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In this edition we revisit Hong Kong’s pressing waste-disposal problem. The government’s proposal to build a large incinerator next to Shek Kwu Chau has drawn wide and substantial criticism, both for the location and method of incineration preferred by the government. We review criticisms of the incineration method made in the recently released *Report on Waste Management*.

The Editors

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SHEK KWU CHAU INCINERATOR : OUTDATED TECHNOLOGY AS WELL AS THE WRONG SITE

Whilst a final decision has not been made (the proposal is subject to judicial review), the government apparently remains committed to building the Shek Kwu Chau Incinerator. The Incinerator would cost approximately HK\$15 billion to construct on an artificial island of 11.8 hectares. It will cost an additional HK\$8-10 billion to create the island by reclamation. Perhaps the most incredible aspect of the proposal is that the site is within a conservation area.

The assistant director of environmental protection, Mr. W.K. Au, has described the proposed Incinerator as follows : “*The modern thermal waste-to-energy plant to be built near Shek Kwu Chau to deal with municipal solid waste will be designed to meet the European Union Directive on Incineration of Waste, which requires very high heat flue gas combustion.*” (letter to the editor, SCMP, 5 November 2013).

Quite apart from serious doubts many in Hong Kong have regarding the wisdom of locating a massive industrial facility next to pristine islands and fragile marine ecosystems, many knowledgeable observers have criticised the technology the Incinerator will use.

Hong Kong’s remaining three landfills will have been filled by 2019. Hence the motivation to find alternative ways of disposing of our waste. Municipal solid

waste (MSW) comprises the bulk of the more than 9,000 tonnes of waste generated daily in Hong Kong.

An influential critic of the Incinerator is the NT (New Territories) Concern Group (“Group”). The Group, which counts several eminent Hong Kong professionals as members, was founded on 4 May 2013, as a non-political organisation whose main function is “to monitor the government’s various policies and development projects. The Group hopes to assist the government in developing a more effective and balanced policy direction, so as to relieve the pressure and tensions created by different parties and factions” in the context of the government of Hong Kong. How we are to deal with our massive waste – disposal problem is one such major governance issue.

Recently, members of the Group inspected waste management systems – including an incinerator, a gasification plant and a gas plasma plant – in Europe, following which the Group released a detailed, well-reasoned report, the *Report on Waste Management* (23 November 2013).

The Executive Summary of the Report says, in part :

Government is striving for the operation of its “prized” incinerators capable of processing 3,000 tpd from 2022 on an artificial island off Shek Kwu Chau or less likely, at Tsang Tsui. The reclamation of about 11.8 hectares land is estimated to cost HK\$10 billion and a further estimated cost of HK\$15 billion on construction of the technology. The technology is championed as it will produce EfW (usable gas), it is

clean and it is the best option to tackle Hong Kong's rising waste problems.

The disadvantages more than outweigh the benefits making this a 3Ls losing strategy. EFW is produced after processing the MSW. However, as it burns waste at 850°C in the presence of oxygen, dioxins, toxic fly ash (2%), bottom ash (22%) and carbon dioxide are discharged. The ash also requires to be disposed of carefully in landfill which is adding unnecessary strain. Judicial review proceedings have been initiated which will push the proposed operational date of 2022 back and the total sum for 8 government's plans on expansion of the landfills and reclamation and construction of the IWMF will cost the taxpayer an estimated eye watering HK\$42 billion. In short, it will cause resentment to the people of Hong Kong, it will further harm the environment and it is an extremely costly feat.

On the other hand, plasma gasification and/or pyrolysis coupled with gasification appear to hold the winning solution to Hong Kong's problem. Naturally occurring plasma is seen in lightning's flash. An electric charge passing through a gas creates this plasma and the electrical energy is converted by plasma torches/arc which is capable of generating temperatures in excess of 5,000°C and thus power the technology.

The technology produces a syngas capable of being converted to electricity and jet fuels and heat and steam being other outputs. Slag being a byproduct can be safely used as construction aggregate. In addition to creating work opportunities, the technology makes it a winning solution for the community. The environment also wins as no residue is required to be dumped in landfills and the technology can in fact back mine current landfill sites. No harmful emissions are discharged.

Capable of processing about 2,000 tpd, at a construction cost of around HK\$7.2 billion, taking up an area of about 30 acres (although this could be reduced), the technology could be housed at Tsang Tsui and is also a winning answer for Government. The pilot plants capable of processing around 400 tpd could be operational within 3 years by 2017, turning Tuen Mun into a functioning green city and assisting in meeting government's aims of addressing the waste problem 5 years earlier than the IWMF would in 2022. The technology which is modular, is not immature as government claims and has been in operation for at least 30 years and used by companies such as New Earth, Solena Fuels, Westinghouse 9 Plasma Corp, Advanced Plasma Power and Tetronics. It has also been endorsed independently by: R.W. Beck, ENSR/AECOM, AMEC, Golder Associates, Shimadzu Techno Research, Juniper Consultancy and Fichtner Consultancy.

Government is therefore urged to choose carefully, cleverly and sensibly finding a

solution which will allow everyone to win. Plasma gasification and/or pyrolysis coupled with gasification could be that answer! It costs about one-sixth of HK\$42 billion, uses decent new technology to produce more energy potentials to benefit locals, avoids dumping residue into landfills and recovers precious land. It is a winning strategy!

The Report sets out several compelling arguments against proceeding with the Shek Kwu Chau incinerator. At the outset, the Report emphasises that, first and foremost, our environmental agencies should be more robustly promoting the "three Rs" : reduce, reuse and recycle. However, our review will be limited to the issue of what is the more appropriate waste conversion technology to use in our proposed waste disposal facility: incineration v. gasification.

The Group's study tour of European waste-disposal facilities, and its other extensive research, led members to conclude that of the two forms of technology available – gasification or incineration (the Incinerator would use the latter as presently planned) – gasification is significantly superior. Gasification appears to provide three key benefits; it is:

- (a) safe, emitting none of the dioxins and other toxins which recent scientific studies have shown are emitted by incinerators in levels hazardous to human health;
- (b) capable of running at a profit, provided it is operated at capacities of more than 300 tpd (tonnes per day) of MSW (whereas the proposed incinerator is projected to run at a steady and significant loss); and
- (c) landfill friendly; whereas the Incinerator will require toxic residues to be vitrified and then sent to landfill, gasification produces a non-toxic by-product suitable for immediate re-use as construction aggregate.

The incineration and gasification processes are briefly described in the Report as follows:

Incineration

MSW and a large amount of air enter the incineration chamber. Only after combustion can pollutants be filtered. A large chimney stack (around 150m in height) is required to catch as much of the impurities as possible before it is released into the atmosphere. Ash is also produced as a by-product which must be disposed of carefully in special landfills. The heat and steam from incineration is used to generate electricity.

Gasification

MSW enters the gasification chamber and is broken down to its simplest elements under very high temperatures and little to no air/oxygen. Using plasma gasification technology, plasma (which is seen naturally in lightning's flash) is produced when an electrical charge travels through gas and the plasma torch/arc generates this into heat capable of reaching temperatures in excess of 5,000°C thus beginning and assisting the

gasification system making it an efficient process. Through a filtration system, a synthesis gas is produced.

The heat and energy is recaptured and can be used to supply power to the plant. With the installation of (underground) piping, the local community within a 25km parameter will be able to benefit from lower energy bills such as for heating swimming pools, elderly homes and businesses for instance.

The Report includes a simple table of the comparative merits of the two technologies. This is reproduced below:

INCINERATION	PLASMA GASIFICATION
Total cost : HK\$42 billion *	Total cost : HK\$7.2 billion #
3,000 to 4,000 MSW processed (tpd)	2,000 MSW processed (tpd)
Does not support reverse land mining, as the ash requires to be dumped into landfills	Supports reverse land mining, as any ash produced is vitrified and turned into inert slag. Nothing is dumped into landfills
Fly Ash and Bottom Ash as by-product with as much as 30% requiring careful disposal	Slag as by-product with as much as 15% of waste becomes inert slag which can be safely used and reduce the requirement to import aggregate
Any potential energy is converted to heat	Gases are collected and used to produce a variety of energy forms such as heat, hydrogen, synthetic gas and jet fuels
Operates between 700°C and 1,000°C	Operates between 1,200°C and 10,000+°C
Requires hydrocarbon fuel or fuel gas to start burning of waste	Requires initial input of electricity but becomes self-sufficient when the plant produces electricity itself
Air is required for complete combustion	Little to no oxygen is required therefore no combustion
Greater emissions of greenhouse gases, pollutants and toxic ash	Lower emissions

* Will likely increase by the time the final judicial review appeal decision is made (possibly end of 2014 or later) with costs estimated to have jumped to around HK\$18 billion. The total amount includes the

estimated construction costs of the IWMF at \$15 billion; reclamation at \$10 billion; landfill extension in Tuen Mun at \$9 billion and Ta Kwu Ling and Tseung Kwan O at \$8 billion.

Based on capital investment used for TV1 and to be used for TV2 (cost not including land reclamation as the land was already reclaimed by the time Air Products began construction- the figure for land reclamation was not made available).

The Report notes that *plasma gasification* and/or *pyrolysis* coupled with *gasification* are better technologies as they do not give off toxic residue. It provides a cleaner solution because quantities of emissions are much lower than those released by incineration. Moreover, no residue will need to be disposed of in the landfills; so the technology allows for "reverse mining of landfills".

Other clear benefits of gasification include:

- The plant will occupy a smaller area than the Incinerator and will not have a highly visible, ugly high chimney stack;
- The process produces gas (Efw) which can be used as an energy source;
- Landfill can be "back-mined" to create new land areas for recreational or other uses;
- The technology "costs less while achieving more". For example, the massive cost of reclaiming land for the Incinerator would be avoided because a gasification plant could be housed next to the Sewage Treatment Facility at Tsang Tsui or at the Eco-park in Tuen Mun (to name just two locations).

Incineration does not require pre-treatment of waste before being fed into the Incinerator, which the government sees as a major benefit. But the plasma gas process can also process untreated and unsorted waste.

The government's preference for incineration apparently comes from a 2009 report of the Advisory Council on the Environment – *Integrated Waste Management Facilities Technology Review and Associated Facilities* which favoured that technology. However, the Report notes: "There have been substantial advances in alternative technologies since then, such as gasification and plasma gasification, which will not require the disposal of around 22% of bottom ash (as a by-product of incineration) into landfills and thus negate the need for landfill extensions and indeed allow for reverse landfill mining."

In pushing for the Incinerator, the government is failing to embrace new waste-treatment technologies, contrary to the objectives stated in the government recently published *Waste Management Blueprint*. Instead, it repeatedly insists that incineration is "the only way of efficiently moving forward", and will not recognise alternative processes which have far better environmental (and economic) credentials.

The Report notes : "Plasma gasification is not a technology in its infancy and to demonstrate its merits, Tuen Mun could be used to house a pilot plant, potentially within 3 years from 2014 and will have the necessary feedstock to process from the landfill sites already in existence. It would not disrupt government's plans and time-scales under the Blueprint, unlike the mega-incinerator which is currently subject to judicial review and thus delaying construction plans by at least a year."

In his letter to the SCMP (5 November 2013) Mr. W.K. Au gave two main reasons for the government's preference for incineration :

- (i) *Plasma gasification technology is mainly used for treating industrial or special waste. Its commercial application for large-scale treatment of mixed MSW is uncommon and still has a limited track record.*
- (ii) *The "White Paper on Alternative Waste Conversion Technologies" published by the International Solid Waste Association in January 2013 and the International Conference on Solid Waste held in Hong Kong in May 2013, affirm that modern moving grate incineration remains the mainstream proven technology for large-scale MSW treatment.*

Elsewhere, government officials have regularly discounted using plasma gasification on the basis the technology could not cope with the 3,000 tonnes per day the facility will have to treat. The Report makes a number of sound comments to refute this assertion, such as:

- *Whilst the incinerator can potentially process more MSW by weight, it also costs approximately HK\$34 billion more than the plasma gas technology would cost, taking into account the cost of the landfill expansion. Furthermore, plasma gas facilities can operate profitably above parasitic load (the point at which energy extracted from the processed MSW exceeds the energy required to keep the facility running). The parasitic load for current plasma gas technologies is lower than incineration. The championed incinerator, by the government's own projections, will operate at an approximately HK\$353 million cost per year.*
- *The government fails to acknowledge that the incinerator requires a continuous input of unsorted MSW; thus there will be a gradual need to import waste from other countries to appease the incinerator's hunger, entirely by-passing any recycling which can be reasonably carried out. Burning unsorted waste directly contradicts the government's "philosophy of sustainable use of resources".*

- *Plasma gas technology has already been used in commercial industries for at least 30 years, with demonstration plants operating at volume throughout the globe. The technology is already successfully used in China, Japan, the US and the UK to neutralize toxic byproducts of incinerators.*

- *What is not publicly conceded by the government is that plasma gas technology is modular, which essentially means that the plant's capacity can be expanded by installing additional units in series with relatively little difficulty by comparison to the installation of landfills and incinerators.*

- *The UK government has signed an agreement with Air Products plc for the construction and operation of two advanced gasification plants, to commence operations in 2014 and 2016. These will each have a capacity of at least 1,000 tpd. The Report notes the first plant (TV1) will produce up to 50MW (gross) of renewable electricity, which is enough electricity for up to 50,000 homes in each year. The UK government is so confident in the technology, which meets and surpasses strict UK and EU environmental standards, that it has signed another agreement for the installation of TV2.*

The Group observed that gasification plants in Europe and the U.K. resembled warehouses, did not have huge chimney stacks and occupied far less land than the proposed Incinerator. It is feasible to have a number of these plants operating together as a single facility on land (not in a marine conservation zone) with a total capacity of at least the government's objective of 3,000 tpd.

Another major disadvantage of incineration, as versus gasification, is that incinerators emit highly toxic chemicals (e.g. dioxins). The residue fly ash is also toxic, and has to be disposed of in landfill. Plasma gasification has none of those defects. Toxic and other particulates are removed in the gasification process. Instead, gasification converts the waste into carbon monoxide, hydrogen and methane which form a Syngas which then can be used to generate electricity. Inorganic compounds are melted in the plant, creating a tough material which can be used as aggregate in construction.

As the residual ash left from incineration must be disposed of (adding to the operational costs of the Incinerator) pressure on our remaining landfills will not be reduced as much as gasification would allow.

A final factor in favour of plasma gasification – one that should appeal to the government – is that this process is vastly cheaper to install and operate. The Report comments : "The plasma gas technology is one-sixth cheaper than the proposed IWMF and is not in its infancy. It has been used for many years and will provide a strong

workforce from the local community. Adopting plasma gas technology will allow for the sell back of energy, production of clean fuel, encourage landfill mining and ultimately land reclamation.”.

The Group proposes that a 150,000 tonnes per year pilot plasma plant be established. The plant would take up no more than 10 acres, and could be operational by 2017. The Group asks: “What are the downsides for the government facilitating one or more such pilot plants? Two full-scale plants processing 700,000 tpy (2,000 tpd) would potentially take around 30 months to build, at a saving to government of about 4 years and at least HK\$10 billion.”.

The Report concludes that: “Plasma Gasification and/or gasification coupled with pyrolysis technology is a much cleaner alternative which encourages waste separation from the outset and therefore encourages second chance recycling. It is likely to incentivize the population to reduce waste by the fair imposition of waste-disposal charges and there is no continued contribution to the dumping of landfills as there is no ash, toxic or otherwise, produced. As well as the production of cleaner energy there are no dioxins produced and the by-product, inert slag is successfully used in the likes of construction work with no harm caused to the environment.”.

Conclusion

This is a well researched and written report which, at the very least, should give cause to the authorities to think twice about proceeding with old incineration technology. We commend the Report (http://www.ntconcerngp.com/files/files/Report_on_Waste_Management_eng.pdf) to all who are (as we should all be) alarmed by the way we are lurching towards a monumentally bad choice of both site and process for Hong Kong’s first integrated waste treatment facility.

LEGISLATION DIGEST

Air Pollution Control (Amendment) (No. 2) Ordinance 2013

Asbestos is a proven human carcinogen which can cause fatal diseases when inhaled. Before the mid-1980s, it was widely used in friction, fireproofing, insulation and building materials because of its high tensile strength and good heat and chemical resistant properties. Since 1996, although import and sale of amosite (brown asbestos) and crocidolite (blue asbestos) have been banned under the *Air Pollution Control Ordinance* (Cap.311) (APCO), import and sale of other forms of asbestos, such as chrysotile (white asbestos), fibrous actinolite, fibrous anthophyllite and fibrous tremolite, were still allowed. To improve public health and the environment, the *Air Pollution Control (Amendment) (No.2) Ordinance 2013* (Amendment Ordinance) was passed by the Legislative Council on 22 January 2014 and will come into operation on 4 April 2014.

The Amendment Ordinance will prohibit the use, supply, import and transshipment of all types of asbestos or asbestos containing material. The major amendments are:-

1. The definition of “asbestos containing material” in section 2 of the APCO is amended by removing the requirement that the material must contain more than 1 percent asbestos.
2. Defining “supply” to include (i) supplying without consideration, (ii) offering or exposing for supply, (iii) selling or offering or exposing for sale, and (v) hiring out or offering or exposing for hiring out.
3. Defining “use” of asbestos or asbestos containing material, to mean (i) affixing, applying, spraying or installing asbestos or asbestos containing material on or in any premises; (ii) adding, mixing or inserting asbestos or asbestos containing material to, with, into any material, substance, product or article for manufacturing or producing any product or substance; or (iii) wrapping any material, substance, product or article with asbestos or asbestos containing material.
4. Providing a defence for a defendant charged under the new section 80 of the Amendment Ordinance by putting the evidential burden on the defendant to prove that at the time of the alleged offence, the defendant had no knowledge of the existence of asbestos or asbestos containing material.
5. A person who uses, supplies, imports or transships asbestos or asbestos containing material commits an offence, and is liable on conviction to a fine of \$200,000 and to imprisonment for 6 months.
6. Providing the circumstances to which the new section 80 does not apply and such circumstances include, for example, (i) the importation or transshipment of asbestos or asbestos containing material that is goods in transit, and (ii) the supply, importation or trans-shipment of asbestos or asbestos containing material that is proprietary Chinese medicine by a person.
7. If a person is convicted under the new section 80, the asbestos or asbestos containing material that is connected with the offence may be seized, removed, destroyed or disposed of.

Relevant amendments are also made to the *Factories and Industrial Undertakings (Asbestos) Regulation* (Cap.59) (FIU Regulation) to tighten control of the use of asbestos in industrial undertakings in parallel. The main amendments are:-

1. Repealing section 12(2)(a) of the FIU Regulation to require the designation of a protective equipment zone for work with chrysotile.
2. Adding a new section 21D prohibiting the proprietor of an industrial undertaking from carrying out work with chrysotile in the industrial undertaking.
3. Raising the maximum penalty for offences related to the ban on using

asbestos in industrial undertakings to a fine of HK\$200,000 and to imprisonment for 6 months.

To enhance public knowledge of materials that contain asbestos, the Environmental Protection Department (EPD) will cooperate with the Pneumoconiosis Compensation Fund Board to publish a booklet listing the common sources of asbestos-containing material.

As well, to increase asbestos awareness and knowledge of personnel engaged in construction activities, the EPD has uploaded a list of machinery/products (e.g. trucks/vehicles, generators, pumps, lift equipment/elevators etc.) which may contain asbestos to the department’s webpage for their reference.

Further, the EPD has compiled a list of suppliers of asbestos product substitutes to (i) facilitate the smooth switch from the use of asbestos products to safer and more reliable substitutes, and (ii) to provide industries and general public with useful information about asbestos substitutes, so that users can search for suitable suppliers supplying asbestos substitutes.

TOWN PLANNING

Action Plan for the Pearl River Estuary

The Planning Department launched Stage 2 Public Engagement for the “Study on the Action Plan for Livable Bay Area of the Pearl River Estuary” on 24th January. Public consultation will take place over a period of three months. The revised recommendations of the Study have been published for further discussion and comment.

With the aim of providing a liaison and communication platform for the governments of Hong Kong, Guangdong and Macau to develop the “Bay Area of the Pearl River Estuary” (the “Bay Area”) into a centre of quality living and economic prosperity in the Greater Pearl River Delta, the Study was jointly commissioned by the three governments in April 2010.

However, as Hong Kong, Guangdong and Macau are under different administrative jurisdictions, recommendations made by this Study are mainly in-principle only. They are directional, to serve as a reference for the governments in formulating policies and relevant measures. In addition, the Recommendations formulated in the Study will serve as a reference for the three sides in their respective planning work. The governments will formulate their own applicable plans base on their respective circumstances, established mechanisms and regulations.

The Summary Report, the Summary of Recommendations and the Stage 1 Public Engagement Report of the Study are available for public viewing.

[Press Releases, Environmental Protection Department, 24/01/2014]

Wetland development rejected

A development consortium’s plan to build flats on the controversial Nam Sang Wai wetland in Yuen Long has again failed to get past the government’s town planning advisers.

The proposal did not meet the planning principles of not losing any wetland to the development and of minimal filling of fish ponds in Deep Bay, the Town Planning Board (TPB) said. "They also failed to provide sufficient evidence that their mitigation plans could achieve ecological enhancement as they claim," a spokeswoman for the TPB said. The consortium had sought a review of its revised development plan following dismissal of their application last year.

Despite this latest rejection, it is still too early to tell if the 120 hectares of wetland will be safe from development, as the consortium may appeal to the Town Planning Appeal Board, which comprises members outside the board, or may seek a further judicial review.

The wetland spans a number of abandoned fish ponds between Kam Tin River and Shan Pui River, and is also home to the city's largest reed bed. But the developer said the site could degrade if left idle. If developed, however, its ecological function could be further enhanced, the consortium claimed. The rejected plan is the second filed by the current land-owners – Henderson Land Development and the prominent Fu family led by Adrian Fu.

In 1996, a Henderson-led consortium received TPB approval for its plan to build 2,250 flats and a nine-hole golf course, but did not meet planning conditions.

In 2011, the consortium failed to get TPB approval to extend its development deadlines. Later, it was also unable to get the TPB to review that decision. It is challenging that refusal decision in court.

Soon after the 2011 rejection, the Fu family took over and filed another development proposal that aimed to build 1,600 flats. The TPB rejected it last year.

[SCMP, 15/02/2014]

Town Planning Board decision on PLA Harbour-front site is flawed

The Town Planning Board reached a decision to approve a plan to rezone a section of the Central harbour-front as a military site for a People's Liberation Army's (PLA) dock. The approved zoning plan was flawed from the beginning. There were more than 19,000 objections from the public. However, it seems that the Board has ignored the objections.

The dock area of 0.3 hectares, which is converted from open space to military use, is now under garrison rule, and so is outside Hong Kong's jurisdiction. Although the dock area is considered "sometimes for PLA use but mostly for public use", the public is concerned that it will be under the PLA's control even in the periods when it is open to the public.

The zoning matter arose because of a 1994 agreement signed between Britain and China over garrison sites in Hong Kong. Britain agreed to reserve 150 metres of the proposed Central and Wan Chai reclamation for PLA facility use. However, the original zone planners and the current Board members think the priority use of the area will be military, notwithstanding the area should be open most of the time to the public except when the garrison needs to use the facilities.

[South China Morning Post, 18/02/2014]

Plan to sell Kowloon Tong site scrapped

The government has decided to remove the Lee Wai Lee Technical Institute site in Kowloon Tong from next fiscal year's land sale programme. The original plan was to rezone the site for residential use. However, there have been objections from the public in recent months that the government should devote more resources for special education, including developing more facilities. The Town Planning Board will discuss the government's request at a meeting next month.

The Baptist University has welcomed the decision. It has requested the government's approval to build a Chinese medicine hospital on the site.

The government aims to provide land for the construction of 18,800 to 20,000 units for the current fiscal year which ends in March. Until now, the government is still behind its target. There are 34 residential sites in the coming land sale programme, including 24 new sites. Additionally, there will be seven commercial sites and one site for hotel development.

[RTHK English News, 27/02/2014]

WEST KOWLOON CULTURAL DISTRICT

Lawmakers soften stance on extra cash for West Kowloon Cultural District

In 2007 the agreed budget for the WKCD project was HK\$21.6 billion. Although lawmakers had warned the government that there was a serious cost underestimation problem with project, the government ignored such warnings. Currently, with increasing construction costs, more money is needed to be injected into the project. Thus, a proposal to grant more funds to the project has to be passed by the Legislative Council. It was suggested that extra land revenue from a proposed increase in development density at the West Kowloon site could be used to offset the rise in construction cost.

A valuation expert has now estimated that the planned 15 per cent increase in floor area of space designated for flats, offices and hotels could yield more than HK\$5 billion in additional land revenue. This increase of 15 per cent in the density of buildings on the 40-hectare site means that an extra residential floor area of 22,210 square metres, an extra 25,610 square metres of hotels and offices and an extra 63,230 square metres of ancillary facilities will be provided.

Although some lawmakers wanted the government to give an estimate of the amount of extra land revenue as a reference for them to decide the amount of money the arts hub should receive in the future, it is difficult to give a firm estimate because the government had no timetable for when the extra floor area would be sold over the next 20 years.

Some lawmakers softened their stance on extra cash for West Kowloon project because they did not want the arts hub to be a laughing stock for the reason of grossly underestimated cost.

[South China Morning Post, 24/01/2014]

Local team to design arts pavilion

The arts pavilion at the future West Kowloon Cultural District will be based on the design by three local architects following their success in the international competition for designing elements of the WKCD.

The winning team explained the concept behind the design was to provide a simple, pure and clean space away from urban noise and pollution so that people could appreciate Hong Kong through fresh eyes. They hoped visitors could relax at the cultural park, staying away from the chaos of the commercial world. The winning design was chosen because it fitted into the landscape and framed the views of Hong Kong, creating outdoor space which easily flows into a well proportioned arts facility space.

The arts pavilion is to be located in the WKCD on the Victoria Harbour waterfront. It will be used by M+ as its primary exhibition suite while the arts museum is being built. Space for artists, designers and organisations will be provided to stage independent small exhibitions and events.

[South China Morning Post, 24/01/2014]

Mixed feelings as cultural authority looks to foreign talent

The West Kowloon Cultural District Authority has hired several development directors of music, drama and dance to set up long-term development plans.

Low Kee Hong, a Singaporean, has been appointed the art director for the WKCD. Some wondered why the Authority selected an overseas person and ignored local talent. The appointment drew mixed responses in Hong Kong.

An art critic said the position of the art director had a lot of job requirements which many local people did not have. He was of the view that the Authority should enhance its cooperation with local and overseas art organisations instead of hiring overseas people to draw up programmes. On the other hand, the executive director of the Academy for Performing Arts said the Authority did not ignore local talent and the appointment of Mr. Low was acceptable. He said Mr. Low was experienced in performance and visual arts, and had organised drama and arts festivals.

[The Standard, 04/02/2014]

West Kowloon's M+ museum's design has versatility down to a 'T'

The designing architect said he believed that the West Kowloon visual cultural museum's inverted T shape was simple but far from "naïve". He envisioned the space to be a versatile culture hub. He believed that M+ was a very specific project for Hong Kong. It was not a purely art museum but a museum for visual culture. However, since the side view of the museum resembles the symbol for typhoon signal number three, there were mixed reactions.

Some of the design competition jury panel thought the design looked simplistic and might be too easy to understand. When there was no mystery, it could be a weakness. However, some thought that the museum was not just a linear space. It was like a playground for artists, curators, designers and architects.

In addition, since M+ is a multimedia space, it should be multipurpose. The inverted T design answered the museum's demand for versatility. The spaces provided are much more diverse than other museums including lighting, equipment, usability, strong bars and mini stages. M+ is expected to provide space accommodating not just visual art but performances, shopping, dining, film screenings and social activities. It will be a mini city and even a culture hub.

[*South China Morning Post*, 17/02/2014]

West Kowloon Cultural District should be about the arts

The proposed West Kowloon Cultural District has caused public concern throughout the last fifteen years. In 1998, the then chief executive, Tung Chee-hwa, in his policy address, pointed out the need to build a state-of-the-art performance venue on the West Kowloon reclamation site to cater for tourists and encourage more cultural and entertainment events. Critics feared the project would become another Cyberport, which was overshadowed by property development instead of nurturing technology.

In 2006, no developer accepted the conditions imposed on the West Kowloon project, such as the establishment of a HK\$30 billion trust to fund the operation. Thus, the arts hub plan collapsed. In 2008, the government granted a one-off endowment of HK\$21.6 billion and set up the West Kowloon Cultural District Authority to build arts and cultural facilities. The arts hub plan then moved forward. Later, the Authority gave an estimate of HK\$47 billion for the design and construction cost. Since then, concerns over construction costs have been voiced by some residents and lawmakers.

The executive director of Hong Kong Arts Festival said that he was concerned about what the WKCD was going to do, not how many seats it would provide or how much it would cost.

A visual artist said he was concerned about Hong Kong not changing. He wished the WKCD project would change residents' perception of money.

The director of the Academy for Performing Arts said there were two things missing in Hong Kong: tertiary education and employment opportunities for artists. If artists graduated with unemployment problems, the West Kowloon project could only turn Hong Kong into an importer of culture rather than a creator. The Authority's chief executive said he believed that the WKCD was not a tourist destination but a public space for Hong Kong people. He emphasised the need for parents to start telling their children that art was a viable career.

[*South China Morning Post*, 21/02/2014]

A CEO for commercial development

A chief operating officer has been appointed to develop commercial and residential space in the West Kowloon arts hub. The chief executive officer of the WKCD said the appointment was to assist in commercial deals and establish the retail and residential side of the project.

Cultural facilities are expected to take up 35 to 40 per cent of the gross floor area of the

development. The West Kowloon Cultural District Authority is planning a hotel for visiting artists, rehearsal facilities and creative space for young people and artists while developers would build most of the flats. It was emphasised that the Authority should put the emphasis on software, such as nurturing talent, educating the audiences, building a good museum collection and planning content. However, only five performance venues are confirmed, although fifteen performance venues were planned back in 2007.

Although it was denied that the West Kowloon project was scaled down, the fate of the other ten performance venues will have to depend on private sponsors.

[*South China Morning Post*, 21/02/2014]

HONG KONG BRIEFING

HK\$1 billion to boost recycling and reuse old landfill sites

The government is determined to tackle the city's looming waste crisis and to find new uses for closed dump sites. It has decided to pour HK\$1 billion into a new fund to support these purposes. Another HK\$1 billion fund will help find new uses for 18 hectares of land at six closed landfills. Organisations such as sports associations and charities may submit proposals for use of the sites.

The two initiatives are due to politicians and lawmakers reaching at an impasse over a funding request by environmental officials to extend the city's three landfills. The government wants to extend the life of the landfills in Tseung Kwan O, Ta Kwu Ling and Tuen Mun, which will be full by 2019, to take waste until a planned incinerator is ready.

The government set up a task force to study measures to assist the recycling industry. Local recycler, Lau Yiu-shing, said financial assistance would help those recycling wood, glass bottles and plastics, none of which were cost-effective because of the bulky nature of the raw material. But for paper and metals, what the recyclers really needed is a dedicated sea cargo loading area and more operating space, not cash subsidies.

The government did not set out the eligibility criteria or rules for disbursing the fund. The money could be directed towards recycling plastics and small electrical goods.

At present, about 90% of recovered waste is exported elsewhere for recycling. An activist with Friends of the Earth welcomed the recycling fund initiative and hoped that the money would go to those who really contributed to local recycling efforts and not to the waste exporters.

[*SCMP*, 16/01/2014]

New glass bottle collection points

The Environmental Protection Department ("EPD") has set up glass bottle recycling collection points at 60 housing estates and 32 primary and secondary schools all over Hong Kong since November 2013 to encourage public participation in green living and to turn waste glass bottles into a useful resource.

In order to reduce the waste disposal of glass bottles and to alleviate pressure on landfills,

the government affirmed that it would put renewed efforts into expanding the glass bottle recycling network.

In the previous three months, EPD has set up glass bottle collection points at 92 locations around Hong Kong, comprising 51 private housing estates, nine public rental housing estates and 32 primary and secondary schools, to enable members of the public to participate in glass bottle recycling.

Glass bottle collection coverage has risen from 18% of the population in mid-2013 to 24% today with these new collection points. The EPD will continue to work with relevant sectors to further expand the glass bottle recycling network in order to achieve a target of 50% population coverage by the end of 2014.

Glass bottles used for beverages, food or sauces should be cleaned before being placed in the glass bottle collection bins. The glass bottles collected will be delivered to proper recyclers for processing into glass sand for the production of eco-pavers or use as construction materials in public works, thus turning waste into a useful resource.

[*Press Releases, Environmental Protection Department*, 19/01/2014]

Peach blossom trees recycling campaign

During the Lunar New Year, many peach blossom trees are bought by families and organisations to celebrate the festive season. In order to encourage the public to recycle festive items and to alleviate pressure on landfills, the EPD and the Hong Kong Environmental Protection Association have jointly organised the Peach Blossom Tree Recycling Campaign (the "Campaign") following the success of a similar recycling campaign last year.

The Campaign established 50 collection points in all districts of Hong Kong. During the two weekends after the Lunar New Year holidays, members of the public could deliver the peach blossom trees to the refuse transfer stations of the EPD or the refuse collection points designated by the Food and Environmental Hygiene Department in each district. All trees collected were delivered to the waste wood recycler, Hong Kong Hung Wai Wooden Board Company, in the EcoPark, Tuen Mun for recycling into wood fuel pellets and composting materials.

The designated collection points only received trees from members of the public this year. Department stores, shopping centres, commercial and industrial organisations, buildings, property management companies of housing estates, owners' incorporations and cleaning companies had to deliver the trees directly to the EcoPark for recycling.

[*Press Releases, Environmental Protection Department*, 02/02/2014]

HK's air will improve

Hong Kong's air quality will show "dramatic improvement" over the next five years, says under-secretary for the environment Christine Loh Kung-wai. And she predicts that reductions in pollution should start being measured by the second half of this year.

In her most confident pledge so far on the fight for cleaner air, Loh told the *South China Morning Post* the city is well on target

to achieve landmark goals – such as a 20 per cent reduction in sulphur emissions – before 2020. Recent government data indicates roadside air quality is getting worse, but she insisted the situation would improve.

Objectives set out in last year's seven-year air quality road map had already been met without much political resistance, she said. This was in stark contrast to stalled action on other environmental issues such as waste, energy and conservation.

Loh believes several more air quality measures will be endorsed by Legco before the summer. "We should be able to start measuring reductions by the second half of the year," she said.

A HK\$11.4 billion initiative to replace about 82,000 old commercial diesel vehicles will start next month.

A scheme to replace catalytic converters – devices that reduce harmful emissions – on 20,000 taxis and public light buses powered by LPG is expected to be approved by summer, while a plan to retrofit about 1,400 franchised buses with selective catalytic reduction devices is also scheduled for approval this year.

But tackling roadside pollution is not enough, Loh admitted. Maritime traffic is one of the city's biggest causes of toxic sulphur dioxide emissions. In 2012, a study found 75 per cent of deaths linked to sulphur dioxide in the Pearl River Delta each year were Hongkongers. Loh expects legislation for a mandatory fuel switch – which will force all ocean-going vessels berthing at Hong Kong to switch to a lower-sulphur fuel – to be passed in summer and to take effect by early next year. This will be coupled with an initiative that would require smaller local vessels to switch to a cleaner marine diesel, which Loh has penciled in for 1 April 2014.

[SCMP, 12/02/2014]

Government welcomes extension of Fair Winds Charter

The shipping industry has extended the Fair Winds Charter ("FWC") for another year up to the end of 2014.

The FWC is a pioneering move for ocean going vessels to voluntarily switch to low-sulphur fuel while at berth in Hong Kong. The FWC was initiated by the Hong Kong Liner Shipping Association and Hong Kong Shipowners Association, with the support of leading operators of carriers and cruise liners.

The FWC has attracted extensive attention, both local and abroad, since its formal start in January 2011. It has set an example of industry initiating a green move, which has fostered industry-government collaboration which eventually turns a green notion to policy.

The extended FWC is a forerunner to a new regulation being prepared by the EPD to mandate fuel switch at berth in 2015.

[Press Releases, Environmental Protection Department, 14/02/2014]

Loss of dolphin waters may cost HK\$35.1b

The loss of the pink dolphin habitat off Lantau to reclamation for a proposed third

runway would cost the city HK\$36.1 billion over 10 years, a study has estimated. Researchers added the "social cost" of destroying 650 hectares of the habitat to the loss in tourism – two possible consequences of the project. They based their calculation method on Social Return on Investment (SROI) analyses used by London-based think tank New Economics Foundation.

As SROI study factors in the social, economic and environmental effects of a project, which traditional cost-benefit analyses usually ignore. Heathrow Airport shelved a third runway in 2010 after the foundation found such costs to be almost as high as the predicted economic benefits.

The Airport Authority said it understood the importance of dolphin conservation but would not carry out an SROI. The Authority said it would look at "all measures to minimise or alleviate the impact on dolphin habitats and dolphin-watching activities" in its environmental impact assessment.

The HK\$130 billion runway is proposed to be built by reclaiming 650 hectares off the airport island. The researchers say the Authority's assessment does not include a carbon audit, ecological impact assessment or complete assessment of air and noise pollution – a gap they hope to fill.

Researchers asked 1,007 people if they were willing to sacrifice time and money to protect the Chinese white dolphins. While 30 per cent chose to pay nothing, the test indicated willingness to give HK\$253 a year on average over 10 years. About 86 per cent were willing to spend 10 to 40 minutes more on the hour-long ferry ride to Macau that now cuts through dolphin waters. The results translate into HK\$18.6 million in social costs. The net loss of tourism revenue is estimated to be HK\$17.5 billion.

[SCMP, 20/02/2014]

Air pollution worst in 18 years

Research conducted by Friends of the Earth revealed that Hong Kong's core business and shopping districts of Central, Causeway Bay and Mong Kok experienced dangerously high air pollution levels for a combined total of more than 184 days in 2013, compared to only 142 and 172 days recorded in 2012 and 2011 respectively. It is the worst year recorded since the air pollution index ("API") was introduced 18 years ago. The API converts air pollution data into a value index ranging from 0 to 500.

Central was the worst-hit district. The number of days with roadside API over 100 was 83 and 54 recorded in 2013 and 2012 respectively. The number of days with roadside API over 100 in Causeway Bay and Mong Kok was 61 and 40 respectively. Between 2005 and 2011, there were about 20 days a year when the API made it above 100. Friends of Earth environmental officer, Adrien Chen, said that heavy traffic was the cause for the worsening roadside air pollution, together with the wall effect of high-rise buildings. He urged the government to speed up the introduction of electronic road pricing to discourage traffic entering Central.

The Secretary for Transport and Housing said that the government would consider a pilot scheme for electronic road pricing to manage traffic after completion of a bypass

in 2017 linking Wan Chai and Central. Public consultation could start in 2016.

In December 2013, the EPD replaced the API with a new Air Quality Health Index. The new system measures the short-term health risks of air pollution by analysing the three-hour average concentrations of four major pollutants: ozone; nitrogen dioxide; sulphur dioxide and particulate matter (PM10 and PM2.5).

[SCMP, 24/02/2014]

'Red list' for endangered plants and animals

Hong Kong will draw up its own "red list" of plant and animal species in need of preservation to be modeled on the global red list maintained by the International Union for Conservation of Nature.

Publishing the list is part of the government's efforts to fulfill its responsibilities under the Convention on Biological Diversity that was extended to the city by Beijing in 2011. The mainland already has its own regional red list.

Hong Kong's most celebrated endangered species is the Chinese white dolphin. But the list may also take in species that are abundant in Hong Kong but scarce elsewhere, such as the freshwater fish *parazacco spilurus*, which is regarded as vulnerable on the mainland.

Plans for the list were outlined at a meeting of the Biodiversity Strategy and Action Plan Steering Committee, which was established by the government to come up with an action plan to guide conservation in the five years from 2020.

The global red list covers 71,576 species, including mammals, amphibians, birds, reef-building corals and conifers. A Hong Kong list will help identify species of conservation concern, so that protection and management measures can be targeted towards priority species. The Convention on Biological Diversity is an international treaty on conservation of biological diversity, sustainable use of its components and fair sharing of the benefits.

The government is working on an action plan to fulfill the convention's requirements. A public consultation will be held next year.

More than 2,100 native plants, 997 marine fisheries, 520 birds, 236 butterflies and 55 terrestrial mammals are found in Hong Kong.

[SCMP, 01/03/2014]

Country park decision upheld

The rights of individual landowners did not outweigh the interests of the public, a judge ruled as he dismissed a Sai Kung villager's challenge to the policy of incorporating private land into country parks.

Court of First Instance judge Mr. Justice Godfrey Lam Wan-ho refused to grant leave to Thomas Lai to seek a judicial review of the chief executive's decision to designate his home village of 60 years, Sai Wan Tsuen, as part of the Sai Kung East Country Park. Lai had argued that the incorporation of Sai Wan, a coastal enclave, into the country park deprived villagers of their right to build houses on their land. Lam J. said the

government drafted its land-use plans for country park enclaves in 2010 out of a commitment to protect the beauty and integrity of the parks.

Lai argued that the authorities in the 1970s promised villagers their land would not be included in the country park. He also argued that incorporation would deprive indigenous villagers of their rights under the New Territories small-house policy, which grants men over 18 the right to apply to build three-storey homes on ancestral land. The judge said, Lai did not have a case to argue in his claim that the incorporation thwarted the "legitimate expectation" of villagers.

Villagers have run a high-profile campaign against the incorporation, preventing participants in last year's Oxfam Trail-walker charity hike from entering the village and blocking the main path in on weekdays.

Village representative Lai Yan said villagers would now consider extending their blockade of the path to weekends.

[SCMP, 01/03/2014]

Where have the spoonbills gone?

The number of endangered black-faced spoonbills returning to Hong Kong and Shenzhen for the winter fell almost 30 per cent this year. The decline put the population of the large, white, water-migratory birds calling Deep Bay a winter home at a 10-year low, the Bird Watching Society said. Only 252 birds were recorded, down from 351 last year. Their numbers on the mainland also dropped to 339 from 363.

One-fifth of the global spoonbill population once visited Deep Bay, sandwiched between Hong Kong and Shenzhen, as a key wintering site a few years ago. This year, only 9 per cent came, a society report said.

Raid development along the coastal mainland might have disrupted migratory patterns, thought a clear reason for the steep decline could not be pinpointed, the society's research manager, Yu Yat-tung, said.

In particular, spoonbill numbers in Fuqing Fujian province, dropped about 60 per cent, Yu said, pointing to the construction of an industrial park near a key habitat. He speculated this might have affected the number of birds arriving in Hong Kong. The society conducted the study with organisations from 15 other locations in east and south east Asia – the only known habitats of the rare bird.

In October, the spoonbills fly south from their breeding grounds in the Korean Peninsula to the warmer tropics. The Mai Po Nature Reserve near Yuen Long is a major wintering site. Yu said a further decline was expected if the Nam San Wai wetlands were developed.

A plan by private developers to build flats on the wetlands was rejected last month.

[SCMP, 04/03/2014]

ADVISORY COUNCIL ON THE ENVIRONMENT (ACE)

Summary of minutes of the 197th Meeting of the Advisory Council on the Environment held on 9 December 2013

Council for Sustainable Development's Public Engagement on Municipal Solid Waste Charging – "Waste Reduction by Waste Charging • How to Implement?"

Members of Advisory Council on the Environment ("ACE") expressed their views on the issues raised for the public engagement on the proposal for municipal solid waste ("MSW") charging launched by the Council for Sustainable Development ("SDC") in September 2013. Some points arising from the meeting are:

1. The chairman of SDC updated members on the MSW public engagement exercise. A support group was set up to study feasible options for the design and implementation of a quantity-based MSW charging scheme, with reference to experiences in other jurisdictions, including Taipei City and Seoul. Other members of SDC invited comments from the ACE members about the charging mechanism, coverage of the charging scheme, charging level and recycling.
2. An ACE member urged the government to expedite its work on implementing a comprehensive waste management plan. He suggested MSW charging to be one of the key strategies for reducing waste from the domestic sector and the commercial & industrial ("C&I") sectors. He also suggested that the government should provide resources and support to various stakeholders, including green groups and non-governmental organisations, so that they can conduct parallel trial charging schemes. The charging scheme could be implemented in phases to allow gradual "buy-in" by the community. The member believed that MSW charging should be imposed on domestic waste at household level rather than by individual buildings. The threshold should be set at a reasonably achievable level. A "cap and trade" system could be introduced in order to encourage waste reduction at source and to provide monetary incentives for underprivileged groups which could sell their unused quota to those who had generated waste in excess of the threshold. The cap should be tightened progressively over the years.
3. SDC members reflected that there was clear community support for MSW charging to reduce waste. This was shown during the public consultation in 2012. However, different stakeholders have different views on how to implement the charging system and the level of the charging rate. Representatives of the C&I sector expressed strong reservations as to the charging scheme, unless the government would give corresponding rebates. The SDC members also pointed out that the government was identifying representative types of households with a view to introducing trials of different charging mechanisms.
4. An ACE member agreed that waste charging initiatives should be implemented at the earliest opportunity. He quoted the experience of Taipei City

in giving out free garbage bags to the public at the initial stage to get MSW charging off the ground. He suggested that the details of implementation of MSW charging could be reviewed after the trial period. In addition, he emphasised the government should make more effort to improve waste collection and recycling facilities and to expedite the various waste management incentive schemes in parallel with the MSW charging scheme.

5. The chairman of SDC believed that when the government first started the quantity-based MSW charging scheme it would be difficult for the community to agree on one single mode of charging. Certain flexibility should be allowed for different sectors to figure out a suitable collection mechanism and to gain acceptance in the community. The different trial schemes could be launched for a period of 3-6 months to try out the viability of different charging mechanisms.
6. An ACE member was of the view that in order to serve the waste reduction objective, charging by individual households would be the best way. However, since most of the households in Hong Kong were in multi-story buildings, the government should consider applying different charging methods to different target groups, e.g. households of different sizes, buildings with or without building management, and special arrangements for underprivileged groups. She suggested the government should start trial schemes by sampling new buildings with effective property management in order to facilitate a smooth implementation of the MSW charging scheme.
7. An ACE member, experienced in the catering sector, said that the mode of collecting C&I waste was very different from that of domestic waste. Currently, most of the C&I waste was collected by the Food and Environmental Hygiene Department ("FEHD") after the opening hour of the business. It was expected that fly-tipping of C&I waste would result if FEHD ceased to collect the C&I waste or there were no proper collection/disposal facilities nearby once the charging scheme was implemented. The ACE member also agreed that it is necessary to provide facilities in venues such as shopping malls to facilitate recycling at source. More promotion and public education on food waste reduction were needed, especially tourists who were not familiar with Hong Kong's measures on waste reduction and recycling.
8. The chairman of SDC believed that the government should give due consideration to the detailed arrangements for waste collection/disposal facilities and the manpower/resources required to tie-in with the charging system. It was recommended that the C&I sector should use designated garbage bags for C&I waste and bring them to the Refuse Collection Points for weighing and proper disposal upon the launch of MSW charging.

9. In respect of the charging level, an ACE member suggested that a level generally accepted by the community should be set instead of based on a cost recovery basis. The public should be informed that they were responsible for the waste they generated, and hence the payment.
10. The chairman of SDC emphasised that if the public were vigorous in reducing waste at source, the actual financial impact of the MSW charging scheme could be less. A member of SDC clarified that the charging rates should be of sufficient weight to induce behavioural changes but not be set for cost recovery. Based on the experience in Taipei City, each person was charged \$0.10 per litre of domestic waste produced. Thus, the proposed waste charge was calculated to be \$13 per person or \$39 for a three-person household per month. Giving out free garbage bags to the public could help the logistical arrangements when the trial scheme started.
11. A member of SDC said that the reason the general public did not fully appreciate MSW charging scheme was that the public had not taken into account the costs of providing waste treatment facilities and landfills management currently borne by the government. Since food waste could be processed into valuable resources, such as fertilizers and fish feed, the government could consider providing financial incentives to the food waste treatment sector so that they can operate on the recycling side at least on a self-sufficient basis.
12. A member expressed concern whether the sum collected from MSW charging would be used on recycling and other environment-related initiatives. The charges collected could be used for public education, research and promotional campaigns on waste reduction or related matters.
13. An ACE member suggested that a bonus/penalty system could be considered. For example, a person who did not comply with the scheme would be subject to penalty whereas a person who reported on cases of non-compliance would be allowed to share the penalty so collected. Another ACE member said he was concerned whether the government would consider making it mandatory for the public to use designated garbage bags when disposing their waste. If yes, these garbage bags should be available in supermarkets and convenience stores where the public had ready access. Given the experience of the plastic shopping bag levy scheme, it was expected that the public would throw less waste away and use less designated garbage bags, and hence pay less for MSW charging.
14. The chairman of SDC concluded that ACE was supportive of the quantity-based MSW charging and the need to raise public awareness about the importance of behavioural changes to achieve waste reduction at source.

Hung Shui Kiu New Development Area Planning and Engineering Study Preliminary Outline Development Plan and Stage Two Community Engagement

Members of ACE were briefed on the Preliminary Outline Development Plan (PODP) formulated for the Hung Shui Kiu ("HSK") New Development Area ("NDA") which is one of the ten mega infrastructure projects announced in the 2007-08 policy address. The HKS NDA aims to provide housing land and employment opportunities which are long-term development needs of Hong Kong. Some points arising from the meeting are:

1. An ACE member pointed out that there were currently many containers stored at the Logistic Quarter in the HSK NDA illegally. He suggested that the government should rectify the situation rather than legitimising such land use by designating the area as "Other Specified Uses" ("OU") when it would basically be used as open storage ("OS") area for containers. For planning purposes, the area should not be designated as a backup for container yards because it was not close to the existing container terminals in Tsing Yi and Kwai Chung. The OU area should be located further towards Tuen Mun area.
2. The project team pointed out that the Special Industry Logistics Facility area was proposed in the northwestern portion of the HSK NDA as it was close to Kong Sham Western Highway ("KSWH"). It was expected that there would be lots of heavy vehicles using the proposed distributor roads underneath KSWH rather than using other road networks in the area when vehicles travelled from the Logistics Quarter to the Mainland, container ports or the Hong Kong International Airport.
3. The project team clarified that the "Village Type Development" ("VTD") zone designated under the PODP was the same as the current outline zoning plans. There was no expansion to the VTD zone plan. Since the project team was concerned about heavy truck traffic in the area, various buffer zones had been planned around the area. In view of the response of local villagers and residents, expansion of some of these buffer zones was considered. The transport system should also be designed to discourage heavy vehicles from accessing the residential area.
4. About 70 hectares of open space in the HSK NDA were proposed in the PODP for a planned population of 218 000. In addition, another 75 hectares of green belts were proposed in the PODP. Since the southern portion of the NDA to the east of Castle Peak Road was characterised by existing clustered villages and private developments and there was a number of education and government facilities, substantial development in this area was not contemplated. There was a buffer area zoned "Green Belt" along south eastern edge of the NDA. It would be retained to separate the developments from Yuen Long Highway. A town park was proposed in the heart of the NDA. Another open space was proposed along the Tin Shui Wai ("TSW") river channel so that the living quality of the neighbourhood could be enhanced. Furthermore, adequate local open space within their own lots was required in

private residential developments in the NDA.

5. ACE members suggested the following aspects be studied:-
 - (a) response to climatic requirements in terms of micro climate and the urban climatic map situation;
 - (b) quality of public spaces conducive to a pleasant people-oriented community;
 - (c) sustained social interactions by integrating public spaces with recreational facilities, natural reserves and riverine neighbourhood in the area; and
 - (d) energy-efficient designs and green infrastructure/buildings.
6. The project team suggested the possibility of using district cooling systems as the proposed open space along the TSW river channel and the town park was not close to the seafront.
7. An ACE member pointed out that habitat fragmentation was very damaging to ecological values of the NDA, and the proposed solution of buffer planting of local species might not improve the situation. Since greenbelts were not under the jurisdiction of Agriculture, Fisheries and Conservation Department or Leisure and Culture Services Department, they were generally not properly managed. These lands were prone to be affected by invasive plant species and/or dumping of construction waste.
8. The meeting concluded that, at present, substantial areas within the HSK NDA were already significantly disturbed by various industrial, port pack-up/OS uses. The PODP was to make the NDA a better environment in which to for live and work. Under the plan, the proposed Special Industries would be located to the north western portion of the NDA. This would eliminate existing industrial/residential interface problems and avoid producing adverse environmental impacts on adjacent developments, including the nearby villages.

CLIMATE CHANGE

Singapore and Malaysia battle drought

Singapore and Malaysia are facing some of the driest weather they have ever seen. Singapore suffered its longest dry spell on record between 13 January and 8 February 2014 and has little rain since then. It usually experiences tropical downpours on most days. The drought has forced Singapore to boost supplies of recycled water.

According to the Malaysian Meteorological Department, 15 areas of Malaysia have not had rainfall in more than 20 days, with some of them dry for more than one month. It is expected that the dry spell will run for another two weeks. The Indonesian province of Riau is also hit by the drought. National University of Singapore weather researcher, Winston Chow, said that the uncommon weather events may occur more frequently.

Malaysia is the world's second-largest producer of palm oil. Producers say that drought lasting more than two months can adversely affect yields for six months to two years, reducing palm oil output and increasing benchmark Kuala Lumpur palm oil prices. Such concern over the possible harm to production pushed up palm oil prices about 8% in February 2014, which is the biggest monthly gain in four months. The lack of rain also caused extensive damage to the rice crop.

In Singapore, the dry weather is also blamed for causing the death of fish in several offshore farms. About 160 tonnes of fish have died because of a lack of oxygen in the water.

Due to the hot weather, the Malaysian Fire and Rescue Department received more than 7,000 calls involving forest and bush fires this month, which is five times higher than in the same period last year.

The state of Selangor, Malaysia, began limited water rationing earlier this week as levels in its dams plunged to critical lows. State chief minister Abdul Khalid Ibrahim said the state pledged that every consumer would receive water, but it would be rationed to ensure supply every two days. Consumers would receive water for four days a week. The state of Negeri Sembilan near the capital, Kuala Lumpur, declared a "state of crisis" last week as dams fell to critical levels.

The Public Utilities Board of Singapore boosted the supply of recycled water and desalinated supplies in order to keep up reservoir levels. Singapore has become a leader in water technology as it strives to cut reliance on imported supplies from Malaysia. About 55% of Singapore's water is now desalinated or recycled. Its target is to be self-sufficient by 2061, when an agreement made in 1962 to buy 950 million litres per day from Malaysia ends.

[*South China Morning Post*, 26/02/2014]

Report hails international progress on climate change laws

The fourth annual Global Legislators Organisation (GLO) study (**Globe Study**) covers 66 countries, up from 33 in the previous report, accounting for 88% of the world's greenhouse gas emission.

The Globe Study revealed that 64 of 66 countries had established or were establishing significant climate or energy legislation. The report showed that these laws were all achieving better security of energy supplies, more efficient use of resources and lower carbon growth. However, the Globe Study said that national legislation did not yet add up to enough action to meet the goal of limiting temperature rises to no more than 2°C to avoid dangerous climate change, but it is needed to form a basis for a global climate treaty, which is expected to be negotiated by the end of 2015. Attempts were made to agree a binding global deal on tackling climate change in 2009 in Copenhagen, but they failed.

Another study showed that almost 500 laws to tackle climate change were passed in countries which account for nine-tenths of global emissions. Nineteen countries were considered to have made progress in 2013 on climate laws in the latest Global Study,

although Japan and Australia have regressed and have begun to reverse climate legislation.

The Globe Study concluded that there is an urgent need for countries which have not passed legislation to tackle climate change to do so. GLO's president, who is also the chairman of the UK's Committee on Climate Change, Lord Deben, said that for a global agreement in 2015 to be created, the implementation of national legislation and regulations is the pre-requisite. GLO's vice-president, Baroness Worthington, said there has not been a huge amount of progress on the international discussion side, but the Globe Study showed that there was progress on the national level. Ms. Worthington added that the US, being one of the world's biggest polluters, has not passed significant national climate change legislation, and it is hoped that it would take more action at a city, state and federal level as the impacts of global warming became worse.

The Globe Study showed that there is an increasing number of countries taking global warming seriously. Ms. Worthington suggested that clean technology development continued, creating a "lobby on the side of the angels" which opposes those, including in the UK, who fought against action to tackle climate change.

GLO is launching a new international initiative, to help legislators across the 66 nations develop, advance and implement climate change laws.

[*The Guardian*, 27/02/2014]

Extreme weather is a silver lining

Devastating extreme weather, which was recorded around the world—including recent flooding in England, Australia's hottest year on record and the US being hit by a polar vortex—have a silver lining, in that such climatic disasters boost the issue of climate change to the highest level of politics and remind politicians that climate change is not a partisan issue, according to the UN's climate chief Christiania Figueres. Ms. Figueres said it was amoral for people to look at climate change from a politically partisan perspective, because of its severe impact on future generations. She added that the extreme weather experienced across the world during the past two years was a sign that we were already experiencing significant climate change.

The flooding in England, due to the wettest winter on record, brought climate change to the forefront of political debate in the UK. The prime minister said that man-made climate change was one of the most serious threats that his country and the world faced.

Climate change was rarely mentioned at all in the 2012 US election battle until super-storm Sandy struck New York.

Ms. Figueres also said that it is unfortunate that we have to have these weather events, but there is a silver lining which reminds us that addressing climate change in a timely way is not a partisan issue, and that climate change events are affecting everyone and have much longer effects than a political cycle. The recent extreme weather around the world might be taken as an exception to the norm, but the problem is that it is not. The weather is essentially giving us a pattern of abnormality that is becoming the norm. These extreme weather events are going to

continue in their frequency and severity. Climate change is not going to be here in the future; the reality is that we are now experiencing climate change.

Ms. Figueres met with several business conglomerates, including Unilever, Lafarge and Royal Dutch Shell, and urged them to put pressure on governments to take action on climate change, ahead of upcoming renewed international negotiations in Bonn to flesh out details of a draft climate treaty to be laid out in Lima this year and agreed in Paris by the end of 2015.

Peru's foreign minister told the *Guardian* in January that the Lima meeting in December must produce a first draft of a deal to cut carbon emissions, which will be the first of its kind after efforts to get legally binding agreement for cuts from most of the world's countries failed at a blockbuster meeting in Copenhagen in 2009.

Bangladesh's climate envoy to the UN said that he was optimistic that the world can avoid another diplomatic disaster like Copenhagen in 2009. In 2008-2009, people suspected that it would be very costly to reduce emissions. But currently people know that it does not cost very much. Countries like the UK know that they can reduce greenhouse gas emissions by 65% without it costing very much at all.

The grouping of the world's 47 "least developed" countries, including many African and Asian countries, said that they would want far more money to adapt their economies to climate change than the \$100bn a year that has been proposed by rich countries. A lead negotiator for the group said that more than \$100bn, together with a legal mechanism to compensate for extreme climate change events, is needed for the group to agree to a new Paris protocol.

Ms. Figueres later agreed that the \$100bn proposed in 2009 as compensation for poor countries would not be enough for them to build climate defences and adapt their economies. The International Energy Agency suggested it may cost \$1 trillion over 25 years just for adaptation. Therefore, \$100bn is a freckle on the map of what needs to be invested.

[*The Guardian*, 05/03/2014]

Climate change could mean more malaria

A study of the mosquito-borne disease that infects around 220 million people a year reveals that malaria creeps to higher elevations during warmer years and back down to lower altitudes when temperatures cool.

Researchers said that unless disease monitoring and control efforts are increased, future global warming could lead to a significant increase in malaria cases in densely populated regions of Africa and South America.

Menno Bouma, an honorary clinical lecturer at the London School of Hygiene and Tropical Medicine, said that because people who live in these areas have no protective immunity to malaria, they will be particularly vulnerable to more severe and fatal cases of infection.

According to World Health Organisation data, malaria infected approximately 219 million people in 2010, killing approximately

660,000 of them, the vast majority in sub-Saharan Africa. But for a disease that affects mainly poor communities in rural areas of developing countries, robust figures are hard to establish. Some global health experts believe the annual malaria death toll could be double that.

Mr. Bouma explained that both Plasmodium parasites that cause malaria and the Anopheles mosquitoes that spread it thrive as temperature rises, therefore malaria could be sensitive to climate change. Some researchers argued that socio-economic improvements and more aggressive and effective mosquito-control efforts would have large enough positive effect on the spread and intensity of malaria to neutralise the potential threat of changing climates.

Mr. Bouma and colleagues from the University of Michigan analysed data from the Debre Zeit area of central Ethiopia from 1993 to 2005 and the Antioquia region of western Columbia from 1990 to 2005. By excluding other factors that influence malaria case numbers, such as mosquito-control programs, resistance to anti-malarial drugs and fluctuations in rainfall, they found that the median altitude of malaria cases shifted to higher levels in warmer years and back to lower levels in cooler years.

Mercedes Pascual from the University of Michigan said that this is indisputable evidence of a climate effect. The findings underscore the size of the problem and emphasise the need for sustained intervention efforts in these regions.

[Reuters, 06/03/2014]

New ozone-destroying chemicals found in the atmosphere

Researchers revealed that dozens of mysterious ozone-destroying chemicals may be undermining the recovery of the giant ozone hole over Antarctica.

Scientists said that discovery of the chemicals circulating in the atmosphere showed "ozone depletion is not yesterday's story". The chemicals, which are also extremely potent greenhouse gases, may be leaking from industrial plants or being used illegally, contravening the Montreal Protocol which initiated banning the use of the ozone destroyers in 1987.

A total of 13 CFCs and HCFCs were known to destroy ozone and are controlled under the Montreal Protocol, which is widely regarded as the world's most successful environmental law. But scientists have now identified and measured four previously unknown compounds and warned of the existence of many more. CFCs and HCFCs were used mainly in refrigeration and aerosol sprays.

Dr. Johannes Laube of the University of East Anglia said that there were definitely more similar compounds as they have already identified dozens more, and they are in the process of fully analysing dozens of new compounds, out of which four were found to be very powerful destroyers of ozone. The chemicals take decades to break down in the atmosphere, which means their impact on ozone and climate change is long-lived.

Dr. Laube is particularly concerned that the atmospheric concentrations of two of the new compounds are actually accelerating. He further pointed out that there were quite a few loopholes in the Montreal protocol and

he hoped that some of these could be tightened. The Montreal protocol phased out ozone-depleting substances from 1987 and the ozone layer should recover by 2050. But these research findings remind us that we need to be vigilant and continually monitor the atmosphere for even small amounts of these gases creeping in.

In December 2013, NASA researchers revealed the discovery of a new greenhouse gas that is 7,000 times more powerful than carbon dioxide at warming the Earth and which has been in use by the electrical industry since the mid-20th century. The four newly identified compounds are also expected to trap heat thousands of times more powerfully than CO₂.

[The Guardian, 09/03/2014]

REGIONAL & INTERNATIONAL

CHINA

New fishing rules for South China Sea

Hainan's legislature announced new fishing rules to apply in the South China Sea. The rules, which took effect on 1 January 2014, require foreign fishing vessels to obtain prior approval from the province before they can operate in the area of the South China Sea under Hainan's administration. Any foreign fishing vessels that enter the restricted waters without permission will be expelled and their catch confiscated. A fine of 500,000 yuan will also be imposed.

The effectiveness of the rules remains in doubt. The state's original plan was to integrate four maritime law enforcement entities into a unified coastguard. However, the director of legal affairs for the Hainan Department of Ocean and Fisheries said that efforts to make the coastguard more efficient and responsive have been held back by red tape. There were also competing interests among the bureaucracies responsible for patrolling the waters.

Another problem that hinders the effectiveness of the rules is that the National People's Congress has never defined the waters under Hainan jurisdiction. The Hainan legislature does not have the right to do so.

On the other hand, the unclear water boundaries have aroused international concern. The US State Department commented that Chinese law enforcement vessels risked causing international incidents in the absence of legal clarity as to which waters should be considered under Beijing's jurisdiction.

[SCMP, 11/01/2014]

Infrastructure obstacle to electric vehicles

The mainland government's move to ease pollution by giving more subsidies for the purchase of electric vehicles will run into a roadblock because inadequate infrastructure will deter potential buyers, analysts said.

Despite the government's efforts to promote the use of green vehicles, electric cars were unlikely to replace petrol-powered cars or trucks in the country, said Gordon Xie, a partner with Deloitte China who advises the car industry.

"The government's subsidies programme will encourage more drivers to accept electric vehicles in this early adoption period, but the infrastructure is not mature enough to attract buyers," Xie said.

The lack of charging stations had been a problem that made driving an electric car inconvenient, he said. "Drivers are willing to be more environment-friendly, but if it brings trouble in driving, they will hesitate."

Local protectionism is another hurdle for promoting the use of electric vehicles as some local governments placed curbs on the purchase of electric cars produced by particular carmakers.

The finance ministry said in a joint statement with other ministries that subsidies for the purchase of electric vehicles this year could be reduced by 5 per cent, although the reduction in subsidies was previously set at 10 per cent. Next year's subsidies will be cut by a further 10 per cent instead of 20 per cent.

The government has pledged support for green cars even after the current subsidy programme expires next year. The authorities announced a renewed green cars programme in September last year, offering buyers subsidies of up to 60,000 yuan (HK\$76,700) for all-electric cars and 35,000 yuan for plug-in hybrid cars with an electric driving range of more than 50 kilometres. The subsidy for electric buses is 500,000 yuan.

[SCMP, 11/02/2014]

Transparency key to clean air plan

The environmental watchdog said the nation's first clear air plan will comprise nearly two dozen measures, and reviews of how local governments were carrying out the policy would be made public.

The Ministry of Environmental Protection will work with other ministries to draw up the 22 measures to fight air pollution. The measures will include steps to monitor implementation at the local level. The proposed measures will be submitted to the State Council for approval shortly.

China introduced its first comprehensive plan to fight air pollution last year. It called for reductions in the levels of PM2.5 – the pollutants considered the most harmful to human health – in major city clusters around Beijing, Shanghai and Guangzhou, by 25 per cent, 20 per cent and 15 per cent respectively by the end of 2017.

The contribution of coal to the energy supply should also be reduced to below 65 per cent of the total, a small drop from the 66.8 per cent level in 2012. The Ministry vetoed as many as 32 projects worth a total investment of 118.4 billion yuan (HK\$150 billion) last year as it stepped up efforts to get tough on industrial polluters.

But an environmental law expert said efforts to tackle air pollution should be backed by new legislation. The expert observed that the environmental watchdog needed laws to better help it take on powerful industrial interests and local authorities obsessed with economic growth.

[SCMP, 11/02/2014]

Doubts about green car expansion

Despite their history, new energy vehicles such as electric, hybrid and fuel cell cars have been a hot topic at dinner tables since 2011 when the government pledged support to this sector in an effort to combat choking pollution from vehicle emissions.

The finance ministry this month announced it would provide more subsidies for new energy vehicles than previously planned. It also pledged to continue support even after the programme expires next year. Xiao Fie, a car dealer, said new electric cars were rarely promoted and many dealers were not selling them.

Tesla recently set the retail prices of its Model S series at 734,000 yuan and 852,500 yuan in marking the company's entry into China, the world largest car market.

Mr. Huang, a Shenzhen businessman, said: "The costs of the Tesla car and the Mercedes-Benz sedan I am using are more or less the same. I am also worried about the lack of charging stations in Shenzhen."

Huang also expects problems in repair and maintenance, doubting he could find a shop or technician who could help. It was not like a Toyota or a Ford, where it was much easier to find someone who could repair the vehicle, he said.

The lack of repair and maintenance facilities discouraged potential buyers, Xiao said. "If it's a simple problem with car tyres, it can be fixed easily. But drivers are worried that it would be difficult to find a repairman if it's a battery problem," she said.

With supporting policies in place, more than 10 electric car models will be launched this year and next year, Gangway Securities said in a report. Well-known car brands such as BMW, Audi and Volkswagen were expected to launch their electric cars in China.

New energy car sales last year stood at 17,600 units. The government's target is to have 500,000 units sold or in production by 2015.

Japanese carmaker Nissan said it would launch its Venetia electric model by next year and has reached an agreement with the Dalian government for the delivery of 1,000 units, according to its spokesman.

It looks like being environmentally friendly is easier said than done, despite the government's efforts to encourage the use of green cars amid worsening pollution problems in the nation.

[SCMP, 16/02/2014]

UNITED KINGDOM

Glasgow lights to be replaced with low-energy LEDs

Glasgow-government-backed Green Investment Bank has granted "green funds" to local councils in Glasgow to replace all street lights with low-energy LEDs. The replacements will cause less light pollution, as LED lights provide more illumination on the ground and less reflected to the sky, unlike conventional street lights which send a third of their light to the sky. In addition, LED lights are energy-saving and thus help councils save millions of pounds in electricity costs.

Councils will receive cash needed for replacements under the *Green Fund Project* from the Green Investment Bank. The green fund is to be paid back over time as savings of councils materialise.

The Green Investment Bank's programme came about following survey results that show 80-90% of people prefer the bright white light cast by LEDs to the dim orange of conventional street lights. The green funds are designed to finance public sector energy efficiency projects. Repayments are made from within savings.

Shaun Kingbury, chief executive of the bank commented that UK's street lighting could be similarly be replaced by 2020. The UK government spends Stg.300 million a year on public lighting. There are over 7 million street lights in the UK. Many of these are over 40 years old and past their best. At least 80% of the yearly expenditure could be saved by replacing the current lights with LEDs, which provide more light for less money.

The Green Investment Bank offers UK local authorities low-interest fixed-rate loans over a period of up to 20 years. The bank has already invested £750m in a variety of projects, combined with £2bn of private sector co-funding.

[The Guardian, 04/02/2014]

U.S.A.

Ivory sales banned

In what animal conservationists hailed as a "significant milestone" in the global fight against elephant poaching, the Obama administration has announced a ban on nearly all ivory sales in the United States.

As part of the new National Strategy on Wildlife Trafficking to end an illegal trade that threatens to wipe out the world's largest land animal, the administration said on Tuesday that for the first time vendors must prove beyond any doubt that ivory articles offered for sale are antique. Sale of antique ivory ornaments is allowed under the *Endangered Species*.

Administration officials said authenticity could only be proven with a US government permit showing the ivory was imported prior to a ban in 1989, or a foreign government permit showing it was exported before that time. Ivory older than a century is also exempted.

The value of ivory, estimated at US\$3,300 per kilogram by the time it reaches China, and rhinoceros horn, which police and prosecutors said was worth "more than its weight in gold", with estimates as high as \$55,000 per kg, is driving a robust black market trade.

The United States is the world's second-largest market behind China for illegal wildlife artifacts. The legal sale of ivory in the United States and the world helps to mask black market sales.

Some 30,555 elephants are killed each year. Last year, more than 1,000 rhinos were poached in South Africa alone.

World Wildlife Fund President and chief executive Carter Roberts called the proposed changes "a significant milestone in the global fight against wildlife crime...reflecting the fact that it has grown into one of the most

profitable criminal industries in the world, estimated at US\$10 billion annually".

The administration elevated the illegal trafficking of ivory and rhino horn to a priority for several federal agencies, including the departments of State, Justice, Homeland Security and Interior, which oversees Fish and Wildlife. The strategy aims to strengthen enforcement and reduce demand for black market wildlife artefacts around the world.

Commercial exports of ivory products will also be banned, except for proven antiques and specific exceptions allowed under the *Endangered Species Act*. Permits for importing elephant sport-hunting trophies collected by Americans in Africa will be reduced to two a year.

[SCMP, 13/02/2014]

AUSTRALIA

Reef audit finds big fish gone

The world's first continent-wide survey of reef sea life has found big fish gone around much of the Australian coastline. A year-long circumnavigation of Australia ended in Hobart recently with a trove of data from 700 coral and rock reef sites surveyed by volunteer divers for the Reef Life Survey Foundation.

Programme co-founder, Graham Edgar, of the University of Tasmania, said the first comprehensive study of any continent's reef systems found biodiversity losses, compared to earlier local counts. "Virtually all of our coastline has had all the larger predatory organisms reduced - from the big fishes to the lobsters," said Professor Edgar, from the UTAS Institute of Marine and Antarctic Studies. "It's not just over-fishing, it's the spread of invasive species and problems such as pollution when you get near metropolitan areas."

His 14-metre catamaran Reef Dragon served as dive platform on a 12,000 nautical mile circumnavigation. Seventy five trained divers examined marine life on reefs up to 400 nautical miles offshore. The odyssey took the divers from the pitch dark waters of Port Davey in south-west Tasmania to spectacular Osprey Reef, a sheer-walled coral atoll off far north Queensland.

Pioneering collections of biological information were made in the Coral Sea and off the North-West Shelf on the way down the West Australian coast and back to Tasmania, where Reef Dragon docked in a Derwent River marina. Professor Edgar said the final report card was "a mixed bag".

"Some of the reefs are doing really well, particularly off the North-West Shelf where there are good numbers of large fish," he said. "Elsewhere coral reefs are seriously degraded by bleaching. There have been some massive changes out of sight in the marine environment."

According to a study published this month in Nature, the best protection for marine life comes in reserves that are likely to be "no-take" sanctuaries, well-enforced, more than 10 years old, more than 100 square kilometers in size, and isolated by deep water or sand. The *New York Times*, reviewing the Report, said: "Marine-protected areas are clearly a positive trend, a reflection of the growing awareness of governments across

the globe that the oceans and their bounty are not limitless or indestructible.”

Australia’s 3.1 million square kilometres system of marine reserves is in doubt following the federal government’s decision to scrap most of the network’s management plans and no-take zones. An expert scientific panel will examine the science behind the reserves, and advisory panels are to be chosen “to improve stakeholder consultation”.

[*The Age*, 21/02/2014]

Rhinos moving to Australia

Poaching of rhinos in South Africa has been increasing dramatically. Rhino horn is highly prized in South-east Asia, where some people believe the horn can cure various illnesses.

As a result of the rise in demand, there is rampant poaching of rhinos in South Africa. In 2013, approximately 1,004 rhinos were illegally killed in South Africa, which is 668 more than that in 2012; 86 rhinos were killed in the first month of 2014. It is predicted that deaths of rhinos will outweigh births by 2016 to 2018, which will result in extinction.

The founders of the *Australian Rhino Project* are in discussion with Taronga Park Zoo in Australia to enlist the famous zoo’s help in a campaign to save the rhinos. One of the ideas is to relocate rhinos to Australia, which is a place considered by South African conservationists as being an ideal habitat for the species.

Taronga Park Zoo operates a Sydney-based site as well as Taronga Western Plains Zoo near Dubbo, which already houses a small population of black and white rhinos.

In addition, the Zoo took part in the completion of a feasibility study of the concept and viability of importing rhinoceros last year. The study aimed to boost existing rhino breeding programmes in Australia to assist in securing a future for the species.

As well, a memorandum of understanding has been signed between the Zoo and the Australian Rhino Project to further progress the requirements of such a programme and to allow for the involvement of the Australasian Zoo and Aquarium Association.

[*The Guardian*, 03/03/2014]

PERU

Mass dolphin deaths in northern Peru

More than 400 dolphins were found dead on Pacific Ocean beaches of northern Peru in January 2014, which is twice the number found dead in 2012. There were more than 870 dolphins found dead in 2012.

Autopsies results revealed that there were different causes of death, ranging from biotoxins in the sea to seismic testing or unknown ailments. The results were inconclusive.

In other parts of the world, dolphin deaths are generally caused by environmental contamination, leading to dolphins eating fish or other smaller species filled with toxins. Dolphins also die after ingesting discarded plastic floating in the sea.

Marine biologists commented that Peru government laboratories had only three or four of the world’s 100 or so chemicals that could be used for determining an animal’s cause of death. This limited the effectiveness of the autopsies.

[*The Guardian*, 04/02/2014]

DELHI

Delhi’s air pollution

New Delhi’s air quality is getting worse. Recent media reports claim that Delhi air quality is worse than Beijing’s. However, government agencies in India say that Delhi’s air is merely hot, rather than polluted.

In fact, respective levels of particulates in air in Delhi and Beijing give a clear reflection of air pollution in the two cities. PM10 level (particulate matter up to 10 micrometres in size) in Beijing decreased by about 40% between 2000 and 2013. On the other hand, PM10 level in Delhi increased by about 47% from 2000 to 2011. Moreover, PM2.5 level, which is more harmful than PM10 as it penetrates deeper into the lungs, in Delhi increased from 168m/cum to 183m/cum between 2011 and 2013.

The governments of the two cities have invested in different projects to improve air quality. Beijing’s government invested 300 billion yuan in a five-year plan to reduce PM2.5 levels. Beijing has also reduced the number of cars that can be sold each year. China is also imposing heavy fines on local governments that fail to keep air pollution at sub-critical levels has introduced Euro V standards, invested in public transport and reined in polluting industries.

On the other hand, Delhi has made compressed natural gas mandatory for busses and three wheelers or auto rickshaws, scrapped old commercial vehicles, introduced Euro IV emission standards, set up intra-city metro railways and added a new fleet of buses to expand public transport. The Delhi government has also removed polluting factories, introduced stricter regulations for power plants and banned open burning of refuse and vegetation. However, the effectiveness of these measures is not high as enforcement has been inadequate.

Worse still, the number of vehicles on Delhi’s roads increases every year. Heavy traffic means vehicles can move only slowly, thereby spewing more fumes. Dumping of massive quantities of construction waste also contributes to heavy dust pollution.

Various reports have shown that Delhi’s citizens are increasingly suffering respiratory disorder symptoms due to heavy air pollution. Yet, a Delhi Pollution Control Committee official admits that plans to reduce air pollution in Delhi have been put on hold since 2012.

[*BBC News*, 04/02/2014]

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**Convictions under environmental legislation:
December 2013 to February 2014 (March 2014
data not available)**

**[Note: the EPD no longer classifies second
(and subsequent) offences.]**

The EPD's summary of convictions recorded and fines imposed during the above period is as follows:

December 2013

Thirty-one convictions were recorded in December 2013 for breaches of legislation enforced by the Environmental Protection Department.

Eleven of the convictions were under the Air Pollution Control Ordinance, 7 under the Noise Control Ordinance, 11 under the Waste Disposal Ordinance and 2 under the Water Pollution Control Ordinance.

The heaviest fine in December was \$120,000, assessed respectively against two companies that carried out prescribed construction work not in accordance with the conditions of a construction noise permit.

January 2014

Twenty-five convictions were recorded in January 2014 for breaches of legislation enforced by the Environmental Protection Department.

Three of the convictions were under the Air Pollution Control Ordinance, 14 under the Noise Control Ordinance, 7 under the Waste Disposal Ordinance and 1 under the Water Pollution Control Ordinance.

The heaviest fine in January was \$50,000, assessed against a company that caused another person to import controlled waste without a permit.

February 2014

Thirty-eight convictions were recorded in February 2014 for breaches of legislation enforced by the Environmental Protection Department.

Ten of the convictions were under the Air Pollution Control Ordinance, 9 under the Noise Control Ordinance, 1 under the Product Eco-responsibility Ordinance and 18 under the Waste Disposal Ordinance.

The heaviest fine in February was \$30,000, assessed against a company that failed to comply with the requirements of a noise abatement notice.

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