

Advanced thinking

Tom Yam says while there's no question that Hong Kong needs a waste treatment plant, an incinerator based on fading technology that's also highly polluting isn't our only choice

Most of us would agree that reducing waste at source, recycling and reuse is the best long-term approach to Hong Kong's waste disposal. But let's face it, given the 18,000 tonnes we generate daily, there's no way that the "three Rs" can prevent our garbage from filling up all three landfills by 2019.

The landfills will have to be extended. And thermal decomposition technology will need to be employed as well. The critical questions are: what is the technology, and where should this technology be located?

It's important to note that thermal decomposition technology is not limited to incineration. It encompasses newer, more advanced technologies that need a little more vision to consider. Unfortunately, the Environmental Protection Department has only applied tunnel vision to the problem so far.

Since 2007, it has been fixated on building a colossal incinerator costing HK\$15 billion that uses old technology to

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burn 3,000 tonnes of waste a day. Worse, the department proposes to build this bonfire in the pristine natural environment of Shek Kwu Chau, off south Lantau.

The way the department has been pushing this mega incinerator, you'd think there was no alternative. But there is. A more flexible and creative strategy is to build a small-scale, state-of-the-art plasma gasification plant that can be integrated with the existing waste-disposal facilities at one of the current landfill locations. If this plant proves successful, its capacity can be gradually expanded.

Phasing it in will minimise the risks of deploying this advanced technology: we can see whether it disposes of our waste efficiently. If the pilot plasma gasification plant performs well, build more at other landfill sites. Adopting cutting-edge technology while managing potential risks would be the approach of a "world city", rather than putting all our eggs in one basket with a mass-burn incinerator based

on sunset technology.

The core technology of the moving-grate incinerator beloved of the Environmental Protection Department has not changed in 50 years. It burns waste at 800 degrees Celsius, releasing combustion gases into the atmosphere. Almost a third of the waste remains hazardous ash that needs to be transported to landfills for disposal. Incremental improvements to this technology over the years have mainly involved pollution-control devices to manage – but not eliminate – toxic emissions.

In the United States, the number of incinerators using moving-grate technology has fallen from 186 in 1990 to 87 in 2010, due to their health risks and high costs, along with the increase in waste reduction and recycling. No new incinerators have been built in the US since 2010. Last year, the New York City government specifically excluded moving-grate technology in its request for bids to build a new waste-to-energy treatment plant.

In Japan, the number of moving-grate incinerators was cut by 25 per cent between 1998 and 2005, when it stood at 1,320. Plasma gasification technology has been introduced at two locations. In Europe, wide-ranging waste reduction and recycling have actually led to an over-supply of incinerator capacity.

It is only in developing countries like China that moving-grate incinerators are being constructed in significant numbers. Manufacturers using this technology recognise that it is coming to the end of its life cycle. They are pushing to squeeze profits from it before it becomes obsolete.

Although moving-grate technology incinerates waste into ash, the gasification process converts waste into synthesis gas and slag – a type of solid waste – with recovery of energy and valuable metals. Gasification is completely different from incineration; burning does not occur in a plasma gasification unit.

Plasma gasification employs extreme temperatures (4,000 to 8,000 degrees) in the absence or near-absence of oxygen, with organic and other materials broken up into chemical elements that are then either collected (in the case of valuable metals), vitrified to produce an inert glass-like slag, or reformed into synthesis gas that can be used as an industrial feedstock or converted to energy.

About 100 commercial plasma gasification waste-processing facilities have been constructed worldwide since 1994. Most of these plants are used to vitrify incinerator ash. Others are used to process medical waste, hazardous waste and other difficult types of waste. Two in Japan are treating municipal solid waste, with more being



planned. One in Ottawa, Canada, is being built. British Airways recently reached a deal to build plasma gasification facilities that can convert waste into aviation fuel. Four in the US, two in Britain, four in Canada, one in India and one in China are reportedly being planned.

An examination of scientific and technical literature, media reports and other sources found no health or safety problems, and few environmental problems, with plasma arc disposal systems. Also, no environmental or health and safety problems have been reported among the eight plants treating materials including asbestos, tannery waste, aluminium dross, catalytic converters, medical waste and munitions.

If plasma gasification is the best solution, the obvious question is: Why aren't there more waste-disposal plants using

this technology? The answer is simple: The capital cost is still very high. However, as with any new technology, the cost will inevitably drop as it is used in more plants and adopted by more users.

The choice that Hong Kong faces is clear: will it use a sunset, pollutant-emitting technology for a plant built in a pristine environment, or will it judiciously integrate step by step an advanced technology in existing landfills that is being adopted worldwide with much less environmental and health impact?

Is the Environmental Protection Department smart enough to understand the difference?

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Trading places

Alan Berube says the rise of a network of thriving global cities should put policymakers on notice about their importance to commerce

Recently, a group of officials gathered to plot a new trade strategy. It was a typical trade-policy discussion: the participants diagnosed competitive export sectors, identified key trading partners, described how public and private investment could resolve barriers to global integration, and forged a new bilateral relationship.

But the meeting was not hosted by the World Bank or the World Trade Organisation. It was held in Portland, Oregon, where then mayor Sam Adams and Greater Portland, Inc (a public-private partnership dedicated to driving regional economic growth) have collaborated to develop a new export plan for the Portland metropolitan area.

In the age of the WTO, free-trade agreements and currency wars, why would a city have a trade strategy? The answer is simple: as Portland's initiative – one of a growing number of metropolitan-led trade efforts worldwide – recognises, cities, not countries, are the real centres of global trade.

More than 2,000 years ago, before the emergence of the nation-state, the Silk Road connected Xian (西安), Baghdad, Istanbul, and hundreds of other cities through trade. In the Middle Ages, Zanzibar and other East African cities served as trading hubs for Asian merchants.

Cities make trade possible. But advanced economies have traditionally neglected this when designing trade policies. By contrast, China considers city-building a crucial aspect of its export policy.

Furthermore, policymakers often forget that trade increases city residents' prosperity by bringing in new wealth, in turn contributing to job creation and bolstering demand for services in the local economy.

According to a Brookings Institution report, the 300 largest cities and metropolitan economies in the world contain only 19 per cent of its population, but account for 48 per cent of global gross domestic product and 51 per cent of recent GDP growth.

The evolving idea of the "global city", coined two decades ago by the sociologist Saskia Sassen, further demonstrates the city's crucial position in global trade. Although the moniker initially referred to just three financial centres worldwide – New York, London and Tokyo – Sassen now identifies 75 cities – including newer hubs, such as Sao Paulo, Buenos Aires, Seoul and Taipei – as global cities.

But finance alone does not make a city "global". Centres of manufacturing (Detroit, Stuttgart), academia (Boston, Nanjing (南京)), maritime activities (Antwerp, Singapore), and media (Madrid, Sydney) all participate in influential global circuits, defined by what they trade.

This does not mean that countries do not play a crucial role. Cities lack the geographic scale, political and fiscal capacity, and legal standing to influence broader policy debates. Just as trade should be at the forefront of cities' economic policies, cities should be at the forefront of national trade strategies.

Global trade is fiercely competitive. It also provides a route to long-term prosperity – one that runs squarely through cities. Two millennia after the opening of the Silk Road, a global network of trading cities is beginning to re-emerge. Local and national trade policy should aim to advance this process.

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China must harness the power of dreams to forge new kind of relationship with US

A new phase of Sino-American relations is poised to begin, now that Xi Jinping (习近平) has been confirmed as China's next leader and Barack Obama re-elected US president.

In both countries, the debate about foreign policy options has been robust, particularly on the bilateral relationship. This is the time to reflect on the past and look ahead to the future.

The transfer of power has been smooth for both, with no noticeable change in the conduct of either's foreign policy. Over the past year, China has advocated a win-win relationship of mutual respect between a superpower and an emerging power. It was the approach Xi outlined on his visit to the US last February, and reiterated at November's party congress. Meanwhile, Obama introduced the policy of rebalancing in his first term and has been taking steps to effect this "pivot" towards Asia.

The Sino-US relationship has never been more important, and hope is high that Obama and the new team of Xi and Li Keqiang (李克强) will do more to forge a relationship of co-operation, rather than confrontation.

The relationship has been highly transparent so far, and we've not seen the kind of misunderstanding, friction or behaviour to "test the water" so common with new administrations. But the lack of strategic trust remains a huge challenge for both.

From Beijing's standpoint, Washington's rebalancing strategy has brought uncertainty to the region. The disputes over Scarborough Shoal and the Diaoyu Islands, as well other

Hu Shuli says Beijing needs to strengthen its regional diplomacy efforts to affirm its values and dispel doubts among neighbours



rows between China and its neighbours, can be understood in this context. America's determination to be a key player in Asian security has emboldened regional countries to lean on it. The result is, when involved in a row with China, these countries have become less likely to compromise.

The US has repeatedly said it takes no side in the Sino-Japanese dispute over the Diaoyu. But if Japan had not been a US ally, would it have acted the way it did?

Of course, without the US security guarantees, nationalism in Japan might grow even stronger and the calls to rearm through a change in the constitution might get even louder, and that would destabilise the region.

The US presence in Asia will only grow, now that the Americans are slowly extricating themselves from the Middle East and Afghanistan. This is throwing a spanner in the works of China's relationship with the rest of Asia, particularly its neighbours. US officials and analysts like to describe the bilateral relationship as one of co-operation and competition; in the context of China's relations in its neighbourhood, Washington and Beijing are clear rivals.

China is prepared to meet the challenge, but it should also fully prepare for any crisis. Moreover, Chinese diplomacy in the region

must be more proactive to shore up the country's influence.

Sino-US rivalry is risky, and leaders on either side are well aware that any mishandling could lead to devastating conflict. This is why, over the past year, China has been clear that it is seeking a new path. As President Hu Jintao (胡锦涛) urged at last year's strategic and economic dialogue, the two countries should "prove that the traditional belief that big powers are bound to enter into confrontation and conflicts is wrong, and seek new ways of developing relations between major countries in the era of economic globalisation".

The striking feature of a rising power is its expanding interests, which may easily lead to conflict with the dominant power. As the world's two largest economies, China and the US must seek new ways of relating that benefit not only themselves but the rest of the world.

How, then, should China respond to the US pivot to Asia? It has been China's policy to base its relationship with its neighbours on economic opportunities. Through trade and investment, China has sought to share the fruit of its growth with others in the region, and has thus built a foundation for peaceful co-operation. This effort must continue.

But, as the challenges thrown up by America's strategic rebalancing have shown, a

relationship built strictly on economic co-operation is not enough, and political and security concerns must also be addressed. In fact, a close economic relationship often creates such concerns.

America's policy in Asia is founded not on economics, but on a vision of a secure and stable strategic order in the region. It is not surprising that this vision of a common good – coupled with the values that America likes to champion – is attractive to countries in the region.

Thus, in some sense, the Sino-US rivalry is really one fought on values. In this regard, China needs to strengthen dialogue with its neighbours on politics and security matters, establish bilateral or multilateral security mechanisms, and do much more to dispel their doubts and worries.

This is nothing short of a competition between the American Dream and the Chinese Dream. China has to adjust, elaborate and strengthen the substance of its Chinese Dream, to increase its moral appeal to others. Once this missing piece of the puzzle is in place, Chinese diplomacy will have found a new lease of life.

Before this can be achieved, however, China should first successfully tackle its domestic challenges and deepen reforms at home. In other words, its diplomacy – built on the strength of its values – is but an extension of its internal policy.

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North Korea may yet push China to act on nuclear threat

Shim Jae-hoon says Beijing's reluctance to use its leverage is being tested

Repeating the past, North Korea's young ruler Kim Jong-un has threatened the US and South Korea with dire consequences for opposition to the nation's missile adventurism. In a break from the past, Kim issued thinly disguised criticism of North Korea's principal benefactors – China and Russia. The latest turn in North Korea's brinkmanship will test China's newly installed party general secretary Xi Jinping (习近平).

In strident responses to the UN Security Council's resolution this month stiffening sanctions over the December rocket launch, the North claims it is ending talks over denuclearisation efforts; it will also conduct a new underground nuclear test of a "high level" device, predicted to target the United States.

The threat against the US, the first since Kim's inauguration, followed signs of a thaw. Before the recent crisis, Kim had seemed to offer an olive branch to South Korea. Some analysts speculated that he might be ready for dialogue with President-elect Park Geun-hye.

His volte-face in threatening South Korea for supporting the US has thus raised speculation. Few can fathom the mood in Pyongyang and a regime operating in opacity: Is an omnipotent military group pressuring Kim? Is he panicking at the prospect of tighter UN sanctions?

With the North Korean military system deeply involved in weapons trade, especially nuclear and missile technology

with Iran, it's possible such factors are at play. The North's statement indicates Kim is stung by China and Russia's support for the resolution, although China agreed to back the US draft only on condition that no new sanctions are imposed.

But such protest has its limits: state-of-the-art weaponry comes from Moscow, and the North is critically dependent on China which supplies half its food and energy.

Perhaps Kim is acutely aware of the geopolitical value of North Korea as a buffer state

Beijing has leverage over the Pyongyang regime. Why, then, bite the hand that feeds? Perhaps because Kim is acutely aware of the geopolitical value of North Korea as a buffer state next to US ally South Korea. Kim's latest show of defiance may also be his reaction to China's recent courting of South Korea amid growing tensions with Japan over the Diaoyu-Senkaku territorial disputes.

Asked at a foreign ministry briefing as to how Beijing would respond to a third nuclear test by the North, spokesman Hong Lei (洪磊) described the situation as "complicated and sensitive" and urged restraint.

In truth, neither the policy of restraint nor the six-party talks chaired by Beijing off and on over the past decade have produced a breakthrough. The North repeatedly accepts aid, then backs off from obligations.

Almost word for word, Hong contradicted the North's stated position on the nuclear issue. The gap between what he said and China's persistent refusal to use its leverage for taming the North's nuclear ambitions has raised questions over Beijing's assertion and global influence.

The Pyongyang statement is the only indication of Kim's reaction to China's UN vote. One can assume that the North would not make that challenge if it weren't ready to stand up to Beijing.

If the North proceeds with testing another device, possibly with enriched uranium, as analysts speculate, this would be another wake-up call for Seoul, Tokyo and Washington. Such a test would lead the US to seek stronger co-operation from China in confronting the North's threat.

More than the United States, China could find such a bomb to be a game changer, forcing it to reconsider its benign stance.

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