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The 2016/2017 Fred Kan & Co. Award was jointly awarded to the authors of dissertations submitted in the M. Sc. (Environmental Management) course at the University of Hong Kong. In this edition we review one of those dissertations: *Carbon tax in Hong Kong – policy compatibility and public's willingness to pay.*

The Editors

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COULD WE HAVE A CARBON TAX IN HONG KONG?

Lo Hei Lam's dissertation – submitted for the M. Sc. (Env. Man.) degree at the University of Hong Kong (2016/2017) – has the title: *Carbon tax in Hong Kong – policy compatibility and public's willingness to pay*. The dissertation examines the realities of introducing a carbon tax (**CT**) in Hong Kong to help reduce emissions of greenhouse gases (**GHG**).

The objectives, methodology and conclusions of the dissertation are best summarised by quoting the Abstract:

"*Climate change is an imminent threat to human beings and Hong Kong is among the cities that are most prone to sea level rise. One of the obstacles to wide adoption of low-carbon goods and services is the externalised social and environmental cost of greenhouse gases emissions. Aiming to internalise these costs, carbon tax has been implemented in various countries. This paper examines the compatibility of carbon tax with the political, policy and tax regime of Hong Kong through literature review, and assesses the public willingness to pay for carbon tax by conducting questionnaires. Overall, carbon tax aligns with the "appropriately proactive" policy approach that is currently pursued by the government. When revenue recycling mechanism is properly designed, carbon tax does not necessarily undermine the advantage of simple and low taxation system of Hong Kong. Carbon tax can also fill in the gaps of the existing economic incentives to benefits all low-carbon goods and services. Considering the existing political system, securing buy-in from the business sector would be vital to a successful implementation of carbon tax. As Hong Kong proceeding towards universal suffrage, public support will gain more importance as well. The questionnaire result reveals that the mean public willingness to pay was at HK$4.525 per HK$100 spending. However, a significantly lower willingness to pay was found among the respondent groups that were parents of any children or aged 54 or above. A positive correlation was also identified between the level of environmental knowledge and willingness to pay. These findings suggest that while carbon tax is compatible with the policies of Hong Kong, business and public concerns should be addressed when the government devises the scope and revenue recycling mechanism of carbon tax. A regular review and monitoring mechanism is also crucial to assure the long term success of carbon tax.*"

Climate change and Hong Kong

The underlying incentive for the government to consider introducing a CT is, of course, the twin world-wide environmental disasters of global warming and consequential climate change.

There is overwhelming scientific evidence and opinion that GHG emissions are a substantial causative factor in global warming and climate change, which affect all parts of the world, including Hong Kong. There is no need, therefore, to dwell on the evidence. As the author states:

"*Taking the findings of the Fifth Assessment Report published by the Intergovernmental Panel on Climate Change into account, the Hong Kong Observatory (2016) analysed the climatic data and estimated that in the 21st century, climate change will impose the following impacts on Hong Kong:*

- *More hot nights and very hot days, with less cold days*

- *Significant increase in number of extremely wet years with same number of extremely dry years*
- *Increased intensity of extreme rainfall*
- *Sea level rise*
- *Increased frequency of storm surges and severe flooding in association with tropical cyclones*"

Climate change and energy sources

Electricity generation is one of the two major sources of GHG, the other being transportation. Changing to less polluting forms of energy generation has to date been hampered by their relatively high "levelised cost of electricity" (**LCOE**) which is "*a metric to compare the economic competitiveness of different energy generation technologies by calculating the average cost of building and operating the plant and the transmission cost over its assumed life cycle*".

An informative table of comparative LCOEs was compiled by the author:

Plant Type	**Average Total LCOE**
Conventional Coal	95.1
Advanced Coal	115.7
Advanced Coal with Carbon Capture & Sequestration (CCS)	144.4
Natural Gas: Conventional Combined Cycle	75.2
Natural Gas: Advanced Combined Cycle	72.6
Natural Gas: Advanced Combined Cycle with CCS	100.2
Advanced Nuclear	95.2
Geothermal	47.8
Biomass	100.5
Wind: Onshore	73.6
Wind: Offshore	196.9
Solar PV	125.3
Solar Thermal	239.7
Hydroelectric	83.5

Lo notes that: "*In the climate change context, there has been over-exploitation of the natural carbon sequestration capacity owing to the absence of an effective carbon pricing mechanism. The gaps between the real social cost and the private cost currently paid by the producers and consumers are enormous*."

The price gap between renewable energy sources and fossil fuels is further exacerbated by subsidies to the fossil fuel industry provided by many governments.

Carbon tax (pricing) scheme

The purpose of a CT is to "*internalise the social and environmental costs of GHG emissions into all daily economic activities*". The simple (and indisputable) fact underlying the (urgent) need to recognise external environmental costs of human activities – especially generation of electricity and transportation of goods and people – is that until now governments and communities have not faced up to the reality that such costs have been and are being paid daily by communities.

So the rationale of a CT is to "make the polluter pay" for his contribution to global warming.

A CT is not the same as a carbon pricing/trading scheme, although their objectives are identical. The author explains: "*Although it was smaller than the coverage of emission trading system (ETS) (8%), carbon tax has its unique features that fit the political and economic landscapes of Hong Kong. A carbon tax scheme will impose a fixed price on carbon, at which the GHG emitters need to pay for their GHG emissions to the government. While emission trading allows a cap on the emission amount and makes the reduction effort more certain, carbon tax can be more cost effective, due to its ease of implementation. Moreover, carbon tax does not require a liquid carbon trading market supported by related trading infrastructures to be established. A diverse economic structure is instrumental in maintaining a proper level of carbon trading liquidity. Only when the market is liquid, there will be stronger incentives for the private sectors to support the research and implementation low-carbon or even carbon adsorbing measures, as they can then sell the carbon credits and fund such projects. Therefore, high liquidity is essential in making ETS an effective instrument to stimulate low-carbon innovations, and carbon tax can be more suitable for economy of low diversity.*"

GHG emissions reduction in Hong Kong

In 2010 Hong Kong set a target of reducing GHG emission by 50%-60% from 2005 levels by 2020, which equates with a 19%-33% absolute reduction.

However, the government has responded to public pressure to adopt a more aggressive target. The latest *Climate Action Plan 2030+* announced a bolder 26%-36% absolute reduction target. Lo notes that implementation of a CT would be a valuable addition to the raft of pollution – reduction measures the government has implemented (albeit slowly and less than robustly) to date.

Public acceptance of a CT

The author obtained from the public 180 responses to a questionnaire designed to establish the level of public environmental knowledge and, more particularly, their "willingness to pay" (**WTP**) for a CT scheme. The dissertation contains extensive analysis of these responses, which time and space do not allow us to review in detail.

The author opines that an environmental policy has no chance of succeeding if it does not have public support. Hong Kong has already introduced modest schemes to reduce our environmental footprint – such as the plastic bag levy – which have survived due to support from a majority of the public; e.g. a survey in 2007 found that 66% of people supported the plastic bag levy.

The author's CT survey produced different results for different demographics: e.g. education level, age, income. There was also a significantly higher acceptance of a CT where the revenue was directed to environmental or social causes. There were also "*positive correlations between their level of environmental knowledge and WPT...*".

The survey responses also varied according to propositions for imposing a CT:
(i) on only local production/activities: less support;
(ii) on imported goods/services of as well as local industries: more support;
(iii) on entire industries or selected components of industries: more support for selective application of the CT.

In short, the survey responses indicated that:
(i) only 2.8% of respondents were unwilling to pay any carbon tax;
(ii) 13.3% did not agree with imposing a CT in Hong Kong; and
(iii) the mean per unit WTP was approximately HK$4.50.

Based on this rather limited survey, it can be concluded that there is general public support for a CT in Hong Kong.

Results of the "environmental knowledge" part of the survey indicate an alarming (but not really surprising) general lack of awareness of "*environmental issues and works*".

Implication of a CT

The author l compares a CT with the government's various measures to avoid a "housing bubble".

"*In fact, carbon tax is designed to be a market intervention instrument to rectify the market failure of externalising the social and environmental cost of GHG emission. Prior to imposing any carbon pricing mechanism, producers and consumers can participate in economic activities without bearing the cost of GHG emission. Since Hong Kong is prone to the threat of sea level rise brought by climate change, the government is in a critical and essential position to address externalization issue.*"

The considerable influence of big business is recognised by Lo (a sad reality), and he suggests, therefore, to "*alleviate the expected objection from businesses and public, carbon tax can be introduced as a revenue – neutral tax by returning the revenue through salaries and profit tax cut(s)*". However, inevitably a CT will "*increase the complexity of Hong Kong's taxation system, especially around the issues of how and on what goods or companies carbon tax will be imposed on*". Thus, a significant implication of a CT would be some diminution of Hong Kong's reputation as "*one of the freest economy (sic) in the world*".

However, Lo again observes that a CT would be more effective in reducing our GHG emissions and improving Hong Kong's environmental performance" than a "tradable permit system". A CT is required as an essential component of Hong Kong" nudges and hugs" approach to driving "*people behaviour changes towards decisions that would result in better (environmental) outcomes*".

Conclusion

The author makes several key points in concluding the dissertation, including the following:

- A CT "*could internalise the negative externalities of GHG emissions and promote the adoption of low-carbon goods and services*".
- A CT "*does not violate the government's policy approach of being appropriately proactive*".
- "*While there have already been some economic incentives programmes offered by the government to promote low-carbon related goods and services, carbon tax can fill in the gaps and extend the coverage to all sorts of low-carbon goods and services.*"
- The survey conducted as part of this study "*has shown a positive public WTP at HK$4.525 per each HK$100 spending for carbon tax, indicating a positive sign for future implementation*".
- "*Due to the influential power of businesses, and, in the future, public over the political system, it is recommended to take their needs into account when defining the scope of carbon tax and formulating the revenue recycling mechanism. Yet this should not be done by sacrificing the efficacy of carbon tax.*"
- The government should consider imposing a CT on categories of goods that are produced or traded in high volumes and are carbon-intensive.
- As domestic exports and re-exports account for only a small portion of GHG emissions, and "*considering the potential repulsion from business and the public*", the CT should not apply to exports.
- Revenues generated by the CT should be applied to assisting low-income families and financing environmental protection programmes.
- The study did not attempt to determine the appropriate rate for a CT.

TOWN PLANNING

Draft Hung Lung Hang Outline Zoning Plan approved

On 15 December 2017, the Chief Executive in Council approved the draft Hung Lung Hang Outline Zoning Plan (OZP).

The planning scheme area, covering an area of about 376 hectares, is located to the northeast of Fanling/Sheung Shui New Town and bounded by San Wai Barracks to its southeast, Ping Che and Ta Kwu Ling to its northeast, Man Kam To to its north and Sha Ling to its northwest. The San Wai/Tai Ling Firing Range used by the military is located at the southwestern part of the Area but is not included in the plan.

The general planning intention for the Area is to conserve the natural landscape, to maintain the rural character of the Area and to retain both active and fallow agricultural land for agricultural uses. It is also intended to designate land for village development and expansion to meet the needs of the indigenous villagers.

Specific zones are:-

(1) 7.04 hectares are zoned "Village Type Development".
(2) 1.06 hectares are zoned "Government, Institution or Community".
(3) 121.20 hectares are zoned "Agriculture" to retain and safeguard good quality agricultural land, farm and fish ponds for agricultural purposes, as well as to retain fallow arable land with good potential for rehabilitation for cultivation and other agricultural purposes.
(4) 243.84 hectares are zoned "Green Belt" to conserve the natural environment and amenity of the area, define the limits of urban and sub-urban type development by natural features and contain urban sprawl, as well as provide passive recreational outlets for the enjoyment of the community. There is a general presumption against development within the zone.

[*Town Planning Board Press Release*, 15/12/2017]

Draft Kowloon Tong Outline Zoning Plan approved

On 15 December 2017, the Chief Executive in Council approved the draft Kowloon Tong Outline Zoning Plan (OZP).

The planning scheme area, covering an area of about 238 hectares, is bounded by Boundary Street to the south, Lion Rock Country Park to the north, and the Mass Transit Railway East Rail Line to the west. To the east, the boundary generally follows the alignments of Junction Road and Grampian Road.

Specific zones are:

(1) 0.25 hectares are zoned “Commercial (2)” for eating places, shop and services facilities and offices to meet local needs.
(2) 1.22 hectares are zoned "Comprehensive Development Area" which covers a site at Inverness Road that has been developed into a residential development and a non-standard school.
(3) 76.32 hectares are zoned “Residential (Group C)” (“R(C)”) for low to medium-rise, low-density residential developments.
(4) 40.47 hectares are zoned “Government, Institution or Community” (“G/IC”).
(5) 31.12 hectares are zoned “Open Space” to serve the needs of local residents as well as the general public.
(6) 39.24 hectares, covering the steep hillsides in the area, are zoned “Green Belt” for the conservation of the existing natural environment amid the built-up areas/at the urban fringe, to safeguard it from encroachment by urban-type development, and to provide additional outlets for passive recreational activities.

[*Town Planning Board Press Release*, 15/12/2017]

Draft Cheung Sheung Outline Zoning Plan approved

On 19 January 2018, the Chief Executive in Council approved the draft Cheung Sheung Outline Zoning Plan (OZP).

The planning scheme area, covering a total area of about 18 hectares, is located at the centre of Sai Kung West Country Park, on an upland plateau about 300 metres above sea level, surrounded by ridges and spurs. Given that it is a Priority Site for Enhanced Conservation under the New Nature Conservation Policy and is located within the upper indirect water gathering ground, the general planning intention of the area is to protect its high conservation and landscape value which complements the overall naturalness and the landscape beauty of the surrounding country park. It is also intended to consolidate village development so as to avoid undesirable disturbance to the natural environment and overtaxing the limited infrastructure in the area.

Specific Zones are:-

(1) 0.03 hectares are zoned “Village Type Development” for village expansion.
(2) 13.7 hectares are zoned “Green Belt” to provide a buffer between the village-type developments and Sai Kung West Country Park.
(3) 4.27 hectares are zoned “Conservation Area”.

[*Town Planning Board Press Release*, 19/01/2018]

Draft Tai Po Kau Outline Zoning Plan approved

On 19 January 2018, the Chief Executive in Council approved the draft Tai Po Kau Outline Zoning Plan (OZP).

The entire planning scheme area, covering a total land area of about 11.75 hectares, is zoned “Conservation Area”. The planning scheme area consists of two country park enclaves, namely a site near Ngau Wu Tok and a site near Tai Po Mei, and is encircled by the Tai Po Kau Nature Reserve (TPKNR) nestled between Sha Tin and Tai Po.

The general planning intention of the Area is to protect its high conservation and landscape value which complement the overall naturalness and the landscape beauty of the surrounding TPKNR, which was designated as a Special Area comprising a long-established forestry plantation.

[*Town Planning Board Press Release*, 19/01/2018]

Draft Lok Ma Chau Loop Outline Zoning Plan Approved

On 9 February 2018, the Chief Executive in Council approved the draft Lok Ma Chau Loop Outline Zoning Plan (OZP) to guide the development and redevelopment in the Lok Ma Chau Loop area.

The Planning Scheme Area (the Area) of the OZP, covering about 104 hectares, is located in a transition zone between highly urbanised commercial/residential development in Shenzhen and rural hinterland of Hong Kong. It is bounded by the bank of Shenzhen River in the northwest, fishponds of Hoo Hok Wai in the northeast, Lok Ma Chau and Tai Law Hau in the south, the Lok Ma Chau Control Point and the Lok Ma Chau Spur Line Control Point in the southwest, and the Mai Po Nature Reserve further southwest.

Specific Zones are:-

(1) 1.23 hectares are zoned “Commercial”.
(2) Four sites with a total of about 3.95 hectares are zoned “Government, Institution or Community” for the development of two electricity substations, two district cooling systems, possible boundary crossing facilities, police facilities and a sub-divisional fire station cum ambulance depot.
(3) 18.18 hectares are zoned “Open Space” to provide outdoor open-air public space for active and/or passive recreational uses.
(4) 16.34 hectares are zoned “Conservation Area”.
(5) 53.49 hectares are zoned “Other Specified Uses” for specific development(s) and/or uses including: research and development; education, cultural and creative industries; an ecological area; and sewage treatment works.

[*Town Planning Board Press Release*, 09/02/2018]

Approved Ma Tau Kok Outline Zoning Plan amended

On 9 March 2018, the Town Planning Board announced amendments to the approved Ma Tau Kok Outline Zoning Plan (OZP).

The amendments mainly involve:-

(1) changing the building height restriction of a “Government, Institution or Community” (“G/IC”) site at Lung Kong Road from five and eight storeys to 60 metres above Principal Datum;
(2) the rezoning of a site at the junction of Ko Shan Road and Shansi Street mainly from “G/IC” to “Residential (Group A)3” for public housing development; and
(3) various amendments to reflect the latest planning circumstances.

[*Town Planning Board Press Release*, 09/03/2018]

WEST KOWLOON CULTURAL DISTRICT

The 68th Board Meeting of West Kowloon Cultural District Authority

The Board of the West Kowloon Cultural District Authority (WKCDA) held its 68th meeting on 30 January 2018.

During the meeting, it was reported that the Xiqu Centre project has been substantially completed. The opening is expected to be held by the end of 2018. It was observed that the external lighting gives a wonderful artistic shadow effect flowing all over the unique curving façade and the fins of the building at night.

Regarding the M+ building, pre-cast tiled panels have been installed around the podium and tower structures, in addition to other architectural finishes.

Approximately 750 trees and thousands of bushes and shrubs have been planted in the Phase 1 area for the Art Park project. The promenade within this area will be open soon.

Internal fit-out works of the Freespace building are being undertaken; the building is expected to be ready for occupation in early 2019.

Third stage construction works for the integrated basement for West Kowloon Cultural District has been approved by the Finance Committee of the Legislative Council on 5 January 2018. WKCDA will therefore focus on putting the superstructure stage of the Lyric Theatre Complex out to tender in the next few weeks.

The 69th Board Meeting of West Kowloon Cultural District Authority

The Board of the West Kowloon Cultural District Authority (WKCDA) held its 69th meeting on 22 February 2018.

Members were told that approximately 900 trees have been planted in Phase 1 of the Art Park.. The Freespace remains on track to be completed this year and will be open to the public in the first quarter of 2019.

Regarding the M+ Project, it is anticipated that the first precast concrete façade panels with ceramic tiled finish will be installed in early March 2018. The main Gallery Level of the podium deck is now fully formed to the north and will be finished to the south over the coming months.

Construction of the Lyric Theatre Complex and relevant parts of the integrated basement project, continues. and is ahead of schedule for the excavation and installation of lateral supports. Tender documents for the superstructure works of the Lyric Theatre Complex will be issued in the next couple of weeks.

Overall completion of Xiqu Centre is at approximately 90% and it is currently undergoing statutory building inspections and will likely obtain the Occupation Permit in the near future.

Construction of the proposed pedestrian subway connection between Xiqu Centre and the MTR Austin Station will begin as soon as possible to avoid an impact on the operation of the Xiqu Centre.

HONG KONG BRIEFING

New air quality monitoring site

In order to track the extent of ozone pollution, Hong Kong is installing advanced air quality monitoring station to monitor ground-level ozone.

Unlike the ozone in the upper atmosphere, ground-level ozone causes respiratory illness, breathing problems and reduces lung function. The pollution is formed through complex chemical reactions between sunlight, volatile organic compounds (VOCs) and nitrogen oxides

The Environmental Protection Department stated that the advanced air quality monitoring station located at Cape D'Aguilar will monitor the real-time changes in VOCs and PM1 together with other pollutants that are not monitored at Hong Kong's existing stations. The EPD believes that the new air quality monitoring station will help researchers identify the origin of the problem, so we can take more practical measures to reduce ozone pollution.

[*SCMP*, 02/01/2018]

'Producer Pays' scheme to start in August

Hong Kong is implementing a "producer pays" scheme in August this year to reduce the amount of e-waste generated locally each year.

The relevant legislation, the *Promotion of Recycling and Proper Disposal (Electrical Equipment and Electronic Equipment) (Amendment) Ordinance* and the *Product Eco-responsibility (Regulated Electrical Equipment) Regulation*, was passed in 2016 and 2017 respectively.

As from 1 August, suppliers of air conditioners, refrigerators, washing machines, televisions, computers, printers, scanners and monitors have to provide free removal service for customers to dispose of customers' old model appliances.

The scheme also required suppliers to pay for the collection, handling and disposal of old, unwanted appliances. The charges were fixed at HK$165 per item for television sets and refrigerators, HK$125 for washing machines and air-conditioning units, HK$45 for monitors, and HK$15 for computers, printers and scanners.

[*SCMP*, 23/02/2018]

New tax arrangement for electric vehicles

In conjunction with the 2018-19 Budget Speech, the Environment Bureau announced new first registration tax arrangement for electric vehicles. The Environment Bureau will continue to waive the first registration tax for electric private cars up to $97,500 maximum waiver. They will also implement a new "One-for-One Replacement" Scheme until 31 March 2021, whereby private car owners who arrange to scrap and deregister their eligible fo0ssil fuel private car may enjoy a higher first registration tax concession of up to $250,000.

[*HK Government Press Releases*, 28/02/2018]

2018-19 land sales programme

A total of 27 sites, including 9 in Kai Tak, were announced to be part of the 2018-19 government land sales programme.

The Secretary for Development estimated that the 27 plots are capable to provide about 15,200 flats and that the private housing land supply. He also estimated that the private housing land supply from both public and private sectors to be capable of providing 25,500 flats.

The government's housing supply target for the coming 10 years is 460,000 units, of which 40 per cent will be for private housing.

[*The Standard*, 02/03/2018]

Pollution affects liveability

Air pollution levels have kept Hong Kong in 28th place for the third successive year on the list of the world's most liveable cities for Asian expatriates, according to a human resources advisory firm.

ECA regional director for Asia, Lee Quane, said Hong Kong is not only affected by serious air pollution, but health risks too. To illustrate his point, he cited the outbreak of SARS in 2003, and swine flu in 2009. "Hong Kong is well-known for its highly dense population and diseases spread easily," he said.

Although the SAR has not risen in the global rankings, it remains the most livable Chinese city for Asian expatriates, followed by Taipei in 65th place, Macau in 100th, and Beijing in 134th.

[*The Standard*, 14/03/2018]

Fire threatens bird habitat

Bird experts and green groups are urging the government to help restore the Nam Sang Wai marshland in Yuen Long following a devastating hill fire. Unless the area is rehabilitated, migratory birds like the little egret may not return to Hong Kong. The fire started on Nam Sang Wai mountain at 3 p.m. on 12 March 2018 and grew in intensity. It raged for 17 hours then appeared to have been extinguished at 8 a.m. on 13 March 2018. However, it flared again the next day, but was said to be under control nearly three hours later.

Police said initial investigations indicated nothing suspicious about the fire, but Democratic Party legislator Roy Kwong Chun-yu disputed that view .No one was hurt, but a vast range of trees and reed marshes were lost or damaged. So birds will not visit the area.Woo Ming-chuan, a senior conservation officer at the Hong Kong Bird Watching Society, said Mai Po and Nam Sang Wai are major nigh habitats for egrets, while about 30 to 60 percent of egrets around Deep Bay region stay in Nam Sang Wai."The fire and smoke affected and scared away the birds, which normally stay in the trees," she said.

Although many birds migrate from Hong Kong after the winter, Woo believes some egrets had not left. But with a large amount of reed marsh lost the birds will lose out as they forage for food."The size and habitat of the reed marshes in Nam Sang Wai is rare to find in Hong Kong and it has high ecological value," Wood added.

It was difficult to estimate how long it will take for the marshland to recover as it depended on summer rains, she said. And invasive plants taking root is a worry.

Kwong visited Nam Sang Wai yesterday and believes the cause to be questionable despite what police said."It's understood there were three fire start points all at the same time" he said. "It's very suspicious." Kwong noted that developers proposed to build a golf club and luxury homes at Nam Sang Wai in 2010, which led to a big protest. Since then, he added, there have been a series of unexplained incidents at Nam Sang Wai, including strange fires and trees being chopped down. The combination of incidents will lower the ecological value of the area, he said.

Nam Sang Wai has indeed seen several fires in recent year years. In December 2016 thousands of trees were lost, there was another blaze on 1 January 2011, and at least three fires hit the area in 2010.

[*The Standard*, 14/03/2018]

No need to export e-waste

The Environmental Protection Department estimated that Hong Kong would no longer need to export its electronic waste to Southeast Asia and Africa when the new recycling plant runs at full capacity.

Although the recycling plant will handle only 6,000 tonnes of waste this year, it is designed to process 30,000 tonnes of e-waste per year, which can be increased to 57,000 tonnes, if the facility extends its operating hours. Alba Integrated Waste Solutions (Hong Kong), the operator of the plant, has said that they are required under the contract to reach the annual capacity of 30,000 tonnes within the next three years.

[*SCMP*, 16/03/2018]

ADVISORY COUNCIL ON THE ENVIRONMENT (ACE)

Summary of Minutes of the 229th Meeting of the ACE held on 5 February 2018

The main item of the meeting was to update members on the progress of the *Hong Kong Biodiversity Strategy and Action Plan* (BSAP) 2016-2021.

Dr Jackie Yip, of the Agriculture, Fisheries and Conservation Department (AFCD) briefed members on the major achievements under the four key action areas of BSAP since 2016, namely: (1) enhancing conservation measures; (2) mainstreaming biodiversity; (3) improving our knowledge and (4) promoting community involvement.

In relation to the progress update on specific actions under the BSAP, Dr. Yip reported that 47% of sewerage construction works in the targeted unsewered villages/areas were completed and that the government expected the works to be 100% completed by 2021.

The AFCD reported that joint operations had been conducted by the AFCD, the Customs and Excise Department and the Hong Kong Police Force to combat smuggling of shark fin products and ivory and illegal felling of incense trees.

In relation to the support for biodiversity, Dr Yip reported to members that the AFCD had provided specimens to, and exchanged information on biodiversity conservation with, local universities to help promote biodiversity. In response to the recommendation that the government consider providing financial support and collaborating with these universities to organise seminars for secondary school students and/or the public, Dr Yip replied that the Environmental Education and Community Action Projects of the Environment and Conservation Fund had been supporting education institutions and green groups to organise educational programmes and activities that increase community awareness on environmental issues.

Dr Yip also noted that many of the reported 67 specific activities involving the community were led by AFCD. A member suggested that stakeholders, including property developers, should also be encouraged to promote biodiversity conservation, which may improve their corporate image. Another member suggested that the government should promote urban greening to help the public appreciate the value of nature conservation.

Members also discussed the concept of urban biodiversity. A member appreciated the work of AFCD in promoting urban biodiversity and suggested that the concept of biodiversity shall be featured in the design of public housing developments and new development area (NDA) projects. In response, Dr. Yip said that the AFCD would collaborate with the relevant government departments such as the Greening, Landscape and Tree Management Section of the Development Bureau, to provide directives in long-term sustainable urban landscape development. He added that the government has co-operated with the BEAM Society, where parameters regarding biodiversity were incorporated in the BEAM Plus Neighbourhood assessment tool.

However, in relation to mainstreaming biodiversity, a member noted that the Urban Forestry Advisory Panel had been making little progress and that the discussion had largely remained on a conceptual level without initiation of firm plans and measures. He suggested that the AFCD should facilitate the mainstreaming work within the relevant government departments, such as looking into the common problems encountered by projects and promulgating design guidelines.

ACE Paper for discussion on 5 March 2018

This paper informed members of the proposal to tighten statutory emission standards for newly approved non-road vehicles under the *Air Pollution Control (Non-road Mobile Machinery) (Emission) Regulation* (Cap 311Z) (the Regulation).

As at the end of January 2018, there were over 45,600 non-road mobile items of equipment in Hong Kong (including 11,870 non-road vehicles). Out of the 11,870 non-road vehicles, about 9,200 were special purpose vehicles ; these include pump trucks and crane trucks etc.. Most of the remaining non-road vehicles were mainly used in the airport and container terminals. The Regulation aims to tighten emission standards for newly approved non-road vehicles, so that they will comply with the latest statutory vehicle emission standards for newly registered road vehicles.

CLIMATE CHANGE

Sea level rise is accelerating

A new study based on the past 25 years of NASA and European satellite data has revealed that the rate of global sea level rise has been accelerating in recent years. This acceleration has been caused by increased melting of ice in Greenland and Antarctica.

Researchers estimated that the acceleration might double the total sea level rise projected by 2100, as the projections assumed a constant rate of sea level increase. Accordingly, if the rate of ocean rise continues to increase, the sea level will rise by 65 centimetres by 2100, which will cause significant problems for coastal cities.

[*NASA* 13/02/2018]

More cities powered by renewable energy

A not-for-profit environmental impact researcher has calculated that the number of cities predominantly powered by renewable energy has doubled since 2015. More than 70% of the electricity of more than 100 out of 570 cities was sourced from renewable sources, compared to 42 cities in 2015. The research also found that 43 cities were entirely powered by clean energy.

[*The Guardian*, 27/02/2018]

Is snow becoming rarer?

Although Mediterranean islands such as Corsica and Capri have seen their first snowfall in years, a report from the UK Natural Environment Research Council concludes that in some places snow is actually getting rarer. The report reveals that Merseyside had about 20 to 30 days of snow falling each year in 1961-1990, but the number of days of snow falling has been reduced to about 10 to 20 days per year in 1981-2010.

However, the Intergovernmental Panel on Climate Change found that in some cases higher temperatures have actually led to more snow. For example, there has been a large increase in the amount of snow-fall in the Great Lakes of North America. Researchers commented that this may be caused by more evaporation of

ice on the lakes in recent winters.

[*BBC*, 01/03/2018]

Northern permafrost may unleash carbon within decades

A new NASA-led study has established that the permafrost in the Arctic will become a permanent source of carbon to the atmosphere in this century. Permafrost is soil that has remained frozen for centuries and contains carbon-rich organic material, such as plants, that froze without decaying. As the air temperatures of the Arctic are rising, permafrost continues to thaw, resulting in the organic materials decomposing and releasing carbon dioxide to the atmosphere.

Researchers estimated that the carbon dioxide emissions from permafrost over the next 300 years will be 10 times as much as all-human produced fossil fuel emissions in 2016, if thawing continues. The research also revealed that the colder region would transition as a result of increased average temperatures sooner than warmer ones.

[*NASA*, 05/03/2018]

Arctic's warmest winter

The Arctic has just finished its warmest winter on record. And sea ice hit record lows for this time of year, with plenty of open water where ocean water normally freezes into thick sheets of ice, new US weather data shows. Scientists say what is happening is unprecedented and is part of a global warming-driven vicious cycle that likely plays a role in strong, icy storms in Europe and the US Northeast.

It's been so unusually warm that the land weather station closest to the North Pole – at the tip of Greenland – spent more than 60 hours above freezing in February. Before this year, scientists had seen the temperature there rise above freezing in February only twice before, and only ever so briefly.

Across the Arctic Circle in Barrow, Alaska, February was 10 degrees Celsius warmer than normal and the entire winter averaged 7.8 degrees Celsius anove normal. Of nearly three dozen Arctic weather stations, 15 were at least 5.6 degrees above normal for winter, according to data from Brian Brettschneider of the International Arctic Research Centre at the University of Alaska Fairbanks.

Meteorologists consider December, January and February to be winter, and Arctic weather stations averaged 4.9 degrees warmer than normal for the season that just ended. The air above the Chukchi and Bering seas near Alaska averaged about 11 degrees warmer than normal for February, the data centre reported.

In February, Arctic sea ice covered 13.9 million sq km, about 160,000 sq km less than last year's record low, the ice data centre said on Tuesday. Sea ice coverage in February also was 1.4 million sq km below the 30-year normal – an area about the size of the Mongolia.

In the winter, sea ice "acts as a lid to keep the warmth of the water at bay" but when there is less sea ice, more heat goes into the air, Brettschneider said. "You end up with a vicious cycle of warm air preventing sea ice formation and lack of sea ice allowing warmth to escape into the air."

One scientific theory is that this is changing weather farther south and plays a role with extreme events, especially in winter. "The underlying disease that's causing this is getting worse," one scientist said, referring to heat-trapping gases from the burning of coal, oil and gas. "These are just the symptoms."

[*SCMP*, 08/03/2018]

Rising CO2 levels impair coral growth

A study of the Great Barrier Reef in Australia revealed that ocean acidification by carbon dioxide prevents the build up of calcium carbonate in corals. Although the rise in carbon dioxide levels does not directly kill corals in the way that bleaching does, such rise impairs the coral's growth and ability to repair and reproduce.

[BBC, 14/03/2018]

Forests could lose half of species as planet warms

The world's greatest forests could lose more than half of their plant species by the end of the century unless nations ramp up efforts to tackle climate change, a report on the impact of global warming on biodiversity hotspots has warned.

Mammals, amphibians, reptiles and birds are also likely to disappear on a similarly catastrophic scale in the Amazon and other naturally rich ecosystems in Africa, Asia, North America and Australia if temperatures rise by more than 1.5 degrees Celsius, concludes the study by WWF, the University of East Anglia and the James Cook University.

The research in the journal *Climate Change* examined the impact of three different levels of warming – 2 degrees (the upper target in the 2015 Paris agreement), 3.2 degrees (the likely rise given existing national commitments) and 4.5 degrees (the forecast outcome if emissions trends remain unchanged) on nearly 80,000 plant and animal species in 35 of the most bio-diverse regions.

If governments fail to set more ambitious commitments than those currently on the table, the report projects devastating losses of more than 60 per cent of plant species and almost 50 per cent of animal species in the Amazon at a temperature rise of 3.2 degrees.

If countries lift their efforts sufficiently to reach the 2 degrees goal, the outlook is improved – but still grim – but still more that 35 per cent of species would be at risk of local extinction in the region. If no anti-warming measures are implemented, the picture is apocalyptic, with a likely loss of more than 70 per cent of plant and reptile species and a more than 60 per cent decline of mammal, reptile and bird species in the Amazon. The picture was similarly alarming in southwest Australia and the Miombo woodlands in Africa. But nowhere among the selected 35 hotspots would escape massive losses of wildlife.

Fewer plants can mean less rain, according to studies on the role played by the Amazon. More pressing risks – such as habitat loss from land clearance and pollution – were not taken into account.

William Laurance, director of the Centre for Tropical Environmental and Sustainability Science, said: "The report is scary as hell. The loss of half or more of the region's stunning plant diversity would be a biological blow of almost unimaginable severity."

[*The Guardian*, 15/3/2018]

Climate change will cause mass migration

A report released by the World Bank estimates that more than 140 million people in just three regions of the developing world are likely to migrate within their countries between now and 2050. According to the study, 86 million people in sub-Saharan Africa are expected to migrate, while the numbers in south Asia and Latin America are 40 million and 17 million respectively.

To deal with the problem, the World Bank recommended that governments accelerate their reductions of greenhouse gases, incorporate climate change mitigation measures into their national development planning and invest in additional data and analysis for use in planning developments.

[*The Guardian*, 19/03/2018]

REGIONAL & INTERNATIONAL

CHINA

Shenzhen will launch the"China-EU Blue Industry Park"

China and the European Union have begun joint work on launching the "China-EU Blue Industry Park" in Shenzhen, Guangdong province. The Park is intended to facilitate international cooperation in marine industries and improve scientific and technological research concerning marine resources.

The plan was announced at the 2017 China-EU Blue Industry Cooperation Forum which was held in Shenzhen in early December 2017. Hosted by China's State Oceanic Administration, the event is the first of its kind to be organised by China and EU, attracting nearly 300 Chinese officials, experts and company executives as well as more than 60 EU representatives.

Over the last few years, China and the EU have been making joint efforts in promoting environmental protection, and science and technology research, as well as developing disaster prevention and relief mechanisms for marine sectors. The European side will spread information on the Park among European enterprises and research entities with high-value products or advanced technologies involved in marine industries, and will also recommend suitable partners to the Park.

Land reclamation for the "China-EU Blue Industry Park" is underway in Baoan district and is to be completed in approximately 2020. By 2025, the Park will be fully operational, according to the Shenzhen Urban Planning and Design Institute, which designed the 1 square kilometre park.

Plans call for the demonstration programme to take advantage of Europe's expertise in high-end intelligent marine equipment and Shenzhen's high-tech manufacturing capacity to develop deep sea submersibles, seabed robots and marine mineral exploitation devices for the international market. The programme will also combine their know-how in new marine energy, marine ecological protection and databases to strengthen their capability and competitiveness in the global market.

[*China Daily (Hong Kong Edition), 09/12/2017*]

Chengdu to become "National Central City" of China

Chengdu, capital of Southwest China's Sichuan province, is aiming to develop itself into a National Central City by 2020, and eventually plans to become a sustainable world city by 2050, according to a draft planning document. "National Central Cities", a concept first proposed in 2005, are metropolises meant to lead, develop and perform tasks on a large and effective scale in political, economic and cultural areas.

The plan for Chengdu was drafted in August 2017 as a pilot project of the Ministry of Housing and Urban-Rural Development of the PRC. According to the plan, Chengdu also wants to develop into a world-class garden city. The metropolitan area, comprising the city's downtown, satellite cities and suburbs, will eventually reach a size comparable to leading global counterparts such as New York, Tokyo and Paris. To make the city greener, Chengdu plans to establish the world's largest urban forest park and China's longest walking greenway system.

In terms of industrial development, Chengdu will focus on financial and commercial businesses, cultural communications, innovation and tourism. To achieve these goals, Chengdu will transfer low-end manufacturing operations, wholesale markets and logistics storage facilities out of the city limits.

[*China Daily (Hong Kong Edition), 08/03/2018*]

Ecological watchdog faces uphill battle

China has moved to strengthen the role of its environmental watchdog as it continues its uphill battle to tackle widespread ecological degradation and pollution. The move to set up the ministry of ecological environment – a decade after the first full environmental ministry was established – was hailed by state media as a significant step towards boosting the power of the watchdog and cutting regulatory overlap after President Xi Jinping identified the battle against pollution as one of his priorities.

But environmentalists and former government officials were not impressed and sounded a note of caution about the impact of such a shake-up without accompanying measures to tackle the structural problems that stand in the way of meaningful reform.

The new watchdog, announced as part of yesterday's government overhaul, will absorb most of the functions of the existing environmental ministry and will also take on a variety of pollution monitoring and reduction roles previously carried out by government bodies such as the National Development and Reform Commission (NDRC), as well as the ministries of water resources, agriculture and land and resources.

The new ministry will continue the task of mapping environmental policies and fighting air and water pollution. It will also tackle maritime pollution, a task formerly carried out by the State Oceanic Administration. It will also have responsibility for combating global warming, which will include international climate negotiations.

A ministry to manage the country's natural resources will also be created, replacing the land and resources ministry. This ministry will incorporate many planning and surveying functions formerly done by the NDRC and the ministries of agriculture, water resources and housing and urban-rural development. It is also expected to oversee the maritime watchdog and the forestry administration, with a remit that has been expanded to cover World Heritage Sites, natural reserves and national parks.

The latest reforms reflect a sea -change in public attitudes towards pollution control, which has been a major source of public dissatisfaction and social unrest over the past four decades.

Wang Yongchen, a Beijing-based environmentalist, said it remained to be seen if the measures would succeed without a detailed implementation plan.

[*SCMP*, 14/03/2018]

AUSTRALIA

Turnbull unveils A$30m fund for ASEAN smart cities

Australian Prime Minister Malcolm Turnbull has announced an A$30 million investment fund to support "smart cities" in South-east Asian countries, as he hosts ASEAN leaders for a special summit in Sydney on 17 March 2018.

The initiative will set up a knowledge bank of sustainable urban planning ideas to be shared between ASEAN and Australia. ASEAN countries are experiencing fast growth in "smart city business", as populations in the big cities are increasing quickly, with high demand for security technology and solutions to traffic congestion problems.

Turnbull considers Singapore an outstanding example of urban planning as it applies many advanced technologies, like touchscreen, e-commerce and digital currencies.

[*The Straits Times (Singapore), 18/03/2018*]

FRANCE

Chanel's 'green' fashion show

Karl Lagerfeld created a spectacular midwinter wood for his Paris catwalk – but immediately fell foul of environment activists who accused him of chopping down century-old trees for the show. The veteran German creator turned the Grand Palais into a forest, with tonnes of dead leaves strewn on mirrored steps and nine tall mossy trees embedded in the middle of its vast nave. Trees had also been chopped down for the rows of benches for his guests.

The France Nature Environment group later condemned the show as "heresy", accusing the luxury brand of trying to "give itself a more green image which is completely divorced from the reality of protecting nature". It said that whatever point Chanel was trying to prove with the show "had failed", adding: "Nature is not chopping down trees in a forest, putting them up for a few hours for a show and then throwing them into a skip."

The brand – whose PVC-themed collection last year raised eyebrows at a time when plastic polluting was hitting the head-lines – should be "setting an example", the group said.

[*SCMP*, 08/03/2018]

This Quarterly Report does not constitute legal advice given on any particular matter. Whilst all effort has been made to ensure completeness and accuracy at the time of publication, no responsibility is accepted for errors and omissions. Further information and enquiries in respect of this quarterly should be directed to Fred Kan & Co.

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Convictions under environmental legislation: January to March 2018

[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:

January 2018

Seventy-seven convictions were recorded in January 2018 for breaches of legislation enforced by the Environmental Protection Department.

Thirteen of the convictions were under the *Air Pollution Control Ordinance*, 2 were under the *Dumping at Sea Ordinance*, 11 were under the *Noise Control Ordinance*, 49 were under the *Waste Disposal Ordinance*, and 2 were under the *Water Pollution Control Ordinance*.

The heaviest fine in January was $30,000, assessed against a company and a person respectively for importing controlled waste without a permit.

February 2018

Fifty-eight convictions were recorded in February 2018 for breaches of legislation enforced by the Environmental Protection Department.

Eight of the convictions were under the *Air Pollution Control Ordinance*, 4 were under the *Dumping at Sea Ordinance*, 4 were under the *Noise Control Ordinance*, 3 were under the *Product Eco-responsibility Ordinance*, 35 were under the *Waste Disposal Ordinance*, and 4 were under the *Water Pollution Control Ordinance*.

The heaviest fine in February was $25,000, assessed against a company for carrying out prescribed construction work in designated area without valid construction noise permit.

March 2018

Seventy-five convictions were recorded in March 2018 for breaches of legislation enforced by the Environmental Protection Department.

Ten of the convictions were under the *Air Pollution Control Ordinance*, 13 were under the *Noise Control Ordinance*, 1 was under the *Product Eco-responsibility Ordinance*, 48 were under the *Waste Disposal Ordinance*, and 3 were under the *Water Pollution Control Ordinance*.

The heaviest fine in March was $30,000, assessed against a company for improper disposal of clinical waste.

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