Material containing copper:** Including printer and other motors, wires and A cable, CRT yokes.
- **Steel:** Including internal computer frames, printer parts, screws, mouse bearings
- **CPU:** Valuable reusable processors and chips
- **Gold**: Other chips and connectors containing gold
- **Solder:** lead/tin base
- **Plastic:** Including housings of computers, printers, faxes, phones, monitors, keyboards
- **Aluminum:** Printer parts

Old clothes

When a society becomes richer economically, it is often reflected in the consumptive lifestyle of its people. Penang is one such case. This is manifested in the discarded fashion and clothing items, many of which are still usable and fairly new. Usually these old clothing are donated to charity homes. However, due to the high volume that these charity organizations have been receiving, they usually sell them to generate funds.

Our visit to old clothes recyclers has revealed that the unpretentious recycling of old clothes could actually be a viable business venture. There is a company which operates its plant in Perai, which is perhaps the only old clothing trader that is carrying out its operation as an "industrial" activity, it is perhaps the only `factory' that deals in the trading of old clothes on a large scale. It operates using 6 to 7 lorries daily and employs 20 to 30 workers in its plants. Other clothing recyclers are mainly run as family businesses and sold in local markets.

They have a systematic collection system to collect old cloths from charity organizations and other collectors. The recyclable items are bought at a price (RM0.70 to RM0.80 per kg). The company also imports old clothing from Taiwan, Korea, Japan and Germany. The imported clothing is sorted together with the local ones by employing women workers from East Malaysia. Comparatively, the imported clothing fetch higher prices compared to local ones. Manual labour is used to separate the clothing according to type and quality. They are then packed in 50-kg and 100-kg bails and exported again to countries such as Indonesia, Thailand and Cambodia. Some of the better quality ones are sent to other states in Malaysia where the items will be sold in Pasar Malam or in bundle shops in rural areas. According to the boss, "As world population grows, proportionately, there will be more poor people compared to rich people, so the old clothing business has a huge potential market".

Kitchen/household appliances

Second-hand kitchen or household appliances can usually be found in roadside stalls and flee markets in Lorong Kulit or Armenian Street. But large scale specialized shops or furniture warehouses are still new in Penang. We found out that there is at least one of these shops that function as an All-in-One second-hand household items warehouse in Penang. It is located in Victoria Street and deals with all kinds of household appliances such as kitchen utensils, mattress, and computer peripherals, precious antiques, fax machines, video recorder, wooden furniture, etc. It is not an exaggeration to say that one can equip a new industrial kitchen just by sourcing the necessary items from this shop. Its supply is mainly obtained through barter trade or cash transactions. Usually the items will be sent to them directly and this is how the cost of transportation is saved. Workers are employed to repair and refurbish some of the products before they are resold. The only problem faced by the operator is lack of space for storage.

Box 4

From waste picker to paper recycling giant - a personal success story

Since 14, Leslie Lim Yu Chin has vowed to become a successful entrepreneur. Leaving school was a natural choice for him and he has since held various jobs such as a hawker, waiter, furniture apprentice and popcorn seller. His sheer determination and involvement in the business world at a very young age helped to pave the way for his success later.

At the age of 18, while walking on the road one day, he discovered that rubbish was dumped at the roadside indiscriminately. That gave him an inspiration, he thought, "Why don't I turn the waste to money?" With this brilliant idea, he started to collect newspapers from house to house in Kuala Lumpur, using a small van. Later, he decided to move to Penang as he felt that Penang has a bigger potential market.

At a time when nobody talked about recycling, Mr. Lim was already a pioneer in this potentially lucrative but unknown territory. Today, at 38, Mr. Lim is the proud owner of Ee Seng Huat Sdn. Bhd., a major recycling trader in Penang. ESH has plants in Juru and Batu Maung, owns more than 20 trucks and lorries and employs more than 80 workers. Apart from recycling paper, his future plans are to expand his recycling business to other items such as plastics, tins, scrap metal, etc. This, according to him, can only happen if the problems of cheap labour and logistics are resolved.

Issues arising

The recycling activity in Penang is basically run in an open market system without any form of control or support. It is thus entirely a "survival of the fittest" business. There is no supporting mechanism or effort in coordination and networking either from the government or from the industry players themselves. As a result, there is a lot of overlap and unnecessary waste of resources stemming from unhealthy competition, lack of information, and weak infrastructure support.

The main sources of discarded material for recycling are presently from the industrial and household sectors. The industrial recyclable waste is well taken cared of, i.e. firms often contract out their waste to specific vendors and the vendors enjoy a constant and steady supply of materials as frequency and quantity is often assured. There are a lot of bidders in this sector and it is often hard for new players to break into established networks. The second source is from households and communities. They are often unpredictable and low in volume. Included in this category is the discarded material from the municipal waste stream but these are often highly contaminated and hard to access as much of it goes to the sanitary landfill at Pulau Burong.

Due to the unpredictable nature of the supply, many recyclers often resort to importing discards from other countries. This is often true for plastic and paper recycling industries where operations are always short of materials for recycling. It was reported that every month, 100 tonnes of plastics need to be imported for recycling. Similarly, Malaysia is importing 25,000 tonnes of old newspaper for recycling, but it was said that 60% of old newspaper ends up in landfills (NST, 12/8/03).

The importing of plastic waste has been banned by the DOE recently due to concerns over imported hazardous waste. Many plastic recycling operations have closed down and our interviews with major plastic recycling operations indicate that there are hardly any left in the KL region and only about 4-5 left in the country. There are, however, many traders who crush, compact and bale the plastics and then export them to countries like China, Indonesia and Thailand.

Another major issue affecting the recycling industry is the rising cost of labour. The recycling industry is labour-intensive, but due to the highly manual and tedious nature of the job, there are few locals who are willing take it up. As such, most of the established recyclers have no choice but to employ foreign labourers. Labour is one of the major problems faced by the recycling industry. Although the application procedures for foreign labour has been relaxed to include a wider range of nationalities, responses from the recyclers and traders showed that they still face problems and delays in their application process.

Recycling technologies requires high capital investment. This is needed in both product development and processing technologies. Machinery is often expensive to import and different types of machinery are required for recycling of different types of plastics, for instance. Perhaps, if it is better consolidated and organized, i.e. if there are some form of mergers and sharing of resources, the industry can then operate as conglomerates and reap the benefits from the economy of scale.

Conclusion

The rapid study has revealed that there is indeed wealth in waste, if we know how to optimise it and if the above-mentioned problems can be resolved. In fact, the viability of the industry depends on how well the players and stakeholders can work in synergy. Networking is a crucial part of the recycling chain. The network loop comprises waste generators, collectors, agents, buyers and factories that perform the actual recycling. The recycling wheel will not function well if there is a break or disruption in this chain. Thus, some kind of mechanism needs to be established to ensure this chain is complete and runs efficiently. The recycling industry is an industry that is worth public support and private sector resource investments. The Government is crucial in providing the catalytic role in ensuring that the wheel runs smoothly.

Since landfills are no longer an option for future handling of wastes, there is an urgent need to look into various alternative technologies available. In charting the new strategies for the future solid waste management in Penang, the government needs to take resource conservation and long-term economic viability as two important criteria in its decisions. It should strive to create a win-win situation where all sectors could benefit from an integrated and coordinated mechanism. The government needs to seriously look into integrated and organized resource recovery technologies or facilities, as it is not only an option that could solve the waste management problem, but also contribute towards protection of environment and generation of economic opportunities. These support mechanisms could take many forms, such as provision of a centralized space for storage; logistics and infrastructure; enabling laws; as well as providing incentives to make sure that the recycling business is viable to all stakeholders in the components of the wheel.
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