

## It's Time to Clean Up

An out-of-control garbage crisis threatens the physical and economic health of much of Asia

By William Ecenbarger

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million tons – by 2025.

As we become wealthier and consume more, we are producing unprecedented quantities of rubbish. The Asian Development Bank (ADB) estimates that our largest cities produce on average 760,000 tons of solid waste per day. It predicts that there will be a two-fold increase – to 1.8

It seems almost too much to handle. And it is. Much of Asia is literally wasting away. "The growing volume and toxicity of waste is simply threatening to overwhelm our cities," says Michael Lindfield, principal urban development specialist with the ADB in Manila.

The proper recovery, treatment or disposal of garbage is beyond the financial resources of many national and municipal governments. The World Bank says some municipalities are spending as much as half their budgets dealing with garbage. And even so, it is common that half of all the waste goes uncollected.

Much of the added burden is packaging from consumer products and the products themselves – all of which need years, even centuries, to decompose. Lindfield cites estimates that four of every five products we buy are discarded after a single use.

It all makes the handling of solid wastes much more complicated and expensive.

No-one can avoid the consequences of the uncontrolled garbage glut. "When an environment is being polluted, everyone, regardless of his or her economic status or functions, suffers," says Dr Wahid Murad, a solid waste management specialist at Multimedia University in Melaka, Malaysia. "Contamination does not differentiate between the richer and poorer."

The garbage crisis is more than just an environmental issue – it also threatens national economies by impairing competitiveness on world markets, discouraging tourism and hindering industrial development.

Take, for instance, Mindspace, a high-tech commercial centre that was built on the untreated site of the largest dumping ground in Mumbai. According to a report by the National Solid Waste Association of India, tenants in the complex are complaining about repeated server failures caused by gases rising up from the decomposing garbage. Equipment worth hundreds of thousands of dollars needs to be replaced every year.

Mounting garbage is also an attack on the aesthetic environment of our cities. As he walks to work from his fashionable Bangkok condominium every day, Chatchai Mutita\*, a 36-year-old advertising executive, must pass a mass of ugly, smelly garbage that isn't collected until late at night. He says it's worse when it rains because an odorous yellow liquid oozes from the pile down the sidewalk.

"There should be better waste management," says Mutita. "Increase the frequency of garbage collection, and use smaller collection vans to minimise the obstruction to traffic."

The most pressing problem is open dumps, like Payatas in Manila, Dhapa in Calcutta, Bantar Gebang in Jakarta and Matuail just outside of Dhaka, which are more than eyesores. Surface and ground water is being contaminated, explosive methane gas is being created and disease-bearing insects and rats are breeding and thriving.

Modern engineering techniques can alleviate the problems associated with open dumps, but Chettiyappan Visvanathan, a professor at the Asian Institute of Technology in Pathumthai, Thailand, estimates that nine in every ten landfills throughout our region are non-engineered facilities. Some countries rely heavily on energy-producing incinerators to dispose of most solid waste, but there is growing concern about air pollution from incinerators. But, although incinerators do cause some problems, these can be addressed technically. So, initially at least, open dumps are far more problematic than burning.

The ADB says the growing garbage crisis must be countered by the "3 Rs" – reducing the amount of waste, reusing items that are now being discarded and recycling materials.

Taiwan and Singapore have adopted policies aimed at dramatically reducing the volume of garbage. And thanks to 3R programmes, they are working. Officials in Singapore report an eight per cent drop in waste output since 2000; while Taiwanese authorities claim a 32 per cent decrease in waste since 2001.

Under a "garbage shall not touch the ground" policy, households in Taiwan are required to dispose of waste every night at neighbourhood pickup points. Trucks wafting classical music appear at street corners at appointed times to collect compacted bagged waste that is separated into kitchen garbage, trash and recyclable items. There is a fee for the garbage and trash bags, but the recyclables are taken at no charge.

"The new policy reflects the shifting philosophy of waste management from end-of-pipe treatment to source reduction and resource recycling," says Dr Harvey Houg, advisor to Taiwan's Environmental Protection Administration (EPA). "There's a financial incentive here to recycle." Taiwan, which is aiming to cut municipal waste generation by 75 per cent and increase business and industrial recycling to 85 per cent of waste output by 2020, is employing high-tech remote sensing applications to monitor compliance and investigate all illegal dumping incidents.

Singapore's "Towards Zero Landfill" programme focuses on three broad strategies: waste minimisation at source, recycling and incineration. Central to the incineration strategy is the carefully engineered Semakau Landfill, which mainly serves as the final resting place for ashes from four waste-to-energy incinerators. Opened in 1999, it is the world's first island made entirely from waste landfill.

Singapore is also working with private companies to reduce consumer waste. Its National Environment Agency has signed an agreement with five industry associations representing about 500 companies to substantially reduce packaging waste, which makes up about a third of all household trash.

"Many products are lavishly packaged to attract buyers' attention and affect their perception of the products," says Dr Yaacob Ibrahim, Singapore's Minister for the Environment and Water Resources. "In fact, it is not uncommon these days to come across packaging that is much more in volume and weight than the product itself."

South Korea, Singapore and Japan also have comprehensive waste management programmes, and a few other countries have made modest gains in battling the onslaught of garbage.

Kuala Lumpur closed its last open dump in 2006. For nearly 15 years the Taman Beringin site was a smelly, 12-hectare repository for the Malaysian capital's garbage. Nearby residents put up with flies, rats, disease and the reek of rotting garbage. When the dump caught fire in 2004, it burned for more than two weeks.

After residents demanded action, city officials shut it down and began rehabilitating the site. Solid wastes are now transported to a new landfill away from population centres in the province of Selangor.

Today the Taman Beringin site is a lush, green hill with a great view of the twin Petronas Towers just a few kilometres away. There's a new apartment building across the street, and property values have risen sharply.

Three elderly men, wearing shorts, T-shirts and rubber sandals, sit at an outdoor table at the Restoran B Chai, in the shadow of the site. "We could never sit out here like this before they closed the dump," one of them, Wanhid, says between sips of tea. "The smell would make you vomit."

There is an emerging and unlikely group of environmental workers in our region's garbage crisis – scavengers who reuse and recycle material they find in urban dump sites. Cooperatives of garbage pickers in the Philippines, India and Indonesia are using their collective muscle to bargain for better prices and working conditions.

The infamous Smokey Mountain in Manila was once a national embarrassment with squatters working in filth and decay. High rates of infection and disease cut decades from their lives. Today it is a hill composed of compressed garbage.

A community of 30,000 people who make their living recycling garbage has sprung up beside it. Laundry hangs from the balconies of 21 apartment buildings. There are basketball courts, schools, daycare centres, restaurants and convenience stores.

Trash from businesses, offices and households is still brought to Smokey Mountain, but now workers separate everything out and sell it to middlemen. "We trained the scavengers in improving their waste recycling through better collection, sorting and exporting," says Anita Celdran, a programme director of the Smokey Mountain project. "Trash is transformed into primary materials that can fetch higher profits in international markets like China."

The scavengers' story underlines an important lesson: with proper management, unwanted waste can be transformed into a valuable resource.

It's not too late to avoid a garbage calamity, but government leaders must implement the three Rs.

"Taiwan experienced the problems that many countries are facing today. When I came back to Taiwan in 1987, garbage was everywhere throughout the island," says Harvey Houg of the Taiwanese EPA, who has conferred with officials from China, Vietnam, Malaysia and the Philippines.

"To make the three Rs work, decisive policy, effective enforcement, public awareness, continuing education and cooperation from private organisations are all essential."

The failure to act decisively now will be an environmental and financial disaster. Where garbage is not properly treated, soil contamination, and ground water and surface water pollution are inevitable. Repairing this damage can cost a hundred times more than properly disposing of garbage in the first place, according to Hounq.

And it's not too late to start doing the right thing. Everyone can do their part. "It is not difficult to put recyclable items into plastic bags or to put them into recycling bins near our homes," says Yaacob Ibrahim, Singapore's Minister for the Environment and Water Resources. "What would appear as a small inconvenience initially is nothing compared to the benefits that will accrue to our environment and livelihood in the long run."

## **ECO HEROES**

### **1. Djamalundin Suryohadikusomo**

Since 2005 Djamalundin Suryohadikusomo, a retired Indonesian Minister of Forestry, and his wife, Sri Murniati, have been offering twice-weekly classes on composting organic waste. They began the programme in their home, but within a year expanded it to an adjacent vacant lot, which they have dubbed Karinda Garden. Over the past two years, some 4000 people have taken the two-hour course.

"You can take organic garbage from your own house – leftover food, fruits and dried leaves – to make compost. It turns into great natural fertilizer, and you can see what this can do for you," Suryohadikusomo told a recent class as he swept his arm over the garden's herbs, billowing blossoms and fruit trees.

"We want to prevent organic garbage from ever leaving the household. About 65 per cent of all our household waste can be composted."

### **2. Maqsood Sinha & Iftekhar Enayetullah**

Twelve years ago A.H. Md. Maqsood Sinha and Iftekhar Enayetullah, weary of seeing and smelling garbage rotting in the streets of Dhaka, founded Waste Concern. The company collects organic household garbage and composts it into fertilizer, which is then sold. Today they run 47 similar operations throughout Bangladesh that have processed some 125,000 tons of organic waste since 2001.

The two entrepreneurs are setting up a composting operation near Dhaka city that will process 700 tons of waste a day and are working on another project that will convert landfill gases from the notorious Matuail dump into usable energy.

### **3. Manik Thapar Eco Wise**

In the town of Noida, just outside New Delhi, entrepreneur Manik Thapar has developed a profitable business from recycling household and industrial waste. With \$120,000 in seed money from relatives and bank loans, he established Eco Wise, which offers free garbage collection, recycling bins and an educational program for residents. Each day,

Eco Wise collects and recycles about 40 tons of trash that would otherwise end up in the landfill or on the streets.